

Mix Master Chris Lord-Alge • Daft Punk in the Studio • Producer Mike Mangini

WWW.MIXONLINE.COM • OCTOBER 2001

MIX[®]

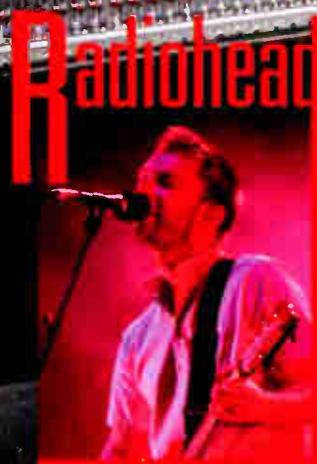
PROFESSIONAL AUDIO AND MUSIC PRODUCTION

NEW YORK **AES!**

Scratching With
URBAN PRODUCERS

Using/Abusing
WIRELESS

- AES31 File-Exchange
- 'The Producers' on Broadway
- NY Post Scene
- The Legendary Roy Halee



Technology Spotlights!

Lexicon
Neumann
Mackie
SNS

A PRIMEDIA PUBLICATION



DOLBY IS THE SOUND OF DVD



Dolby is proud to be part of the DVD-Audio (DVD-A) format. MLP Lossless and Dolby Digital used in the DVD-A specification allow music lovers to enjoy master-quality recordings at home while providing compatibility with every DVD-Video player and DVD-equipped computer worldwide. MLP Lossless packs DVD-A discs with the highest-quality sampling and bit rates on stereo and multichannel PCM tracks. Dolby Digital 5.1-channel audio added to the video region of a DVD-A disc allows consumers to play DVD-A discs on their DVD-Video systems.

For more information on our DVD-A technologies and our cost-effective DVD mastering solution, please visit our website.

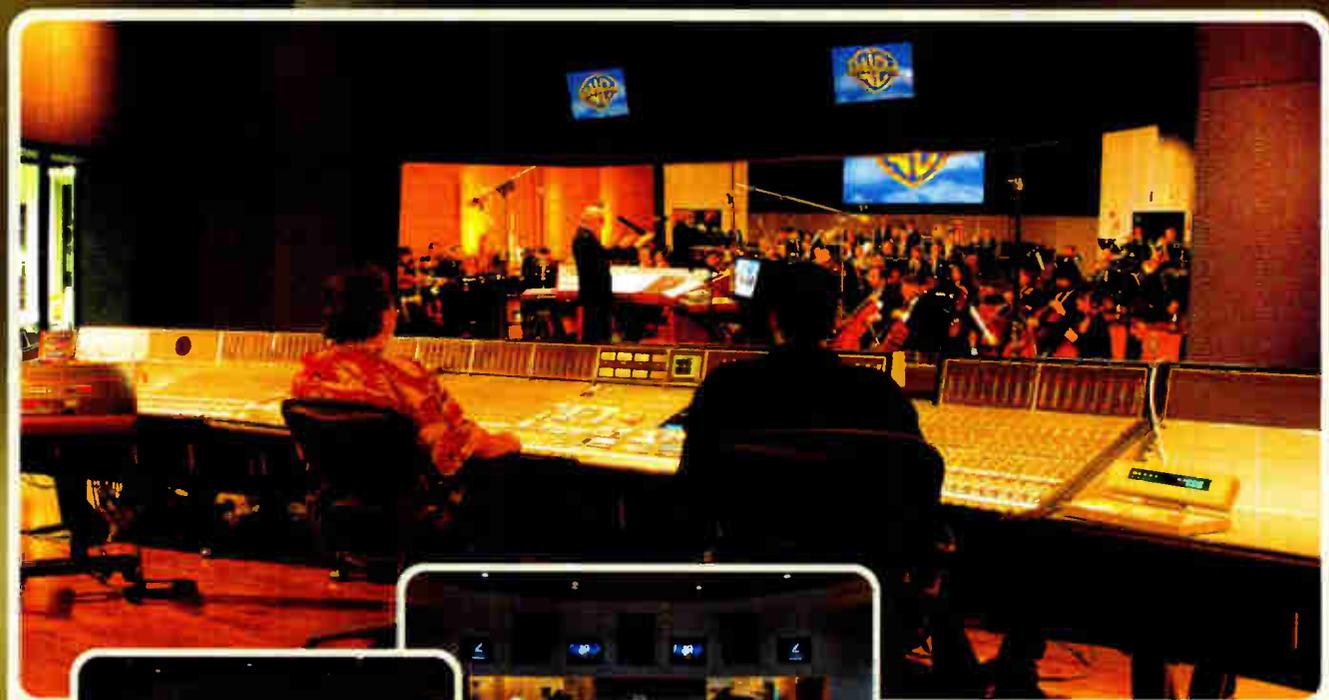
www.dolby.com/pro

 **Dolby**

BREAKING SOUND BARRIERS

Dolby Laboratories, Inc. • 100 Potrero Avenue, San Francisco, CA 94103-4813 • Telephone 415-558-0200 • Fax 415-863-1373
Wootton Bassett • Wiltshire • SN4 8QJ England • Telephone (44) 1793-842100 • Fax (44) 1793-842101 • www.dolby.com
Dolby and the double-D symbol are registered trademarks of Dolby Laboratories. MLP Lossless is a trademark of Dolby Laboratories. © 2001 Dolby Laboratories, Inc. S01/13864

Definitive Film Scoring



The Eastwood Scoring Stage At Warner Bros.



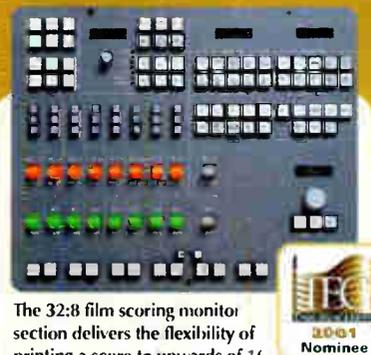
Twentieth Century Fox



O'Henry Sound Studios



Todd AO



The 32:8 film scoring monitor section delivers the flexibility of printing a score to upwards of 16 tracks for final mixing at the dubbing stage



New York
+1 (212) 315 1111

Los Angeles
+1 (323) 463 4444

Tokyo
+81 (0)3 5474 1144

Paris
+33 (0)1 3460 4666

Milan
+39 039 2328 094

Toronto
+1 (416) 659 7792

Singapore
+65 (0)438 2272

- Dynamic range that comfortably exceeds the specifications of 24-bit analogue to digital converters
- Bandwidth that extends nearly two octaves beyond a 96kHz digital recorder
- Surround-sound monitoring options for sophisticated multi-channel applications

No wonder the SL 9000 is the definitive film scoring console

Solid State Logic

SEE US AT AES BOOTH #418



SL 9000

International Headquarters: Begbroke, Oxford OX5 1RU, England

T: +44 (0)1865 242700 F: +44 (0)1865 842118 E: sales@solid-state-logic.com W: www.solid-state-logic.com

NEW MDR24/96

Non-linear 24-track / 24-bit hard disk recorder

\$1999* INTRO PRICE



Introducing the newest member of the Mackie hard disk recorder family!

NEW MDR24/96

- Plug-and-play recording
- 20Gb internal recording drive plus pull-out bay for removable M90 hard disks and Mackie Media Project ORBSM drives
- 24 Tracks and 192 Virtual Tracks for up to 100 minutes of continuous recording @ 48kHz
- 24 channels of 24-bit, 48kHz analog I/O included!
- Full Meter Bridge
- Transport Controls, Track Arm buttons, Locate and Loop
 - 100 BaseT Ethernet port
 - 3.5 inch drive bay for importing tempo maps and software upgrades
 - Sync to SMPTE, MIDI, and Word Clock & Video blackburst
 - Non-destructive cut, copy and paste editing with 999 Un-Do's
- Perfect ADAT[®] or DA-88 replacement for home or project recording on a budget

Greg Mackie's goal has always been to deliver professional creative tools at reasonable prices.

The new MDR24/96 is our price-busting commitment to non-linear hard disk recording.

Ready to go right out of the box with 24 channels of analog I/O, the MDR24/96's familiar tape recorder style controls and simple operation will have you tracking and mixing down in no time.

Affordable, removable recording and backup drives make saving and storing projects a breeze.

The MDR24/96 is a *non-linear, non-destructive* recorder. That means you can punch-in "over" a section of a song as many times as you want without erasing it — and then choose the take you like best later. Non-linear recorders also use drive space more efficiently than linear or "tape mode" hard disk recorders.

You can do basic cut, copy and

paste editing with 999 Un-Do levels using the MDR24/96's front panel controls.

Run it alone with any analog or digital mixer. Slave it to the HDR24/96 Recorder/Editor and Remote 48 controller and scrub hard drives like tape for precise

editing. Or install MDR24/96's in your 'B' and 'C' rooms and edit projects on an HDR24/96 in the 'A' room.

Check out the new MDR24/96 at your Mackie dealer today. ■

* Suggested U.S. street price. Your price may vary. This is a limited time, introductory price and will go up. Act now!



Options:
Remote 48
(above), Remote 24,
M90 20Gb Recording Drive,
Project 2.25Gb Removable Drive,
Digital I/O (standard Digital
8-Bus cards) ADAT[®]/T-DIF,
Optical and AES/EBU.



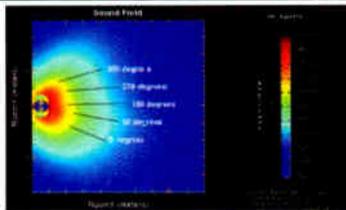
800.898.3211 • www.mackie.com



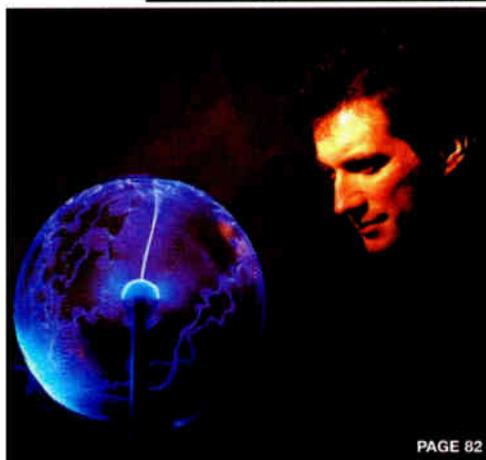
PAGE 72



PAGE 272



PAGE 118



PAGE 82

On the Cover: Designed in conjunction with architect Dennis Janson, Right Track Recording's new orchestral facility, which will be engineer Frank Filipetti's new home, features a 96-in SSL 9000 J and Genelec monitoring. For more, see page 92. **Photo:** Dave King. **Inset photo:** Steve Jennings.



MIX

PROFESSIONAL AUDIO AND MUSIC PRODUCTION

October 2001, VOLUME 25, NUMBER 10

features

46 The AES31 Standard

by Mel Lambert

The digital revolution has brought a dizzying assortment of data-storage formats and media choices. AES31 provides technical specs that allow disk drives, digital audio media and Edit Decision Lists to be transferred between systems.

60 Scratching Out an Empire

by Dan Daley

As part of our expanded New York coverage, our East Coast editor talks to some of the city's hottest urban music producers. Also, Gary Eskow talks to Kenny Gonzalez and Louie Vega, the force behind Masters at Work.

72 Building Your Own Website

by Paul D. Lehrman

Want to establish your own Website but don't know how to get started? The Webmaster for mixonline.com makes it easy.

82 The Musician as Engineer

by Gary Eskow

Decreased demand for live players and the proliferation of affordable technology have prompted many artists to add engineering to their repertoire. These performers play, track, mix, edit and create sounds for their clients.

92 Frank Filipetti and Right Track Studios

by Paul Verna

After helping make Right Track Studios the powerhouse that it is, independent producer/engineer Frank Filipetti has invested in his own room, adding a Westside presence to Simon Andrews' colossal Manhattan facility (on this month's cover).

118 Understanding Phase

by Bob McCarthy

Part 1 of a series that attempts to demystify phase response, showing how changing phase response over frequency affects the sonics of a single speaker, and the way the speakers interact with each other and with a room.

126 Setting Up the SAN at NRG

by Philip De Lancie

What a difference a network makes: Advanced Audio Rentals of North Hollywood installed a Fibre Channel Storage Area Network linking Pro Tools systems within NRG Recording's North Hollywood studios.

Check Out Mix Online! <http://www.mixonline.com>

Mix is published at 6400 Hollis St., Suite 12, Emeryville, CA 94608 and is ©2001 by PRIMEDIA Business Magazines & Media, 9800 Metcalf Ave., Overland Park, KS 66212. Mix (ISSN 0164-9957) is published monthly. One-year (12 issues) subscription is \$46. Outside the U.S. is \$90. POSTMASTER: Send address changes to Mix, P.O. Box 1939, Marion, OH 43306. Periodicals Postage Paid at Shawnee Mission, KS and at additional mailing offices. This publication may not be reproduced or quoted in whole or in part by printed or electronic means without written permission of the publishers. Printed in the USA. Canadian GST #129597951; Canada Post International Publications Mail Product (Canadian Distribution) Sales Agreement #0478733.

sections

SOUND FOR PICTURE

- 198 The Wireless Reality:** Field Miking and Mixing for TV's Hottest Genre
by *Michael Goldman*
- 206 Surround on Location** by *Larry the O*
- 224 New York Post-Production Studios**
by *Gary Eskow*
- 225 Composer Spotlight:** Carter Burwell
by *Paul Verna*
- 225 Facility Spotlight:** Sonicopia
by *Tom Kenny*
- 226 Sound for Film:** A Sound Designer by Any Other Name...by *Larry Blake*
- 236 DVD Picks**

LIVE MIX

- 256 Tour Profile:** Radiohead
by *Robert Hanson*
- 260 "The Producers" on Broadway**
by *Mark Frink*
- 266 Wireless Comes of Age**
by *Chris Michie*
- 272 The Hammerstein Ballroom**
by *Bryan Reesman*
- 276 All Access:** Sugar Ray
by *Steve Jennings and Chris Michie*
- 278 Soundcheck: News and Notes**

RECORDING NOTES

- 284 Earl Scruggs and Friends**
by *Elianne Halbersberg*
- 285 Daft Punk** by *Bryan Reesman*
- 285 Bill Bruford** by *Chris J. Walker*
- 286 Oasis on DVD** by *Phil Ward*
- 287 Classic Tracks:** Mountain's "Mississippi Queen" by *Gary Eskow*
- 288 Cool Spins:** The *Mix* Staff Pick Some Favorite CDs

COAST TO COAST

- 296 L.A. Grapevine** by *Maureen Drone*
- 296 New York Metro** by *Paul Verna*
- 297 Nashville Skyline** by *Dan Daley*
- 297 Sessions & Studio News**
by *Robert Hanson*

technology

TECHNOLOGY SPOTLIGHTS

- 140 Lexicon 960L Version 3.0**
- 152 Neumann D-01 Solution D Digital Microphone System**
- 166 Mackie MDR24/96 Disk-Based Digital Multitrack**
- 168 Studio Network Solutions A/V NET**

FIELD TESTS

- 138 Studio Projects Condenser Mic**
- 142 Sony DRE-S777 Sampling Reverb**
- 148 Apogee Electronics Trak2 Mic Preamp/Digital Converter System**
- 158 Yamaha SREV1 Sampling Reverb**
- 164 ADK A 51TC Large-Diaphragm Tube Microphone**
- 170 dB Technologies DB-4496 Conversion System**



PAGE 142

- 176 KS ADM 2 Studio Monitors**
- 184 Soundelux ELUX 251 Multipattern Tube Microphone**
- 336 Power Tools:** Lexicon 480L



PAGE 285

columns

- 20 The Fast Lane:** Fun, Fun, Fun...Til Her Daddy Took the T-Bird Away
by *Stephen St.Croix*



PAGE 24

- 24 Insider Audio:** The Project That Wouldn't End by *Paul D. Lehrman*
- 30 The Mix Interview:** Roy Halee
by *Blair Jackson*
- 70 The Project Studio:** Kevin Odom and LL Cool J by *Gary Eskow*
- 100 Mix Masters:** Chris Lord-Alge
by *Maureen Drone*
- 134 The Bitstream:** The Storage Slam
by *Oliver Masciarotte*
- 188 The Tech's Files:** Hey Nineteen—New York Stories From Real Life
by *Eddie Ciletti*
- 280 Producer's Desk:** Mike Mangini
by *Blair Jackson*

departments

- 8 From the Editor**
- 10 Feedback:** Letters to *Mix*
- 14 Current/Industry News**
- 304 Studio Showcase**
- 310 Ad Index**
- 315 Mix Marketplace**
- 323 Classifieds**

If you have one of these...



The Perfect Pro Tools® Companion:

If you're one of the thousands of people that rely on computer-based Digital Audio Workstations (DAWs) for recording and editing music and audio, here's something you need to know. The **TASCAM MX-2424** was specifically designed to work with – not against – your DAW system. Here's how.

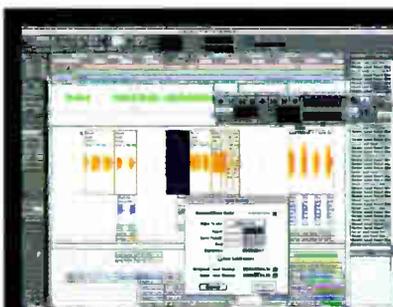
Time-Stamped Sound Designer II and Broadcast Wave Audio File Formats

The MX-2424 offers your choice of two native audio file formats: Sound Designer II on HFS/HFS+ Macintosh-formatted drives, and FAT-32 Broadcast Wave on PC disks. Why did we choose SDII and Broadcast Wave? Because they support time stamping, giving you a fast, convenient way of transferring audio into your Pro Tools or other DAW system. While other formats can be exported and imported to and

from a DAW, the MX-2424's time-stamped files will appear in the exact location in which they were originally recorded, with sample accuracy. Started your guitar solo two minutes, twelve seconds into your tune? That's where it will stay when you bring it into Pro Tools. Other hard disk recorders may force you to spend hours aligning each track to its approximate original location.

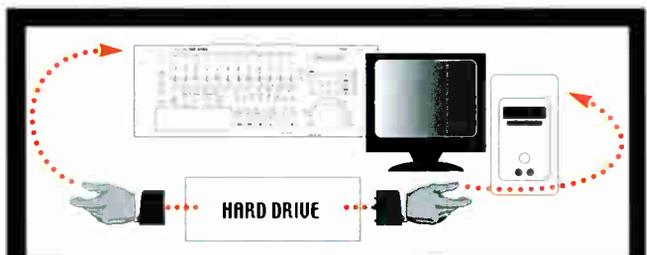
Hot-Swappable SCSI Drives

Since the MX-2424 records to reliable, robust SCSI drives, there's another advantage: hot swapping. Unlike IDE drives, you don't have to shut down your recorder or computer every time you need to exchange SCSI drives...just pop in the drive, mount it and keep on working. SCSI is a time-tested, professional hard disk format that ensures the highest degree of compatibility with all DAW systems.



will still be there when you open the session in your DAW system... not at the start of the song.

Using its native Sound Designer II and Broadcast Wave audio files, you can send audio to and from Pro Tools with sample-accurate time stamping. If the kazoo solo started at 3:12 in your original recording, it



You don't have to go through a lengthy process of converting files to get them between the MX-2424 and Pro Tools. Just record onto a removable SCSI drive with your MX-2424, then pop it into your Mac or PC. Your DAW system will open the files just as if they'd been originally recorded on the computer.

...you need one of these.



TASCAM MX-2424

The Portable Solution

Lugging your entire computer, keyboard, monitor and mouse to gigs for live sound recording isn't the most convenient way to record. Same goes if you work at multiple studio locations. But the MX-2424 is a sturdy, reliable recorder that fits in a four-space rack and goes where you go. Leave your computer in the studio where it belongs, and let the MX-2424 be your mobile recording solution.

Feels Like A Tape Deck

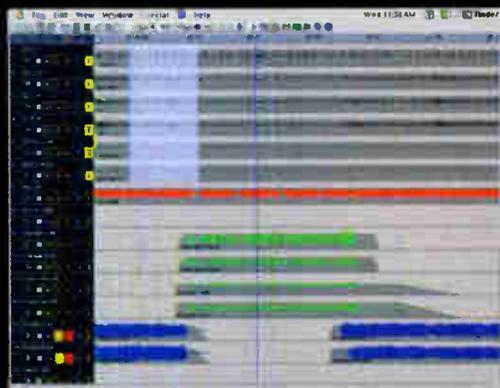
One thing that computer recording leaves to be desired is the classic feel of a tape recorder. With the MX-2424, the transport controls, jog/shuttle wheel and editing buttons give you a familiar environment for doing your best work without being forced to mouse through your tracking session.

Superb Audio Quality

While the power of nonlinear editing is a huge creative advantage of hard disk recording, the sonic fidelity of your DAW may not satisfy your highest expectations. With professional-quality 24-bit converters, audio pros have found the MX-2424 and its IF-AN24 24-channel analog interface module perfect for everything from audiophile classical and jazz recording to scoring feature films.

TASCAM
a whole world of recording

If You Don't Have Pro Tools...



MX-View: Waveform Editing for the MX-2424

If you don't have a DAW system, the MX-2424 offers a high-powered editing interface of its own: MX-View™ waveform editing software. Running in native Mac and Windows versions and connected via a fast 100Mb Ethernet interface, MX-View offers sophisticated, sample-level waveform editing. You can drag and drop on the fly, repair clicks and pops with the pencil tool, get onscreen metering for up to six MX-2424s, edit across multiple machines, manage virtual tracks and much more. Included at no cost with every MX-2424.

All copyrights are the property of their respective holders

For all the details on the MX-2424 go to
www.mx2424.com

24-TRACK 24-BIT HARD DISK RECORDER/EDITOR **MX-2424**

World Radio History



How Ironic

Working in audio can be tricky, especially when you're with a client who knows just enough about technology—or "art"—to be dangerous. And when you're dealing with a group of people—either mixing with a whole band present (each needing to be a *little* louder) or doing commercial spots with the "help" of six agency people—the role of the engineer requires a major dose of diplomacy. The irony of it all occurs when clients demand the finest engineers available and then tell them how to mix.

A well-known film mixer in the Bay Area tells a story about how, in the midst of the films-being-too-loud craze of the mid-'90s, a director kept asking him to push the levels on the music track. Not only did that upset the balance of the scene, but it bordered on dangerous. So he played it back at a slightly higher level, but didn't print the changes. On subsequent playbacks, the director loved it.

I once got a call to do a FOH mix for a folk-rock show at the Berkeley Community Theater. The sound company that hired me sent a Renkus-Heinz SMART System—a fairly compact rig, yet with plenty of oomph for a mostly acoustic show in this 3,000-seat venue. During setup, one of the band's managers started screaming that the system was too small. Unfortunately, this was the company's loudest system, so one of our techs went back to the shop to get some empty JBL "W" boxes: We put two on either side of the stage, stacked the SMART cabinets on top and fired it up. The manager was impressed, saying, "That's exactly what I wanted." Sometimes, creativity involves more than just pushing faders.

I'm not advocating deception. But when you hire talent, sometimes you have to accept, and learn from, the expertise that you hired. And sometimes it's the responsibility of the engineer to educate the client. It isn't always easy to correct those who sign the checks, but that's where diplomacy enters the creative equation. Recording is a service industry, where the customer is always right, so if we mix to please clients and they later determine that the mixes sound bad, the result may be the customer bad-mouthing the engineer or studio. However, there should be no surprises here: The audio business has always been laden with ironies of all sorts, from the vintage LA-2A compressor next to the bells-and-whistles Nuendo rack, to the engineer who's loading TR-707 kick drum sounds into a 24-bit/96kHz system.

For some real audio ironies, you may not have to look any further than an AES show. Besides the obvious examples, such as tube gear in a digital world, I'm always impressed by the number of young engineers—often spike-haired kids—who pack into a recording forum featuring revered masters such as Phil Ramone or Bruce Swedien and soak up every word.

On the show floor, it's hard to spot the major players by appearance alone. Woe to the console rep who bypasses the shabbily dressed fellow—possibly a hot new producer—in favor of the guy in the suit, who may simply be an accountant/audio hobbyist on his lunch hour. So, who's more likely to plunk down \$500,000 for a big digital board? Audio may be filled with ironies, but there can be no assumptions. I like that.

See you at AES!

George Petersen

EDITORIAL DIRECTOR George Petersen
 EDITOR Tom Kenny
 SENIOR EDITOR Blair Jackson
 ASSOCIATE EDITOR Barbara Schultz
 TECHNICAL EDITORS Sarah Jones Chris Michie
 COPY EDITOR Sarah Benzuly
 EDITORIAL ASSISTANT Robert Hanson
 SOUND REINFORCEMENT EDITOR Mark Frink
 NEW TECHNOLOGIES EDITOR Philip De Lancia
 LOS ANGELES EDITOR Maureen Droney
 EAST COAST EDITOR Dan Daley
 NEW YORK EDITOR Paul Verna
 TECHNICAL PROVOCATEUR Stephen St.Croix
 CONSULTING EDITOR Paul Lehrman
 WEB ASSISTANT Camille Dodoro
 FILM SOUND EDITOR Larry Blake
 CONTRIBUTING EDITORS
 Rick Clark Michael Cooper Bob McCarthy
 Eddie Ciletti Oliver Masciarotte Gary Eskow

SENIOR ART DIRECTOR Dmitry Panich
 ASSISTANT ART DIRECTOR Kay Marshall
 GRAPHIC DESIGNER Mae Larobis
 GRAPHIC DESIGNER Elizabeth Heavern
 PHOTOGRAPHY Steve Jennings

MARKETING COMMUNICATIONS DIRECTOR
 Christen Pocock
 MARKETING MANAGER Angela Rahm
 MARKETING EVENTS COORDINATOR Alison Eigel
 MARKETING COORDINATOR Starla Estrada
 MARKETING ART DIRECTOR Wendy Shiraki

PUBLISHER John Pledger

ASSOCIATE PUBLISHER Carrie Anderson
 510/985-3228

EASTERN REGION

EASTERN ADVERTISING DIRECTOR Michele Kanatous
 718/832-0707

FACILITIES/EASTERN ADVERTISING MANAGER
 Shawn Langwell 510/985-3275

MIDWEST ADVERTISING MANAGER
 Greg Sutton 847/968-2390

WESTERN REGION

NORTHWEST ADVERTISING DIRECTOR
 Dan Hernandez 510/985-3266

SOUTHWEST ADVERTISING MANAGER Albert Margolis
 949/582-2753

SALES ASSISTANT Joe Madison

CLASSIFIEDS/MARKETPLACE ADVERTISING DIRECTOR
 Robin Boyce-Trubitt

CLASSIFIEDS SALES ASSOCIATE Kevin Blackford

CLASSIFIEDS ASSISTANTS Heather Choy Monica Cromarty
 Diane Williamson-Suber

DIRECTOR, SPECIAL PROJECTS Hillel Resner

GROUP PRODUCTION MANAGER Melissa Langstaff
 SENIOR ADVERTISING PRODUCTION COORDINATOR
 Liz Turner

GROUP CIRCULATION DIRECTOR Phil Semler
 CIRCULATION MARKETING MANAGER Austin Malcomb
 CIRCULATION FULFILLMENT COORDINATOR Jef Linson

HUMAN RESOURCES MANAGER Julie Nave-Taylor
 HR/OFFICE COORDINATOR Janette Rosbroy
 RECEPTIONIST Lara Duchnik

A PRIMEDIA Business Publication

CEO Tim Andrews

COO Jack Condon

PRESIDENT Ron Wall

VICE PRESIDENT, ENTERTAINMENT DIVISION Pete May
 DIVISION DIRECTOR OF MARKETING Stephanie Hanaway

PRIMEDIA Business-to-Business Group

PRESIDENT AND CEO David G. FERM

PRIMEDIA Inc.

CHAIRMAN AND CEO Tom Rogers

PRESIDENT Charles McCurdy

VICE CHAIRMAN Beverly C. Chell

Subscriptions and Customer Service:

POSTMASTER: For subscription inquiries and changes of address contact: Mix magazine, P.O. Box 1939, Marion, OH 43006 or call 800/532-8190. Outside the U.S., call 740/382-3322. Send back issue requests to Mix magazine, 6151 Powers Ferry Road N.W., Atlanta, GA 30339-2941 or call toll-free 877/296-3125. Outside the U.S., call 770/618-0219.

NATIONAL EDITORIAL, ADVERTISING AND BUSINESS OFFICES, 6400 Hollis St., Suite 12, Emeryville, CA 94608. 510/653-3307, fax. 510/653-5142. Web site: www.mixonline.com. PHOTOCOPY RIGHTS: Authorization to photocopy items for internal or personal use of specific clients is granted by PRIMEDIA Business Magazines and Media Inc., provided that the base fee of U.S. \$2.25 per copy, plus U.S. \$00.00 per page is paid directly to Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. The fee code for users of this Transactional Reporting Service is ISSN 0164-9957/2000 \$2.25 + \$00.00. For those organizations that have been granted a photocopying license by CCC, a separate system of payment has been arranged. Before photocopying items for educational classroom use, please contact CCC at 978/750-8400. Organizations or individuals with large quantity photocopy or reprint requirements should contact Reprint Management Services at 717/399-1900. Microfilm copies of Mix are available by calling Bell & Howell Information and Learning, 800/521-0600.

Founded in 1977 by David Schwartz and Penny Ritter



Subscriber Privacy Notification: Mix makes our subscriber list available to carefully screened companies that offer products and services that may interest you. Any subscriber who does not want to receive mailings from third-party companies should contact the subscriber service department at 800/532-8190 (U.S.), 740/389-6720 (outside U.S.), and we will be pleased to respect your wishes.

Make your sound as vibrant as your vision.



Los Angeles Film School, Hollywood, CA

Finland –
where all
Genelec's
are made

Did you realize that Genelec offers more monitoring solutions for your multi-channel surround needs than any other professional loudspeaker company in the world? It's good to have a lot of choices: four different main soffit-mounted systems, three tri-amp systems, four bi-amps, and three subwoofers. All fourteen feature line level crossovers, room response controls, direct-coupled amplifiers and protection circuitry. All come with more than 20 years of active monitoring expertise and the intrinsic quality that will make you feel confident about your work again. Perhaps even passionate.

When L.A.'s busy *Los Angeles School of Film* recently renovated their main dubbing stage, they

selected Genelec monitors to satisfy the diverse needs of a teaching institution's audio post-production instructors and students. For main L-C-R monitoring, they chose an array of our **1038AC's** – industry renowned for their high-output, dynamic headroom, sonic accuracy, and precise, stable imaging. For additional surround monitors, **Model 1031A's** were selected. Each active system is a superlative audio solution designed and manufactured by a professional monitor company with more real-world, multi-channel surround expertise than anyone else.

Audition a Genelec 5.1 system. Listen to your ears – and your peers. Because if you're making sound decisions for your facility, it's as good a time as any to make your sound as brilliant as your vision.

GENELEC[®]
ACTIVE MONITORING

The Whole Truth and Nothing But The Truth™

Genelec Inc., 7 Tech Circle, Natick, MA 01760 508/652-0900 Fax: 508/652-0909 www.genelec.com
Genelec OY, Oivatie 5 FIN-74100 Iisalmi, Finland +358 17-83881 Fax: +358 17-812267

World Radio History

Letters to Mix



THE PRICE OF FIBER

As someone who does network consulting, I found the June issue very good and worthwhile as a general background for clients who are not familiar with networking. However, I find the assertion by Ed Bacorn [of Glyph Technologies] that "Ethernet is very high overhead" and so is slow to be silly. The calculation of checksums and breaking up messages into segments is typically done on the NIC card and presents no overhead to the host computer. Ethernet is slow because it is designed as a shared media network and has to wait to see if someone else wants to talk before transmitting. The problem with LANs as a storage device is that they are optimized to share information in relatively limited volumes. NFS does allow sharing files over a LAN, but it is not high performance nor does it support isochronous traffic such as video or audio well. This is why SANs were invented—to allow sharing of storage and bulk files, rather than information.

STK and EMC, among other vendors, have hybrid products that transmit metadata and thumbnails over a LAN, and bulk over a SAN. These are in the early days of development and so are very expensive.

The other inaccuracy is that "fiber costs an arm and a leg." We are not buying gasoline here. A well-installed fiber plant costs about the same as a cat 5 cable plant installed, according to the cat 5 specs. Yes, switches are costly now, but they are not necessary unless we are talking about work groups requiring more than about five workstations accessing the SAN simultaneously. (Hopefully, they will go the way of Ethernet switches and fall in price by a factor of 10 over the next two years.)

I find myself puzzled by the statement "...you get a sustained 25 MB per second..." With a Fibre Channel-arbitrated loop, you will get whatever the sustained throughput of the disk is, and you can multiplex several disk accesses onto the loop at up to the available Fibre Channel bandwidth (either 100 or 200 MB per second). Also, there is no reason to mess with SCSI drives and SCSI to Fibre Channel interfaces when there is no premium for native Fibre Channel drives. (See Seagate's Website, www.seagate.com, or any drive dealer, www.dirtcheapdrives.com.)

Gerald Robinson
Via e-mail

TAKING TIME TO TEACH

I was happy to see that Mick Guzauski was nominated for a TEC Award. While there are many other people who could write about his extraordinary talent as a mix engineer for widely diverse musical styles, I wanted to take a moment to nominate him as a helluva guy. I recently contacted Mick totally out of the blue and asked if he could help a group of high school students who were in my music technology class. Not only did he respond, but he offered us what has to be a very precious commodity: his time. I don't think my students will soon forget his generosity, and I know I won't forget our visit.

Michael Groarke
New York, N.Y.

FUNNY YOU SHOULD MENTION IT

It's quite funny to read in the last "Feedback" (August 2001) a letter from Andrew Hamilton about the idea of running, maybe someday in the future, a Pro Tools MixPlus on a laptop... (with the adjunction of a Magma PCI expansion unit). That's exactly what I was already doing some years ago, and am still doing now, but with a Soundscape workstation (first a SSHDR1-Plus unit, now an R.Ed), just by connecting it on the printer port of my big, big, powerful, 4-year-old, 133MHz notebook PC! It's still running on Win95 and equipped with a 1.2GB (very slow) drive and a whopping 32 MB of RAM! What do you think of 32 tracks of 24-bit digital audio plus onboard mixing?

Just add the converters, which I did, and this is the setup I use on a regular basis for all my orchestral, choir and big band

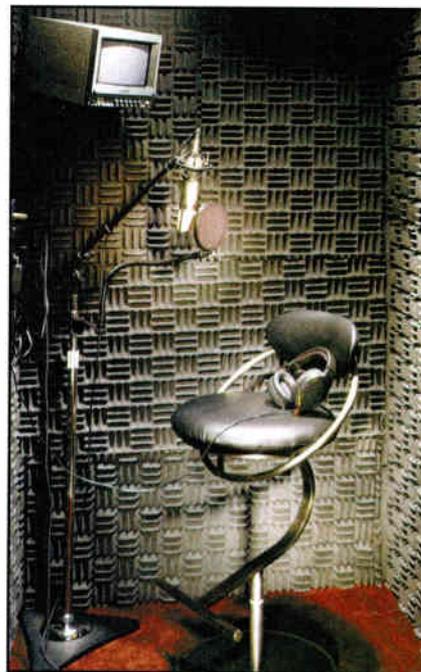
recordings...and mixes! So, unlike Andrea and Leonard Hospidor wrote in their July "Field Test" of the Soundscape R.Ed, this system really doesn't use the power of the CPU, or the RAM, or the drives, and this is *not* like Pro Tools!

A last word: Don't be afraid to use it "live." My system never crashed in more than seven years of (ab)use. Never. In fact, I even use it sometimes live as a source of (multitrack) audio and for mixing! Interested? Just check the Soundscape site: www.soundscape-digital.com.

Luc Henrion
Beta-tester for Soundscape
Belgium

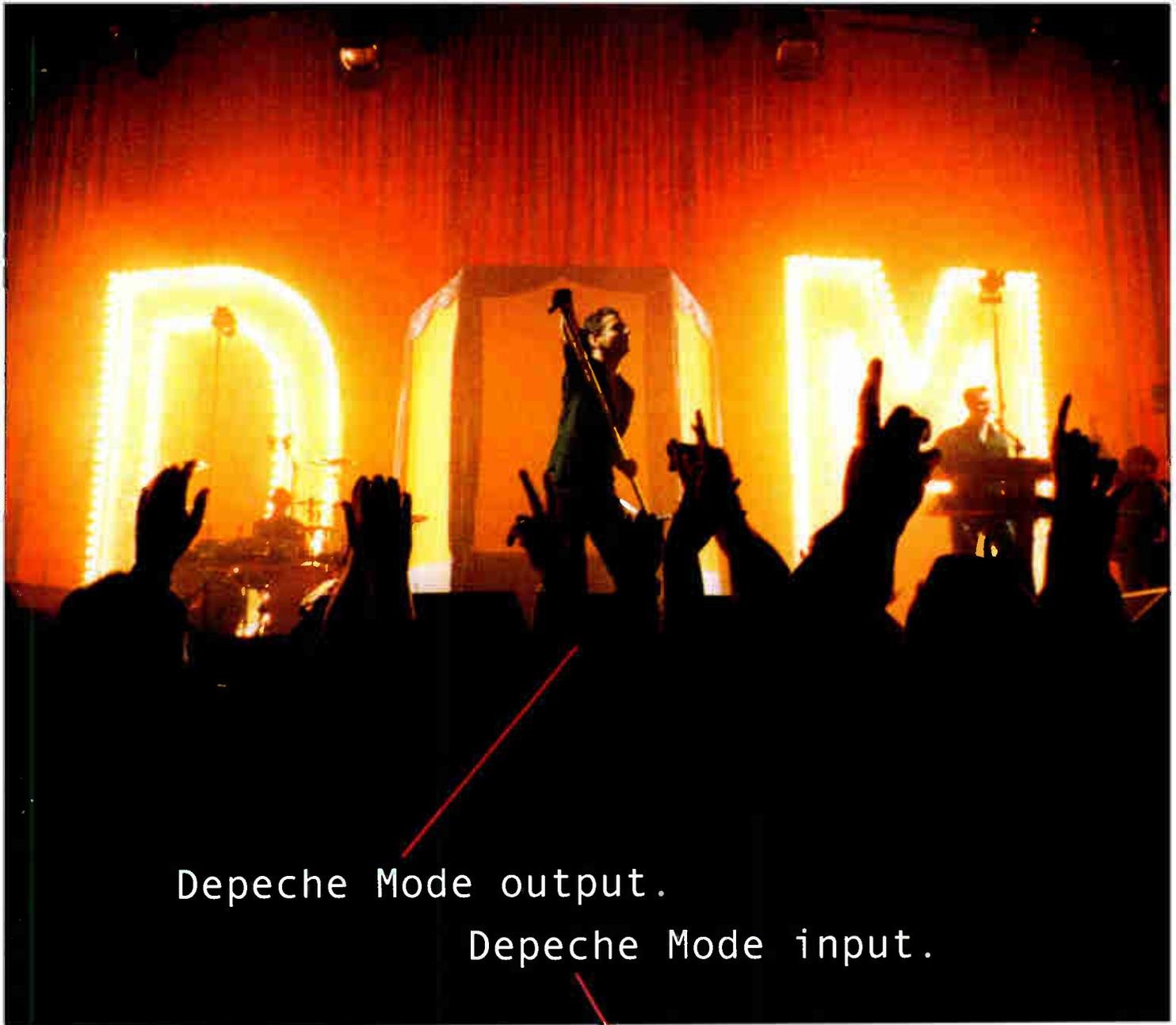
ACOUSTICAL CORRECTIONS

Thank you for covering Illbruck's SONEX products in the recent acoustical materials guide (June 2001). The article unfortunately contains errors and misleading in-



formation that give your readers an incorrect impression of Illbruck products and their benefits.

The article does not include the important point that all SONEX panels are available in Willtec foam, which is Class 1 fire-rated for flame spread and smoke density. SONEX panels are available in a wide range of designs and thicknesses, including SONEXone, SONEXclassic and SONEXvalue. SONEXclassic is not a



Depeche Mode output.
Depeche Mode input.

When inspiration strikes.

Depeche Mode switch on their MOTU 828.

Advanced, portable

FireWire hard disk recording.

MOTU 828



SEE US AT AES BOOTH # 550

MOTU, Inc. • 1260 Massachusetts Avenue • Cambridge MA 02138 • 617-576-2760 • 617-576-3609 fax • www.motu.com



polyurethane version of SONEXone, which the article states.

SONEX panels are also available in polyurethane for use where fire codes permit. Standard panel (not roll) sizes of SONEX Panels measure 24x48 inches (not 24x28 inches or 64-square-foot roll).

Mary Jones

*Public Relations Account Manager
Minneapolis, Minn.*

**INTELLECTUAL PROPERTY:
THE EDUCATOR'S VIEW**

While Mr. Lehrman's article ("Insider Audio," October 2000) made some fine points about Napster and the Internet, I have to agree with Ms. Waldman's position ("Feedback," December 2000) that the songwriter is the one who stands to be hurt most by sites like Napster, which do not pay royalties for the use of music.

I am in the unique position of being not only a songwriter and record producer, but I am also a music business educator at Queensborough College, in Bayside, N.Y.

I see first-hand how difficult it is to convince young students—who are studying music business, no less—that taking intellectual property without asking, whether it be via sampling or downloading prerecorded music, is theft.

My latest tactic, which seems to get the point across best, is to ask one of my students to give me the keys to their car. At first they are incredulous, then they ask why. I respond that I want to use it and claim "fair use." It's out there in the lot, so I should be able to use it as I see fit.

When they cry, "But that's my property," I then respond, "Exactly, just the way a song is someone's property." If I am not entitled to use your house, car or guitar without your permission, then why should I be allowed to use your song without permission?

The marvelous technology that has made it better for all creative artists has also fostered a form of disrespect for the intellectual property rights of others. The Napster/Internet debate is not just an "us vs. the big guys issue," but an intellectual property issue. It is crucial that the whole story be told and that young (and old) users of the Internet be conditioned to respond to song theft the same way they would respond to having their lunch money taken from them.

Robert Porembski

*Faculty, Queensborough Community
College
Bayside, N.Y.*

PUTTING IT SIMPLY

I don't understand why it is so difficult to understand a simple fact: If consumers don't pay for recorded music, then the business of music recording will disappear.

Songwriters, producers, musicians, studio owners (like myself), technicians all will have to start working on something different from music recording.

And by the way, *Mix* magazine will also disappear, unless you just focus on sound-for-picture...until Napster or some other company becomes a "movie-sharing" system over high-speed Internet access.

Alberto Tarantini

Digisound SRL.

Buenos Aires, Argentina

**THE SMELL OF ANALOG TAPE
IN THE MORNING**

I just read your articles on Mix Online on analog tape tutorials. It brought back many wonderful memories. I started working with professional analog tapes back when I was a student at Vanderbilt in Nashville in 1969. I got to use the venerable old Ampex 2-track 1/4-inch machines, see the introduction of the 8-track Scully and Ampex recorders, and watch it grow into 16- and 24-track 2-inch behemoths. I work as an engineer in an industry where I do acoustics and sound work, as well as instrumentation and data acquisition, and I have spent many an hour on Honeywell 101 FM instrumentation analog machines inside Marine Corps AAVs and Landing Craft Air Cushion vehicles, recording instrumentation values for dynamic study of the machines.

Today, I use digital flying head machines to record events and find these machines as "finicky" in their own way as the old-style analog decks. The articles brought back many memories about learning, and being a trainee on recorders, calibrating and cleaning and troubleshooting them. The articles were well done, and I thoroughly enjoyed reading them.

Blake Van Hoy

Oak Ridge, Tenn.

SLIPPED UNDER OUR RADAR

I would like to comment on and clarify some concerns about the "Got RADAR II?" sidebar article on page 146 of the May issue of *Mix*. You state that iZ Technology Corporation is offering free downloads of software Version 2.50 for

the RADAR II. Because Otari is the exclusive distributor of the RADAR II (a fact that is not mentioned in your article), and because Otari warrants all of the RADAR products it sells, we also test all software versions extensively before approving them for use in RADAR II recorders. It is also standard practice that a warrantee for a product becomes void if the purchaser modifies the equipment in a way that is not approved by the seller of the product. This applies to the Otari RADAR II, as use of nonapproved software constitutes an unauthorized modification and is in violation of the terms and conditions of the warrantee that Otari offers.

Additionally, I would like to have it understood that Otari deliberately chose not to approve the software Version 2.50, as submitted to us by iZ Technology, because our tests found that, though it did provide a few new features and some minor bug fixes, it contained new bugs and was potentially less stable than the software Version 2.20 that Otari currently distributes free-of-charge to RADAR II customers. Otari has spent 36 years serving the pro audio industry, and we take our commitment to our customers very seriously. It is out of respect for our many customers that we wish to clarify these issues.

Chris Steinwand

Otari Corporation

REPEAT WHEN NECESSARY

I want to say thank you to Paul Lehrman for an entertaining and substantive read in last month's "Insider Audio." It would appear that the signal processing youth at consoles today have not only stopped listening to what's around them...they also have a dangerous and blithe contempt for all that has gone before in technology and art. What's the old "saw"? "He who ignores history is doomed to repeat the folly of the past." Again, thanks for sharing your story. I'll be watching for your by-line in the future.

Ron Rolland

*Fine Audio Recording Services
Lake Forest, Ill.*

*Send Feedback to Mix via e-mail
mixeditorial@intertec.com
or write to Mix
6400 Hollis Street, Suite 12
Emeryville, CA 94608*

I CAN DO IT ALL BY MYSELF.

WAVES Y56K Plug-in DSP Card Available Now. Includes suite of 6 famous WAVES effects, extra processing horsepower for up to 8 effects chains and ADAT I/O. Check out Y56K right now at www.waves.com



The Yamaha AW4416 is all the studio you need to single-handedly record, mix and master a multi-platinum CD. This digital audio powerhouse comes fully equipped with every feature, specification and extra you could possibly want, including many crucial items our competition inexplicably left out. And it's all integrated with the signature style, performance and innovation that's put Yamaha digital gear in a class by itself. Once again, Yamaha gives you more for less.

NO DATA COMPRESSION – THE AW4416 delivers full-fidelity 24-bit or 16-bit audio all the time on all 16 tracks

.WAV FILE FORMAT – Files are stored in standard .wav format for ultimate compatibility and import/export ease

SONIC FOUNDRY® SOFTWARE SUITE – Acid®, Sound Forge and Siren Xpress® are included for comprehensive editing

D2R LEVEL DIGITAL MIXER – Motorized fader automation accompanies an internal digital patchbay, providing infinite routing options

STUDIO-GRADE EFFECTS – Yamaha loaded the AW4416 with dedicated 4-band parametric EQ and dynamics on all channels, plus two patchable multi-effects processors

INSERT I/O – Patch your analog gear onto any track to augment the AW4416's capabilities

EXPANDABILITY – Dual card slots let you add analog and digital I/O options. Apogee® converters or the new WAVES® multi-effects processor card

YAMAHA CD BURNER ON-BOARD – CD mastering and backup are always available and easily accessible

DEDICATED METER BRIDGE – It's not a pricey option, it's included

MAXIMUM PORTABILITY – The AW4416 is small and light enough to carry on location in our new hardshell case*

AFFORDABILITY – Get all this power for only \$2,999**



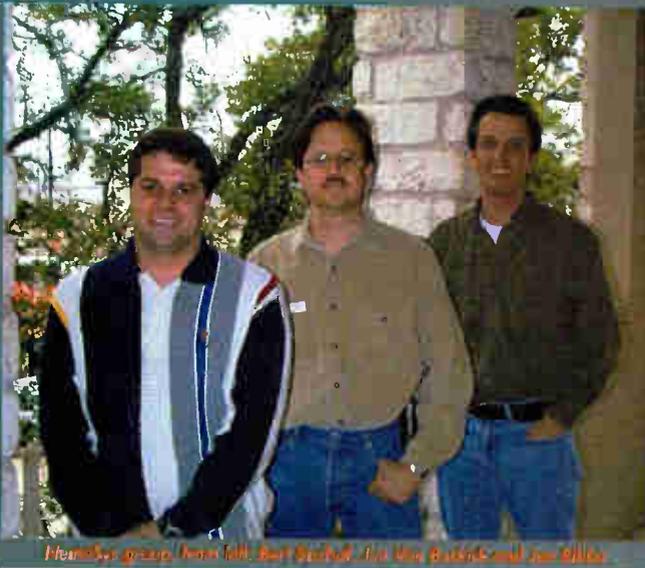
CREATING 'KANDO' TOGETHER



For literature, call (800) 937-7171 ext. 627, visit www.yamaha.com/proaudio or www.AW4416.com. *Case is optional. **Estimate of street price.

© 2001 Yamaha Corporation of America, Pro Audio Products, P.O. Box 6600, Buena Park, CA 90622. All rights reserved. Yamaha is a registered trademark of Yamaha Corporation. All trademarks are the property of their respective companies.

ACQUISITIONS



NemeSys group from left, Bert Steinhilber, Dan Gaydos and Joe Sillescu

COMPANY'S FIRST FORAY INTO AUDIO SAMPLING SOFTWARE

At the Summer NAMM show, Tascam announced that it had acquired the stock of Texas-based NemeSys Music Technology Inc. for an undisclosed amount. NemeSys, known for GigaSampler and GigaStudio, its popular software-based sampling and music production tools for the PC platform,

is now distributed under the Tascam brand name.

Tascam also announced that it has signed the principal software engineers and previous owners of NemeSys to a long-term employment agreement in order to ensure continuing development of the "Giga" platform.

"We are tremendously excited by the possibilities inherent in Tascam's acquisition of NemeSys," said TEAC VP Gene Joly. "We're certain that the addition of Tascam's distribution and marketing strength will allow these amazing tools to be even more broadly embraced by musicians and audio professionals around the world."

The newly expanded Tascam line will now feature all of NemeSys' current products, including GigaStudio 160, GigaStudio 96, GigaSampler 64, GigaSampler LE and NemeSys' sound libraries.

For more information, visit www.tascam.com.

MACKIE ASSUMES SOUNDSCAPE DISTRIBUTION

Mackie Designs will assume worldwide distribution and marketing activities for Sydec-developed products under the Soundscape brand name. Sydec was acquired by Mackie earlier this year. This ends a distribution agreement between Mackie and Soundscape Digital Technologies, the UK-based company that has been marketing and distributing Sydec products under the Soundscape name since 1993.

"By bringing the marketing and distribution of Sydec's Soundscape products under the Mackie umbrella, Soundscape dealers and end-users will benefit from Mackie's commitment to customer support and product innovation," said James Engen, president and CEO of Mackie Designs.

For more, visit www.mackie.com.

AUDIO MUSEUM FINDS HOME IN NEW JERSEY

DOORS TO OPEN IN 2003

A new museum, dedicated solely to audio, will rise in Camden, N.J. The Museum of Sound Recording president Dan Gaydos and project director Bernard Fox announced that they have signed a contract with Coopers Ferry Development As-

sociation of Camden to revitalize the waterfront with the museum/theme park.

The contract allows for the design and construction of "SoundWave—The International Museum of Recorded Sound and Entertainment Center," aided by a \$56 million planned

appropriation from the Delaware River Port Authority, the state of New Jersey and other sources.

"The Museum of Sound Recording and Coopers Ferry Development Association have been working in parallel for three to four years before being aware of each other's progress," said Gaydos. "Camden is a perfectly appropriate area to establish a museum and theme park, since Camden is where recording and record-making truly become a part of the socioeconomic and cultural fabric of America." Camden is home to The Victor Talking Machine Company, The RCA Victory Company and RCA Corporation.

The museum/theme park will showcase the history and presence of RCA in Camden. The three main areas of interest, according to Gaydos, are: SoundStages, depicting how recording has changed society and history; SoundLabs, demonstrating the nature of acoustics, sound, noise, music and recording; and SoundScapes, showing the interplay between human perception and sound environments.



The future site of "SoundWave: The International Museum of Recorded Sound and Entertainment Center." Standing, L to R, are Museum of Sound Recording director of development Bernard Fox, Coopers Ferry Development Association project director Joe Myers and Museum of Sound Recording president Dan Gaydos. In the background to the right is the legendary Nipper Building and tower.

IN THE STUDIO

CHRIS VRENNA AND U2

Grammy-winning producer/engineer Chris Vrenna (NIN, Smashing Pumpkins) was tapped by U2 to remix and re-cut the song "Elevation" for the *Tomb Raider* soundtrack. The band took a break from touring last summer and flew out to Enterprise Studios in Burbank, Calif. Engineer Paul Leary oversaw the tracking.



Chris Vrenna

"I started some of the stuff at home," Vrenna explained, "and then they flew in, and we re-cut all of the instruments in Pro Tools. I worked on the mix the following day, and they came in that night to give their feedback. It worked out really well."



U2

Vrenna, who records under the name Tweaker, also released his long-awaited debut album *The Attraction to All Things Uncertain* last September on Six Degrees Records.

NOTES FROM THE NET



DOJ PROBES ONLINE MUSIC DEALS

The Justice Department, which oversees antitrust law, has started a preliminary investigation into two Internet ventures: pressplay, backed by Sony Music Entertainment and Universal Music Group, and MusicNet, backed by EMI, BMG and AOL Time Warner. The probe will examine potential anti-competitive problems posed by the rival ventures' soon-to-be-released paid subscription music plans. U.S. lawmakers have also raised questions about whether the two Internet services will harm competition because the five record labels currently involved represent about 80% of copyrighted music.

Representatives from the Justice Department and the five labels did not comment on the investigation.

Legislators are also exploring the issue of music sales online. Representatives Rick Boucher (D-Va.) and Christopher B. Cannon, (R-Utah) introduced legislation that would require companies when they license music for sale to one Internet site to make the music available to other sites under the same terms, thus allowing an indie start-up access to the same music as, say, pressplay, at the same price.

HAPPY BIRTHDAY

-  **Denon Electronics**—2001 marks the 90th anniversary for Denon and its parent company, Nippon Columbia Co. Ltd.; www.del.denon.com
- BGW**—Celebrates 30 years of manufacturing amplifiers; www.bgw.com
- Harrison**—A Silver anniversary for this Nashville-based console maker; www.harrisonconsoles.com
- Westlake Audio**—Designing loudspeakers for 30 years; www.westlakeaudio.com
- HHB**—25 years making digital audio equipment and recording media; www.hhb.usa.com
- Olsen Audio Group**—The company's WindTech™ Windscreen division is celebrating 25 years of operation; www.olsenaudio.com
- Rane Corporation**—In the signal processing field for 20 years; www.rane.com
- ATR Service Company**—Manufacturing Ampex analog mastering recorders for 10 years; www.atrservice.com

Industry News

Business development professional David Ward has been appointed to president and COO of iZ Technology (Burnaby, British Columbia)...Working for **Maxell Corporation of America** (Fair Lawn, NJ) since 1981, **Toru (Tom) Yamakawa** has been named president of the company...With an extensive background in broadcast engineering, **Scott Barella** joins the



New president of iZ Technology David Ward (left) joins Tom Yamakawa (right) and Scott Barella (center) with company founder and CEO Tony Henderson

Burst Group (Englewood, CO) as VP and chief engineer...**Paul Stubblebine Mastering** (San Francisco) welcomed music industry vet **Michael Romanowski** as its new mastering engineer...The **American Federation of Musicians** (New York City) elected **Tom Lee** as president and **Florence Nelson** as secretary/treasurer...Co-founder **Bob Lasiewicz** returns to **PBI Media LLC** (Los Angeles) as director of ShowBiz Expo Group...**Kent**, England-based **PM Components** has been appointed primary worldwide distributor for **Svetlana's** (St. Petersburg, Russia) glass and ceramic vacuum tubes. **PM Components** has set up a dedicated company, **PM of America Inc.**, to handle sales and servicing in North America...**Soundcraft USA** named **Scott Wunschel** to serve as Western regional sales manager for all states west of the Mississippi River...**E&E Exports** (Irvine, CA) has been tapped to handle distribution of **SRS Labs'** (Santa Ana, CA) patented **SRS Pro 220 Sound Retrieval System** to the overseas pro audio and music marketplaces...**EMTEC Pro Media** (Valencia, CA) added **Chris Piccione**, Northeastern sales manager, and **Mark Hornsby**, Southeastern sales manager, to its sales staff...**Crown Audio** (Elkhart, IN) also rounded out its sales force with the additions of **Jonathan Parker**, Eastern regional sales manager, and **Loren Robinson**, Western regional sales manager. In other Crown news, **Bob Lichty** has transitioned into the music industry market manager position...**Patrick Woolcocks** joined **Clear-Com Intercom Systems** (Emeryville, CA) as director of sales for Europe, the Middle East and Africa. He will be based out of Southampton, UK...**Network Pro Marketing** has moved to: 2250 East Imperial Highway, Suite 220, El Segundo, CA 90245; 310/648-6677; fax 310/648-6678...**Julia Frodahl** joins **Wax Music & Sound Design** (New York City) as director of marketing and sales...The new marketing director over at **Crest Audio** (Paramus, NJ) is **William (Bill) McGrane**...**Tascam** honored representative **Innovative Audio** (Waterford, MI) with the award for overall territory sales growth, while **Joseph P. Mazzeo Associates** (Rochester, NY) received the award for overall sales growth for the Tascam Cable Up! product line.

ON THE MOVE

Who Fred Guarino

Position: President, SPARS; owner, Tiki Recording Studios (Glen Cove, N.Y.),
Main Responsibilities: "To work with the Board of Directors and executive director [at SPARS]. My goal is for us to carry out the many new products, services and ideas that we have planned, while maintaining our focus on networking."

Previous Lives: Owner of Tiki Recording Studios, 1978 to present

I first became involved with SPARS... "In 1989, I was involved with the SPARS board and president Bruce Merley in exploring a local Long Island presence for SPARS. I attended my first SPARS Biztech Conference at UCLA in 1991. I came back from that conference with valuable business information, especially since it was during a recession."

My most memorable moment with SPARS was... "Besides the numerous casual discussions with so many bright SPARS studio owners and managers, the many cool studio tours I have been invited on, and the fun SPARS outings and conferences (like the time we rented Liberty Island and the Statue of Liberty), it was when president Paul Christensen called me up and said, 'We need some good people to serve, and I want you!' After that patriotic Uncle Sam-type speech, I was on the board of directors."

Owning a studio has helped with my responsibilities/commitments with SPARS because... "I have learned a lot about diplomacy, balancing art and business, meeting deadlines, sacrifice, long- and short-term planning, survival and camaraderie. Running your own business is tough. I often say, 'There's a price for freedom,' but I would do it all over again."

My first concert was... "Black Sabbath in 1971. Guess it was the cool thing to do when you were 14 years old."

Currently in my CD changer... "Old stuff like Ambrosia, Tubes, Toy Matinee, Collective Soul, Sting and Shawn Colvin."

The last great movie I saw... "The Perfect Storm—I'm a boater."

When I'm not in the studio, you'll catch me... "Cruising and relaxing on my boat with my wife and dog."



THE FLAMING LIPS

Known the world over for their '93 hit "She Don't Use Jelly," the Flaming Lips have returned to the studio to work on the follow up to their critically acclaimed '99 release *The Soft Bulletin*. The band, who consist of Wayne Coyen, Mike Ivins and Steven Drozd, are camped out at **Tarbox Road Studio** in upstate New York and producing the effort themselves. Ivins is also sharing the engineering duties with studio owner Dave Fridmann. The as-yet-untitled release is slated for release sometime next year.



HOT LINKS

www.OnTourWithShure.com: Shure Incorporated has launched a new online magazine that gives users a backstage pass to today's hottest acts and engineers. The site includes Web-only artist interviews and photos, technical and gear-related advice, contests and an archive of articles that have appeared in their *On Tour With Shure* magazine.

www.toaelectronics.com: TOA has updated its Website with such new features as the "Technical Library," where users now have easy access to spec sheets, product manuals (for both current and discontinued products), CAD drawings, engineering specs and East loudspeaker data. Users can also download video animations of the H Series Interior Design speakers, as well as DACsys 2000 control software for the new DP-0206 modular DSP.

www.themusiclink.net: The Music Link Corporation has released its eCatalog, an electronic version of its Counter Catalog, available in PDF format. The eCatalog is a guide to the entire product line, including Johnson guitars and amps, Palatino strings and wind instruments, CODA drums, and AXL guitars and amps.

Frampton Comes Alive!



October 2-October 15.

Produced and arranged by Peter Frampton. Engineers: (live) Ray Thompson, Chris Kimsey and Eddie Kramer. Studios: Winterland (San Francisco), Marin Civic Center (San Rafael, CA), Island Music Center (Commack, NY), State University of New York (Plattsburgh, NY), Wally Heider's Mobile Recording Truck (CA) and Fedca Recording Truck (NY).



October 16-November 5.

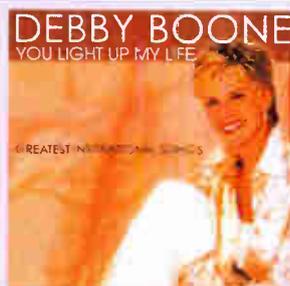
Produced by Stevie Wonder. Engineers: John Fischbach and Gary Olazabal. Assistant engineers: Dave Henson, Howie Lindeman, Cris Morris, Steve Smith and Rick Smith. Mastering: Andrew Berliner and Jeff Sanders at Crystal Industries Inc. (Hollywood). Studios: Hit Factory (NYC) and Record Plant (Los Angeles and Sausalito, CA).

MIX LOOKS BACK

In anticipation of *Mix's* 25th anniversary next year, we want to begin looking back at where we started. Here are the Number One albums and singles from *Billboard*, October 1977, the month of *Mix's* debut, with special props to the engineers, producers and studios who make the magic.



October 10-October 15—"Star Wars Theme/Cantina Band." Arranged by Meco.



October 15—"You Light Up My Life." Produced by Joe Brooks.

i rock.

introducing Electro-Voice® Eliminator i™
Enhanced Bass Response Speaker System

incredible sound from an amp / subs / speaker system designed to play together.

innovative processor in the Eliminator i™ amp — tuned to the i speakers —
delivers every note with clean, extended bass response.

internal crossover in the subs keeps setup simple.

industrial-tough cabinet construction for bands on the go.

impressive vocal range and clarity.

in-your-guts bass response.

Indulge yourself.

info: www.electrovoice.com
1-800-667-3968



Eliminator i™ Amp —
featuring 600 watts per channel

Step up to Electro-Voice™



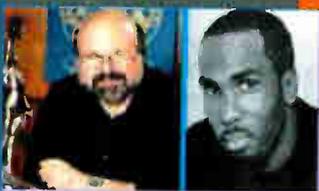
i rock with

Eliminator i™

ENHANCED BASS RESPONSE SPEAKER SYSTEM

CURRENT

EXPANDING YOUR MIND



Calling all sound designers and video editors. Through the collaboration of Mindshare Ventures and Future Media Concepts, with cooperation from Avid and Digidesign, the first Avid World and Pro Tools Conference will be held October 7-10, 2001, at the New Yorker Hotel. The four-day event will include a two-day expo, educational classes, keynote speeches from Mark

Goldblatt (left) and She'lspere (right), and networking events. The seminars and sessions will cover editing and designing tips and techniques for users of Media Composer, Symphony, Avid|DS, Xpress DV, Unity, and AvidProNet Review and Approval. There will also be a separate Pro Tools track.

For registration information, contact Mindshare Ventures at 212/645-8140 or visit www.avidworldeast.com.

FLICKERSTICK



Fresh from their win on VH1's *Bands on the Run*, Flickerstick stopped in at **The Zone** in Norcross, Ga. The band was in re-cutting their independent debut *Welcoming Home the Astronauts*, which is slated for release on Epic records. The band worked with studio owner/engineer Billy Hume and producer Rick Beato.

"They're really nice guys to work with," Hume said. "They sort of got portrayed on that show as this bunch of crazy guys, and they kind of are. [Laughs.] But when it's time to work, they really get down to it. They're all extremely talented, and it was a great experience."

WHEN HOOSIERS COME TO NASHVILLE...



They meet in a pickup truck. At the recent Summer NAMM show, Sony hosted a party at Denny Purcell's Georgetown Masters. Purcell grabbed a few basses from his extensive collection and formed a band, The Lownotes, on the spot. Across the front, L to R, Nash-villains Dan Daley and Rick Clark, both *Mix* contributors; producer/engineer and former Hoosier Chuck Ainlay; and Nash-villain producer Norbert Putnam. In back, former Hoosier Purcell and former Hoosier Tom Kenny, *Mix* editor.

Visit

www.mixonline.com

RESOURCES FOR AUDIO PROFESSIONALS!

- Access *Mix* anywhere, anytime: Check out highlights of our current issue or browse through back issue archives to find the information you need, with news, interviews, application articles, field tests, equipment reports and more—all online!
- Don't get ripped off! Peruse *Mix*'s "Stolen Equipment Registry," and help take a bite out of crime.
- Click on hot links to important sites such as the TEC Awards, *MixBooks* and "20 Years of *Mix*," a complete database listing the contents of issues since 1982.

DAILY NEWS!

Visit Mixonline.com every morning for breaking news and links to newsmakers.

EXCLUSIVE BENEFITS!

Register for your *free* membership to mixonline.com and check out lively, interactive forums where audio pros can access information, ask advice, or simply share experiences and opinions with other engineers and producers.

DEMO ROOM!



Enter the Demo Room and view streaming video tutorials of specific products, with spotlights on special features and applications. Available exclusively at mixonline.com!

VALUABLE INFORMATION, JUST A CLICK AWAY!

Visit www.digitalmediaclick.com—a portal hosted by www.industryclick.com that links the Websites of a variety of magazines and service providers within the digital media production community. Besides *Mix*, digitalmediaclick.com offers access to essential sites by leading magazines such as *Broadcast Engineering*, *Electronic Musician*, *Entertainment Design*, *Lighting Dimensions*, *Millimeter*, *Netmedia*, *On-stage*, *Remix*, *Sound & Video Contractor*, *Special Events*, *Video Systems* and more.

www.mixonline.com



AKG | C 3000 B

CAPTURES EVERYTHING IN THE STUDIO.
LETS IT ALL GO IN THE CLUBS.



ROLAND
VS-2480

The C 3000 B is the reference standard for Roland's V-Studio workstations with COSM technology



RAISE THE LEVEL

A Harman International Company

www.roland.com • 615-620-3000

114 Laurel Street Office • Nashville, TN 37203

World Radio History

FUN, FUN, FUN

'TIL HER DADDY TOOK THE T-BIRD AWAY

As I go through life, working in this industry and writing this column, I occasionally come across little gems that make life easier or just more fun. Sometimes I simply mention them in the body of that month's column, but this month, I thought I would devote an entire column on some of these items that improve my life.

I will limit the scope to items that cost less than \$10,000 each. Further, as a sign of respect to my readers and editors, I will attempt to assure that at least half these items are in some way related to audio.

So, without any further ado (and without my usual five-paragraph setup), we begin.

Oh, wait. I guess we don't begin quite yet, as there are a couple of points I want to cover. First, while some of these items may be brand-new and unknown to you, others may not be. In fact, some may be years old, but still valuable and so useful that I can't pass them up. Second, as I am apparently mellowing somewhat, I find that I am now able to enjoy toys that may not be 24-bit perfect, or may not have a 150dB dynamic range. For example, I must, in all fairness, warn you that I now actually listen to an occasional 192kHz MP3. Not with both ears, of course, but sometimes, while I'm setting the idle jet on my straight-pipe Harley, I might listen to a tune or two with one ear when no one's looking.

Please note that this admission is in no way an endorsement of lossy data compression! Nor am I stating that I think MP3 or today's typical digital television is good enough. Once you have experienced either data stream in its honest, uncompressed mode, you are forever cursed with the awareness that today's compression *significantly* damages music and video.

I am just admitting that I have discovered what the kids today know—portability is so much fun that, under

certain masking conditions, you just might go for it. In fact, to quantify this, let me take a few lines of ink to list times that I can enjoy compressed entertainment:

- during or immediately after flying.
- any time up to four hours after an afternoon on the firing range.
- while tuning engines at the drag

FireWire circuitry. Buy these. Use them. Be happy. If you break one, call Maxtor and they will send you another one with no questions asked. I actually did break one two days ago and called them, just to check this out. A replacement is on the way. I have also heard from many other Maxtor users that their service policy is superb.

I have this twisted belief that one way to keep from slipping into a rut is to get different pieces of gear that influence your creative process.

strip or race track, *after the first race*.

- while actively splashing around in the pool, or riding in a convertible (over 50 mph) or on any loud bike over 38 mph.

Now we begin:

MAXTOR

Yeah, that's it, just Maxtor. Lotsa big, fast drive for *not* lotsa money. For a couple of years now, I have been getting out of the control room and popping down to CompUSA to pick up a drive whenever I run out of space. While I'm somewhat disappointed that I can't buy these drives at my local 711 (yet), I am happy with the fact that I can go to my closest CompUSA and in minutes get a very fast, quiet 80- or 100-gig ATA drive when I'm feeling a bit digitally claustrophobic.

Additionally, Maxtor has had a line of FireWire drives for some time now. They come in creamy little translucent boxes with no fans and almost no noise. Until recently, these were 5,400 rpm only. But now, they have added a new series of 7,200 rpm drives with even faster

I love these drives. I use them exclusively for my DAWs, and I realized a week ago that I have, over the past years, replaced every internal drive in every one of my computers with a Maxtor by now.

ROXIO AND ROLL

Both Toast and Jam have been around for a long, long time. Personally, as a kid I always preferred English muffins, but when Toast first came out, I gave it a try. In the beginning, it was a bit squirrely and certainly, um, interesting. But the people were nice and the idea was great, so I stuck with it. Then Adaptec made significant improvements over time, and finally added Jam.

Now Adaptec has a dedicated division called Roxio, which is responsible for both Toast and Jam. While the new Jam isn't shipping quite yet, the new Toast is, and I must say it's even slicker, easier and more powerful than before. Toast has to be the bargain of the century. I think, at this point, I probably use it every single day. When one considers how the price of CD-R media has dropped and how reliable the new burners are, it's very attractive to simply put any new-

BY STEPHEN ST.CROIX

Aphex Delivers the Biggest Improvement to Your Sound... ...for the Smallest Investment



Why the Aphex Model 204 is superior to other "Enhancers"

AURAL EXCITER VS. OTHER SONIC ENHANCERS

The Aural Exciter adds dynamically related harmonics to the signal at very low levels and these harmonics add little, if any, level to the signal. Because of the intelligence in the Aural Exciter side chain, the effect is useful over an extremely wide input dynamic range.

Dynamic EQ boosts a part of the frequency spectrum when the input is above a threshold. If the input is already high, the additional equalization can result in overloading the amplifier, speakers or both.

BIG BOTTOM VS. OTHER BASS ENHANCERS

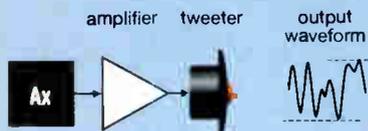
A speaker's excursion increases with low frequency peaks. If those peaks are increased by a Dynamic EQ and/or a Subharmonic Synthesizer the speaker, at the very least, will fatigue more quickly. This will also increase the danger of the speaker jumping the gap or literally coming apart.

Big Bottom adds little or no peak energy to the signal. Instead, it adds density (persistence of a low peak-to-average ratio). This additional bass density adds presence and punch, even in less than powerful playback systems.

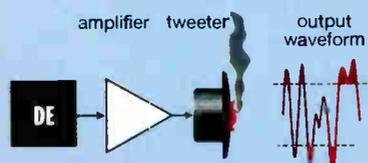
Dynamic EQ boosts a part of the frequency spectrum when the input is above a threshold. If the input is already high the additional equalization can result in overloading the amplifier, the speakers or both.

Subharmonic Synthesizers synthesize bass where none existed before by generating a signal component an octave below the lowest frequency present. The result requires much more amplifier power and extreme woofer excursions to reproduce. Result - DANGER!

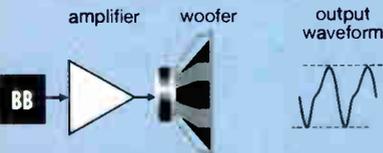
THE AURAL EXCITER SAFELY ADDS EXCITEMENT



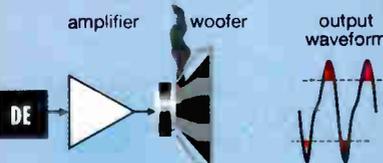
DYNAMIC EQ ADDS MORE LEVEL FOR THE SAME AMOUNT OF ENHANCEMENT



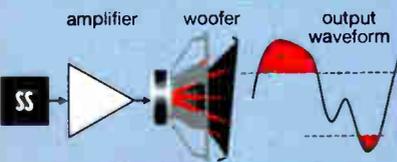
BIG BOTTOM IS THE SAFEST BASS ENHANCEMENT PROCESSOR



DYNAMIC EQ - WARNING: IT COULD PUT YOU OVER THE LIMIT!



SUBHARMONIC SYNTH - BY FAR THE MOST DANGEROUS PROCESSOR SOLD



The All New Aphex Model 204 Aural Exciter® and Optical Big Bottom® will dramatically improve the sound of:

- Installed & Touring PA Systems*
- DJ Sound Systems*
- Multitrack & Stereo Recording*
- Broadcasting, Webcasting, MP3 Files*
- Musical Instrument Amplifiers*

Aural Exciter increases intelligibility, enhances clarity, detail, presence and stereo imaging. Optical Big Bottom adds low-end punch & deeper, more powerful bass

- ◆ Safely pack more bass and highs into your PA system or tracks
- ◆ Make a voice or instrument dance on top of the mix
- ◆ Punch-up your entire mix out of a noisy or reverberant environment
- ◆ Pump life back into your MP3 files
- ◆ Extend frequency response at both ends of the spectrum
- ◆ Sound almost twice as loud without adding more amps and speakers
- ◆ Internal power supply
- ◆ Balanced XLR and 1/4" I/O

Improving the way the world soundsSM

APHEX
SYSTEMS

11068 Randall Street, Sun Valley, CA 91352 U.S.A • 818-767-2929 Fax: 818-767-2641 www.aphex.com

Aphex, Aural Exciter and Big Bottom are registered trademarks of Aphex Systems

World Radio History

ly created data on a backup CD at the end of every day and shove it on a shelf.

Not to mention burning audio dailies or even making MP3 CDs for your kids or for your moments of deafatude.

LET'S DANTZ THE NIGHT AWAY, THEN STOP AND GET A BIG MAC

Dantz Retrospect is *the* mandatory backup program for Macs, but as of this writing, it can't see the internal burners on my new machines, so I am using Toast for backup as well, even though that is not what it is meant for.

As is obvious by now, I am a Mac guy. I know this puts me in the minority, and I generally don't say too much about this in my column, because I know that all you PC guys out there will just get glazed eyes and stop reading. But this time there are things I must say. Apple has, amazingly, done a few things so correctly this year that I simply cannot suppress the urge to share these new technologies with you.

If you have ever given even the slightest thought to leaving the dark side and picking up a Mac, but the price/performance ratio scared you back into the shadows—or if you are a current Mac user

who carries around a 9-pound notebook in a world of 6.5-pound PC notebooks just for the privilege of being right—then your ship has come in. And, like all good ships, it is a pristine glistening white.

Go to CompUSA or your local Apple store, walk right by the ambitious but underdeveloped lame Ti book for 50 grand, or whatever it costs, and proceed directly to the closest iBook and touch it. Open it. Look at the screen. Type a little. Pick it up.

For a grand-and-a-half, you can have an incredibly fast, impressively powerful, 4.9-pound laptop with every feature you would ever need (and the best DVD player on the planet) that is so small, it fits sideways in half of my old laptop carrying case. This thing is just...Right.

I am currently sitting out by the pool dictating this column into an iBook on my lap using IBM ViaVoice. It is fast enough that I see what I'm saying while I say it (a new experience for me—I'm used to waiting up to 30 seconds to see what I say). Oh, wait. I just checked my stocks using Apple's optional Airport wireless LAN. The profound wave of depression that washed over me as my 16 little symbols came up red is almost totally offset by the geeky joy that I'm experiencing while listening to music from the iMac in my house 200 feet away.

No, it's not just that I'm listening to the music, it's that I'm actually picking the songs I want to hear on my laptop's screen, and controlling the iTunes player in the house on the wireless LAN, while the music is being transmitted back to me again. And this brings me to my next item...

MAKOTO NAGATA, AKOO KIMA

For 99 bucks, a company called Akoo will send you something called a Kima. And while I would not exactly master through this thing, it *is* serious fun. You get two little alien-looking devices, one you hook to your computer (or any stereo audio source) and the other you plopp down wherever you happen to be, even if that's hundreds of feet away. The first box transmits the music at some dangerously high frequency to the second box. The second box then has stereo output jacks for hard wiring to an audio system, and a re-transmitter that allows any FM radio to receive the music at 88.1 or 88.3.

Serious geek fun. I have my iMac set up as an MP3 Jukebox with well over 5,000 songs inside (come on now, I used the finest codec and ripped from my CDs at the highest quality, yada, yada), and I

—CONTINUED ON PAGE 314

Omnis.
Looking in the right direction?

DPA
MICROPHONES

TYPE 4006
OMNIDIRECTIONAL MICROPHONE

Using a German silver diaphragm and a pre-aged capsule, the 4006 is in use all over the world with professional studios, broadcasting facilities, and anywhere the utmost in reliability and repeatability are required. The 4006 exhibits no proximity effect and an inherent insensitivity to popping, making it ideal for close-miking vocals, strings, woodwind or plucked instruments.

For total transparency, visit
dpamicrophones.com

DPA Microphones / TGI North America Inc.
335 Gage Ave., Suite #1 Kitchener, ON Canada N2M 5E1
Tel: (519) 745-1158 • Fax: (519) 745-2364 • Toll Free Dealer Faxline: (800) 525-7081
E-mail: inquiries@tgina.com • Literature Requests: litplease@tgina.com

SEE US AT AES BOOTH #1218

**WE DID THE ROCKET SCIENCE.
SO YOU WOULDN'T HAVE TO.**

**MEET THE NEW DACSYS 2000 DIGITAL SIGNAL PROCESSOR:
EASY-TO-USE INTERFACE. PLUG-IN I/O MODULES.
BULLETPROOF RELIABILITY... AND KILLER SOUND.**



Plug-in modules allow you to add up to four inputs, four outputs, or two of each to the basic two-in / six-out DP-0206 model.

THAT "TOA SOUND" comes from an innovative new dual processor technology we call CLEAR Conversion.™ We make it easy to get this sound, too. The TOA interface—already considered the industry's most straightforward—has been totally redesigned for the DACsys 2000, making set-up easier than ever. You also get full matrixing, modular I/O expandability, and TOA's legendary reliability—all at a price that's surprisingly affordable. For details and ordering information, visit us at www.toaelectronics.com.



THE PROJECT THAT WOULDN'T END

ONE MAN'S ADVENTURES AT THE DV DANCE

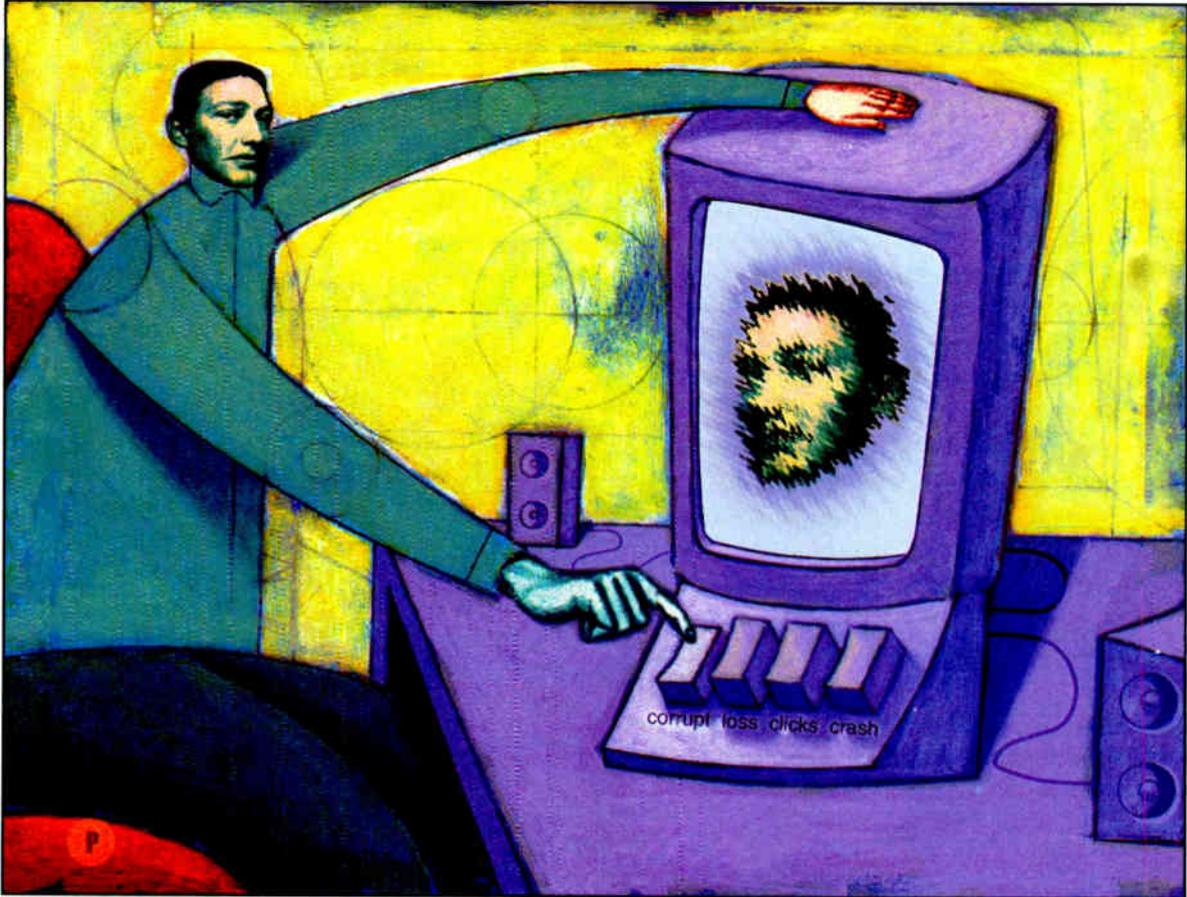


ILLUSTRATION PETER BENNETT

If you were around during the bad old days of the first computerized music and digital audio tools, say 10 to 15 years ago, then perhaps you remember, or perhaps you've mercifully forgotten, some "features" you were forced to deal with:

- Loss and/or corruption of files.
- Loss of sync at odd and unpredictable moments. Momentary drop-outs and digital "clicks" at random times.
- Programs that crashed just when you finished a complicated session, but before you saved.
- Programs that wouldn't save.
- Programs that wouldn't quit.
- Clumsy modal programs that made you switch gears entirely when you went from assembling to editing, or vice versa.

- Blind signal-processing functions, in which you had no idea what a process sounded like until after you executed it.
- Processing functions that refused to do anything.
- Processing functions with fixed, and useless, parameters.
- Non-undoable functions.
- Functions that took enormous amounts of time, but were uninteruptible.
- File-compatibility issues among different programs.
- File-compatibility issues among different versions of the *same* program.
- Lousy technical support.
- No technical support.

.....
BY PAUL D. LEHRMAN

- Undocumented features, and documented features that didn't exist.
- Documentation that's just plain wrong.
- And that perennial favorite: blanket denial on the part of the developers that there was anything amiss.

Aren't you glad that we've gone beyond all of this—well, most of it? Well, don't count your chickens quite yet, because there's a whole new world that's becoming more and more important in the work that a lot of us do. In this world, each of these problems is back and in force, and ready to bite us on the behind. I know, because thanks to these new tools, it has taken me nine months to get a project done that should have taken about six weeks. But before

Get the gear you want. Get it now!

If you only shop at your local music store, you're missing out on a lot!

Sweetwater offers you:

- The **BEST** prices!
- The **LARGEST** variety of top brands in stock and ready to ship!
- **FREE** lifetime service and tech support by the industry's leading music specialists!
- **Hassle-free** shopping!

Make the smart choice for your music. Buy direct from Sweetwater today!

Call Now and Save!

Our toll-free number:
1-800-222-4700

— or —

Visit our website:
sweetwater.com



Experienced and Knowledgeable Salespeople

Factory-authorized service center

FREE LIFETIME Technical Support

Sweetwater™ Experience the Sweetwater Difference Today!
music technology direct™ **1-800-222-4700**

© 2001 Sweetwater, Inc.



5335 Bass Road • Fort Wayne, IN 46808
Tel: (219) 432-8176 • Fax: (219) 432-1758
http://www.sweetwater.com



INSIDER AUDIO

you panic, let me tell you I'm not talking about audio: I'm talking about video. Specifically, Digital Video, *aka* DV.

If you're not familiar with DV (which I assume means you live on the Outer Hebrides without a satellite dish), it has taken over the low- and medium-budget video production markets even faster and more dramatically than digital audio workstations did in our part of the universe. Those \$2,500 broadcast-quality camcorders, \$8.00 60-minute tapes and editing decks the size of a Happy Meal have revolutionized the industry. Done

right, the quality can be fantastic; I'm told that a producer at WGBH, my local PBS station, did some tests when it first came out and found such little visible difference between DV and their standard format, BetaSP, that he recommended their producers adopt it. Computer editing systems that use the format work on the actual digital video data, not pointers to spots on a tape, or temporarily converted or transcoded analog video. So there is no generation loss *anywhere* in the chain, and there's no distinction between online and offline editing. Interfacing various devices—cameras, decks, editors, video cards—is trivial, thanks to the near-uni-

versal adoption of FireWire in the format.

There are various versions of DV (mini-DV, DVCAM, DigiBeta, etc.), but they are almost all plug-compatible, and the format can accommodate different resolutions, color spaces and aspect ratios, so in its higher-end incarnations, it's a perfect medium for producing HiDTV. Like 24-bit audio, you need the right converters and more storage space to handle the higher-resolution formats, but the technology is basically the same as the cheap stuff.

Whatever resolution you work at, you will need gobs and gobs of storage to do

**Those \$2,500
broadcast-quality
camcorders, \$8.00
60-minute tapes
and editing decks
the size of a
Happy Meal have
revolutionized the
industry. Done right, the
quality can be fantastic.**

a project of any length, but now that we have \$150 (and falling) 60-gigabyte (and growing) removable hard drives, that's not really an issue. Perhaps best of all, the same way that software plug-ins have forever changed the way we process audio (even if more and more plug-ins are emulating hardware processors of yore), in the DV world, if a software engineer can dream up some way to modify a picture or a scene, then it can be done.

MAC-BORN, PC-BRED

My friend and colleague Howard Woolf, a longtime photographer and filmmaker, has been very excited about DV for a while. He considers it the first video medium that comes anywhere near film in its quality and flexibility, and it is available at a very small fraction of the cost. Woolf works both in the administration and in the Multimedia Arts department at Tufts University, where he teaches courses in digital video production and is faculty adviser to the school's closed-circuit

—CONTINUED ON PAGE 308

**GET RIGHT
TO THE POINT...**

At first glance all powered monitors may look similar- they have woofers and tweeters and amplifiers, all mounted in a box. But that's where the similarity ends.

- Patented trans•nova/trans•ana amplifier circuitry for more open, dynamic sound
- MOSFET power amplifiers for transient dynamic power and reliability
- Hafler manufactured speakers and electronics
- Magnetically shielded for CRT and monitor protection
- Custom high frequency waveguide for better dispersion
- Precision crafted double thickness stepped enclosures
- No tweeter compression - eliminates listening fatigue
- Made in the USA

**USE HAFLER.
GET IT RIGHT.**

Conservatory of Recording Arts & Sciences, Tempe, AZ
Studio D-5.1 room with TRM8s & TRM12s

Hafler
the standard

www.hafler.com • 888-hafler1

Alternative Medicine



9098i

Glenwood Place

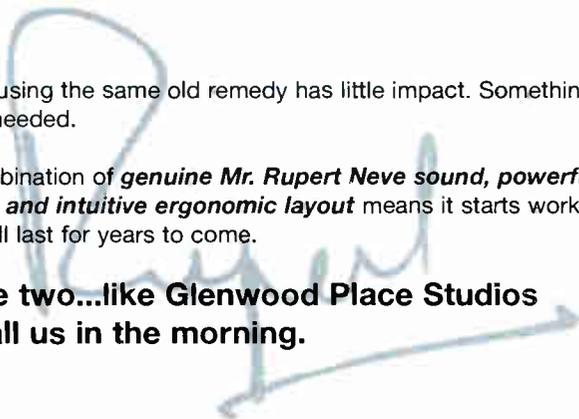
Studios

2 x 72 input 9098i's, Burbank, CA

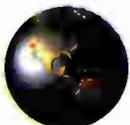
Sometimes using the same old remedy has little impact. Something stronger and more effective is needed.

9098i's combination of *genuine Mr. Rupert Neve sound, powerful Supertrue V4 automation and intuitive ergonomic layout* means it starts working fast to provide instant relief that will last for years to come.

**Just take two...like Glenwood Place Studios
...and call us in the morning.**



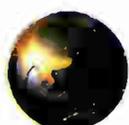
UK Headquarters
44 (0) 161 868 2400



Los Angeles
1 (800) 585-6875



Nashville
1 (888) 286-9358



Tokyo
81 5606 3101
World Radio History



US Headquarters

1449 Donelson Pike
Nashville, TN 37217

Tel: (615) 360-0488

Toll Free: (888) 286-9358

Fax: (615) 360-0273

Email: amekusa@harman.com

Web: www.amek.com

H A Harman International Company

It does more than burn. It sizzles.

Introducing the new Korg D1600 Digital Recording Studio, the most complete and affordable solution for home and project recording. This 16-track digital recorder packs recording, mixing and final CD mastering into a professional quality all-in-one unit. With even more features and capabilities, the D1600 has everything for your music-making needs.

The D1600 comes with a massive 20 GB hard drive for more recording time and less worry about running out of time or space. And thanks to its unique user-swappable design you can easily change drives from session to session using standard IDE mechanisms. The D1600 supports the largest drives possible, so say goodbye to making backups and clearing your drive for the next project. Simply swap it!

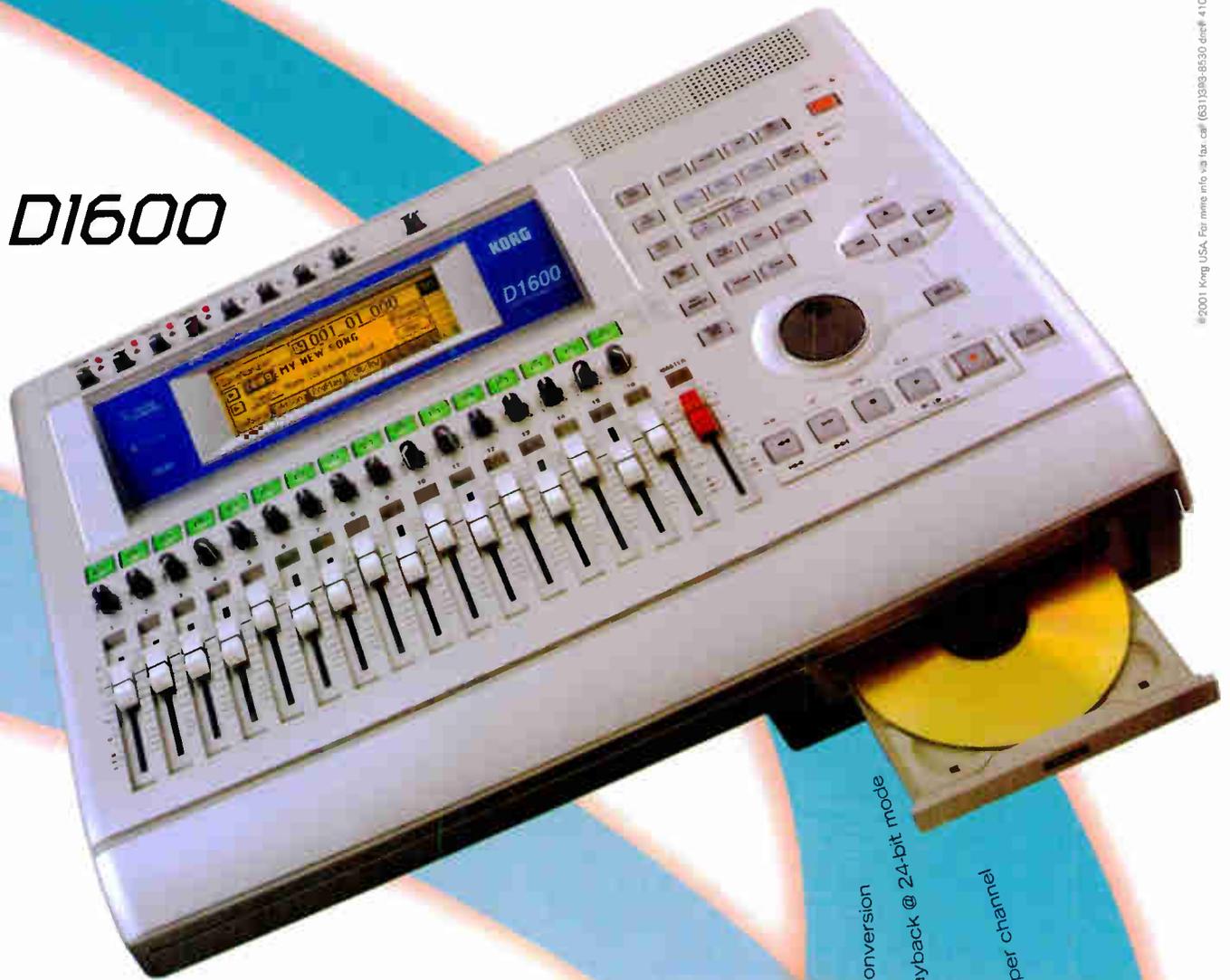
When it comes time to master or backup a project to CD you'll appreciate the D1600's internal CD-RW drive bay. (The Korg model CDRW-2 and many ATAPI-compatible devices can be used.) No cables. No additional power supplies. You can even record audio directly from the internal CD-RW drive. Try doing that with an external unit!

The effects power of the D1600 really shines when recording and mixing. Have up to eight Insert effects configured any way you like, plus two Master and one Final effect. It's like having a professional rack of high-quality effects processors with everything from reverbs and delays to compressors, limiters and EQs. Plus, our special REMS™ models of mics, guitar amps and speaker cabinets.

With its user-friendly TouchView graphic display and intuitive operating system, the D1600 is just begging to be touched. Lay your hands on it and let your creativity take over. Once you heat things up, there's no telling what you'll be able to burn.

KORG

D1600



- Recording Format: 24-bit/16-bit uncompressed, 44.1 kHz
- 8 track recording/16 track playback @16-bit mode
- Total of 128 tracks (8 virtual tracks per track)
- 24 channel, 8 bus digital mixer with scene memory and MIDI automation
- Four XLR inputs w/phantom power
- 215 PCM drum rhythms
- 24-bit A/D, D/A conversion
- 4 track recording/8 track playback @ 24-bit mode
- 100 scenes/4 locate points per song
- 106 effects algorithms
- 24-bit optical S/PDIF I/O
- 3-band EQ per channel
- Built-in tuner

ROY HALEE

INCIDENTS, ACCIDENTS, MIRACLES AND WONDERS... AND A CAREER WORTHY OF THE TEC HALL OF FAME

Like it or not, the great New York engineer/producer Roy Halee will forever be linked with Paul Simon and Art Garfunkel; he recorded every album Simon & Garfunkel made, co-producing a couple of them, and did many of Simon's solo records and Garfunkel's acclaimed first album. That's quite a body of work right there—sales in the millions, and honors including Grammys and a number of other awards. But during the course of more than 40 years in the recording business, Halee has amassed many other credits, too, covering a broad range of musical styles, and it is for his entire career that he has been named this year's recipient of the coveted TEC Hall of Fame award.

Did you know, for example, that Halee worked with The Yardbirds? That he engineered the classic '60s jam disc *Super Session*? That he recorded and produced great albums for '70s funksters Rufus? It's a helluva resume, stretching from the early '60s to the present, and including



The Roches, Mark Almond and many, many others. He's one of the guys the term "golden ears" was invented to describe, a master engineer with impeccable taste and an encyclopedic knowledge of both musical and technical matters.

We caught up with Roy Halee this summer at his Florida home...

How did you get your start in the business? And are you from New York?

Yes, I grew up on Long Island. How I got my start is I worked for CBS Television. I started at the bottom there, pushing cameras and booms around in the late '50s.

Were you technically inclined?

Not really. I was studying to be a classical trumpet player and I got pretty far in that, but at some point I sort of gravitated over toward broad-

casting and got in at CBS. I graduated up in CBS Television to being a straight audio man—doing the Goodson-Todman game shows and other things. I did *The \$64,000 Question* for a while, which was the Number One-rated show for a long time. It was all live, so I got broken in pretty well.

Then I got caught in a union lay-off because all the shows were moving out to Hollywood. I never would've left CBS Television had I not been laid off. But when it happened, I went right across the street to Columbia Records and ended up in an editing cubicle for about a year-and-a-half.

What did that involve?

Just editing tape—classical, pop, you name it. I did a lot of classical editing.

Is this stereo by this point?

Stereo, and some mono. It was a lot of editing 3-track master tapes, work-

PAUL · SIMON
GRACE LAND



such name artists as Peaches & Herb, Chad & Jeremy, Moby Grape, The Cyrle, The Byrds, Barbra Streisand, Blood Sweat & Tears, Edie Brickell, Neil Diamond, Journey, Willie Nelson, John Klemmer, Boz Scaggs, Laura Nyro, Ladysmith Black Mambazo,

BY BLAIR JACKSON

FOH ENGINEER TEST:

FOH engineer A and FOH engineer B are each tuning venue-appropriate line array systems using well recorded demo material. All equipment is identical or equivalent except for the loudspeakers. Each proceeds to adjust system response to taste. Engineer A tweaks house EQ. Engineer B tweaks house EQ, alters processor settings, adjusts amplifier levels, lands the arrays to check polarity, whimpers softly and contemplates a career in footwear sales.

Which engineer is using a KF760 system from EAW?
(check one) Engineer A Engineer B



Line array precision. EAW simplicity.
For pure performance, no other system comes close.

KF760 Line Array
The Line is Drawn

Visit www.eaw.com/760Chronicles for more information.

EAW

Eastern Acoustic Works One Main Street, Whitinsville, MA 01588 800 992 5013 | 508 234 6158 www.eaw.com

EAW is the worldwide technological and market leader in the design and manufacture of high-performance, professional loudspeaker systems

ing with the various producers.

Who were some of those Columbia producers you worked with in that era [early '60s]?

Oh geez, there were so many—everyone who was on staff at Columbia at the time. Al Kascha, who went on to win Academy Awards, Tom Wilson, Bob Johnston, Teo Macero, who I did some jazz stuff with... John McLure, Thomas Shepard and Paul Meyers, they all did classical. You had to edit everything. I got a tremendous amount of experience editing tape. Plus, you would also mix down tapes from 3-track to stereo and mono to be mastered.

I assume this was all on the label's custom-built consoles.

Correct. In those days, Columbia did everything in-house—the consoles and studios and editing rooms. We had a vast amount of editing cubicles—I couldn't guess how many we had. And mastering rooms, too.

So I was a year-and-a-half doing that, to the point where I was going crazy being cooped up in that editing room, and quite frankly, I threatened to leave. I lined up a couple of jobs outside—I wanted to get into the studio; I thought of myself as a studio guy. They said, "No, you're not going anywhere. We'll put you in the studio." So they put me in the studio, and I started doing sessions almost immediately.

Do you remember your first session?

I very much indeed remember my first session: It was Bob Dylan, "Like a Rolling Stone."

Wow!

"Wow" is right. I didn't know what the hell I was doing. But I ended up doing that album [*Highway 61 Revisited*], and that evolved into my doing Simon & Garfunkel and the Lovin' Spoonful and a couple of dates with The Yardbirds. And then interspersed with that was all the pop stuff that Columbia had at the time. They sent me down to the Bon Soir nightclub and I did Barbra Streisand's first session.

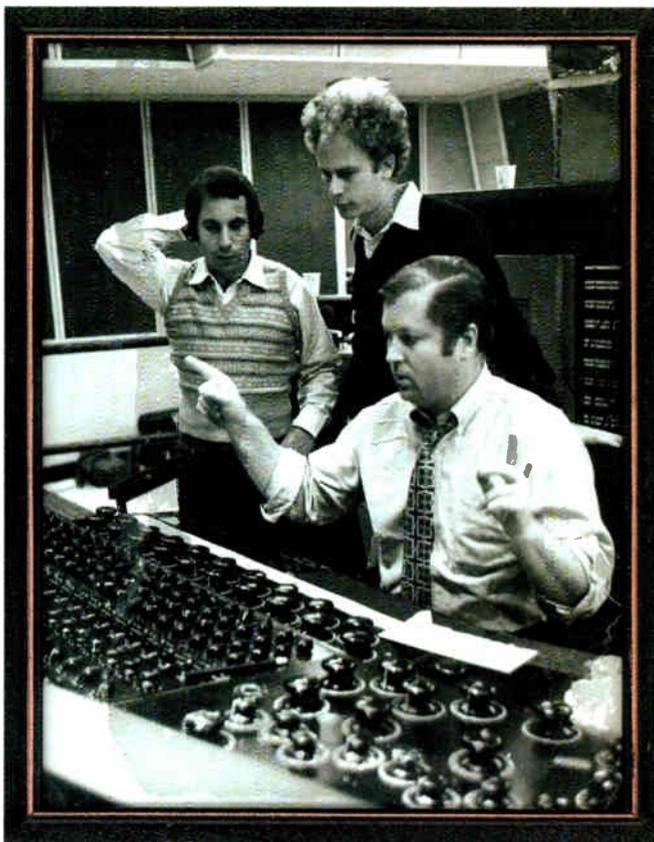
I'm intrigued by the thought of you being thrown into a session with Bob Dylan. I mean, here you are, you've been in television and then doing editing for a while, and, all of a sudden, you're in a room with this strange guy and what turned

out to be a revolutionary sound... It must have been pretty jarring for you, no?

It was. I was nervous, to say the least.

I gather there was sort of an uneasy relationship between some of the mid-'60s groups and the recording world, which was so conservative on many levels. How did you bridge the gap?

It was tough, no question about it. I think I was able to do it successfully because I enjoyed the rock and pop stuff so much.



I found it really creative, because on those records you could sort of stretch what you knew and come up with all kinds of sounds and mic techniques. Whereas with the classical stuff, it was pretty straightforward: "This mic goes here, this mic goes here, this mic goes here; that's the way we do it." It was more like television in that it was very schooled and orderly. But I liked that Dylan would say, "Hey, I want to do my vocal over here by the drums." Okay, well, how am I going to do that? That became a challenge. So there was a lot of experimentation, and not everything worked out every time, of course, but that attitude was good, and I think it helped me in later years.

Had you been schooled at all about, say, what was happening over at Atlantic with Tom Dowd and Ahmet Ertegun?

Certainly we were aware of what they were doing, but, quite honestly, I didn't

pay that much attention to it because I was too busy doing my own thing. I had a lot of outside clients coming in who had heard about this young guy who would try anything and they wanted to work with me. I brought in a lot of younger acts who previously wouldn't have thought of recording for Columbia, which was considered sort of square at the time.

Well, it was Mitch Miller's label after all. That's right. Actually, Mitch Miller's the one who brought me in. I never actually worked with him. But he was a great, great musician.

Was it hard to switch back and forth between, say, the Lovin' Spoonful and a big pop session?

No, I can't say it was. One might be a little more challenging than another. You go into the studio with a 70-piece orchestra and you're doing it live—that was a helluva challenge. You couldn't spend two hours getting a drum sound, obviously. You had to get it right away. But then a group like the Lovin' Spoonful was challenging in its own way. You're working to really capture the sound of the group, and that's not always easy. I really liked them. John Sebastian was really great to work with. They got a little crazy sometimes, but they were a lot of fun. To cut a record like "Summer in the City," and watch it go up to Number One and sit there for weeks—that was a

ball; it was really thrilling.

I imagine that in the pre-Revolver days, bands pretty much let the engineers and producers call the shots in terms of how the records should sound...

That's right. We were mostly doing live tracks, maybe overdub a few things, and then put vocals on. But we'd experiment, too. Like on "Summer in the City" that explosion is from putting a mic in a garbage can that we had in the studio and banging it.

Did the highly experimental approach of George Martin affect you the way it did so many engineers and producers?

No, not really. Like I said, I had my own thing going.

But it certainly affected musicians and producers in terms of making them aware of the potential of the recording studio.

That's true. As you said, I think it affected

"The Neve 88R sounds unbelievable!"

Nothing compares

PLUS XXX

PLUS XXX

PLUS XXX
STUDIOS

*Claude Sahakian. PLUS XXX STUDIOS, Paris

LONDON · PARIS · LOS ANGELES · TOKYO · SYDNEY

 Neve

HEAD OFFICE – AMS Neve plc · Billington Road · Burnley · Lancs BB11 5UB · England

+44 (0) 1282 457011

FRANCE – +33 1 34 27 67 53 · GERMANY – +49 61 31 9 42 5220

HOLLYWOOD – +1 (818) 753 8789 · LONDON – +44 (0)20 7916 2828

NEW YORK – +1 (212) 965 1400

e-mail: enquiry@ams-neve.com – <http://www.ams-neve.com>

SEE US AT AES BOOTH #134

some producers quite a bit. I worked with a guy out in L.A. who loved to imitate everything The Beatles were doing—Gary Usher. He loved to copy them. “Here, listen to this record, Roy,” and it would be some phasing thing; no big deal. Actually, I used a lot of that on Simon & Garfunkel. *At what point did you book up with them originally?*

Well, I was there for the audition. Then Columbia signed them, and Artie said, “Can’t we have the engineer we had on the audition? We really like him.” And I ended up doing all their sessions; every one.

Can you talk a little about their evolution in the studio? A record like “The Sounds of Silence” had a pretty distinct sound, but that’s very different, obviously, than what we later hear on Bookends or Bridge Over Troubled Water.

Well, “Sounds of Silence” was originally the audition, and then [producer] Tom Wilson and I went in the studio and overdubbed the studio musicians, and it came out as a single and it was a big hit. After that, we brought the same musicians in the studio and went on from there on the album.

How much control did Paul Simon have at that point over the music and arrangements and all?

Total. Or just about total. Artie was more into the vocal backgrounds, the pretty harmonies, etc. But Paul was the writer, and he really had a vision for what he thought we should do. Still, he would bounce ideas off of us; he’d come into the studio and say, “What do you think of this?” and he’d play something, and Artie would say what he thought, and I’d say what I thought, and we’d go from there.

Was theirs the typical story of each record taking longer than the previous one? An album like Bridge Over Troubled Water has so many styles on it; it must’ve been harder to pull off in the studio.

Well, it also didn’t help that Artie went off and did a movie [*Carnal Knowledge*], so that sidetracked us a bit. Also, Paul is not the fastest writer in the world. He wasn’t one of those guys who could just grind it out—boom, boom, boom—like he did more in later years. But, yes, that record did take a long time. Isn’t it that way with all successful groups? I think that’s normal. *What was the separation between producer and engineer in those days.*

Total. Although it wasn’t with me; not at all. The engineer was the engineer; the producer was the producer. The producer called the shots in the studio. He was



Roy Halee with Laura Nyro

running the session, and the engineer followed along. He was considered a good engineer if he didn’t get in the way. I was fortunate in that they drew me in more musically; they picked my brain more—“What do you think?” “What kind of sound would go well with that? What texture might go well with that?” “Well, how about a piccolo trumpet and a tuba in a church on that?” So we’d go and do that, like we did on “The Boxer.” We went into the chapel at Columbia University to overdub a piccolo trumpet and a tuba.

So that’s not something that was planned way in advance.

No, we were always experimenting with different combinations, different sounds. And you know, all the Paul Simon sessions were “head dates”; none of them were arranged. You go in and pick the brains of the best musicians in the world. You don’t put a chart in front of a Hal Blaine or a Larry Knechtel. You let them do what they do—draw on that.

You did Blood Sweat & Tears’ classic second album, which I always thought was a sort of left-field success, because born bands weren’t exactly hot at the time...

That’s true, though I always thought it was very commercial-sounding music. Of course, I had no idea it would be that kind of success. Horns on a rock ‘n’ roll record? It was almost unheard of. But the tunes were strong enough. And they had a great singer [David Clayton Thomas].

Did you keep an ear on pop radio at the time? Radio in the late ‘60s was so eclectic,

it must’ve been hard to make any generalities about what was “hot.”

I listened all the time. You’d hear what was making it and what wasn’t. I can’t say I changed anything I was doing because of what I was hearing, but it was important to know what was out there. So, yeah, I listened...and then I’d go home and listen to classical music to clear my head. You’ve gotta have that, man, or you burn out.

Were your bosses at Columbia comfortable with all the sonic experimentation you were into?

Up to a point. You know, I really wanted more tracks, and for Columbia to invest in an 8-track machine or, later, 16-track, it didn’t just involve me—it involved studios in Hollywood and Nashville, because they wanted their studios to be the same everywhere. It was a big investment any time they wanted to make a change.

You were instrumental in setting up some of the other Columbia facilities, weren’t you?

Well, they gave me my own studio in San Francisco. Clive Davis basically told me I could build the studio and do whatever I wanted out there.

But hadn’t you been in L.A. right before that?

Yes, but that studio was there already. I did a lot of recording in L.A. with Paul and Artie [Simon and Garfunkel]. I cut The Byrds there, too.

And that studio was like the one in New York, equipment-wise?

Right; it was Columbia equipment. Which

EVERYTHING YOU NEED



The RME Hammerfall 9652 card is most impressive. With the lowest latency on the market and the ability to record 24 tracks simultaneously to your Mac or PC, the possibilities are endless.



The AC2496/5045 Analog to Digital Converter expands your D-2424 to a total of 24 analog I/Os, giving you even more freedom to create.



With C-Console Software, you can control your D-2424 from your Mac or PC desktop or from anywhere in the world.

Fostex D-2424 Complete System

With the D-2424 System from Fostex, you are not only presented with the world's most affordable 24 bit/96kHz 24 track rackmount hard disk recorder, but you also get full integration with your desktop computer, customized control software, and a total of 24 digital and analog I/Os. The Fostex D-2424 System is everything you need, at one low price.



*DVD-RAM Model Shown

adat
OPTICAL

Fostex
PROFESSIONAL
www.fostex.com

Fostex America, 15431 Blackburn Avenue, Norwalk, CA 90650 Tel: 562-921-1112 Fax: 562-802-1964

World Radio History

some of the groups were not particularly crazy about, to be very honest. You know, groups are very fickle about studios. But Paul Revere & The Raiders always worked in the big Columbia studio [in Hollywood]. The Byrds did most of their sessions there. I liked working out there, but the union was a little strangling.

How so?

Creatively. If you wanted to do something really strange with a lot of machines, they didn't like it. If I had four or five tape machines running with echoes and reverbs—because you didn't have digital delays in those days, of course—I'd line 'em up in the hallway of the studio, and the union didn't like that. "What do you need all those machines for?"

So did CBS want to open the San Francisco studio because at the time it seemed like it had an important music scene?

Yes, they wanted to get more active in the business there. Janis Joplin was there at the time. Santana. There were a lot of acts there; it was flourishing, and Columbia wanted to get involved in it. What happened, though, is that I ended up bringing a lot of my own acts in there. I brought in Blood, Sweat & Tears, and we cut a lot of Paul Simon's first album there. Then Art Garfunkel came out and we did a lot of his album there.

When there was the transition from Simon & Garfunkel to Paul doing his solo material, was there much of a difference in the way he worked in the studio?

Well, he wanted to do that first album in a sparse, almost homemade way; almost like a demo. No big arrangements or big flourishes; just straight ahead, his voice way out front.

But then with his next album, There Goes Rhym'n' Simon, it was back to the big productions.

Right, that was very arranged. Phil Ramone produced that one.

When [Simon's] Graceland came out in 1986, obviously there was a lot of talk about "world music" and all that, but the fact is, he's always been into different world music strains, whether it was the Peruvian "El Condor Pasa" or the various Latin and Caribbean things he did—"Cecilia," "Me & Julio."

That's absolutely true. It's because he's always looking for something different.

So did the San Francisco studio have the same equipment as the other CBS studios?

Yes, for the most part. It had the same custom console. It had a lot of good tube electronics—like the old RCA compres-

sor/limiters, which were really good-sounding units. And we had the old Pul-tecs and the UREI 1176s. And, of course, the microphone selection was out of this world. Today, you can't even get half of those microphones. I must've had 10 M49s and 10 U67s, KM84s, AKG C-12s for classical work. What a wealth of microphones!

What finally happened in San Francisco? You left in the mid-'70s...

I eventually got really tired of it, because I had to keep bringing musicians in from L.A. I tried using Bay Area players. I brought in San Francisco Symphony players a few times. And there were a few horn players. I brought in Jerry Garcia a couple of times, which was nice. But Hal [Blaine] was down in L.A., and so many of the regular musicians I liked to use

**You do whatever
you have to do**

to get it on tape.

**That's always been
my feeling.**

were down there, and then I got involved with Albert Hammond and I was spending more time there than in San Francisco, so I figured I'd go back down there. I just couldn't find the musicians I needed to help me.

How did you feel about the physical change in studios during the '70s? The rooms became dead; there was a move away from live tracking in favor of building layer by layer from the drums and bass up...

I didn't like it. I like ambience and I like to cut a good live track with a band. I've gone into the studio with producers and heard them say, "Hey, that's leaking! That's leaking!" And I say, "That's right, I like that! Listen to the overall sound!" If you don't have the leakage, the sound suffers. You have to have some ambience. Of course, sometimes you can't, and obviously you've got to overdub, but even there I'll do whatever I can to get some ambience happening. So, going into these dead rooms and putting all these guys in their little cubicles...I didn't like it at all. I liked studios where you could do both—like the old Mediasound in New York. It was a very live room, but you could deaden it if you wanted to for some reason.

But did you do it?



No, I didn't. It was very challenging, for instance, doing *Graceland* in Africa, because I had to isolate these guys so that we could cut up the tape, take instruments out that we didn't want, replace them with other instruments. Yet I wanted them all close so they had eye and ear contact without headphones. So how do you do that without building all these little houses?

What did you do?

I'd have to show you. It's complicated. I could write a book on the technical side of making *Graceland*. Briefly, though, it was mic placement, person placement and a few goboes. You'd be surprised what you can do in a room that's fairly dead, without any baffling, if you do a sensible setup. Musicians love to have eye contact. I've found that the drummer always needed phones, but other musicians really didn't need them and didn't want them, because nine out of 10 times the headphone feed is bad.

Did you build the rhythm tracks and spend endless hours on drums sounds?

Oh, sure. You do whatever you have to do to get it on tape. That's always been my feeling.

So you wouldn't have recommended against working that way?

No. It's in the nature of being experimental. I go to a studio in Africa, I see what I've got or what I can get, and I think, "What do I need to do to get this on tape?" So I go out and listen to each musician and hear what's happening in the room overall and between each of the players and then work up a strategy to get that on tape. That's my job! If I don't figure that out, we're going to get back to New York and we're not going to have anything useable.

You work whichever way works for the group. If a band is *roaring* in the studio [live], you can't throw up your hands and yell, "Help! Let's overdub all this!" You just gotta do it.

How were the Rufus records done? Was

Renaissance Collection and the New Renaissance Collection 2

**Powerful and musical!
Intuitive interfaces for Maximum productivity!**

**Renaissance Collection TDM \$600 MSRP
Essential tools used by top industry leaders!**

Renaissance Equalizer



Classic analog response for rich, clear equalization. Gerzon, Baxandall, shelving and cut filters with variable slopes.

Renaissance Compressor



Exceptional compressor with Opto and Electro modes, plus ARC™ auto-release, & L1-style brickwall limiter on output.

Renaissance Reverberator



Pro Quality Classic sound. With Halls, Plates, Chambers, Rooms, Gates, Reso. Echo and Reverse.



**NEW Renaissance Collection 2 TDM \$400 MSRP
Our newest tools provide more punch and clarity!**

Renaissance Vox



Brings vocals & solo instruments to the front of the mix while pushing out unwanted noise. Unique, powerful and practically magic.

Renaissance Bass



Pumps up the bass without distortions and allows low frequency bass perception through small speakers. A refinement of our popular MaxxBass.

Renaissance DeEsser



The next generation DeEsser, offering an Adaptive Threshold Control that provides more unified DeEssing and more natural sounding results.

**Free 2 week demo download at www.waves.com.
Available also for Native. See your WAVES dealer!**

that a band playing together?

I think so; pretty much. But let me give you an example of something they liked to do, and I went right along with it because that's what they wanted to do and it was my job to get it on the tape. They liked to put the drummer in the studio, put the bass, guitar and keyboard in the control room and cut a track. Their manager would come in and say, "What the hell are you doing? We're spending \$900 a day for the studio, and you're not using it!" "Yeah, but we're getting it down on tape, and it sounds pretty damn good." I would've preferred it out in the studio, sure. But we tried it the other way and they liked it and we still had fun doing it. Those were good records.

Did editing 24- or even 48-track tape in later years involve the same sort of skill set as 3-track in the old days?

Pretty much, I guess. Editing 3-track classical tapes was very, very difficult. Finding the spot in a sustained string section where they might change a note...you scrub the tape and you don't hear it immediately. So to have the technique to hear that and then cut the tape and make the change—that was very

tricky to do. Some of the editors there were amazing; they never made mistakes. Now, editing digitally seems like a piece of cake.

Though you prefer the sound of analog, right?

Oh, yes. Sometimes we would do a com-

**I didn't like going
in the studio
for 24 hours straight,
because I thought
your ears were gone;
I knew mine were.**

bination of digital and analog. When we went down to Brazil to work on [Paul Simon's *Rhythm of the Saints*] we cut it analog and digitally, and then I could compare the two.

You did both at the same time?

Right. I wanted to capture the analog sound because I think it's far superior; I feel there's no comparison. But I had to

do the digital for editing purposes. I couldn't have done either of those records [*Rhythm* or *Graceland*] without it; where I was going 10 generations to do my editing. Then in the end I mixed it down to half-inch analog at 30 ips, which is a sound I like.

Of course, all this is before a lot of improvements in digital processing, and before things like SACD and even upsampling normal compact discs, which does improve the sound.

You've also produced a number of great records through the years, while remaining an engineer principally. Do you remember what your first credited production was?

I think it must've been with Simon & Garfunkel. I remember at one point there was talk of Lovin' Spoonful doing a record with me, and of John Sebastian doing one, but I think in the end their manager decided that Erik Jacobsen had done a good job with them so let's not make waves. But I did Simon & Garfunkel, and Blood Sweat & Tears, Laura Nyro...

I see you produced Journey's first record.

I actually signed them! I thought that band was unbelievable! [Guitarist] Neal Schon really knocked my socks off. What a play-

SEKAKU

-  **XLR balanced input**
1/4" (6.3mm) TRS balanced input.
-  **Fully selectable low-frequency filtering:**
choice of 30Hz. Stereo (dual-channel), parallel-input, or bridged mono operating modes.
-  **Fan cooling is provided.**
Overheat is mono protected.
-  **Output connector for CH-A & CH-B.**
Output for bridge connection.
-  **Overloaded reset.**
-  **LED indicators for signal and clip.**

- EQUALIZER · α · VERB · CROSSOVER
- COMPRESSOR / EXPANDER / LIMITER
- PLL SYNTHESIZED WIRELESS MIC. SYSTEM
- IN EAR MONITOR SYSTEM

These rugged fan-cooled, 2-channel, 2-RU amps provide high-Value performance and power in a strong compact chassis. The series comprise three models: the PSA-3530, PSA-3800 and PSA-31300.



PSA-3530
PROFESSIONAL STEREO AMPLIFIER



SEKAKU ELECTRON INDUSTRY CO., LTD NO. 23, Lane2, Jing Wu Road, Taichung, Taiwan 401, R.O.C
 TEL: 886-4-22313737 FAX: 886-4-22346757 http://www.sekaku.com.tw E-mail: sekaku@ems1.sekaku.com.tw

Please see us at the Hong Kong Electronic Show booth #1K01, Oct. 15-18 and at the Taipei Electronic Show booth #A727, Oct. 17-21.



Legendary producer and 9-time Grammy winner **Phil Ramone** is one of the most respected and recognized names in the music industry. From a beginning engineering records for jazz greats John Coltrane and Stan Getz, Phil went on to amass a star-studded portfolio that includes projects as diverse as Tony Bennett, Elton John, George Michael, Luciano Pavarotti, Paul Simon, and Barbra Streisand.

Elliot Schemer, studio engineer extraordinaire, is no stranger to success either, having worked with some of the most-listened-to artists ever recorded: Phil Collins, The Eagles, Fleetwood Mac, John Fogerty, Steely Dan and Sting, just to name a few.

Together, Phil and Elliot have merged their amazing talents on projects with Natalie Cole, Aretha Franklin, Billy Joel and Frank Sinatra.

To accurately capture the essence of an artist, they rely on **40 Series** microphones. "The first time I used the 40 Series, I knew that A-T was on to something special," says Phil. "They have an almost magical ability to bring out the best in any performance, while always remaining true to the source."

Take a tip from these music industry legends and try 40 Series microphones on your next session. Who knows? You might just be making musical history — like they have.

Special thanks to Capitol Studios, Hollywood, CA

Audio-Technica U.S., Inc. | 1221 Commerce Drive, Snow, OH 44224 | 330.686.2600 | Fax: 330.686.0719 | E-mail: pro@atus.com | www.audio-technica.com



40 Series

 **audio-technica**

er! And Aynsley Dunbar was a fantastic drummer, of course. They didn't have the vocalist [Steve Perry] yet. But they could really play, and their material was good, and they had this craziness and drive I thought was really magnetic.

Did you have trouble making the transition from being purely an engineer to being a producer, listening for musical things, etc.?

A little, yes. And I would always lean toward the sound. But I didn't have any problem dealing with musicians on their level, telling them to do something again

if there was an intonation problem. "Oh yeah, *where?*" And then you better know what you're talking about.

I gained a lot of confidence from the people I worked with that I really knew what I was talking about. Like when I would do vocals with Paul or Artie or both of them, they would really listen to what I would say. And I helped them enormously with pitch problems.

At some point, Columbia stopped using their custom consoles and started buying commercial consoles. Did you have input into the types of gear they bought?

I was out of that loop. I think I was an independent by then. You know, those

consoles might not have been the cleanest consoles in the world or have the greatest transient response in the world, but they were the most *reliable* consoles in the world. They never, *ever* broke down. And the reason for that is that in New York—and Hollywood, too—if you've got a hundred musicians in the studio, you can't have a breakdown of the console. It's too expensive. So they really cared about maintenance—the maintenance crew would come in each morning and run a check, and then those consoles would just go and go, for 24 hours straight if you needed them to; no problems. That was important to them.

What happened after the change?

You start having breakdowns. I did a lot of sessions at Mediasound in New York with their Neve board, and I liked the sound a lot, but the damn thing was breaking down constantly, and that would drive me crazy because I was used to not having that problem. You're in the middle of something that's really great, and then you have to stop because you've got a breakdown—that drove me up the wall. It used to happen at the Hit Factory once in a while, too, in the middle of the night. And I'd go nuts. "Look, Roy, you've got to cool it. Forget it. That's life." So, I learned to deal with it. You take a break, walk around the block, whatever.

Was it hard branching out to other studios after you left CBS?

Well, I didn't that much. One time I had Cat Stevens come out and he wanted to work at Sunset Sound, and I said, "No, I think I'll work here [at CBS]." I was very, very spoiled.

Is that studio gone?

No, it's part of CBS Television studios. Of course, the [CBS] studio in New York that I loved and worked in all the time was sold to A&R—that was Phil Ramone's place—and has since been torn down, and I think there's a school there now. What a shame; that was a great studio.

So, what became your favorite studios in New York?

That one. Then Media, which was in an old church on 57th Street and now is a disco or something. Then I found the Hit Factory and pretty much did all my work there for many years. That worked out great for me.

Did you feel part of a New York recording community? Did you bobnob with Phil Ramone and others?

Not really. I mean, I hung out with Phil a bit because I worked at A&R a lot. I've always been very friendly with Phil.

Were there times you felt like you had to

Studio Condenser Microphones

New

M 930 

M 940 

- Extreme dynamic range
- Noise floor 7 dB-A
- Universal applications
- New large membrane capsule
- Advanced circuit design
- Transformerless output
- Internal elastic suspension
- Compact design
- Priced right

SEIT 1928 FORMIKROFONE UND MESSTECHNIK

MICROTECH GEFELL 

MICROTECH GEFELL ARH MÜNCHEN BERG 18 D-07926 GEFELL TEL. 036649/882-0 FAX 036649/882 11
 INTERNET: www.microtechgefell.com// E-mail: microtechgefell@t-online.de
 790 Broadway 4th Floor New York NY 10019
 Phone ++1 212 765 3415 Fax ++1 212 581 8938



Brittle is for **nuts**, not **audio**

Does your audio sound brittle and hard? Now Empirical Labs has TWO great toys to make tracks jump with excitement, and help take that "plastic" edge off of your digital multitracks and masters.

Since its debut in 1995, the Distressor has become a workhorse, both in the studio and on the road. With its easy to use classic knee compression and exclusive harmonic generation capabilities, it has found its way onto thousands of major records, from artists as diverse as Pavorotti to Nine Inch Nails.

Now Empirical Labs Introduces the Fatso (Full Analog Tape Simulator & Optimizer – get it?) With a soft clip harmonic generator, a high frequency saturator to soften the treble, a transformer for tape head emulation ... plus some basic kick-butt compression... the Fatso is an arsenal of tools designed to bring back the sweet high end and low frequency warmth you loved on your classic old punchy analog tape recordings.

So save the brittle hard stuff for your sweet tooth, and count on Empirical Labs to sweeten your day – and your music – with its "Swiss Army knife", session-saver processors: the Distressor and the new Fatso.



Distressor Model EL-8 and EL-8X

Classic Knee Sound • Programmable Analog Distortion/Warmth • Eight Unique Curves including 10:1 Opto Ratio & the famous "Nuke" mode • new British Mode & Stereo Image Link



Fatso Jr Model EL-7

Full Analog Tape Simulator and Optimizer

*Harmonic Generator & Soft Clipper • Transformer & Tape Head Emulation
High Frequency Saturation (warmth!) • Classic Knee Compression • 5.1 Surround Linking*

SEE US AT AES BOOTH #1357

To find out who's Distressed and who's Fat, check out www.empiricallabs.com or call to arrange a demo.



1170 Greenwood Lake Turnpike, Ringwood, NJ 07456
tel (973) 728-2425 • fax (973) 728-2931 • email eli@wavedistribution.com

World Radio History

BASIC ACOUSTICS

- ▲ Sound Absorbers
- ▲ Sound Barriers
- ▲ Sound Diffusors

from



ALPHASORB FABRIC-WRAPPED WALL PANELS



FREE Catalog & Sample
(800) 782-5742

www.acousticalsolutions.com

SEE US AT AES BOOTH #352

step away from recording to keep from burning out?

Yes. I always enjoyed my time off. And I didn't like going in the studio for 24 hours straight, because I thought your ears were gone; I knew mine were. I knew damn well that we'd come back the next day and do whatever we'd done near the end all over again. Like I said, I liked going home and listening to some good classical music to clear my ears out.

Did you ever get back to doing classical music?

A bit, yeah. But as you know, you get pegged in this business. For a while I got pegged as the guy who makes good horn records, because of Blood, Sweat & Tears. And I got pegged as the guy who does these sweet, soft, beautiful records with Simon & Garfunkel.

There's something in the temperament of the great engineers that allows you to work with egotistical and demanding people. What is it? It's more than tolerance. It must be a certain empathy, knowing what the artist is going through...

I'd call it respect. It is a certain amount of knowing what the artist is going through; that's very well put. Understanding the pressures on them. You're there to help in every way you can, providing the guy or gal isn't acting like a complete jerk. I've seen Phil [Ramone] in situations at A&R that the average guy would crack under, and he'd sail right through it.

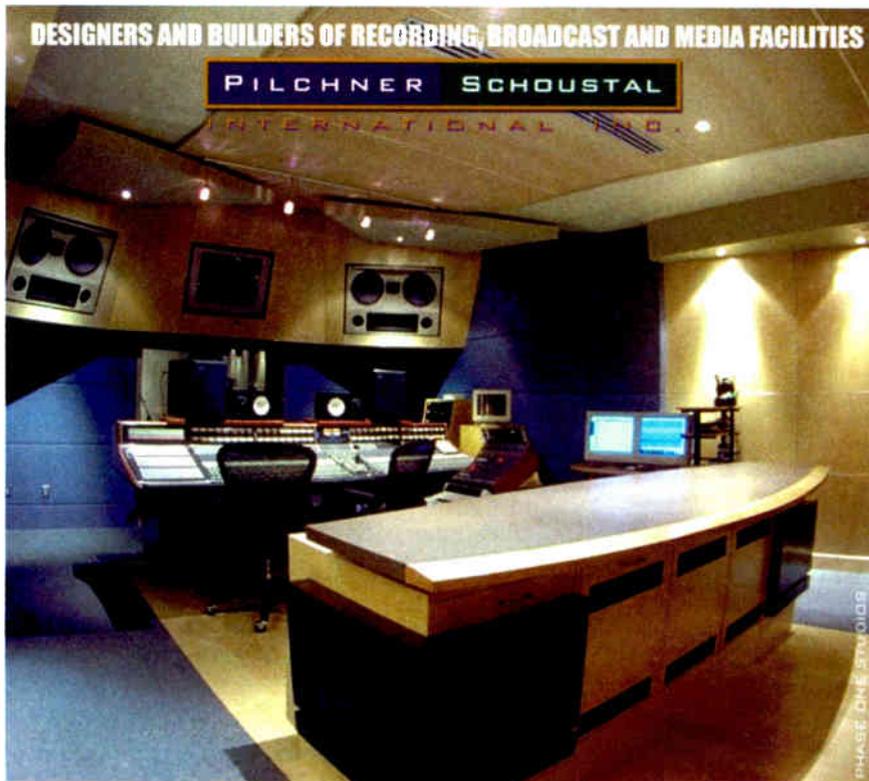
What do you think of the elevation of engineers to what could loosely be called star status? It was such an anonymous profession for so long...

I think it's great. Gosh, at Columbia I must've done a thousand albums that I never got credit for. Years ago, they didn't give credit. Like, do you know who the engineer was who did all the Tony Bennett albums or all those great early Sinatra records, or all the Mitch Miller records; every single one? It was the same guy: Frank Laico. One of the best. A great engineer, and nobody knows him, because he didn't get credit.

What was the last project you worked on?

I was a consultant on Paul Simon's Broadway show, *The Capeman*, a few years ago. But if something interesting came along right now, I'd jump right in with both feet. At this point, it would have to be something I'm really enthusiastic about. But I'd love to get a nice, hot project right now. ■

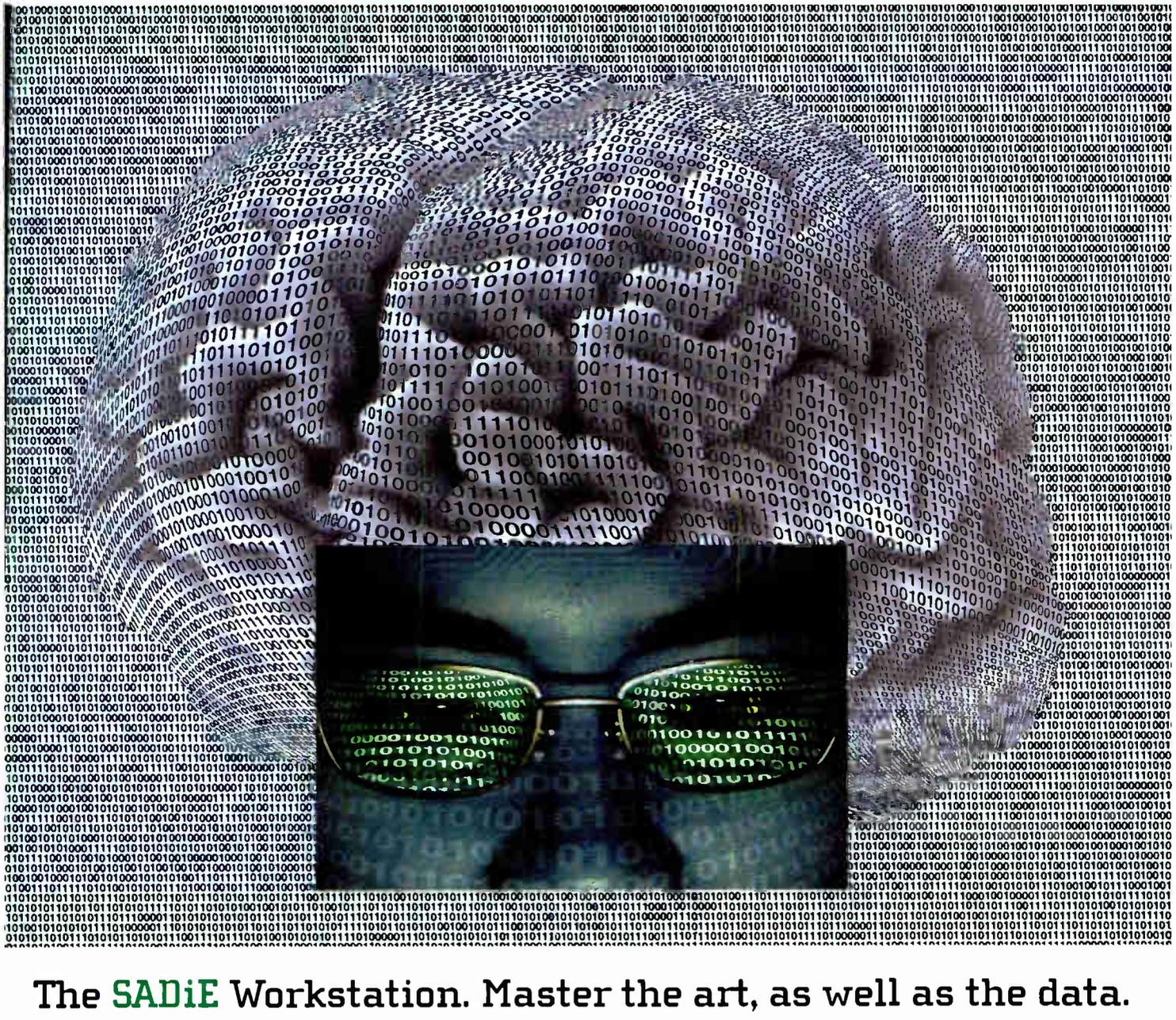
Blair Jackson is Mix's senior editor.



Pilchner Schoustal
International Inc.
416-868-0809

376 Queen ST. E
Toronto, Canada
M5A 1T1

WWW.PILCHNER-SCHOUSTAL.COM



The **SADiE** Workstation. Master the art, as well as the data.

Brainteaser: Which 10-year old technology leader offers audio professionals more real-world audio production solutions than any other digital audio workstation company in the world? *That's right! SADiE.*

Whether your facility's workflow requires the raw power of the **SADiE 24*96™** or **ARTEMIS™** systems, the affordable **RADiA™** and now – **SACD & DVD-A Direct** authoring solutions – there's a sophisticated, field-proven **SADiE Mastering System** for your most critical production work. There simply isn't a mastering or sound restoration task a SADiE can't accomplish – better. And faster.

All our systems offer the feature-rich, intuitive interface of the new **SADiE4** software system.

SADiE systems have proven their worth with literally thousands of customers worldwide – working day-in, night-out – across dozens of demanding high-end user applications. Our reputation for the highest sound quality, as well as exemplary feature sets and plug-ins (*like the acclaimed restoration tools from CEDAR™*), is equalled only by our renowned, no-nonsense *customer support*.

Let us show you the essential tools for mastering your art. And how a **SADiE Workstation** makes serious work, serious fun.



*In full-color at Crescent Moon Studios, Miami, Florida
The Sadie 24*96 Workstation.*

SADiE
Master The Art™



Any analog or digital input—24/96 mic/line/instrument, ADAT optical, S/PDIF, or USB—can provide the source for an audio channel. Mix and match source signals with total freedom—you can even mix signals with different sample rates. And since we know you've got lots of gear waiting for a home to plug into, we developed our unique multi-input electronically buffered channels, each of which can accept up to three analog input signals. Have three stereo synths? Plug 'em all into channels five and six. (We like to use channels seven and eight for plugging in multiple outboard effects processors. *Shazaam.*)

Whether you're making tracks with your computer or doing a solo gig, a little EQ can go a long way toward giving your sound a pro edge. Each EZbus channel gives you super responsive, totally musical EQ—four bands worth, with high and low shelving plus two fully-parametric bands. Of course, you can go overboard if you like, but be warned—the EZbus's exclusive AudioAlert™ system will let you know if you exceed maximum digital levels and point you to the offending channels. (Hey, you don't have to correct the problem—it's your right to make offensive sounds—so long as you don't still live at home.)

Store and recall up to 32 fully-programmable mixes. Create instantly recallable setups for solo recording into your computer, for multitracking with your MDM, for capturing your band's live performance, or for just about any specialized audio application you can think of. Recall them on the fly from the front panel, via foot switch, or using MIDI program change commands. Into really sophisticated dynamic mixes? All EZbus parameters are controllable via MIDI, so you can create fully automated mixes simply by recording your mix moves into your sequencer.

Realtime dynamics processing on every channel means never having to worry about clipping that perfect vocal take. Make your synths breathe with the Expander. Tame your *ahem*, vintage (okay . . . old) gear with the Noise Gate. And since the full complement of dynamics processing is also available on the Main Mix bus, you can give your final masters a smooth, polished sound.

What could be easier than hot-plugging the EZbus into your computer's USB port and getting your musical ideas recorded *fast*? No PCI cards to install. No IRQs to configure. No DMA channels to mess with. Just plug it in and go. (Sorry, you still have to provide the creativity. But we'll make sure that when inspiration does strike, the hardware won't get in the way.)

EZbus™

Computer Audio Recording Interface Software Control Surface Stand-Alone Digital Mixer

- EZ** Because it's really (*really*) EZ to use.
 - EZ** Because it makes getting precision 24-bit audio into (and out of) your computer a no-brainer.
 - EZ** Because you get to control your MIDI/audio sequencing software with its hardware controls.
 - EZ** Because it comes complete with presets for controlling said software.
 - EZ** Because you can slip it into a gig bag and run your whole live show with it.
 - EZ** Because it lets you do amazingly sophisticated audio processing with zero hassle.
 - EZ** Because it's got a ton of gozintas and gozoutas, and you've gotta ton of things that need gettininta and gettinouta.
- bus** Because once upon a time we took a Greyhound to see our Aunt in Cleveland. She was pretty far ahead of her time, having predicted the breakup of the Beatles, the birth (and death) of disco, and hanging onto her vinyl collection because she had a feeling that "some day people will use records and turntables differently than the way we do today."
- bus** Because an audio path is a bus, and the EZbus has a ton of 'em. Fully programmable ones, at that.



EVENT
ELECTRONICS

Specifications subject to change without notice.



A single button-push is all it takes to instantly transform the EZbus from an Audio Recording Interface into a Control Surface. Then operate your favorite MIDI and audio software using the EZbus's hardware controls—even scrub audio tracks with the data wheel! (Software dependent.) Customize the controls with your own command set, or use the convenient factory presets—support for major software programs is included. (Did we mention the ability to set and recall locate points?)



When is a Return more than a Return? When it's an EZbus Return, of course. In keeping with the EZbus design philosophy of ultra-flexible audio routing, the four Returns can accept audio from any EZbus analog or digital source. Those signals are then automatically routed to the Main Mix bus. So in addition to their traditional roles as effects Returns, the EZbus Returns provide you with four extra inputs to call on whenever you need them.



Want to create a separate control room mix? Need a stage monitor mix that's different from the one you're sending to the front-of-house console? Looking for a true four-bus setup for multitrack recording? The EZbus lets you route any signal from any source—analogue or digital—to the Main or Alternate (or both) Mix buses, with full control over level, bus assignment, and in the case of dynamics processing,



Two independent S/PDIF outputs? Stop the madness! But of course there are two—you'll need one to handle signals routed to your new digital effects processor, and one for sending the full mix to your trusty old DAT recorder. (Hey, analogue diehards, don't worry—the Aux out jacks are perfectly fine for routing 24-bit, 96kHz signals to your esoteric mastering gear. The Send jacks are as well. We're not about to tell you which ones to use.)



With four Sends, each configurable pre- or post-fader, you can easily create monitor and headphone mixes, patch into your outboard effects, and more. Sends can be routed to analog or digital outputs—even to USB—so interfacing with all your gear, old or new, is a snap.



You've just played your best gig ever. Thank goodness the performance was captured on your MDM by routing the individual EZbus channel outputs to it via a single optical cable. All you need to do now is mix the tracks to stereo (using the EZbus, naturally) and burn a CD to sell at your next show! (Yes, the optical outputs can also be used for Send and Mix signals. What, you think we'd limit you now?)



the EZbus—get on it.

Only \$849 MSRP (We're not even charging for the smile it will bring to your face.)



AES31

Eliminating the File-Exchange Conundrum

By Mel Lambert

Analog was easy. A reel of 2-inch 24-track tape could be played back in virtually any studio or post facility, anywhere in the world. However, these days the situation is far more confusing. Since manufacturers of disk-based recording systems developed their proprietary approaches to speed and flexibility, we are now faced with an array of data-storage formats and media choices. And, if our aim is to integrate digital recorders and workstations from a number of different vendors—and there are compelling reasons why we might want to do that—how can we eliminate this Tower of Babel?

The most likely solution is in the form of AES31. For several years, the Audio Engineering Society Standards Committee (AESSC) Working Group on Audio-File Transfer and Exchange, under the chairmanship of Mark Yonge, digital product manager at SSL's UK corporate headquarters, has been refining the various elements of what has emerged as a viable technique for transferring sound files and project data from one workstation or recorder to another. The Working Group's initial task was to facilitate audio interchange in production and post-production (with or without synchronized picture); distribution and archiving formats are being considered separately. AES31 provides a set of technical specifications that, when implemented in a workstation, allow disk drives, digital audio media and Edit Decision Lists to be transferred from one AES31-compliant workstation system to another.

"The AESSC Working Group was set up in reaction to the audio industry asking for simple project interchange," says Yonge. "We had seen what was happening with OMF, but thought that something simpler might also have a place in the data-exchange landscape. So we developed a four-tier approach to the problem." These four independent stages form a series of scalable modules with interchange options, to produce a multipart standard. Applications range from the simple interchange of a single sound file to complex projects involving fine editing of many source sounds. "The interchange method needs to be flexible enough to support all these needs at a level of complexity appropriate for the task," says Yonge.

AES31: THE FOUR INGREDIENTS

- AES31-1 is concerned with *physical data transport*, how files can be moved from one system to another—either via removable media or (later) a high-speed network. Basically, AES31-1 specifies a transport compatible with Microsoft's FAT32 structures, although, for copyright reasons, it doesn't actually name Microsoft or quote its proprietary specifications.
- AES31-2 focuses on *audio file format*, how the data in BWF or Broadcast Wave chunks should be arranged on the removable media or packaged for network transfer.
- AES31-3 describes a *simple project structure*, using a sample-accurate Audio Decision List, or ADL.
- The more complex AES31-4 *object-oriented project structure* could use an extensible object model capable of describing a much wider range of parameters for applications where the costs of significant additional complexity can be justified. (More on this later.)

Stages 1 and 3 have been published as standards, with stage 2 anticipated shortly.

GOALS AND IDEALS

The committee's primary criteria in forming the standard, Yonge stresses, were simplicity, reliability and competence: "We wanted to develop as simple a file standard as possible, based on FAT32 and Broadcast Wave, and a simple project structure to allow exchange of edited material." FAT32 is a more flexible and robust extension to Microsoft's FAT (File Allocation Table) that supports drives of up to 2 Terabytes, and uses space more efficiently because of its smaller cluster size. It is also implemented on the majority of Mac, Unix and Windows platforms and is inherently simple enough to be used in embedded systems.

BWF is a standard developed in part by the European Broadcasting Union (EBU) based on conventional IBM/Microsoft RIFF/Wave audio files. An additional header chunk defines the format of the audio data, and includes a description of the sound sequence, the name of the originator, a reference

NEW TOOLS AT ABBEY ROAD...

Whatever you want in a recording,
You'll always need the best



abbey road

That's why Abbey Road have equipped their new
Digidesign™ Pro-Tools™ rig with 48 channels of
A/D and D/A conversion by Prism Sound.

The Dream ADA-8:

- Integrated, modular audio A/D and D/A system
- Sampling rates from 32k to 96k including 44.1k and 48k standards
- Built-in 4-curve Prism Sound SNS noise-shaping
- Two digital I/O slots for AES I/O PLUS direct Workstation Interface or other digital format
- 8-channel peak metering switchable between record/play
- Separate stereo monitor output on digital and analogue ports
- Mix to the monitor output from selected channels on record or replay paths
- Simultaneous 2-path operation (e.g. A/D and D/A)
- 1-wire and 2-wire AES operation and format conversion at 96k sampling
- Exploit existing 16-bit MDM's for 24/96 projects with built-in MR-X bit mapping (compatible with Prism Sound MR-2024T)



"At last the ultimate 8 channel converter by Prisma delivers exactly what Abbey Road needs. This is a quality box and amazingly versatile. I use the ADA-8 both as a stand alone converter - excellent for surround mixing, and racked-up for hard disk recording. Pro-Tools has never sounded so good! The ADA-8 has a stunning sound and is my first choice converter be it for pop mixing or orchestral recording."

Peter Cobbin - Senior Engineer/Mixer
Abbey Road Studios

Prism Media Products Limited
William James House,
Cawley Road, Cambridge,
CB4 0WX. UK.

Prism Media Products Inc.
21 Pine Street,
Rockaway, NJ,
07866. USA.

Tel: +44 (0)1223 424988
Fax: +44 (0)1223 425023

Tel: 1-973 983 9577
Fax: 1-973 983 9588

sales@prismsound.com

www.prismsound.com

**PrismSound**

of the originator, the origination and time, plus a time reference. In essence, BWF time-stamps each audio file with its proper location in a project and adds useful identification information: The format-independent time reference is a 64-bit number representing the first sample in the file as sample count since midnight, and can be used with any timecode or picture frame-rate and with any current or future sampling rate. For simple review, a BWF can be played on any system capable of playing a Wave file.

"AES31's ADL was modeled on conventional Edit Decision Lists," Yonge continues, "but with sample-accurate granularity or precision compared with that offered by PAL/NTSC video synchronization. And we wanted to include specific parameters for multiple audio channels, cross-fades, level automation and other important values."

Brooks Harris, vice-chairman of AES31 SC-06-01, and president of Brooks Harris Film & Tape, New York, is a genius at sorting out EDLs and ADLs. "Aside from being 'human readable' and easily understood, AES31-3 is based on two important parameters: sample accuracy and file locators. We need to label in/out points of the component audio files in H:M:S:F and sample count."

AES31-3 uses a form of universal resource locator for accessing files on any platform or network. This includes the "file" (URL scheme designator), followed by the "host" name, the names of the local disk volume, directory, subdirectories, and then the file name with a .WAV extension; all branches in the sequence are separated by conventional forward-slashes used in familiar http:// and ftp:// addresses.

In terms of timing accuracy, Harris spent a long while developing highly accurate algorithms that can mathematically accommodate any time base for the source and destination projects. "AES31 is the first set of analytic definitions that could be agreed upon by manufacturers to control data interchange," he says. "We have developed a technique for accurately defining the precise location of each sample of audio data, by combining conventional timecode data with a frame rate that lets the receiving DAW, for example,

know precisely where the data is located and how to play out the elements in perfect synchronism." The AES31-3 ADL contains information about what files are to be played at which location in the timeline. It specifies the frame rate and time base; the film frame (A, B, C or D for 4-perf) and whether the time base is drop or non-drop (NTSC-only; PAL video runs at a fixed 25 fps rate). Also included in

each other's formats—is that it only needs to be done once. An "anything-to-anything" solution can be extremely complex and costly to manage; AES31 compatibility is intended to reduce such effort.

ON THE ROAD TO A SOLUTION

With a growing number of manufacturers already embracing FAT32 file structures and BWF data formats, we are beginning

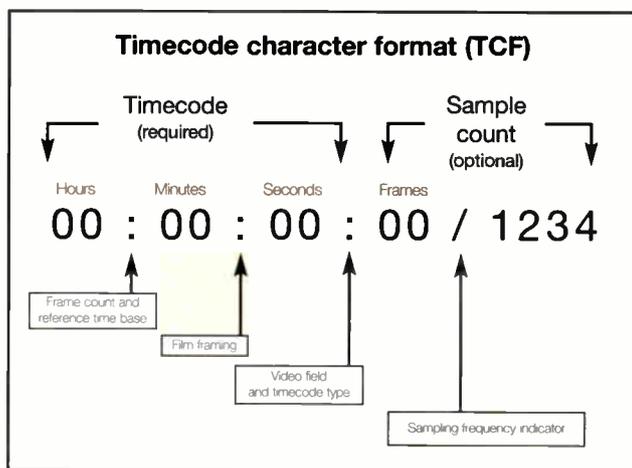
to see a road to file exchange between platforms, even if they don't—as of yet—include full AES31 compatibility for project data. For example, several firms, including Fairlight, SAIDe and Wave-Frame, offer the ability to save BWF data to FAT32-compliant removable media, while Digidesign Pro Tools 5.1 will directly import BWF files and their timestamps into a session. If, for example, a Fairlight MFX3 user saves a BWF file with timestamp to a compatible drive, like a Jaz cartridge, the file can be imported into Pro Tools. The editor can use Pro Tools'

Spot function to quickly place the file at the correct timecode location.

As Andrew Brent, Fairlight USA's international technical director, explains: "We currently support, in Version 15.6 and beyond, BWF import/export, and from 16.5 on we will be supporting FAT32 disk-file format. Our remaining development is the interpretation and creation of AES31 ADL."

In terms of the future, Brent feels that AES31 should be kept simple. "There is a lot of discussion about adding object-oriented events to the ADL. But the current ADL is a text-based, readable format. Any code developed to support complex algorithms such as real-time EQ, with the corresponding DSP code, or dynamic level and crossfades, or the ability to create a 'Takes Layered' environment on one track, will create an ADL that will explode in size. The best use of AES31 is a simple interchange of raw audio between these systems."

Howard Schwartz, president of New York's Howard Schwartz Recording, feels that "AES31 has a long way to go. The installed base for OMF is so huge that the switch will be slow. Even if the format may be better, it isn't easier to totally switch away from OMF. We install whatever our clients request, after the second or third asking. OMF and Pro Tools were the first really significant technical requests coming from clients, not other facilities. I am sure



A vital element of AES31's timing capabilities is the high-precision time stamping used in the ADL.

each BWF sample are the central sample rate—32, 44.1, 48, 88.2 and 96 kHz—and one of five pull-up/down ratios, to provide multiple, unambiguous combinations that allow the project to be re-assembled in perfect sync.

AES31-4 is currently undefined except for its intent, but could be based, Harris says, upon current deliberations by the industry consortium that is promulgating Advanced Authoring Format, or AAF. Because AAF is intended to function as a multimedia file format that enables content creators to easily exchange digital media and metadata across platforms, and between systems and applications, it will include complex project structures that enable sample-accurate editing of multiple sources. The AAF Association's membership includes Avid, BBC, CNN, Discreet, Fox, Grass Valley Group, Liberty Livewire, Microsoft, Omneon, Panasonic, Philips Pinnacle, Quantel, Sony and Warner Bros.

"Because AAF is being developed by a consortium and not a standards body," Harris explains, "it can have a wider scope. But the AES standards working group has an active liaison project with the AAF Association. AAF could be a 'super set' of AES31, with many common elements." Harris chairs this liaison group.

One of the main reasons DAW manufacturers cite for adopting an open standard—rather than attempting to emulate

Digitally Re-mastered.

- 38 total inputs, with up to 24 digital inputs
- 4 band parametric EQ on every channel & buses
- Dynamics on every channel and buses
- 24-bit A/D and D/A converters
- 16-high quality mic pre-amps
- 100mm Moving Faders, Instant recall of all settings
- Dynamic and Snapshot automation with Offline Editing
- Custom/MIDI Layer and DAW mode
- 5.1 and 3+1 Surround Sound Panning with Discrete outputs
- Over 200 User LIBRARIES and SCENE Memories
- Optional Tandem mode allows bi-directional control of two mixers

A classic is back, and better than ever.

Great sound quality, flexibility and high performance: It's easy to see how the Panasonic DA7 became an industry favorite. To improve it, we had to turn to the experts—and that's where you came in.

The Panasonic DA7mkII Digital Audio Mixer is the board you helped design. It's loaded with the improvements you asked for—including new shortcut keys, advanced MIDI faders, a new version 2.5 operating system, and a lot more than we had space to list here.

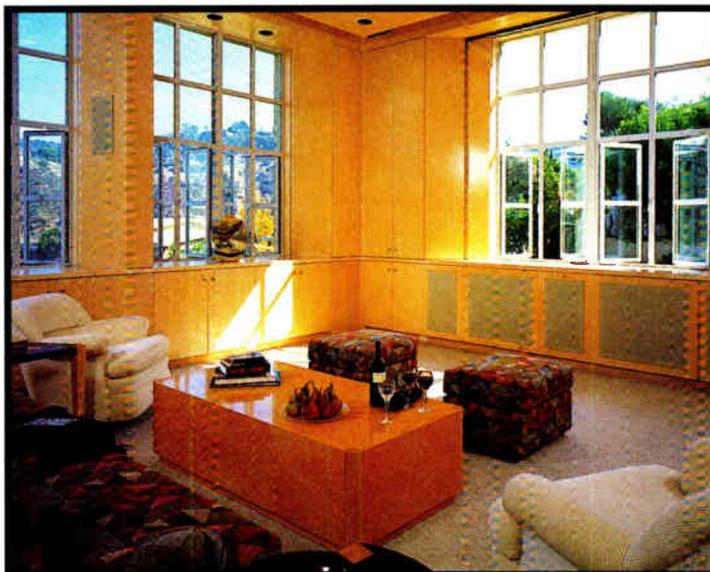
Visit www.panasonic.com/proaudio to see everything new about the DA7mkII, and to find out how other professionals are using theirs. (Check out the new 96 series of AD and DA converters while you're there.) You'll be glad we couldn't leave well enough alone.

Taking Digital Further . . . Again

Panasonic RAMSA
Professional Audio Group

AES 31: Compliance of Popular Systems

Company	Product	AES31 Compliant?	ETA?	Verified?
AKAI	DD8plus MO	<i>Demonstration version</i> supports FAT16, not FAT32; Broadcast Wave Audio, TCF and ADL are implemented: both real-time read/write or import/export		Tested with SADiE products
AMS Neve	AudioFile SC	<i>Under Development</i> Import/Export plug-in	Q.3 2001 compatability pack with AudioFile SC2.1	
Digidesign	Pro Tools	<i>Not Yet</i> Supports native BWF files for both Mac and Windows platforms Natively record/play/edit and import/export BWF, SDII and .AIFF	TBA	
Digital Audio Research	OMR8 recorder	Yes		SADiE and others
	SoundStation STORM	<i>Under Development</i>	TBA	
DSP Media	AVtransfer	<i>Under Development</i> Some aspects of the AES31 spec are ambiguous—such as multichannel support	Early August 2001	
E-mu/Ensoniq	PARIS	<i>Not at this time;</i> second priority to mLAN/FireWire support		
Euphonix	TransferStation	Yes; but it does not render crossfades; does not read .AIFF files		SADiE products
	R-1 multitrack	<i>Under Development</i>	Six to 12 months	
Fairlight	MF3 and DAD	<i>Not Yet</i> Supports BWF import/export and FAT32 file format	Six Months Using System Service Module	
Fostex	DV-40 recorder	<i>Not Yet</i>	New product to be introduced at AES New York 2001	
Genex	GX-8500 MO recorder	Yes; with limited crossfaders	Has discovered some holes in AES31 ADL spec that are being addressed	Limited testing with SADiE
iZ Technology	RADAR24 digital multitrack	<i>Not Yet</i>	Within three months	
Mackie	HDR 24/96	<i>Not Yet;</i> multitrack	Still undecided; may be implemented in HDR 24/96 and future recording systems	
Merging Technologies	Pyramix Virtual Studios	<i>Not Yet</i>	AES New York 2001 Same implementation will be available for WaveFrame Frameworks/DX	
Otari	<i>New Product</i>	<i>Not Yet</i>	TBA	
Sonic Solutions	Sonic Solutions HD, Creator and Fusion	<i>Not Yet</i> Currently support mono/stereo interleaved .AIFF/.WAV files	Undetermined	Some testing with Euphonix and SADiE
Soundscape	Soundscape R.Ed and SSHDR1-Plus	<i>Not Yet</i> BTW import/export supported for some time; plus other formats for text-based audio projects	Full support expected by end 2001/early 2002	
Steinberg	Nuendo	<i>Not Yet</i>	Q. 3/4 2001	
Studio Audio	SADiE digital equipment	Yes		AKAI, DAR and others
Tascam	MMR-8 dubber MX-2424 multitrack	<i>Not Yet</i>	Depends on availability of engineering cycle	
WaveFrame	WaveFrame 7	<i>Not Yet</i> Frameworks/DX	AES New York 2001	
Zaxcom	DEVA hard disc recorder	Yes		WaveFrame, Fairlight, AKAI DD8, Tascam MMR-8



Home

...by day



Theater

...by night

A JBL Synthesis® home theater is your everyday ticket to the true excitement of home cinema, from the company that has forever been synonymous with movie sound and is the industry's leading manufacturer of professional theater components. Now the hottest movie theater seats in town are the ones in your home.



Call JBL Synthesis at 888.593.3456 or visit www.jblsynthesis.com

A Harman International Company

World Radio History

AES 31

Avid, as has Microsoft, will do whatever they can to preserve their dominance in the file wars. Does AES31 work side by side with OMF? Together? On top of; next to? A whole retraining must take place, and for what gain?

But Jay Palmer from Universal Studios' post-production sound department—and a guiding light behind Hollywood Technical Audio Committee's efforts toward file-format standardization—feels differently. "AES31 compliance is very important. For TV editing and mixing of shows done in-house [at Universal], native Pro Tools is the usual choice. If the project comes from outside, there are a variety of ever-changing file formats. In these cases, all bets are off as the new file revisions of their platforms are not always supported by our equipment. A simple AES31 export would help solve this dilemma. The same applies to feature-film editing and mixing. There is a larger commitment to archiving the elements, predub mixes, stem-master mixes and print masters. Archiving in an industry standard would be much more

beneficial in the long run.

"And for DVD mastering, when film AB reels are conformed for continuous DVD payout, prior to AC3 compression and streaming, the files are non-compressed. These become the new DVD non-compressed audio masters, and will be used as network TV needs them and for future formats. It would be good to have a standardized format for this new archival master. Archiving is all about maintenance of the content owners' intellectual property—important stuff. You do *not* want to archive to a proprietary, ever-changing file format; we need an industry-recognized, non-proprietary, AES-badged standard."

In terms of what might be missing from AES31, Palmer cites such issues as conversion to/from disparate disk file systems, including Mac HFS and HFS+, PC FAT16, FAT32, Linux and BeOs. "The AES-31 format states ADL, BWF and FAT32. Period," he says. "Will folks have to drastically alter their workflow habits to support the standard to the letter of its spec? Will programmers be able to imbed all of the disk utilities necessary to implement the standard?"

"While AAF builds upon OMF as its container/EDL," Palmer continues, "it is controlled by the AAF Association, a trade association with dues-paying members.

AAF is very all-encompassing; it has wide-ranging standards descriptions for audio, video and metadata containing a complete edit history. But a main point of contention for many manufacturers is that they do not want to support a standard that is wholly owned by another competitor. OMF, for example, is owned by Avid, and OpenTL by TimeLine Vista. AES31 is a 100 percent truly-open standard that is relatively to implement."

"Our industry is based on workflow of projects and media through the production chain," adds Ron Franklin, president of WaveFrame, and a member of AES31 SC-06-01. "Anything that facilitates workflow is beneficial to both our customers and our company. We believe AES31 will prove to be a very important standard. First, because it works. And second, because it is the only digital audio project-file interchange scheme officially ratified by a standards body that contributes to ISO standards."

WaveFrame systems can read and write to various disk formats, including FAT16, FAT32, NTFS, and Mac HFS and HFS+. "OpenTL is the file format used in the Tascam/TimeLine MX-2424 and MMR dubbers," says Franklin. "We have implemented support for this in WaveFrame/7



Burlington AV Recording Media

- * Shipped From Stock
- * Priced Right
- * Immediate Delivery
- * Friendly Service



All Major Credit Cards Accepted



"When Only The Best Will Do"

Visit our Website: www.burlington-av.com

E-Mail: sales@burlington-av.com

Call or Fax for FREE CATALOG

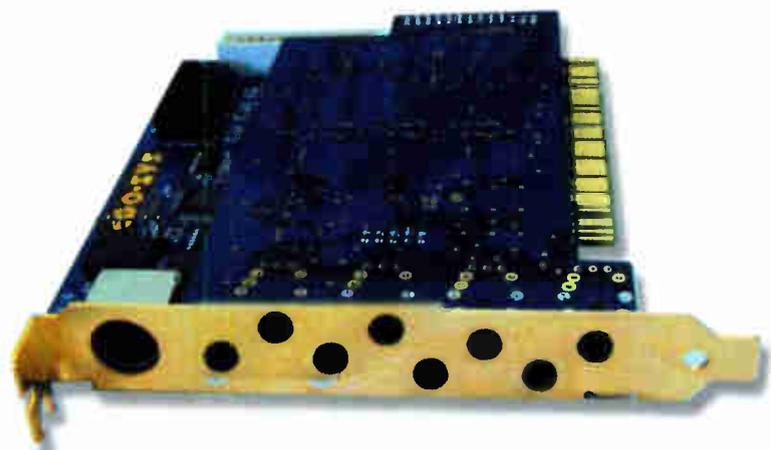
USA & Canada 1-800-331-3191 * NYC Area 516-678-4414 * Fax 516-678-8959



		WDM	E-WDM
1	MME bit stream	00 DOTS 0 1	16/24 bit up to 32 bit
2	Total channel availability	1/2 to 10 Out	unlimited I/O
3	Independent KVM support	NO	YES
4	GIGA X ready	NO	YES
5	ASIO 2.0	Ready	YES
6	SONAR with 1.5ms	NO	YES

Are you **xp** Ready?

E-WDM is "One for All"



MaXiO

-64 Channel 24 Bit 96 kHz Digital Audio System

32ch ADAT Digital I/O, S/PDIF, AES/EBU, WordClock, MIDI, 24 Bit 96kHz Analog I/O(2 in 6 out)

Special ASIO core in hardware, No Latency Monitoring, S/MUX, 1.5ms with EWDM

7	98SE/ME/2000/XP	YES	YES
8	Multi Client	NO	YES
9	Multi Streaming	YES	YES
10	GIGA WIRE Enabled	NO	YES
11	Multiple MIDI ports	NO	YES
12	Multiple Direct Sound	NO	YES
13	-6 dB Program Peak	NO	YES

EGO-SYS

www.egosys.net

3350 Scott Blvd, Suite 33 Santa Clara, CA 95054 Tel :408.748-1070 Fax: 408.748-1470

since OpenTL is currently the only format the MX-2424 supports; we wanted to provide our users with file and project compatibility with this machine."

Andy Morris is president of Buzzy's Music, an L.A.-based post and voice-over facility. "A user-defined, AES-developed, non-proprietary standard will go a long way to breaking down the industry's data-exchange log jam," he says. "Currently, we provide clients with BWF files from all our

MF3+ systems. Contrast that technique with using a tedious method of transferring eight tracks at a time to a DA-88, or two tracks at a time to DAT—with or without timecode—and later re-aligning these multiple passes in the receiving DAW. It's a real-time process: to transfer 10 spots to DAT, each 60 seconds long, would take over four hours for upload and download. Oh, and did I forget to mention that the client is not willing to pay for all that wasteful transfer time? AES31 can handle that in a matter of minutes; it's a no-brainer."

Jim DeFilippis is VP of television engineering for Fox Studios' New Technology Group, and heads up a task force for AAF.

"We are working with the AES on defining the interoperability between AES31 and AAF. So far, we have determined that AES31, while suitable for many audio post applications, does not have the critical element that AAF seeks to provide: a complete history of the file essence, including all the post-production metadata.

"The goal of AAF is to allow post projects to flow from workstation to workstation and allow seamless transitions. AES31 stops short. Each time projects are transferred from workstation to workstation, the critical metadata has to be re-done or transferred via a different media (paper, floppy disk, tape label). This is somewhat inefficient and impedes the collaborative effort between departments."

SADiE's managing director, Joe Bull, also serves on AES31 SC-06-01, and says that "without AES31, the audio industry has to accept the 'one-size-fits-all' workstation philosophy. It's like a carpenter having only a hammer to fashion his creations; he needs a *range* of tools to achieve the job. Similarly, synching dailies, ADR, track laying, Foley, music editing, mixing, etc., are best handled using the most appropriate tools. AES31 implementation will allow the user to choose.

"With the first three parts of AES31 ratified," Bull says, "the only remaining part is mix automation; we always recognized that this was the trickiest part. So, rather than delay any form of interchange until every bell and whistle had been covered, the AES31 Working Group decided that a gradual approach would give the industry a working toolbox, with the basics initially and expandable in the future, and provide the best route forward."

SADiE is currently working to provide the first level of Part 4, level and mute automation. "We are prototyping some ideas, along with Brooks Harris and others, to see what can be sensibly achieved in a reasonable timescale," says Bull. "In the meantime, the industry has the basic toolbox that at least puts the right bit of audio in the right place in the EDL."

Bull considers that AAF, on paper at least, could provide everything that the industry needs. "However, until it's ratified, AAF provides absolutely nothing for anybody," he stresses. "There have been discussions that, to speed their deliberations, AAF may adopt parts of AES31. Even when they do finish and publish a complete working standard, there may still be problems. AAF is an object-oriented and thereby a complex, structured product handling everything from graphics, video, audio, etc. This may be fine for a video manufacturer with huge software re-

Groove Tubes™

Vipre™
Variable Impedance Preamp

WHAT MICROPHONES DREAM ABOUT.

Stop dreaming.

Only Vipre does what no other preamp can.

Visit our website at www.groovetubes.com or call us at **818 361 4500** for complete specs and a list of Groove Tube Vipre dealerships.

VARIABLE IMPEDANCE INPUT
Custom-wound transformers load mics at 300, 600, 1200 or 2400 ohms, multiplying the performance potential of every microphone. Additional transformerless balanced bridged, line and instrument inputs.

VARIABLE RISE TIME
Select between five amplification styles – ranging from Smooth-and-Classic (Slow) to Bright-and-Modern (Fast). These two features alone provide 25 unique tone-shaping combinations from any single microphone!

ALL TUBE, BALANCED CLASS A DESIGN
Eight Groove Tubes in a fully differential signal path dramatically lowers noise and distortion – while expanding bandwidth (7Hz to over 100kHz).

PRECISION GAIN
Custom-built ceramic deck attenuators control 75dB of gain in 5dB and 1dB stepped increments.

AUTHENTIC VU METERING
With five switchable viewing ranges.

GROOVE TUBES
CUSTOM SHOP
PRODUCTS™

©2001 Groove Tubes LLC. All rights reserved. Groove Tubes, the GT in a circle logo, Groove Tubes Custom Shop Products and Vipre are trademarks of Groove Tubes LLC.

professional training in
sound engineering
multimedia
digital film

since 1976

NEW YORK

269 W 40th Street, New York NY 10018

Tel. **(212) 944 9121**

NASHVILLE

7 Music Circle North, Nashville TN 37203

Tel. **(615) 244 5848**

Other main locations

LONDON (0207) 609 2653 PARIS (1) 4811 9696
AMSTERDAM (020) 622 8790 SYDNEY (02) 9211 3711
MILANO (002) 8912 0540 ATHENS (01) 321 7661
BERLIN (030) 4986 0054 MUNICH (089) 67 51 67
ZURICH (01) 445 2040 SINGAPORE (65) 741 1257
AUCKLAND (09) 373 4712 STOCKHOLM (08) 730 5100
VIENNA (01) 961 0303 FRANKFURT (069) 543 262
KUALA LUMPUR (03) 724 0935 MADRAS (044) 821 4227
MELBOURNE (03) 9521 4055 FRANKFURT (069) 543 262
GENEVA (022) 800 3000 COLOGNE (0221) 954 1220

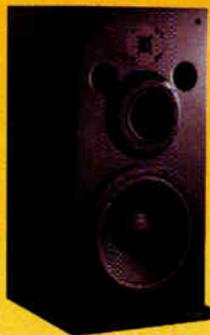
* ALL OUR STUDENTS RECEIVE
INDIVIDUAL STUDIO TIME!

25 YEARS

S A E
I N S T I T U T E

www.sae.edu

WHAT'S your pleasure?



VERTICAL

Lc3w12V

"The Lc3w12Vs provide all the imaging, clarity, tight-bottom and volume required for you to make astute decisions regarding equalization, placement and effects."

- Pro Audio Review, June 2001

or...



HORIZONTAL

Lc3w12

"An exceptional value, delivering performance comparable to monitors costing much more."

- MIX, September 1999

Westlake Audio

MANUFACTURING GROUP

2696 Lavery Court, Unit 18
Newbury Park, CA 91320
Tel 805-499-3686 Fax 805-498-2571
www.westlakeaudio.com

AES 31

sources, but could be beyond the scope of what audio-specific manufacturers can afford to develop."

CAN WE AGREE TO DISAGREE?

For several years, Digidesign has been using its open-standard Sound Designer/SDII file format, with internal timing references, plus a proprietary Session format. Many workstation manufacturers have adopted SDII, and Digidesign has supported native BWF files for both Mac and Windows platforms since the release of Pro Tools 5.1. Pro Tools will natively record/play/edit BWF, SDII and .AIFF; import BWF, SDII, .AIFF and, with conversion, MP3 plus QuickTime; and export BWF, SDII, .AIFF, and, with conversion, MP3, RealAudio plus QuickTime.

"We're a very customer-driven company," notes Scott Dailey, Digidesign's VP of product marketing & business development. "Thus far, the vast majority of our customers have been asking us for other important things. Based on this feedback, we believe AES31 Level 4 is potentially very exciting and important to Digidesign and its customers, whereas Level 3 is probably not."

Dailey says that Digidesign and its parent, Avid Technology, have been delivering open, cross-application, cross-platform media and metadata interchange for several years, based on OMF. "OMF currently does everything AES31 Level 3 does, and more. It is mature, reliable technology, and thousands of post-production professionals around the world rely on it every day to get their work done. Further, OMF has been adopted by essentially every important company in post-production audio, as well as most—if not all—of the important film and video post companies. Given OMF's widespread adoption by end-users, and its broad adoption by manufacturers, AES31 Level 3 looks like a lot of work for a big step sideways."

It is important to note, Dailey says, that no company can reliably support a wide variety of interchange standards. "Our test grid is staggering already, and supporting a variety of legacy Pro Tools Session file formats, plus EDL, OMF, AAF, OpenTL, ADL, etc., is impractical. Digidesign must pick and choose the highest impact standards. Our highest priorities right now are OMF and AAF, because they encompass all the capabilities of the other standards. Not that AES31 isn't valuable; it's just a

lower priority than other interchange formats and general Pro Tools features customers are clamoring for.

"One of the problems with AES31-3 is that it deals only with audio," Dailey continues. "At the NAB convention, we were approached by senior representatives from several of the world's largest post facilities. They told us loudly and clearly that we must not adopt anything that deals only with audio. They need media-management systems and workflows that can handle video, graphics and other sorts of data. Further, these same customers—and many more—are asking for richness of interchange that AES31-3 was never intended to handle.

"FAT32 as the only supported file system is not a very good choice for manufacturers who build systems based on the Apple Macintosh," he says. "Our engineers have told me that FAT32 support is not physically impossible, but that it would require an amount of work that is greatly disproportional to the limited interest our customers have shown in AES31 Level 3 thus far. The other large unresolved issue is closure on AES31 Level 4.

"OMF, and its successor AAF, offer nearly limitless opportunity for 'rich' interchange and modernization of post-production workflows," says Dailey. "AAF is essentially a third-generation update to OMF, with a couple important improvements: It is implemented as open-source, and is being administered and developed by an independent, non-profit trade association, and it incorporates several important SMPTE metadata standards.

"OMF and AAF offer several interesting possibilities for rich interchange that are not addressed by AES31 Level 3," Dailey adds, "including 'bread and butter' functions such as routing, volume and multichannel panning automation, and more advanced operations such as hardware and software plug-in processing parameters. Other compelling possibilities include tracking and management of historical metadata that would define the series of processes applied to a piece of audio or other compositional data, thus providing a roadmap from the original source material to the material in its current state. Users could rebuild a sound—or even an entire mix—from the original elements, perhaps omitting or changing certain processes that were applied somewhere along the way." ■

Mel Lambert founded Media&Marketing more than a dozen years ago to provide communications and consulting services for pro audio firms and facilities. More details at www.mel-lambert.com.

At Home in Any House



The ML5000

Live Mixing Console

from Allen & Heath is the

quintessential workhorse that has redefined

the meaning of flexibility and versatility. The ML5000

is a master of all trades in live audio applications including

Front-of-House and **Monitor mixes** or both simultaneously. The **LCRplus**

system of the ML 5000 extends signal imaging beyond conventional LR and LCR

panning by allowing 3-speaker balance and positioning from each channel and

group. With such an extensive feature list ranging from 8 VCA groups to its

Intelligent PAFL system, it's no wonder that the ML5000 is at home in any house.

Features:

- Dual function Front-of-House, Monitor or Simultaneous Operation Modes
- 24 Group/Aux Busses
- 8 VCA Groups
- 4-Band Legendary British EQ
- True LCR Panning
- Low Profile 19vu Meter Bridge
- Clear-Com Intercom Compatible
- MIDI/PC Control
- 48/40/32 Frame Plus Optional 24 Channel Side Car
- Intelligent PAFL System
- 4 Fully-featured Stereo Inputs Fitted as Standard in Addition to the Standard Channel Count
- High Performance Power Supplies with Built in Combiner
- Separate Fader Tray
- 128/Mute/VCA Snapshots
- 12x8 Matrix
- Extensive Channel, Mix and Output Metering
- Internally Modular
- Very Rigid Frame Construction

**ALLEN
&
HEATH**

Log into your drives...
250 miles away...
and simply work...
no latency - REALTIME!

Welcome to A/V NET®
the revolutionary drive
sharing network from SNS

A/V NET®

- more than 64 tracks - 24 bit audio on 1 hard drive
- optimized disk/PCI bus performance
- access any drive from any control room
- password protection
- definite increase in system performance
- 56 tracks of 24/48 and 3:1 video record/playback from 1 drive
- back up data while using drives at the same time
- SANscan® file management software

Here's what the pros are saying about A/V SAN:

"Ultimately, A/V SAN offers us a higher level of flexibility and performance...With over a dozen Pro Tools and Sonic Solutions systems operating 24/7, we need a system that is as reliable as it is powerful."

Rick Austin - Chief Audio Engineer
VidFilm International Digital

"A/V SAN has offered me the ability to not think about drives at all, so that I can totally focus on work. After I saw the demo, I knew that I had to have that kind of performance. With the stability of this system my efficiency has doubled."

Fred Paragano - Independent Recording Engineer
Amy Grant, Steven Curtis Chapman, Michael Crawford

"I have been punishing my system 14 hours a day while producing a live record for Michael W. Smith. The 70 minute project kept one of my 73 gig drives nearly full all the time and it never balked once. I was amazed!"

Tom Laune - Record Producer/Mix Engineer
Nashville, TN

"The day I said "Yes" to Studio Network Solutions A/V SAN system was the day I said "No more to SCSI errors". With A/V SAN, my Pro Tools rig is rock solid reliable."

Matt Huesmann - Songwriter/Producer
Avalon, Point of Grace, Cedarhurst Kids Music

"Using the A/V SAN with multiple video editing platforms has given me performance that isn't even possible on SCSI RAID drives."

Saman Mehrzad - Razar Vision Productions
World Radio History

Showing at
AES Booth
#1104

Also, look
for various
partner booths
connected
to the
A/V NET!





studio network solutions

a/v media networking

Introducing the new,
affordable, single space,
4-bay, fibre-channel
enclosure for independent
or networked DAW's...

**Fibre Channel Hard
Drive Systems
Optimized for**



**128 TRACKS
from ONE DRIVE!**

A/V SAN®

All logos and products
are the property of their
respective owners and
companies.



Final Cut Pro 2

DP3



Visit Us Online!

Visit our website or call for more info on
these amazing new technologies from SNS
studionetworksolutions.com

877.537.2094

Scratching Out an Empire

significance, if any. What urban producers are looking for in an engineer, regardless of race, is the ability to translate verbal descriptors into actual sounds and moves. "[Engineering] in rap is different than it is in pop music," Dawg states. "I think the moves are more intricate, you play with the beats more. You have to have a real feel for the beats to

away from the creativity, I think. It's hard enough to be a player, producer and writer all at the same time."

Irv Gotti came up as a DJ, working first in his neighborhood of Hollis, Queens, inspired by, as he puts it, "sitting there watching Run-DMC rule the world." He is also less interested in the equipment than the music itself. Yet he has spent a long time in studios in New York, starting out on a Fostex 8-track deck and a "bullshit" console. It was the collaborative nature of New York rap

"You don't have to know how to do everything. You have to know how to make beats and want to be a producer. But you meet people who can play and do engineering, and they took my production to another level."

That first record turned out to be Gotti's break when leading New York-area urban radio station Hot 97 put it into heavy rotation, after which it was picked up by Blunt/TVT Records, which also gave Gotti a production deal. He now also has his own studio, The Crackhouse,

I definitely have to act more in the capacity of defining what sounds good and what doesn't. The up-and-coming producers may not know what you need to make a competitive record.

-MAYHEM

make the punches. You can't catch the punch if you can't catch the beat."

Adds Poyser, "Your job as a producer is to know what you want to hear and to be able to communicate it. In terms of engineering, I prefer to think about the music more than the technology. There are things I've learned about that, but getting your hands too deep in that takes

that got Gotti—a nom de musique conferred on him by rapper Jay-Z to commemorate the founding of Gotti's production company, Murder Inc.—into the loop, so to speak. "My first artist was Mike Geronimo, and I made that record and produced it and pressed it myself, and also did the video. My friends helped me out on everything," he says.

in Manhattan, and an office at Island/Def Jam Records, which has a joint-venture with Murder Inc. Gotti's discography includes tracks for Foxy Brown, DMX, Ja Rule and Wu Tang Clan's Ol' Dirty Bastard.

Having a personal studio has become nearly essential in rap/hip hop, both for artistic and economic reasons. As Gotti puts it, "I did it 'cause I didn't want to give

aaah... the joy...

apogee digidesign emagic motu otari sony studer tascam
l.c. royer roland manley neumann neve korg emu avalon akai

media sales and pro audio services

nyc london nashville 24/7
and miami 2002

212 691 5544/0208 451 5544/615 321 5544

Dreamhire

professional audio rental

www.dreamhire.com ...rent better

With the TASCAM US-428 and your computer, creativity knows no boundaries.

Four in the morning...back at the hotel...and you want to keep the creative juices flowing after last night's gig. With your computer and the US-428 DAW Controller/USB Interface from TASCAM and Frontier Design Group, you can. Just connect it to your compatible Mac or PC via its USB interface and record 24-bit digital audio and MIDI tracks to your heart's delight. Then use its real faders and knobs for total hands-on creative control of the included multitrack recording software..Cubasis VST for PC from Steinberg™ and Deck LE for Mac from BIAS™. Or, use your compatible audio software from Digidesign™, MOTU™, Emagic™ and more. Either way, no matter where and when you want to be creative, the US-428 is the ultimate plug-and-play solution for computers and music...in a cool blue box from the world leader in recording technology.

Want to make sure that your computer and software are compatible with the US-428? Go to www.tascam.com and check out the "US-428 Compatibility Chart", or learn all about computer recording from our "PC Recording Guide".

TASCAM US-428 by
FRONTIER
DESIGN
GROUP

TASCAM
a whole world of recording

TEAC America, Inc., 7733 Telegraph Road, Montebello, CA 90640
323-726-0303 www.tascam.com

All copyrights, logos and trademarks are the property of their respective holders.



Here are a few of the innovative software developers who offer support for the US-428. Cakewalk, Sonar and more virtual synth support coming soon. See the TASCAM web site for the latest info.

all my money to [the commercial studios]." Bink Dawg agrees, adding, "We realized that we could spend one-tenth and send the P.O. to the label and the money back in our pocket. It's a waste of mon-

ey sitting around doing beats in big studios." Says Gotti, "Those studios also get booked and you can't get in. Besides, when I saw that there was a \$300,000 [recording budget], I said to myself, 'I got to do some recording.'"

Still, all those we interviewed also agree that top-tier studios are an important component in urban records, mostly

for mixing on large automated consoles. And, says Dawg, the personal studio isn't for everyone. "There are a lot of people scared to take that step," he says. "It can be a big investment. Also, sometimes you need to have three or four rooms going at once, and the big studios can do that."

Major commercial studios also can act as a reference for audio quality, though defining that in hip hop and rap is tricky, because "grime" on the track is often a by-product of the creative process itself, where distortion and other artifacts can actually lend credibility to the finished song. "You want a rap record that sounds as clear as an R&B record but is still grimey," says Dawg. "A record shouldn't have to suffer to sound street. It can sound good and still come across as hard-core."

Nonetheless, major record labels in New York—which are not at all displeased to see recording moving into the producers' studios—have found themselves acting in the role of quality arbiters, telling producers where the threshold needs to be. Mayhem, director of A&R at Elektra Records in Manhattan, says, "I definitely have to act more in the capacity of defining what sounds good and what doesn't. The up-and-coming producers may not know what you need to make a competitive record, or what you need on a track to make it work for radio or for the clubs, for the level of quality you need to have on a major label release. I've become the litmus test for the [track]."

Mayhem, who has final approval for certain recording budgets at Elektra, agrees with the producers that money for overdubs is better spent at personal studios, and technology such as Pro Tools allows virtually every aspect of recording, up to and including mixes, to be done faster and less expensively. He's also very up-front about the fact that this allows the label to actually cut budgets on individual recording projects, and further allows Elektra to literally double the number of rap records it funds and releases. "If I can make twice as many records, I have twice as many chances of having a record hit big," Mayhem reasons. As for the big studios, he believes that they will always be in demand by top artists, including rappers. "A guy like LL Cool J, he wants to be in a place like the Hit Factory," he says.

Still, producers are aware that technical aspects of record-making need to be addressed at all stages of production. Bink Dawg, for instance, points out that he tries to make his samples as tight and as high-res as possible. "You don't fix a bad sample in the mix," he states. "And a good sam-

—CONTINUED ON PAGE 68

Being a producer is just a start—what

you really want is to be known as the guy

who can break an artist.

—BINK DAWG

vintage
2001

The M150 Tube represents more than seventy years of experience building the world's finest microphones. It's not a reissue, but a stunning new tube mic that is the culmination of all that has gone before. It is the ultimate Neumann microphone — for now.



Available only in the US with this vintage-style power supply.

Give us a call or visit our web site to learn more about the M150 Tube

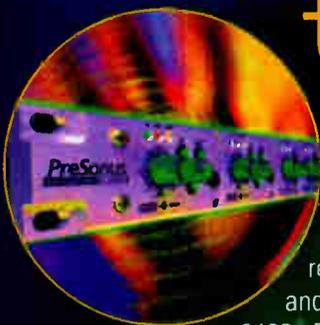
Neumann|USA the M150 Tube

Tel: 860.434.5220 • FAX: 860.434.3148 www.neumannusa.com/M150/mix



the purest path to digital

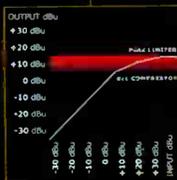
From PreSonus Audio



Combine eight channels of award winning, pristine mic preamplification, limiting and EQ Enhancement with 24bit digital and analog output and the Digimax seamlessly fits into any digital recording situation. The Digimax is the perfect front-end for DAW's and adding mic-pre's to digital mixers and sound cards. What do MOTU™ 2408, Digi001, Mackie™ HDR, Tascam™ MX2424, Ensoniq™ Paris, Yamaha™ AW4416, have in common? They are all compatible with the Digimax!

digimax™

- Eight Dual Servo Mic Preamps with 48v phantom, 2 Instrument Inputs
- Class A / Discrete Input Buffers, Ultra Low Noise
- Eight Dual Domain Limiters
- Eight EQ Enhancers
- 32kHz, 44.1kHz or 48kHz, 24 Bit A/D Converters
- Eight Balanced Analog TRS Outputs
- ADAT Lightpipe Output, AES/EBU or S/PDIF
- All 24 outputs, (analog and digital) operate simultaneously
- Word Clock In and Out via BNC connectors

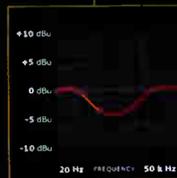


What Makes a Limiter Musical?

Most limiters use only Peak Detection. Most compressors use only RMS detection. The Digimax uses both RMS and Peak detection simultaneously to give you the benefit of maximum gain before clipping while maintaining the musical transparency of a compressor. The end result? A fast, musical, natural limiter with the ability to catch anything you throw at it.

Connectivity For Days!

The Digimax interfaces with more gear than any mic-pre on the planet! Need balanced analog outputs? How about 24 bit ADAT outputs? What about 24 bit AES/EBU or S/PDIF? The Digimax gives you all of these outputs and up to 24 channels *simultaneously*! So you'll never have a problem sending your audio across multiple platforms, both digital and analog.



Add Some "Crystal" To Match Your Mic or Instrument!

Each channel of the Digimax features EQ Enhancement which provides a pre-set EQ curve. EQ Enhancement helps to tame excessive midrange and accentuate presence for any audio source that may possess a characteristic midrange rise. This unique feature adds sheen and punch to any signal.

Visit your PreSonus dealer today and experience the purest path to digital... Digimax.

www.presonus.com
800.750.0323

PreSonus
DIGITAL audio



PUT YOUR HEAD WHERE
YOUR HEART IS...



Come to
New York City

the center of the
recording industry.

Learn recording
engineering at the

INSTITUTE OF AUDIO RESEARCH

Our 6 month
Recording Engineering
and Production Program
includes:

Multitrack Recording,
Mixdown Techniques,
MIDI, Digital Audio
& more. + a diploma
from a world
renowned school.

Call 800-544-2501

212-777-8550
(NY, CT & NJ)

Your focus is music,
our focus is you.

www.audioschool.com



INSTITUTE OF AUDIO
RESEARCH

64 University Place
New York, NY 10003

Scratching Out an
empire

MASTERS AT WORK

BY GARY ESKOW

Remixing isn't the right term. When artists like Kenny "Dope" Gonzalez and "Little" Louie Vega get their hands on a track, strip it of everything but vocals, and produce an entirely new musical arrangement, they're doing a lot more than mixing.

Operating for more than a decade as Masters at Work, the two have helped define the Nuyorican sound and have applied their skills and spice to a remarkably large and diverse pool of artists, including Michael Jackson, Madonna, Lisa Stansfield, George Benson and Debbie Gibson. They recently put together a double album, *Our Time is Comin'*, that includes some of their best work from the past and new tracks from Shaggy, Patti Austin and Roy Ayers. *Mix* caught up with Gonzalez and Vega by phone from a New York recording studio as they were putting the final touches on their new record.



Gonzalez (left) and Vega

Many people put remixers and writers in separate containers, yet you two are both. What have you learned about songwriting through your remixing work?

Louie Vega: When we remix, we are actually writing, producing and arranging new music. Doing as many as a few thousand remixes, we have had plenty of practice. So we have learned a lot, but always looking to learn more. We have learned to work with singers, musicians and engineers.

Kenny Gonzalez: Basically, when we remix, we never use any of the original tracks, so we write new music and use the original vocals.

How has digital technology affected the way a remix session is handled?

Vega: Thank God for Pro Tools; we use it all the time.

Gonzalez: I still love the analog tape. Even though there are plug-ins, Pro Tools still does not simulate tape. On the other hand, the digital tools work for vocals, bouncing tracks and music. You could never do that on 2-inch tape!

You have project studios in your homes. How do you interface with the larger studios where you complete your work?

Gonzalez: I do all the pre-production at my house. I don't bother with a computer at home. I have both an MPC-2000 and 3000, and I drop all my beats and tracks to disk. When we go into the studio, I get my engineer to suck it all into Pro Tools. We create our arrangements in Pro Tools and then get on with our work. We've done a couple of projects entirely in Pro Tools; it's great for riding vocals. Most of the time, though, I keep the drum machine stuff and music automated on the board, so I end up with a mixture of Pro Tools tracks and live MIDI stuff.

What monitors do you use?

Vega: Consistent sound is the most important thing, so at my home studio I use only Tannoy speakers. I use System 15 for main reference with B400 subwoofer; 800As with a subwoofer for near-field.

Gonzalez: Tannoys are dope. I've always loved their sound—very true. In my house, I've got the Tannoy System 1200/B400. The end result always sounds exactly like what you heard in the room you were working in.

You must have some interesting stories to tell, given the level of talent you've worked with over the years.

Both: Watching Tommy Li Puma produce George Benson in the studio was like getting a crash course in producing. Co-producing "The Ghetto: El Barrio" with him in the studio was very special. When we remixed Michael Jackson's "Rock With You," we were blown away by the way it was recorded. When we brought the track up, it sounded just like the record; Michael's voice just needed a little reverb. When we put the faders up and lined them up at 0, the mix was perfect. Bruce Swedien is "the man."

Recording Eddie Palmieri in our studio for the Nuyorican Soul project was tremendous. He did his tracks in one take. Arranging background vocals with Luther Vandross for BeBe Winan's *Thank You* record, Luther knew exactly what he wanted—the different notes for everyone, stacking the sounds. He is a genius. ■

“ Clean, rich and soaring reverbs with superclean tails...one of the most classy reverbs I have encountered and I would seriously consider giving it rack space for the reverb programs alone. ”

—Rob James, Studio Sound



**Orville™ Voted Top
Outboard Reverb
by readers of Studio
Sound Magazine**

SEE A TREND DEVELOPING HERE?

**Orville™
World's
Best Pitch
Shifter**



“ The UltraShifter™ algorithm is everything you'd expect from the folks who developed the Harmonizer® units: smooth, accurate...more natural and open sounding than any of my other effects boxes. ”

—Dave Martin, Recording Magazine.

Most Versatile Multi-channel Effects Processor Family



Mix and match any number of channels in standalone, Eve/Net™ remote controlled, or economical blank front panel Orville/R configurations. The Orville + Eve/Net system changes and grows with your requirements.

Eventide
the next step[®]

www.eventide.com • 201-641-1200

The Best of
Everything
Orville
Harmonizer® Brand Effects Processor

—FROM PAGE 64, HIP HOP PRODUCERS
ple makes the engineer's job a lot easier.”
James Poyser knows that there's a world of difference between a Neumann U87 and a Shure 57. Still, he says both have their place on vocals. “I've cut vocals on a 57, though I try not to,” he says. “It all depends on the voice and the vibe. When guys start worrying about perfection, it takes away from the vibe. I've tolerated distortion on vocal tracks if it's part of the vibe. You want a clean signal, but sometimes noise is a great thing. On Erykah's [Badu] record, there were times when she just grabbed the 57 and sang into it, and that was the vocal. You can hear her talking under some of the tracks; you can hear that kind of stuff on D'Angelo's records, too. There are tracks where you can hear [programmer/drummer] Amir Thompson's cell phone going off. It's organic if it happens on the session. It's like going back to mom's house for dinner: It's not cooked up by a great French chef, but there's something special about home cookin', even when it's not perfect.”

All of this underscores the fact that this particular universe is less about making technically great records than it is about climbing a much larger ladder. Entrepreneurship interlaces every action in hip hop, in or out of the studio. Bink Dawg puts it most plainly when he says his ambition as a producer is to “conquer the game like Jermaine [Dupree] and Puffy did. Being a producer is just a start—what you really want is to be known as the guy who can break an artist. All the while you're making records, you're also building your production company and building relationships with the record labels. By producing records, I'm getting seasoned for the game. You start out as a guy doing beats and you want to end up president of a record label, or whatever. Producing is something you do along the way.”

And New York is the ultimate test track for urban's next generation of producers. While they may be coming of age in a very different landscape than rap's earlier days, they are acutely conscious of the heritage they've become a part of, and of hip hop's ability to embrace change. “There are a lot of different kinds of music that rap embraces,” says Poyser. “And that's exactly why it's endured so long.” ■

Dan Daley is Mix's East Coast editor.

The right capsule for any application

Get modular!

with the most comprehensive microphone system available

MK 2

Distributed in the United States by:
Redding Audio, Inc.
97 South Main Street Unit 10
Newtown, CT 06470

Tel.: +1 (203) 270 1808
Fax: +1 (203) 270 2934
E-mail: reddingaudio@aol.com
Web site: www.schoeps.de

SEE US AT AES BOOTH #1037

WSDG
Architecture & Acoustical Design

www.wsdg.com
845.691.9300

Five Time Winner | Acoustical Architecture • Audio/Video Recording | Booth 536
Multi-Media Conferencing • Post Production

Thank you

With her crystal clear voice,
Dido has audiences hanging
on her every word. Even other
artists grab her performances
for their own recordings.
Every time Dido performs,
she grabs a Sennheiser.



sennheiser wireless

Visit www.sennheiserusa.com/didomix for
your chance to grab a copy of Dido's
multi-platinum CD 'No Angel'



Dido

SEE US AT AES BOOTH #436

 **SENNHEISER**[®]
www.sennheiserusa.com/didomix

Sennheiser Electronic Corporation • 1 Enterprise Drive, Old Lyme, Connecticut 06371 USA
Tel: 860-434-9190 • Fax: 860-434-1759
Mexico: Tel: (525) 639-0956 • Fax: (525) 639-9482
Canada: Tel: 514-426-3013. Fax: 514-426-3953 • Mfg: Am Labor 1, 30900 Wedemark, Germany

KEVIN ODOM AND LL COOL J

ROCKIN' THE BELLS AT HOME

When he's not making movies or starring in television shows, seminal rap artist LL Cool J turns his creative energies toward recording his own material through Rock the Bells Music Group, the Warner Brothers-affiliated production company he's headed for the past 15 years. Lately, LL has also been producing other artists as well, working as often as possible in his own Rock the Bells studio, located in the Queens, N.Y., home where he grew up. A small, comfortable space, the facility lacks some outboard gear but is otherwise a fully functional studio. Working frequently with LL on a variety of projects has been freelance engineer Kevin Odom, who is also a musician and something of a computer expert, with many years working in and around New York.

Although he's comfortable working with traditional consoles and the 2-inch tape format that LL Cool J remains fond of, Odom is immersed in workstation-style recording and, little by little, is making a convert of his boss. "I was one of the first people to record audio on the old Atari Falcon computer," Odom notes. "I was using Cubase, and have stayed with Steinberg products since that time." Currently, Odom works with Steinberg's Nuendo software, which he uses in conjunction with a Mackie D8B console at Rock the Bells.

"I saw Nuendo years ago when it only worked on the SGI platform, and knew that if it was going to be successful, it would have to be rewritten for the Mac, the PC or both, and that's what's happened," says Odom. "Nuendo has features that Cubase lacks. Cubase is for people who have MIDI and want some audio capabilities. Nuendo is much deeper; it lets you manipulate audio in very detailed ways."

Asked for an example, Odom says that the ability to redraw waveforms down to the single sample level is extremely helpful in the R&B recording

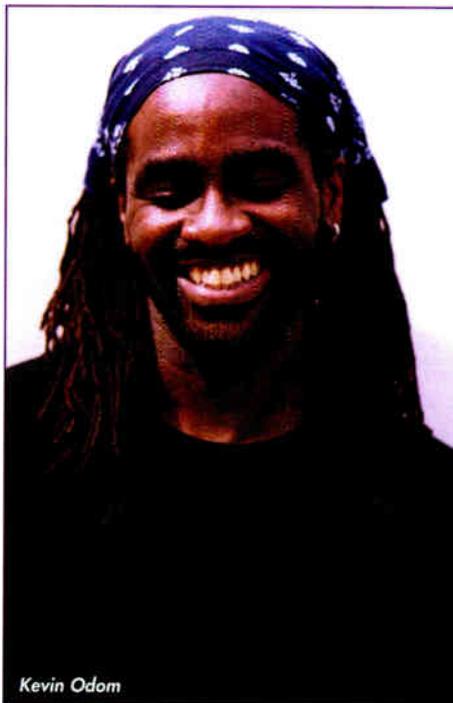
world. "Lots of these artists like to stack vocals, but they don't always nail them," he says. "This style of music demands very tight vocal arrangements. I'll go down and grab a consonant and slide it into place to match the previous pass. Clients love it."

"I've done sessions where I've had over 70 tracks of vocals playing back at one time, and have never had the system hiccup even once! I go right into the computer, and then Lightpipe audio into the digital console using the Nuendo 9652 Lightpipe card. It works great."

"I also think that the Nuendo pitch compression is probably the best

I've heard up to this point, and I like the fact that you can execute this function in real time or offline. You can select a region, and if you want to apply EQ or reverb or compression to it, go offline without using any CPU. However, in order to be able to crunch these kinds of numbers effectively, I've found that you need to have a PC that runs at 700 MHz, at a minimum. I design computer systems for musicians, and I tell them that if you want to use Nuendo or other intense music software, you'll need to optimize your system. Internet apps slow things down. If you want to play games, buy a Sony PlayStation!"

Odom says that Rock the Bells' next round of equipment purchases will include a pair of Tascam MX-2424 hard disk recorders. "I've had lots of experience with Tascam products," he says. "They never break down." These units will be used primarily as digital transporta-



tion devices, for the times when tracks are recorded and pre-mixed in Nuendo but need to go to another studio for overdubs and mixing. LL's and Odom's studio of choice for mixing these days is Lobo Studios on Long Island, which is equipped with a Neve VR. However, Odom notes that Rock the Bells is looking into the purchase of an SSL console so that more work can be kept in-house.

"I'm trying to show LL that you can mix an album in a small, comfortable environment like this one, without going off to a glamorous, larger studio," he says. "Artists like the home atmosphere of a smaller studio—they often tell me that it's easier to write and perform here and that better work comes out of it. We need some more outboard tools to compete with the larger facilities, but otherwise, we've got just about everything we need to track and mix great records right here." ■

Gary Eskow is a Mix contributing editor.

BY GARY ESKOW

"AIR offers post production, film scoring, surround mixing and gaming to an international clientele. DigiStudio lets us work in a common format — Pro Tools." Tim Vine-Lott | Technical Manager

PRO

TOOLS

AIR Studios

London

If you had the professional audio community at your fingertips, what would you do? Probably the same thing as AIR Studios: Take advantage of increased efficiency and a more streamlined workflow. With DigiStudio™ Internet collaboration, AIR's world-class services are only a mouse-click away. From Los Angeles to Bollywood, only Pro Tools® opens the doors of your business to the world.

Open up your DigiStudio today @ www.DigiProNet.com

Pictured: Tim Bran, DigiStudio Manager

www.airstudios.com

© 3/01. Digidesign, DigiProNet, DigiStudio, and Pro Tools are trademarks or registered trademarks of Avid Technology, Inc. or its subsidiaries or divisions. DigiStudio is powered by Rocket Network, Inc. All trademarks are the property of their respective holders.

digidesign®

A division of **Avid**

World Radio History

Web

BUILDING YOUR OWN

BY PAUL D. LEHRMAN

Editor's note: This article appears in the October issue of Internet Audio magazine. For a free subscription, visit www.mixonline.com.

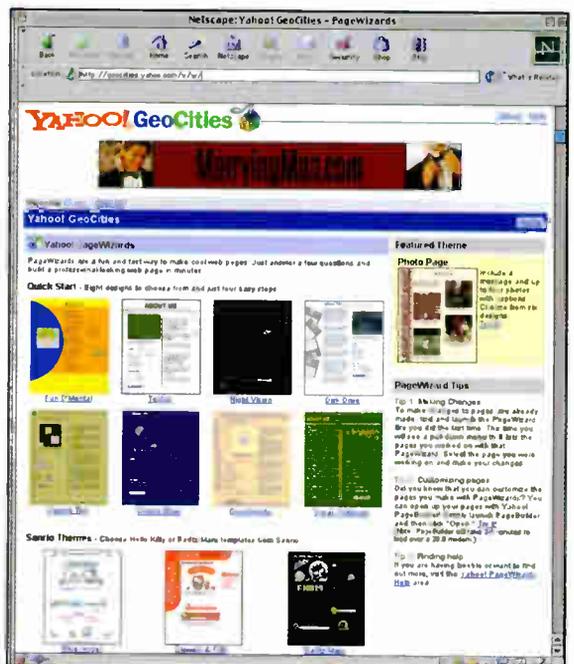
You use the Web all the time: You download stuff, you send e-mail, you spend time in live chat rooms and post messages to bulletin boards. But, you're ashamed to say, you don't have your own Web site. Maybe it's because you've been harboring a deathly fear that you'll sink into a mire of complicated programming codes and tools, or that you'll have to deal with shady and unstable hosting companies, or that you'll have to spend a lot of money. Well, let me assure you that it's not that hard to build a site, it's easy to find a good host and it doesn't have to cost much at all. The biggest problem is wading through all the options available—because there are way, way too many of them—and finding one that's right for you.

GETTING STARTED: FINDING AN ISP

If all you want to do is present yourself as a musician and let people learn a little about you and download or listen to some of your



MP3.com's New Music Army is one of the site's new-music promotional programs.



Yahoo's PageBuilder lets you choose from a variety of templates, letting you build a page in minutes.

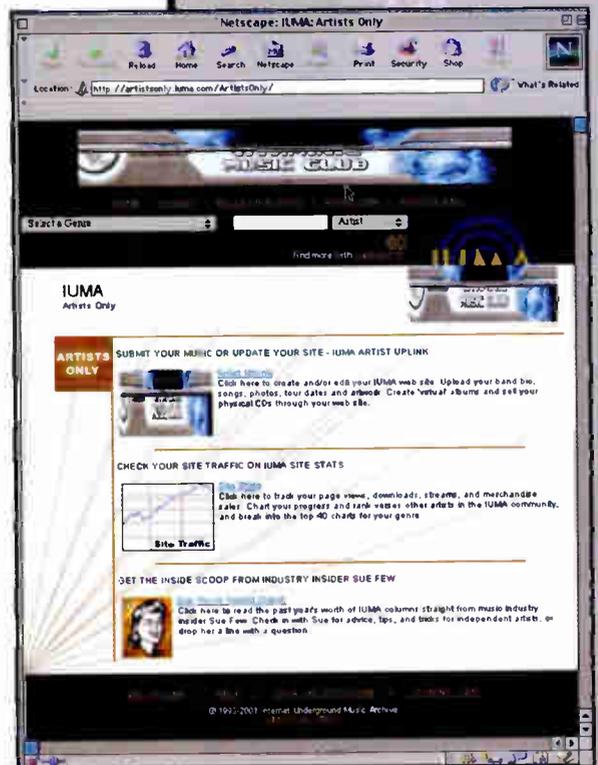
site

IT'S EASIER THAN YOU THINK

music, then your easiest route might be to go to a "new artists" site like MP3.com, broadjam.com or the Internet Underground Music Archives (www.iuma.com) and sign up. You'll be given a page for a bio, a picture or two, and links to your music files.

But if you want a site that's more personal, or one that contains more information, then you have a lot of choices. One of the quickest ways to get started is with an Internet Service Provider (ISP) from whom you are getting your Internet connection. Most likely, your ISP has space on a server (which is nothing more than a computer hooked up to the Internet) set aside for a personal Website for every subscriber, and that means you. America Online, AT&T, Earthlink, Compuserve and smaller regional providers typically will give you 10 MB or so of online disk space for your very own page. (Your personal page is different from a home page, the customizable page that you see when you open your browser.)

Many ISPs offer some simple tools to build your site, as well, and it won't cost you a cent more than what you're already paying for In-



IUMA's ArtistUplink lets you create and edit your IUMA Website, where you can upload bios, songs, photos, tour dates and artwork, create "virtual" albums and sell CDs.

Registrars.com is an example of a site that lets you check if your desired domain name is available.

ternet access. If your ISP does not offer Website space, you can get the same service for free at Yahoo's Geocities: <http://geocities.yahoo.com>. All allow some control over formatting of text, placement of graphics, and links to other pages or Websites.

The tools you get to build your page will most likely be relatively simple templates that you fill in so that your site will look, to one extent or another, like all the other sites on the same service. Also, the address, or URL, will be your ISP's. For example, if my personal site were on my MediaOne account, its address would be <http://people.ne.mediaone.net/lehrman>—not something I can quickly rattle off to someone at a party.

In addition, 10 MB is not very much space, particularly if you are planning to upload samples of your music (stereo MP3 files take almost one megabyte per minute), and often these services won't even let you do that, which we'll get back to in a moment. You can sometimes order extra disk space, but the cost starts to go up pretty quickly. There's also usually a traffic limitation; that is, visitors to your site can download only a certain number of Gigabytes per month. If you have large files on your site and they prove to be popular, you might incur extra charges, which could be significant.

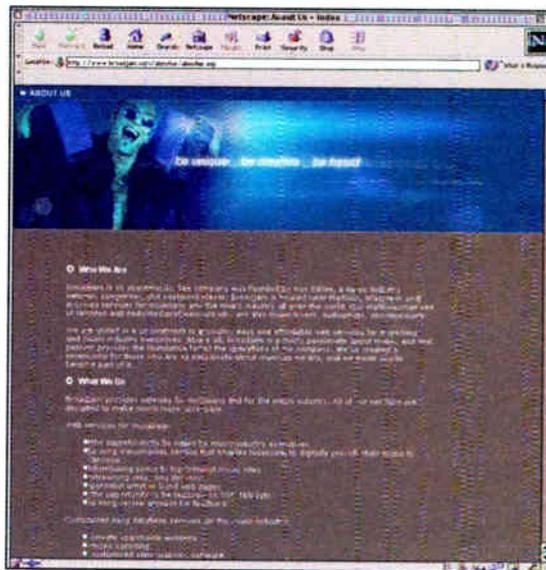
Unfortunately, if you're looking for a place where Net surfers can find your music, then these "cookie-cutter" sites may not be your best bet. Few of them will handle streaming audio, and even fewer will allow you to put MP3 files on the sites. The RIAA and its endless legal efforts against Napster has spooked Internet companies so that, out of fear of getting sued for making music available that they don't have permission to use, few of these sites will accept MP3 files. Most, however, will allow downloadable files in .WAV or QuickTime formats. One workaround would be to upload your music to MP3.com or iuma.com, figure out the exact URL of your music files, and link to it from within your site. For example, if you have a page on IUMA, click on one of your file names and hold down the mouse. A pop-up menu will show "Copy Link to Clipboard." You can then paste this line of text—the URL of the file—into a link on your cookie-cutter page, and people will be able to access your music file right from your personal site.

Despite these limitations, playing

around with the free personal page on your ISP is a good way to learn about how a Website goes together, and to see how the site you build looks on different browsers.

But once you get used to managing your little site, you're going to want more from it. Undoubtedly, the first thing on your agenda will be to get your own domain name, like "paulmusic.com." Securing a domain name is known as "registering" it. A company called Network Solutions used to offer the only place where you could register a domain name, and it charged \$35 per year, but that's changed. Now, there are dozens of companies that can do it for you. (Just make sure the one you choose is registered with ICANN, the Internet Corporation for Assigned Names and Numbers. If it's not, that means the company is acting as a broker for someone else.) Network Solutions, however, is a good place to find out if your desired domain name is available, and it won't cost anything. Go to registrars.com and type the domain name you're interested in into the text box. The site will tell you if the name is available, as well as what related names might be available.

Registering a domain name, however, is only half the job: The domain name and the files associated with it need a physical place—a server—in which to live. Every computer on the Internet has a unique



Broadjam.com hosts music and provides unsigned musicians with access to music industry feedback and Internet distribution services.

numerical identifier, like "216.157.55.51." When you register a domain name, what you are actually doing is telling all of the computers on the planet that keep track of such things—which are known as Domain Name Servers, or DNSs—that you want this particular domain name to live on a particular computer, or "host." So, when you register your domain name, you also have to specify where it is going to be hosted. In order to find that out, you have to sign up with a hosting service.

CHOOSING A HOSTING SERVICE

Hosting services are companies with racks

WEB 101: A FEW TERMS EXPLAINED

Domain Name: A name (for example, mixonline.com) used in a URL to identify a specific Web page. A domain name can identify one or more IP addresses.

FTP: File Transfer Protocol, the protocol used on the Internet for sending files.

Hosting Service: A company that rents Internet-connected server space, hosting domain names and their associated files.

HTML: HyperText Markup Language, the universal language of the World Wide Web.

IP Address: A unique number identifying a computer or device.

ISP: Internet Service Provider, a company providing commercial Internet access. Many ISPs offer free Website-building tools.

Java Applet: A small, cross-platform Internet-based program written in Java, a programming language for the Web. The applet is usually embedded in an HTML page on a Website and can be run from within a browser.

URL: Uniform Resource Locator, the global address of a document on the Web.

Web Browser: A software application that locates and displays Web pages.

MARK ISHAM, M-POWERED.



Photo: www.webersh.com

If you go to the movies, you've heard his work.

He's the man behind the scores for "Blade", "Kiss the Girls", "Quiz Show", "Nell", "A River Runs Through It", "The Moderns" and dozens of other films. Not one to be limited by genres, Mark's compositional palette includes orchestra, electronic, acoustic jazz, and everything in between.

Mark needs a digital audio card as flexible and diverse as his music.

He uses Delta 1010's. The Delta 1010 has become a staple item in pro studios because of its ability to work well in so many environments. Mac or PC, from Gigastudio to Logic, from tracking to soft synth playback, the Delta 1010 is the card behind the scenes. To learn more about the Delta 1010 go to www.m-audio.com/mix

www.isham.com

M-AUDIO
M POWERED.

800-969-6434 • WWW.M-AUDIO.COM/MIX • EMAIL: INFO@M-AUDIO.COM

Includes Emagic's Logic Delta,
a powerful 24bit/96kHz audio and
MIDI program optimized for our
audio cards.

SEE US AT AES BOOTH #580

of computers connected to the Internet; they are in the business of hosting domain names and their associated files. You literally rent space on a hosting service's computers, by the month, and the service maintains your site's files, giving you access to them so that you can add, delete, or modify them, and keeps your domain hooked up to the Internet.

It seems that everyone and his brother (including Network Solutions) is doing Web hosting, so how do you choose a service? First of all, it's best to let the service handle both the actual registration of your domain name, as well as putting your site on their servers, so you want to go with a company that can do both tasks. You can find companies that will register your domain name for as little as \$13 per year, and they will host your site for \$15 per month, or even less.

Knowing whether or not a host is reputable is obviously a concern. Almost all hosting companies can do the job they claim, but some have more reliable connections—both to you as the site creator

and to potential viewers—than others, and there are some whose business practices are, frankly, a bit shady. One way to find a good host is to ask around: Find a small-to-medium-size Website for a music-related company—maybe an independent record label, an artist or a production company—that looks good and runs well and has the features you'd like on your site. Contact the site's Webmaster (there's usually an e-mail link somewhere on the site) and ask who the host is and how the Webmaster's experience has been. If the report is good, check into using that host.

To compare features among hosting services, look at the amount of disk space they offer; the quantity of downloadable data they will allow per month; whether they support streaming audio and/or video, and in what formats (RealAudio/Video, MP3, QuickTime, Flash, etc.); whether they will allow MP3 files *at all* (some hosts are pretty squeamish about this); whether they will supply "statistics," so you can see how many visitors your site is getting; and how many e-mail accounts you are allowed, in case you want different folks in your company or family to have their own mailboxes.

Also, see which hosts will handle "domain forwarding" and if they charge for the service (besides the initial registration costs). Domain forwarding is important if you want to control several different domain names, but give all of them access to the same site. For example, if you want your domain name to be "bigstudio.com," you might also want to register the similar names "big-studio.com" and "bigstudios.com," so that no one else can have them; with domain forwarding, anyone typing in *any* of those other URLs will automatically get forwarded to your real URL, "bigstudio.com."

If you want to sell anything through your site, then you may want a host who offers "e-commerce." This can get pretty complicated: You need to offer a "secure shopping cart," which encrypts credit card numbers so they can't be stolen by a third party, and (unless you already have a merchant credit card account) an "Internet Payment Gateway," which is a bank account through which you can accept credit card payments. One way around this is to sign up with a small-business "Web money" service like Paypal.com, which will handle up to \$100 in credit card transactions for you per month at no charge; the money can be transferred directly into your bank account, or you can ask them to send you a check. And if you plan on doing more business than that, you'll have to pay a transaction fee, which on a typical CD purchase works out to about 75 cents.

BEYOND DOT-COM

Should your site use a suffix other than ".com"? Probably not.

URL suffixes are properly known as "Top Level Domains," or "TLDs." Every country has its own two-letter TDL (".uk" for Great Britain, ".ca" for Canada, etc.), while the three-letter TLDs have specific purposes, regardless of their location. ".com" is for commercial sites, ".org" is for non-profit organizations and ".net" is for networks. No one is actually checking to make sure you are, in fact, a network or a non-profit, and if "yourname.com" is not available to you, you may be tempted to register "yourname.net" instead. But if your TLD is ".com," most browsers will find your site when the user just types in the domain without any suffix—type "mixonline" into your browser and see what happens. On the other hand, if your TLD is ".net" or anything else, users will have to type in the whole name. Trust me, this does make a difference.

Recently, many hosting services have started to offer URLs with the suffixes ".cc" or ".tv." These are actually TLDs for two tiny island nations, Cocos Keeling Islands, an Australian territory in the Indian Ocean with fewer than 700 residents; and Tuvalu, in the South Pacific, respectively. These countries have worked out lucrative deals with American Internet brokers to license their TLDs, based on the idea that Americans think it's cool to have "alternative" Web addresses, especially if they have anything to do with television. (I have no idea, however, what the appeal of ".cc" is.) It's not quite a scam, but it's close. Don't bother with them.

Also, there are a number of new TLDs, like ".biz," ".aero," ".museum," etc., which will become active sometime in the next few months. You can "pre-register" and reserve potential domain names with many hosts, but it's very hard to say how those names will behave with common browsers. So I would be cautious about jumping in just yet.

One other thing about names: You don't really need "www" in a domain name anymore. It is still used by large companies that need to distinguish between their internal computer networks and the sites accessible to anyone (the "www" indicates a public site), but except in those cases, Web browsers today don't care whether you type it or not—so you might as well leave it out.

—Paul Lehman

BUILDING THE SITE

When it comes to designing your site, there are a number of ways to go about it. Like ISPs that offer personal-page templates, many Internet hosts have design packages available either for free or for a small monthly charge. If you register your site through Yahoo, for example, they will throw in "Page Wizards" (simple) and "Page Builder" (more flexible) tools for setting up Web pages (website.yahoo.com). These are the same tools, by the way, they offer through their free Geocities service. Again, these are good for starters, and can provide a decent amount of flexibility.

Then there's the option of really learning Web design and using a professional tool to do it. This isn't nearly as hard as it sounds—or as it used to be. There are a number of graphic-oriented page-design programs available that are no harder to use than a desktop-publishing program like Print Shop or Pagemaker.

Best of all, some of them are free. Netscape Communicator comes with its

Imagine a world without
sound...



...we provide the sounds

*The world's largest auditionable
sound effects & music samples library...*

Photograph by Herbie Kestemaa
Designed by www.genix.co.uk



*Over 1000 Awards
& accolades for sound*

Sound Effects Library Ltd

Virtually any sound 

www.sound-effects-library.com

Get connected fast... >Bookmark us NOW!

Part of **The Tape Gallery** Group of Companies

Tape Gallery House, 28 Lexington Street,
Soho, London W1F 0LF United Kingdom.

Tel: +44 (0)20 7439 3325 Fax: +44 (0)20 7734 9417
email: info@sound-effects-library.com

World Radio History

own Web page design program called Composer, which does a very credible job. Microsoft's Internet Tools, which is part of Internet Explorer (the Windows version only, alas) is also well-regarded. Heck, even MS Word can create HTML—HyperText Markup Language, the universal language of the Web—automatically: Below the Edit menu is an option called "Save as HTML." For a very simple page, this can be useful, although the program will make up its own mind about

line spacing, fonts and placement of graphics, and anything complex is not going to come out looking very good.

The availability of these tools has meant the demise of low-price commercial Web software, like Claris Home Page and Adobe Page Mill. This is too bad, because even if you only paid \$35 for a product, you could still get technical support, which few companies will do for a free product. Home Page is still available as part of Apple's Web Page Construction Kit (Mac only), and on the Windows side there is the slightly more expensive Net-Objects Fusion. You might also look into several reasonably priced programs avail-

able as shareware, like Internet Design Shop and Visual Site for Windows, and WebDesign for Macs (you can find these on downloads.com).

If you want to get fancier and incorporate features on your site like Java applets (those are the things that change the look of a button when you move the mouse over it, or pop up an annoying ad when you try to close a window), cascading style sheets (a shortcut for doing fancy text formatting) or Flash multimedia presentations, then you'll need a serious Web design program. My favorite is Macromedia's Dreamweaver, for both Mac and Windows, which is now in Version 4. Although it's not cheap, it's a very comprehensive and well-designed program, and lets you get started without having to understand everything that it's doing—but there's plenty of depth to the program, so it should keep you happy for a long time. Another well-respected program is Adobe's GoLive, also available for both Mac and Windows.

Whatever you use, any site you build should be viewed on both common Internet browsers, Internet Explorer and Netscape Communicator, to make sure they come out the way you want. Each has its own quirky ways of displaying Web pages, and you don't want to be surprised by a viewer who tells you that, for example (and this can happen), an image that you've carefully placed in the center of the page is now all the way on the right, and 1,000 pixels wide. If you don't have the latest versions of both programs, they are available as free downloads from Microsoft.com and Netscape.com.

Although it is popular, a Web design program I would stay away from is Microsoft's FrontPage, on either platform. Many people find FrontPage's user interface cumbersome and confusing, and the program tends to take over the site-creation process in ways you might not be comfortable with. But the worst feature is that it creates code for a lot of tasks that is not standard HTML, and therefore can get you into trouble with certain browsers or servers. If you must use it, then make sure your host is set up for "FrontPage Extensions," or else your sites may not work at all.

Finally, you have to deal with how to get your beautiful new Web pages onto your host. This is accomplished using something called "FTP," which stands for "File Transfer Protocol," and does exactly what it sounds like. Every host, in addition to its Internet server, has an FTP server (which could be the same computer) that

NAGRA V
THE ONE-STEP 24 BIT HD CARTRIDGE RECORDER
A SOUND SOLUTION

NAGRA
PROFESSIONAL AUDIO

Nagra USA, Inc.
240 Great Circle Road Suite 326 Nashville, TN 37228
Phone: (615) 726-5191 Fax: (615) 726-5189
E-mail: audio.usa@nagra.com www.nagrausa.com

is used to upload files from Website creators that will appear on the site. When you get your site set up, the host will tell you the address of the FTP server, which is going to be something like "ftp.bigstudio.com" or

perhaps "ftp.yourhost.com/bigstudio."

Many Web design programs have a built-in "Publish" feature, which, once you tell the program what your host's FTP address and your passwords are, will au-

tomatically transfer your pages to the host. If your design program doesn't, then you will need special FTP software. Fortunately, the best of these are free (again, check downloads.com) and simple to use: Once you give them all the info, they will show the FTP server as a desktop window, and you can simply move files and even folders from your desktop into the window, and thus onto your site. Mac users will want to get Fetch, while Windows folks should look at CuteFTP or FTP Voyager.

Like anything else, the more work you do on your Website, the better you will get at it. If you find a Website that you admire, there's no shame in imitating its design. (Just don't copy any graphics, unless they're in the public domain.) Netscape and Microsoft browsers have a "View Source" option that lets you look at the actual source code for a page, and once you're even a little fluent with HTML, this can be a great source (pun unavoidable) of ideas and techniques. Have fun, and see you online. ■

Paul D. Lehrman is Web editor for Mix and its four sister magazines. He is also a composer and educator, and does odd things with large numbers of player pianos.

FURTHER READING . . .

Where to learn more about building your Website

The Professional Musician's Internet Guide by Ron Simpson (MixBooks, www.artistpro.com, 2000) helps demystify Web technology for creative types: Musician/Web designer Ron Simpson's fifth book about online audio offers a thorough overview of Web music promotion and distribution, covering everything from MP3 technology to HTML, all explained in lay terms, with step-by-step tutorials. The *Guide* breaks down e-commerce into easy steps and profiles the top sites for music exposure. An accompanying CD-ROM includes tutorials, HTML templates, software demos and soundfile examples, and a companion Website (www.bozangle.com) gives examples of audio do's and don'ts. Now all you need is that hit song...

Written by musician/multimedia producers Josh Beggs and Dylan Thede, *Designing Web Audio* (O'Reilly, 2001) walks through the entire process for putting audio online, from recording techniques to optimizing and encoding files, to designing Websites with interactive sound. The text combines detailed step-by-step instructions with theory, tips and techniques, and audio pros will benefit from the sound design philosophies shared by Gary Rydstrom, Walter Murch and others. Chapters stand on their own as individual tutorials, so readers can quickly hone in on the information they need. The companion Website, www.designingwebaudio.com, offers soundfile examples and 90 free sound effects from Hollywood Edge. List price is \$34.95; visit the publisher's site, www.oreilly.com, to purchase online or to find a store near you.

The Dawning of a New Sound

SRS Pro 220 Sound Retrieval System

SRS (Sound Retrieval System) is an award-winning patented technology that retrieves the spatial information from any stereo recording and restores the original three-dimensional sound field. Also, use the SRS Pro 220 to convert mono to 3D stereo.

SRS PRO 220 APPLICATIONS

- Recording
- DJ Systems
- Audio Post Production
- Live Performance

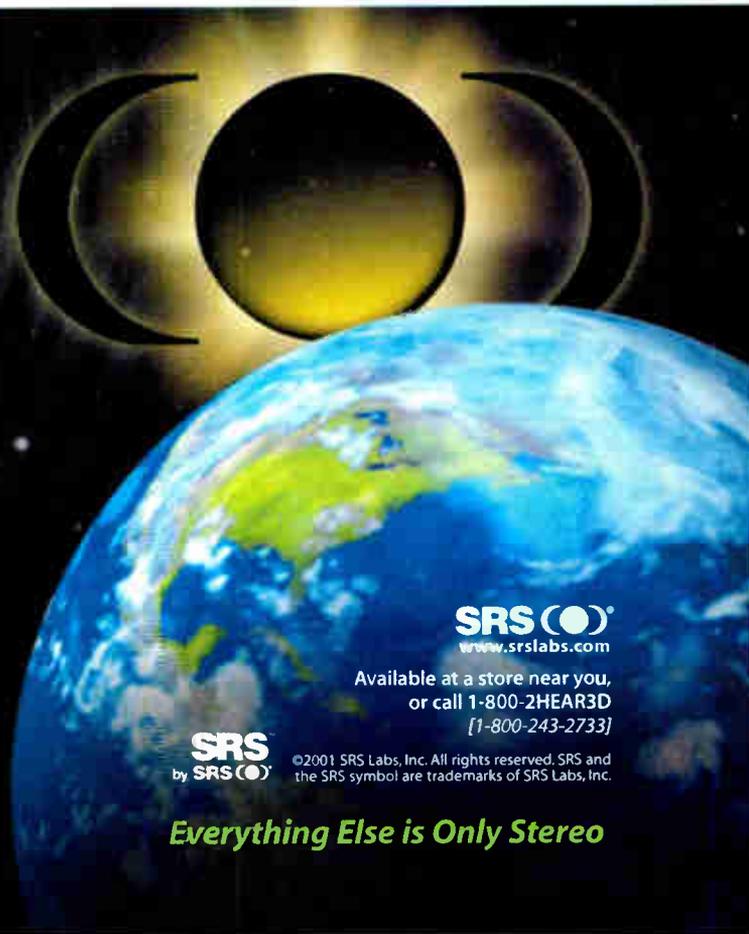


"Not only does the audio enhancement of the SRS processor complement any program material, it reveals subtleties and detail that I have not heard before. Bravo — it is truly a remarkable device."

Edward Greene, independent audio contractor

"SRS creates width and depth in my recordings that were next to impossible to create before."

Chris Gibson, Micworks



SRS (SRS)
www.srslabs.com

Available at a store near you,
or call 1-800-2HEAR3D
[1-800-243-2733]

SRS
by SRS (SRS)

©2001 SRS Labs, Inc. All rights reserved. SRS and the SRS symbol are trademarks of SRS Labs, Inc.

Everything Else is Only Stereo

Truth is the most valuable thing we

The truth about nothing but the truth.

Today's audio productions contain a variety of sounds that occur naturally or electronically in the lower octaves, and at the bottom range of human hearing. The bass guitar, piano, and bass drum each contain these lower frequencies that are essential to their overall tone and character.

The problem with today's audio monitors is that most of them, especially the affordable ones, simply can't reproduce these lower frequencies from their 8" woofers. So, like many compromises in life, we've learned to do without them.

Size does matter Eugene.

Ever notice how objects that produce really low frequencies are naturally large? Organ pipes, double bass, and Barry White, just to name a few. Today's most common monitors use a 2-way design with 8" woofers to cover the low frequencies—but guess what? It doesn't really work.



Bass drums are larger than tom-toms.

As far back as 1932, speaker designers began putting holes in cabinets to help get them do the job woofers couldn't do on their own. While ports are successful in extending the low frequency capability of a speaker design, this extension comes at a price. A ported cabinet lacks the transient response of a sealed box system, making it less effective for reproducing the sounds of drums, slap bass, and electronic music.

At high levels, turbulent airflow reduces port efficiency and causes annoying high frequency port noise known in the trade as "chuffing." What we really need is a bigger woofer, capable of doing the job on its own. Time to bring out the big twelve inch.

The truth about the "hole" truth.

Recently, audio professionals began to realize the consumer audio market had responded to the need for full range audio years ago, with



Holes belong here.

the addition of a subwoofer to reproduce the lower frequencies found in movies, videos and DVD's. Some resourceful engineers added subwoofers to their existing monitoring systems. But the components weren't designed to work together and it just complicated the problem, particularly for music. The net effect was an audible hole in the sound. Unacceptable!

Introducing the world's first 2.1 system.

The Blue Sky 2.1 System is the first system to deliver full range sound without compromises. It is a true system in every sense. It includes two powered 2-way satellite speakers with 6.5" woofers and 1" tweeters and a powered subwoofer with a 12" driver in a sealed cabinet. 2.1 Bass management circuitry located in the



Some devices are designed to make holes.

subwoofer directs low frequencies to the subwoofer and high frequencies to the satellites and makes the system act as an integrated three-way system. Everybody's

happy and nobody is working too hard.

Your room is a part of the system.

Murphy's first law of speaker placement:

"The better the speaker placement is for imaging, the worse it is for low frequency response." In a Blue Sky 2.1 System the user places the satellite speakers where they provide optimal imaging. The subwoofer is positioned for optimal bass response. The

system design acknowledges the room as a major factor in what we hear.

The system delivers

accurate, full range audio in a real

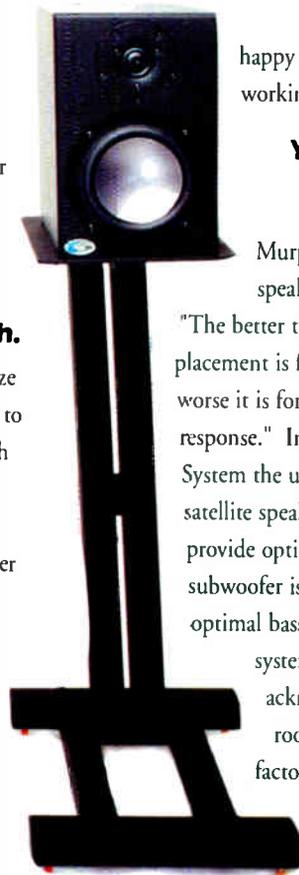
room—*your room*. It reproduces smooth, even bass response throughout the monitoring area.

Boring, yet Important, stuff.

In addition to cabinet designs that are optimized for specific drivers, the Blue Sky 2.1 System is comprised of dozens of other innovative and unique materials and components. Cast aluminum frames add rigidity in the high performance drivers. Mica filled injected polypropylene hemispherical cones maintain their structural integrity even under extreme excursions. Shorting rings further reduce distortion to negligible levels.

Huge motors in the magnet assembly furnish excessive power transfer in insanely high-excursion woofers.

Dual concentric diaphragm tweeters with



have. Let us economize it — *Mark Twain*

integral wave-guides and high-energy neodymium motors provide exceptional definition. Energy absorbing baffles and sealed MDF enclosures with no ports ensure ultra low distortion and accurate transient response. Proprietary, fully discrete power amplifiers with real specifications. There's much, much more. But after all, this is an ad, not a book.

The Blue Sky 2.1 and 5.1 Systems deliver ruler-flat frequency response, a wide listening window, ultra low distortion



and true full-range response (typical in-room response 20Hz-20kHz).

Genetics and the perfect crossover.

When the 2.1 System is set up correctly the transition between subwoofer and satellite is totally seamless. To create such a flat, predictable and seamless crossover, we designed our own custom computer program called BOO® (*for Binary Organic Optimization*).

This proprietary electro-acoustic simulator and

BOO

optimization program is modeled after a genetic algorithm called differential evolution.* We've applied this same strategy

to optimize all the electronic circuits in our 2.1 System.

And the winner is...

The Blue Sky System has been field tested in some of today's most critical listening environments, by the most demanding pros.

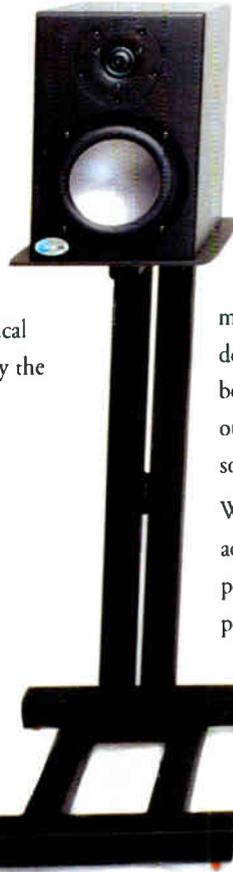
2.1[®]
integrated 3-way system

Gary Fradkin, director of engineering at Hollywood's prestigious Sound Services Inc. said, "Our Blue Sky systems are exceptionally accurate and convey a remarkably unembellished sound stage that translates, without fail, to other reference-mixing environments."

Bernie Becker, of Bernie Becker Mastering & Recording put it this way, "The transition from the subwoofer to the satellite speaker is absolutely seamless. It's



honest, it's full-range and it's totally amazing!" And for the meticulous Denny Purcell, of Nashville's esteemed Georgetown Masters, it was like this, "Nothing but Blue Skies do I hear... I like them." In today's audio business you don't get that type of approval without genuine performance.



Why did we build such an amazing system at such an affordable price?

Because we can!

The founders of Blue Sky have many years of experience in professional audio as engineers, designers, and in manufacturing. We're dedicated to developing new audio products that provide better solutions. We will continue to seek out opportunities to improve the process of sound creation and reproduction.

We plan to make Blue Sky products accessible to the greatest number of serious people by designing for maximum performance to cost ratio. Blue Sky Systems are available in 2.1 and 5.1 configurations.

Hear them at a showroom near you. Call or e-mail us for the location of the best audio and music dealers on the planet. Visit us on the web at www.abluesky.com for more complete information on our company, philosophy, and technology... and to see who else is using Blue Sky.



Blue Sky is marketed worldwide by Group One Ltd.

T: 631.249.1399, F: 631.753.1020.

*A biological process that organisms like bacteria use to mutate and survive in a hostile environment
SAT 6.5 and SUB 12 are approved for use in THX pm3 Certified Studios. The 2.1 symbol and BOO are the property of Blue Sky Intl. THX pm3 is a registered trademark of Lucasfilm Ltd.

THE MUSICIAN

A composite image featuring a human brain with musical notes and a digital interface overlaid on it. The brain is rendered in shades of green and purple, with yellow musical notes floating around it. A digital interface with various icons and text is visible in the lower right corner of the brain image.

W H E R E T H E L E F T B R A I N A N D

Big shifts in the way music is recorded over the past several years have forced major changes upon studios. These shifts have also spawned a new breed of musician. Pressed by declining demand for live players and the proliferation of affordable technology, many artists have added engineering chops of one kind or another to their skill

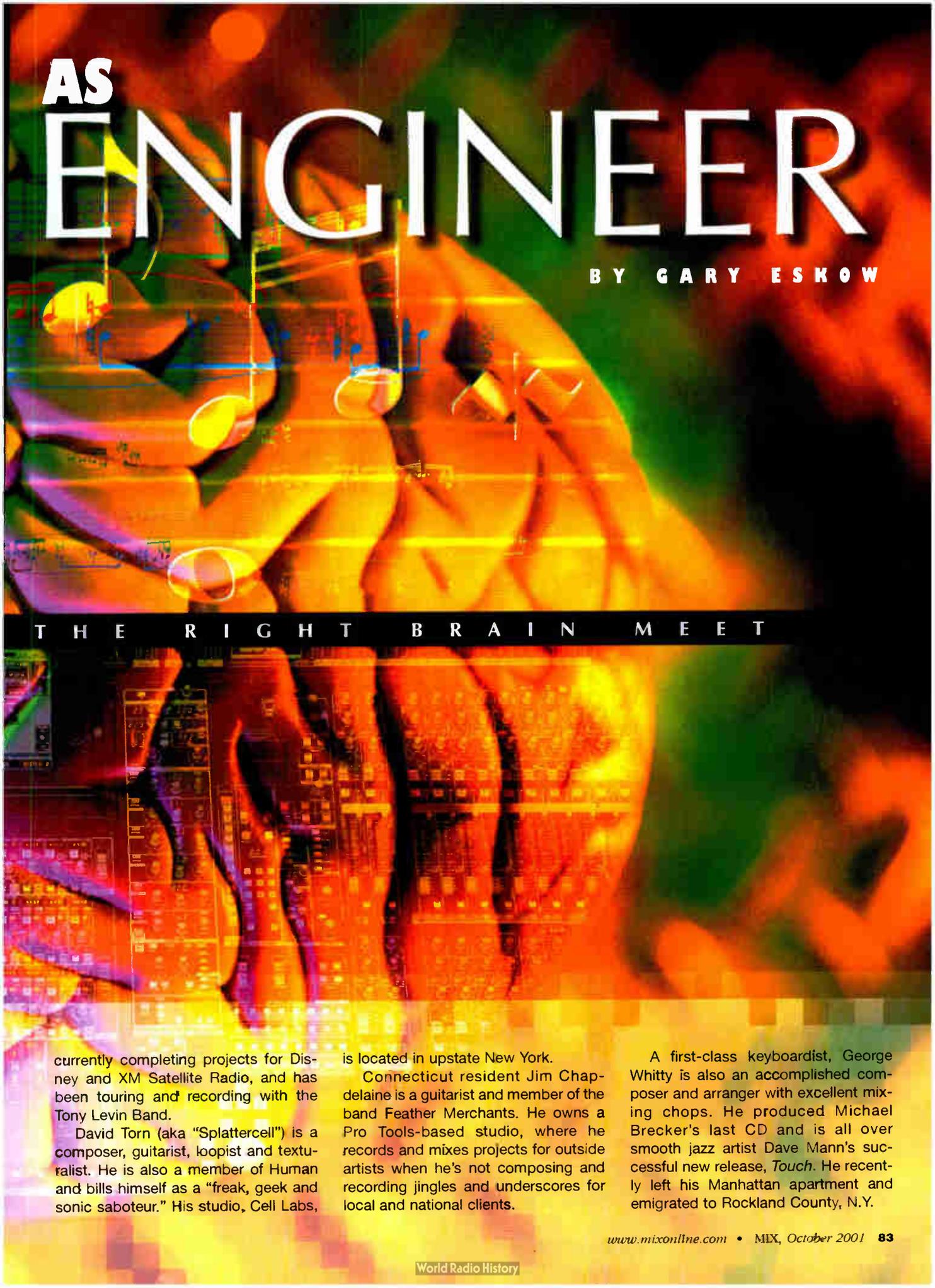
sets. *Mix* assembled a panel of performers who also track, mix, edit and create sounds for the industry, and asked them to discuss the package of services they offer their clients.

THE PANEL

Sax player Andy Snitzer has been on tour with Paul Simon for the past sev-

eral years. Snitzer has an impressive resume that also includes road work with the Rolling Stones and numerous New York sessions.

Larry Fast is best known for the series of nine electronic music albums he's recorded under the project name Synergy, and for his work in the studio and onstage with Peter Gabriel. He is



AS

ENGINEER

BY GARY ESKOW

T H E R I G H T B R A I N M E E T

currently completing projects for Disney and XM Satellite Radio, and has been touring and recording with the Tony Levin Band.

David Torn (aka "Splattercell") is a composer, guitarist, loopist and texturalist. He is also a member of Human and bills himself as a "freak, geek and sonic saboteur." His studio, Cell Labs,

is located in upstate New York.

Connecticut resident Jim Chapelaine is a guitarist and member of the band Feather Merchants. He owns a Pro Tools-based studio, where he records and mixes projects for outside artists when he's not composing and recording jingles and underscores for local and national clients.

A first-class keyboardist, George Whitty is also an accomplished composer and arranger with excellent mixing chops. He produced Michael Brecker's last CD and is all over smooth jazz artist Dave Mann's successful new release, *Touch*. He recently left his Manhattan apartment and emigrated to Rockland County, N.Y.



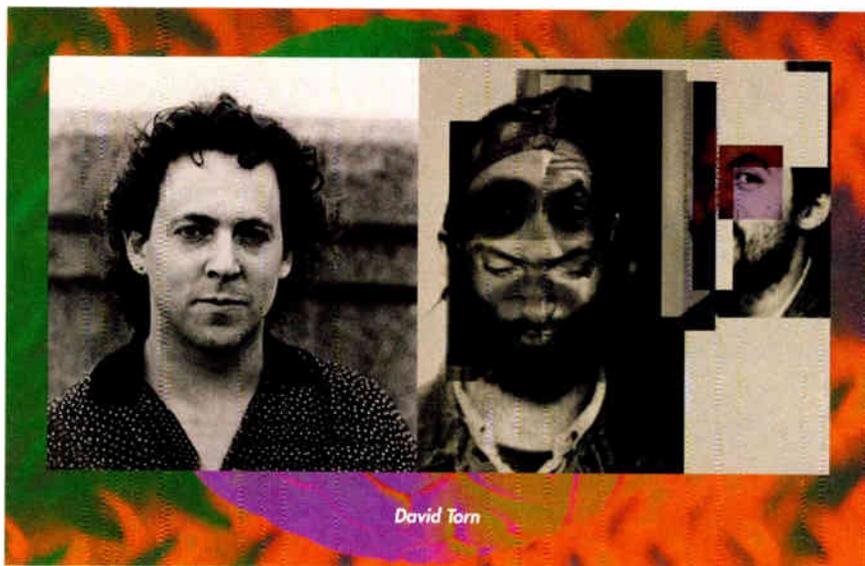
THE MUSICIAN AS ENGINEER

Larry, I know that you've been interested in technology for a long time, so perhaps you can answer this question first: When did you guys first begin to engineer sessions?

Larry Fast: Informally, I'd have to say as far back as my junior high school rock band. I was a hi-fi/recording hobbyist with my own quarter-inch, half-track, mono machine from about 1962 on. I started learning mic technique and audio balancing pretty early. There were transitional semi-pro projects in the early 1970s. My first real credited project for engineering was my first solo album, which was released in 1975.

David Torn: I began engineering, under pressure, in 1994, when I first built Cell Labs, my little home studio—on my own recording project, though. I'm not really an engineer. I've worked with some great engineers—Mike Farrow, Tom Mark, Jan Erik Kongshau, Roger Moutenot, Husky Hoskolds, Walter Quintus, Bruce Calder, Danny Kopelson—so I know the difference. I built the studio around Logic Audio, which was the first affordably available software I knew about that allowed for the manipulation of audio.

George Whitty: For real, about 12 years ago, on a Tascam 808. [It was] part



David Torn

of my intense curiosity about finding a way to actualize any sound I could conceive, on a recording budget I could afford. I like to experiment, and a certain amount of everything I do is still sort of monkey-with-a-typewriter-and-unlimited-amount-of-time-eventually-types-The-Bible. Buying the gear and learning to engineer was really about availing myself of an unlimited amount of time.

Jim Chapdelaine: I started fooling around with a TEAC 3340 in the mid-'70s. In 1984, I partnered up in an early 16-track project studio, where I learned lots of interesting mistakes as well as happy accidents. I officially got tired of being on the road in 1990 and started to build my own private studio, where I continue to do all kinds of work today.

Andy Snitzer: When I had to do it for my own records. I really don't think of the editing work I do in Pro Tools as engineering; I think of it as music editing, performance massaging, which I do strictly by my musician's ear. [Snitzer's editing clients include Bon Jovi]. When I have to record players for my records, worry about the signal path, levels, EQ, etc., then I'm engineering. I feel pretty good about most aspects of it, save EQ. Having seen real engineers use EQ, I know I'll never really hear it like they do. *Did any of you ever apprentice at an outside facility?*

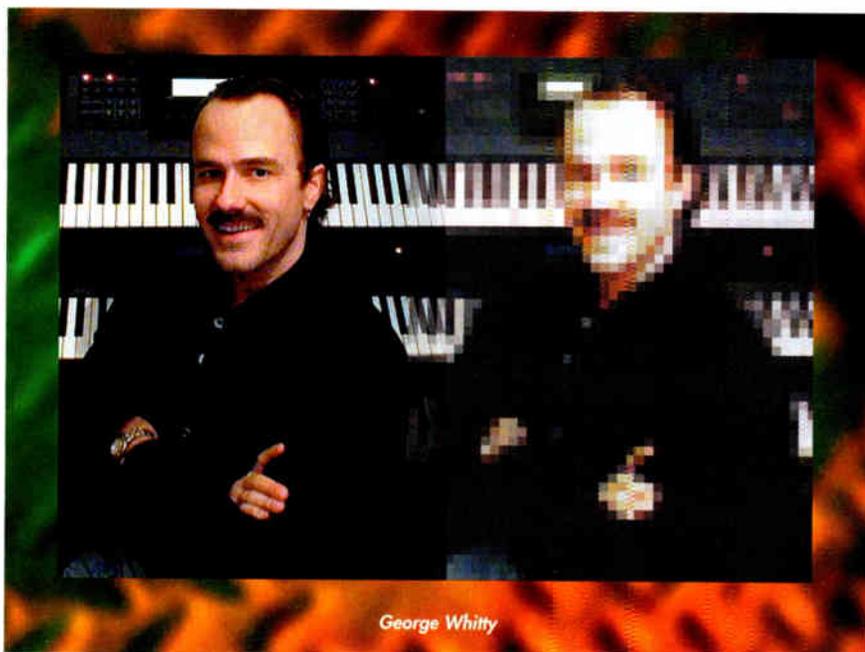
Torn: Absolutely not; I'm merely a musician and composer with a large micro-processed geek factor.

Whitty: Never did, but I got to work with a lot of killer engineers as a producer and player, watched carefully and was a constant pest with questions.

Chapdelaine: Nope.

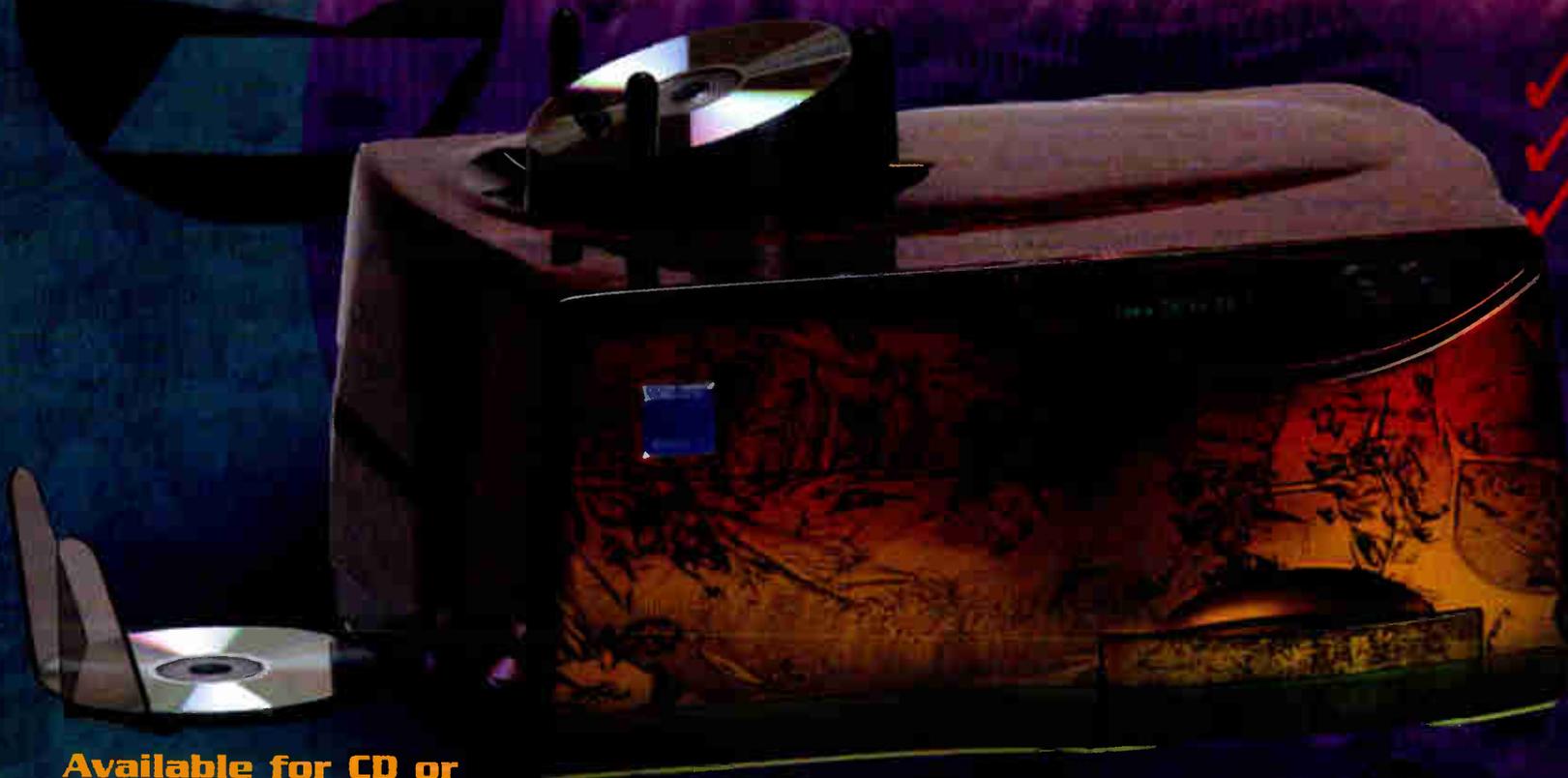
Snitzer: Nope, just slogged away at home. Naturally, I had a head start from being around the studio environment for many years as a session player, and having very good engineers as friends.

Fast: I didn't formally apprentice, but I was around a lot of sessions absorbing what I could and sometimes helping out when I could contribute. Since I worked at home and at House of Music studios on my solo albums in the '70s and '80s, I was exposed to the "right" way to do things in the studio, which refined my own techniques. Later, I was involved with high-profile projects with Peter Gabriel, Jim Steinman and many others, which brought me to a number of the best world-class studios, where I picked up even more from some of the best producers and engineers.



George Whitty

Orbit II: The Studio Copier



- ✓ 1. Plug It In
- ✓ 2. Fill It Up
- ✓ 3. GO!

Currently shipping in base gray. Artistic schemes available soon.

Available for CD or DVD Duplication. Systems start as low as \$3,195 No PC Required!

Finally, a true desktop office copier. All you supply is the electricity and the media. With 16x recording speed and an MSRP of \$3,195, you can't afford not to check it out.

Call us or visit our website to see our entire line of CD-R and DVD-R Products! Recorders, Copiers, Printers, and more!

MICROBOARDS
CORPORATE HEADQUARTERS
Toll Free: (800) 646-8881 • Fax: (952) 556-1620
Europe: 44-1789-415-898 • Fax: 44-1789-415-575
Japan: 81-3-3561-2266 • Fax: 81-3-3561-2267
India: 91-40-6504218 • Fax: 91-40-3326566

www.microboards.com



THE MUSICIAN AS ENGINEER

In what ways does engineering spring naturally from your playing and writing, and to what degree is it an entirely separate discipline?

Whitty: I think they're both components of a larger picture. I'm always trying to get an end performance that really plays the listener the right way, and providing the right immersion in a great mix is an entire third dimension of the picture.

Chapdelaine: The similarities are many. In both, you need to learn "the rules" or the craft, and in both, the most satisfying moments come when you can forget about the rules and the craft and create something. Both require you not only to focus on what you are doing but to hear the whole picture. The differences for me are that I never get tired of playing or writing music, but there are times when the engineering side can get a little tedious. Fortunately, or not, for



Larry Fast

me, I love playing with toys, so engineering is more often fun than not.

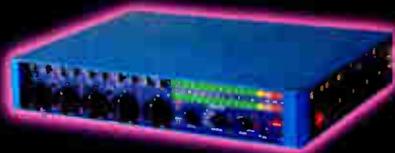
Snitzer: I really relate to compression, both on individual instruments and on the mix bus, as a tool for affecting the way a track grooves. That's been a natural thing that has developed well. Mix levels, panning, effect depth, etc. also come very naturally from being the composer and programmer. The EQ, as I mentioned, the sculpting of each sound, is not so easy for me.

Fast: In my area of electronic music, going back to the Moog days, the two are completely intertwined. I feel very little separation between the two. The same attention to audio detail that goes into crafting a particular patch is used to craft those patches into the sonic tapestry of a complete piece.

Torn: In that my guitar playing and writing have been deeply married to the technologies of live looping and post-processing for most of my life, well...

Designed with no boundaries.

Whether on location in the Sahara, North Pole or a live performance, the MIX 2000 and PSP 3 are designed to provide audio engineers with quality, portability and reliability.



MIX 2000

- AES/EBU or SPDIF Optional Output Module
- Ultra-low noise (<-126dB)
- Outstanding input headroom (56dB)
- 4 Transformer Balanced Inputs
- Small weight and Size (<5lbs including batteries)



PSP3

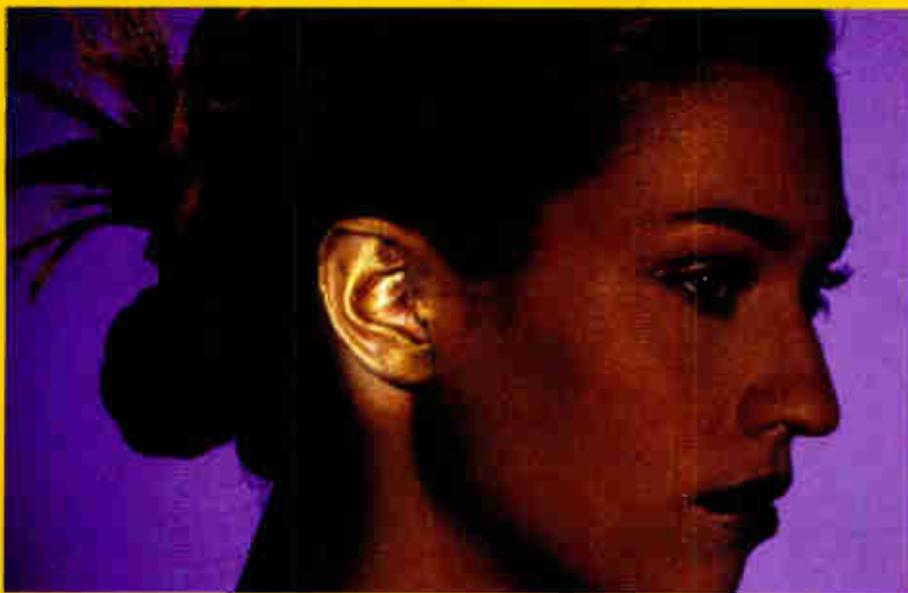
- Microphone & Line Preamplifier
- M/S Encoder/Decoder
- Adjustable M/S Soundfield
- XLR Balanced Inputs/Outputs
- Ultra Small Size - 3.4" x 1.4" x 5.6" / 1.3 lbs



Aeta Audio Corporation
75 Fleetwood Dr. Suite 200
Rockaway, New Jersey 07866
Phone: 973-659-0555 • Fax: 973-659-9555

www.aetausa.com
sales@aetausa.com

((DON'T BELIEVE EVERYTHING YOU HEAR.))



COMING SOON: fully digital bi-amped front end

((UNLESS, OF COURSE, YOU'VE HEARD IT FROM A KRK STUDIO MONITOR.))

Top engineers and producers know that KRK studio monitors still give you the truest, most natural mix around. And with our V series, the fact is KRK has never sounded better.



But as we said - don't believe everything you hear. See your local KRK retailer and listen to the true sound of your mix from one of our new advanced studio reference monitors today.

**THE V SERIES
OF SELF-POWERED BI-AMPED MONITORS**



V6

Big Sound in a small package, plus built-in crossover and video shielding



THE NEW V88

More low frequencies, and more SPL thanks to twin 8" woofers



V8

Excellent translation for the most critical listening requirements

KRK Systems, LLC • 954.689.8833 • www.krksys.com

KRK is a registered trademark of KRK Systems, LLC

See us at AES - Booths: 1172 & 3D01

World Radio History



universal SABRA tools

The easiest and most precise way to make your sound become clean and clear.



SABRA-SOM Com. Ltda.
(55 11) 228 7970
São Paulo • Brazil
www.sabrasom.com.br
U.S. Distributer

K-IV Enterprises, LLC
(201) 828 9492



recording/engineering is an extremely natural extension of that very process, at least insofar as I might treat my DAW as a compositional tool. However, learning to choose and place microphones seems like a lifetime affair to me; I prefer to use "real" engineers for that, when time and circumstance allow.

How has being a musician affected your mixing?

Chapdelaine: I *always* approach a mix as a listening musician first and a technician second. I think that the musician side will always ask, "Does it feel good or right?" while the engineering side might ask, "Does it sound good or right?" The musician side wins most arguments, except when it comes to compression. The musician side tends to overcompress, so watch out.

Snitzer: My musicianship is my mixing, meaning that I can only approach a mix from the point of view that I understand the various parts and sounds in the production and how they're meant to co-exist. Sometimes I think this causes me to be overly subtle about things, but it's hard not to just go with your sense of what's musical.

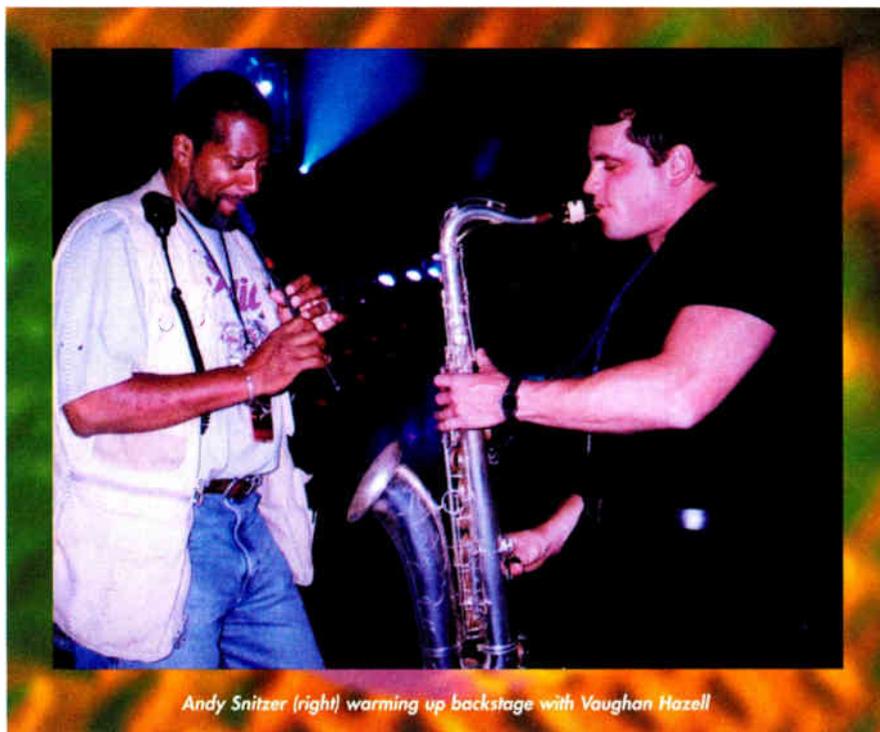
Fast: I'm looking for the musical interplay of the score to fit together in the way that I've been conceptualizing as the piece was being composed. In a way, my mixes only fit together in one correct way for the arrangement. If it won't fit together properly, then something's not yet right with the music itself. With complex MIDI arrangements, I now find myself refining level, placement and ambient environment details that used to be done in the mix during the arrangement stage instead.

Torn: After producing my last four CDs—two as David Torn, two as Splattercell—I think that I've finally admitted that I have difficulty in mixing my own stuff! Some of my mixes are fine, though a bit more musical and idiosyncratic than most "commercial" mixes. Remixing is a mostly musician-ly process. I could not do remixing if I didn't compose.

Whitty: I think all really good engineers are excellent conductors and arrangers by nature, and being a musician definitely developed that side of my thing. I'd say that mixing has definitely done more for my playing than vice versa. It's helped me develop a better sense for what's really needed.

Do you enjoy engineering as much as making music?

Snitzer: I love mixing, I love working compression on the mix bus, I love editing performances in Pro Tools toward taking the groove of the thing to another level. The tracking process, the



Andy Snitzer (right) warming up backstage with Vaughan Hazell

SEE US AT AES BOOTH #643.

Open Doors...



Ray Manzarek

Classic pianist, composer, producer, filmmaker, novelist, keyboard of The Doors.

Think Quantegy

At Quantegy we set the standard with products like GP9 Grand Master™ Platinum and 467 Digital. So it's no wonder that more music around the world goes gold and platinum on Quantegy media than on all the other brands combined. While opinion may vary on what it takes to make a hit, there's no argument on what it takes to master one.



QUANTEGY

The Hit Maker's Media

Tel: 800-752-0732

Fax: 800-628-0535

www.quantegy.com



actual recording process, I could easily leave to someone else.

Fast: I'm an audio gadget and software gadget guy, so I like that techie aspect, but as I mentioned, the engineering is such an integral part of the music creation for me that it's very tough to separate them.

Torn: Actually, there are times I hate

engineering, especially when: A) I'm forced to engineer something for another artist or friend, and B) I'm in the throws of a creative "blast" of my own that requires full performance-oriented concentration. At other times—specifically, when the engineering is woven together with the sonics of the creative process, whether for myself or another artist—I do love it.

Whitty: That's a hard one, because they both satisfy in totally different ways; I think I need to do both to be happy.

Chapdelaine: Not to dodge the question, but hopefully, when I'm engineering I am in some way or form making

music. If I have spare time, I'll always pick up my Rick Turner Baritone 12-string before I fool around in Pro Tools. I love the learning aspect of engineering. With technology, these are actually exciting times to engineer. Now if somebody can settle on a standard format, platform and sampling rate, things will really get fun!

What advice would you give the aspiring musician with regard to the value of learning about the recording process?

Fast: Unless a young musician intends to focus only on live classical performance, I think that at least a basic understanding of the recording process and its pitfalls is essential. Most music today is disseminated through the recorded medium. Not understanding how that works would be a huge handicap.

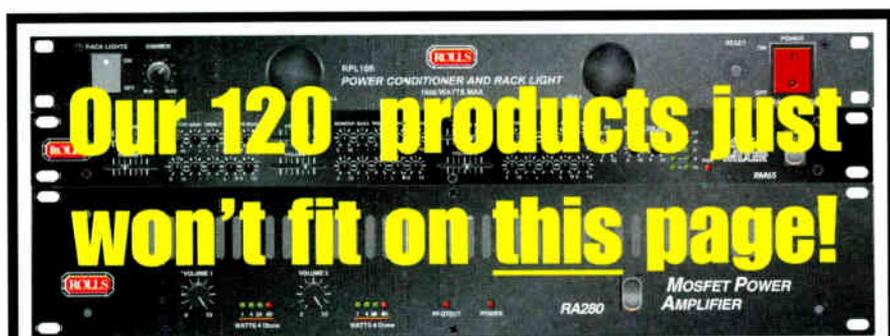
Torn: There's nothing but value in learning the process, whether from doing, reading or querying the pros, but it's critical for musicians to note that engineering serves the creative urges. We're all subservient to music, and sometimes it's good to break some rules, for the right sound and atmosphere.

Whitty: Unless you're Mozart and born with a gift for the big picture, there's nothing else even close to recording to develop every facet of your musicianship. Even if you never engineer a lick, the musicians I see working the most are the ones who really understand the recording process, who can use the tools there to make some kind of magic happen, rather than the ones with the great lick on a C-sharp 7 flat 9 flat 13 chord—although I have one of those, too!

Chapdelaine: I'm a schooled musician and a self-taught engineer. There are technical aspects of engineering that I wish I had become aware of earlier, instead of stumbling upon them or reading about them later on. Find a mentor or do an internship. As a musician, I wasn't as aware of the kick drum or the EQ on the horns. Now, I listen for those things and they make me a better player.

Snitzer: With every passing day, the industry requires every one of us to be more vertically integrated. If you own Dig Audio gear, or MIDI gear, you will not escape the technical demands of those systems. The better you are at that side, the more freely you can get at your music—writing it, demonstrating it, preserving it. The most important thing is to find a method that works for you, and to get to it. ■

Gary Eskow is a Mix contributing editor.



So go to our page:

www.rolls.com

There you'll find detailed info on all Rolls products including pictures, specification data sheets, even owners manuals.

ROLLS CORPORATION
5968 South 350 West
Salt Lake City, UT 84107
(801) 263-9053 • FAX (801) 263-9068
email: rollsrfx@rolls.com

DISCOVER TC•POWERCORE



TC•POWERCORE adds 2.8 GHz worth of hi-end DSP audio processing power to your Mac-based native recording system. The superior design supplies you with the power to run a stack of our world famous hi-end Plug-Ins. Included are TC Tools (TC MegaReverb, TC Chorus-Delay & TC EQ^{3rd}) and — for a limited time* only — even TC MASTER X³, the virtual Finalizer™. That's US \$1800 worth of free software!

TC•POWERCORE is an incredible value right out of the box — seamlessly integrated with any VST or MAS sequencer. An open 3rd party program ensures that you'll be able to add exciting products from great companies like Antares, TC Helicon and many others! Discover **TC•POWERCORE**!

MAC OS >> VST & MAS >> ANY I/O CARD >> 24/32 >> 4 DSPS >> 1 POWER PC >> TC TOOLS, MASTER X³ AND SPARKLE INCLUDED*

SEE US AT AES BOOTH #1136

*Introductory offer featuring MASTER X³ ends 12/31/01



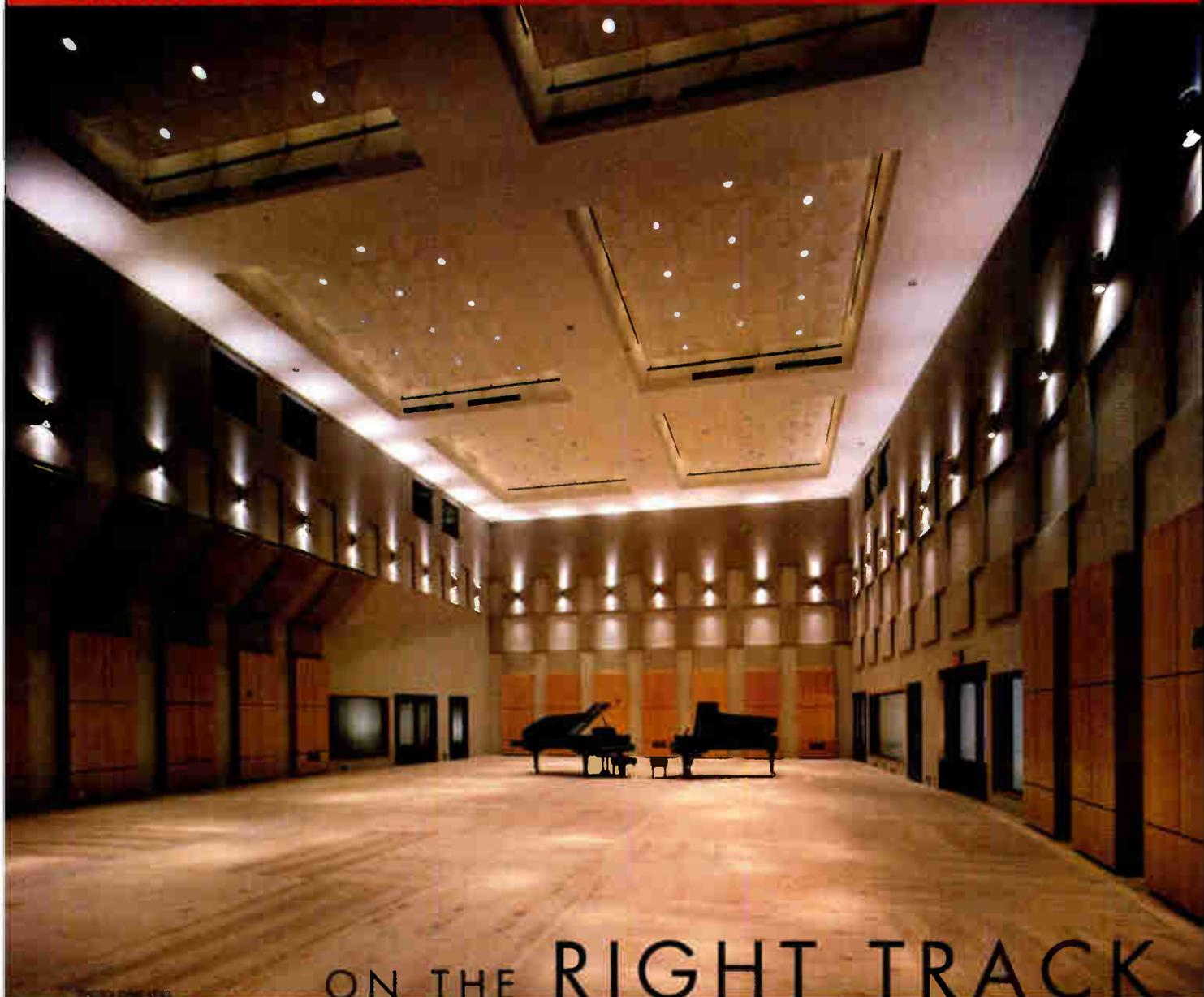
MSRP US \$1299

TC | WORKS
ULTIMATE SOFTWARE MACHINES

US & CANADA: TC ELECTRONIC INC. • 805.373.7028 • 10280 RACALIA • CALIFORNIA • US@TCWORKS.DE • WWW.TCWORKS.DE

FRANK FILIPETTI

ENGINEER'S DREAM STUDIO IS PART OF NEW MANHATTAN COMPLEX



ON THE RIGHT TRACK

Right Track's main orchestral room is a massive 4,600 square feet with a 35-foot ceiling and five iso booths.

After helping build Right Track Studios into the powerhouse that it is—and using its rooms to do the lion's share of his work—independent producer/engineer Frank Filipetti has made it official: He is now a partner in the famed New York facility. Filipetti's decision to take a financial stake in Right Track was spurred by studio owner Simon Andrews' plans to build a colossal tracking room on the west side of Manhattan.

"One reason I had never gone with a studio is I wanted to maintain my independence," says Filipetti. "I wanted whatever client I was working with to know that I was working at Right Track because I wanted to, not

because I was forced to and had a stake there. But I think after 20 years, people have realized that I happen to like the place. I will remain independent on projects, but I will become a partner in this facility because I believe in it."

When clients enter the new Right Track Studio—on West 38th Street near the Jacob Javits Convention Center—they should have no trouble believing that Filipetti would be working there, whether or not he was a principal in the studio. After all, it will be the largest tracking environment New York has seen in years, and easily one of its most lavishly appointed.

BY PAUL VERNA

THE 1604-VLZ PRO

or one of its VLZ PRO Series siblings with ultra-high headroom XDR™ mic preamps

CAN HELP YOU SOUND BETTER

assuming you practice once in a while and stay somewhat in tune most of the time.

Meet the industry standard for 16-channel mic/line mixers. Low noise. High headroom. Superb mic preamps. The best tech support in the industry. And a solid ten-year track record of reliability.

Suh-weeet-sounding 3-band EQ on every channel. Swept mid EQ has ultrawide 100Hz-8000Hz range.

Sealed rotary controls resist dirt, smoke and miscellaneous spooge.

Sharp cutoff filters cut stage rumble, mic stand clunks and P-pops without sacrificing bass.

Easy level setting. Maximize headroom and minimize noise quickly via Channel solo and Trim control. Up to 60dB of gain for boosting timid vocalists. -10dB "virtual pad" for toning down drummers.

Six aux sends per channel (four available at any one time). Two auxes are pre/post switchable.



Ultra-sensitive signal present LED on every channel lets you monitor inputs at a glance. **OL LEDs**, too.

Dust and smoke-resistant logarithmic-taper 60mm faders for accurate control and long wear.

Inside: **VLZ design** minimizes thermal noise at key points in the circuitry.

Negative gain mix amp architecture prevents overload when feeding all channels with hot inputs.

Control Room/Phones source matrix lets you create monitor mixes or remote feeds with any combination of the main mix, Subs 1 & 2, Subs 3 & 4 and tape inputs routed to separate bal./unbal. stereo outputs.

Separate **Tape to Main Mix switch** with independent level control.

Route Aux Return 3 to main mix, Subs 1 & 2 or Subs 3 & 4. Route Aux Return 4 to main mix or Control Room/Phones matrix only.

EFX to Monitor lets performers on stage hear a different level of effects than is in the main PA mix.

On the back: **sixteen premium XDR™ mic preamps.** Incredible 130dB dynamic headroom, ruler-flat frequency response, lower E.I.N. noise specs at working 0dB to +30dB gain levels and the best Radio Frequency Interference protection of any compact mixer on the market today.

1604-VLZ PRO

16 total chs. • 4-bus configuration • 16 XDR™ premium mic preamps • 16 mono mic/line channels • 3-band EQ with swept mid, 75Hz low cut filters and inserts on all chs. • 6 aux sends per ch. • 4 stereo aux returns with EFX to Monitor and bus routing options • Control Room/Phones source matrix • 60mm log-taper faders • 3-way rotatable I/O pod for rack or table use

1642-VLZ PRO

16 total chs. • 4-bus w/double-bussed outputs • 10 XDR™ mic preamps • 8 mono mic/line level channels • 2 hybrid mono mic and mono/stereo line level channels • 2 mono/stereo line level chs. • 3-band EQ w/swept mid on mono channels & 4-band EQ on stereo channels • 75Hz low cut filters on mono chs. • 4 aux sends per ch. • 4 stereo aux returns with EFX to Monitor • Ctl Rm/Phones matrix w/level controls • 60mm log-taper faders

1402-VLZ PRO

14 total channels • 6 XDR™ premium mic preamps • 6 mono mic/line level chs. • 4 mono/stereo line level chs. • Extra ALT 3-4 stereo bus • 3-band EQ • 75Hz low cut filters on mono chs. • 2 aux sends per ch. • 2 master stereo aux returns with EFX to Monitor • Ctl Rm/Phones source matrix • 60mm log-taper faders • Switchable AFL/PFL

1202-VLZ PRO

12 total channels • 4 XDR™ premium mic preamps • 4 mono mic/line level chs. • 4 mono/stereo line level chs. • Extra ALT 3-4 stereo bus • 3-band equalization • 75Hz low cut filters on mono chs. • 2 aux sends per ch. • 2 master stereo aux returns with EFX to Monitor • Ctl Rm/Phones source matrix • Rotary gain controls • Built-in power supply

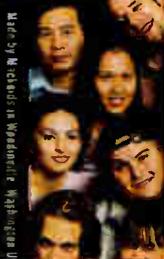


Perfect match for the 1604-VLZ PRO: our SRM450 Active 2-way loudspeakers. Extreme output. Astonishing accuracy. Wide dispersion so your whole audience hears the same great sound.

For more information log on to
www.mackie.com
or call tollfree for a big brochure
800.258.6883

World Radio History

MACKIE



FRANK FILIPETTI ON THE RIGHT TRACK

"Since the big studios of the '50s, '60s and '70s have left, there hasn't been anything in Midtown Manhattan that didn't involve some sort of compromise," says Filipetti. "After seeing rooms in L.A. and London, I wanted a room that had the kind of mass that's going to allow you to go in there with a symphony and still have the isolation you may want for a Broadway show. I wanted a room that really spoke for itself."

As a long-established independent who has chosen to align himself with an existing facility, Filipetti joins the likes of Chuck Ainlay and Jack Joseph Puig, who have made similar arrangements at Soundstage Studios in Nashville and Ocean Way in Los Angeles, respectively. Filipetti's venture is especially interesting given that he almost went in the opposite direction—establishing his own, personal facility the way mix specialists Bob Clearmountain and Mick Guzauski have done in recent years. "Around 1998, I started entertaining the idea that I'd love to have my own studio," says Filipetti. "I looked at what Bob and Mick had done and started fantasizing about a similar situation. I even found a place I was interested in and had come to a decision that I would purchase it. It was a residential studio with a brilliant tracking room and plenty of space. At that point, 80 percent



PHOTO: DAVE KING

At the SSL 9000 J in Right Track's 1,000-square-foot control room are (from left): Simon Andrews, Frank Filipetti and Barry Bongiovi.

of what I was doing was mixing, so I figured I could do that at my own studio near my home [in a northern suburb of New York City] and use Right Track for tracking and overdubbing."

Concurrently with Filipetti's search for his own studio, however, Andrews had lined up financing to build an unprecedented tracking/mixing room to address the needs of New York's film scoring and theatrical communities, which grew substantially in the '90s. The idea was not new to Filipetti. In fact, he had closely advised Andrews on every major move Right Track had undertaken

since joining in 1980, including the move from its original location on 24th Street to its current site on West 48th Street in Midtown, and the console choices and specifications of all three of its rooms. Along the way, Andrews and Filipetti periodically discussed the possibility of building a large tracking space.

"Simon and I had been talking about this for at least 10 years," says Filipetti. "In the late '80s and early '90s, we had Studios A and B running, and we realized that, without paying too much attention, we had come up with a couple of very successful rooms. Not that we didn't spend a lot of time analyzing things, but our ideas meshed, some by design, some by serendipity. We realized that, between us, we had the ability to put together amazing-sounding rooms, and they were very successful.

"We decided about that time that the only real problem we were facing in the structure of both A and B—the one thing we were missing—was ceiling height," he continues. "We started entertaining the idea of raising the ceiling in Studio A, but it would have entailed shutting down the rooms. Plus, at that time, space became available to build Studio C, so we scrapped the idea of making big architectural changes to the existing rooms and decided to try to find a new location that had ceiling height and floor space. We went through several things from there, including negotiating with people at ex-



PHOTO: DAVE KING

Standing in the main orchestral room is the Right Track team: (L-R) Dominick Costanzo, technical director; Frank Filipetti, producer/engineer and co-owner; Simon Andrews, principal owner; Dennis Janson, studio design architect of the New York-based Janson Design Group; Mark Pollaci, president of Nucor Construction Corporation; and Barry Bongiovi, general manager and director of operations.

CHANGING THE FACE OF DIGITAL AUDIO.

Apogee's AD-16 & DA-16 multichannel converters break the 24/96 price/performance barrier.



WITH SURROUND-SOUND and ever more complex recording and mixing, more and more channels of high quality, high sample-rate digital audio conversion are required. But in the past, such converters came with high price tags – and cheap converters simply produce cheap results.

Converters form the heart of your studio. The A/D defines the quality of your entire project. The D/A provides reference monitoring, and an accurate source for analog mixing. Here, quality pays for itself, over and over again.

Apogee quality.

Apogee conversion is legendary. The world's leading engineers, producers and artists specify Apogee –

because our converters make a significant, audible difference.

Now, with the AD-16 & DA-16 converters, Apogee conversion is available in an economical, versatile, 16-channel, 1U form-factor.

Give your projects the conversion they deserve – without compromising on quality. And

without breaking the bank.

The AD-16 A/D includes optical outs, UV22HR and Soft Limit; optional TDIF and AES cards are also available. The DA-16 D/A accepts optical, AES/EBU and TDIF inputs.

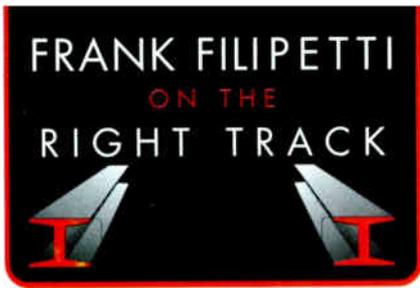
This unique combination of quality, versatility and affordability is why everyone's talking about Apogee's new 96 kHz AD-16 & DA-16.

Of course, they both feature Apogee's unique sound. You can't afford to work without it – and now, you don't need to.

Check out the AD-16 and DA-16, at your authorized Apogee dealer. For more info, see www.apogeedigital.com/adda16



The DA-16 features a unique two-stage clock that can lock to almost any signal, remove jitter and re-clock the data to Apogee specifications.



isting facilities about merging, but none of that worked out. Then we got involved with building Studio C, and it turned into another very successful room.”

Starting in the mid-'90s, Filipetti's career took off with such projects as the Grammy-winning James Taylor album *Hourglass*, the Pavarotti & Friends series,

Hole's *Celebrity Skin*, and projects by Barbra Streisand, Jim Steinman and Carly Simon, among others. With such a demanding schedule, there seemed to be little time left in Filipetti's days to think about building a new studio. On the other hand, his success meant he was doing bigger and bigger projects, including orchestral and cast-album dates, many with longtime associate Phil Ramone. “On some of those projects I did with Phil, like *A Funny Thing Happened on the Way to the Forum* and *Passion*, I started thinking about how great it would be to find a big room to do that sort of stuff,” says Filipetti.

So, faced with a choice between setting up his own shop away from the city or joining Andrews in building a historic tracking/mixing studio, the latter scenario proved too enticing for Filipetti to pass up. “As excited as I was about the prospect of having my own place, this situation gives me even more excitement,” says Filipetti. “This room is something New York hasn't seen in quite a while.”

Another factor that tilted the scales toward joining Right Track for Filipetti is that he already considered the studio his home. Far from being strictly a business venture that happened to work for both parties, Filipetti's relationship with Right Track had always embodied a perfect symbiosis between client and studio. “I started out at Right Track,” says Filipetti, who was an aspiring singer/songwriter before fate turned him into a world-class engineer and producer. “Simon gave me my first opportunity to engineer, and we became fast friends early on. I used to do my songwriter demos for Screen Gems at Right Track and I cut my album there. When all that fell through, I went to Simon and asked him if he would let me engineer for him. I was 30 years old at the time, so I asked him if I could do it without being an assistant, and he let me. So I started engineering gigs for him [circa 1980,] and within six months, I was chief engineer.”

In 1983, Filipetti—along with many up-and-coming engineers at the time—went independent. However, unlike most of his peers, he stayed close to his roots. “I went indie, but Right Track was my home,” he says. “I'd worked with Simon on the design of the first room as well as Studio B, both of which were successful. By the time I left, the two of us had designed a couple of studios together, and they were my favorite rooms. I did most of my work in those rooms, and they reflected a lot of what I thought studios should be. So, even though I wasn't a partner, I was always consulted about what gear to buy. For instance, soon after I went indie, I was in London with Peter Asher at the APRS show and I saw my first Solid State Logic console. I brought the information back to Simon and he put one in Studio B, and it was immediately successful.

Now, almost two decades later, Andrews and Filipetti are preparing to turn heads with their latest creation. With a footprint of 85 feet by 55 feet and a ceiling height of 35 feet, the new Right Track studio will boast dimensions that exceed those of even the largest music tracking rooms in the city. Although there are TV

“The warm, even sound was far superior to any DI box - tube or solid state - that I had tried before.”

- PRO AUDIO REVIEW, MAY 2001

The DB 900 - Tube Direct Box

All Tube Circuit Design.

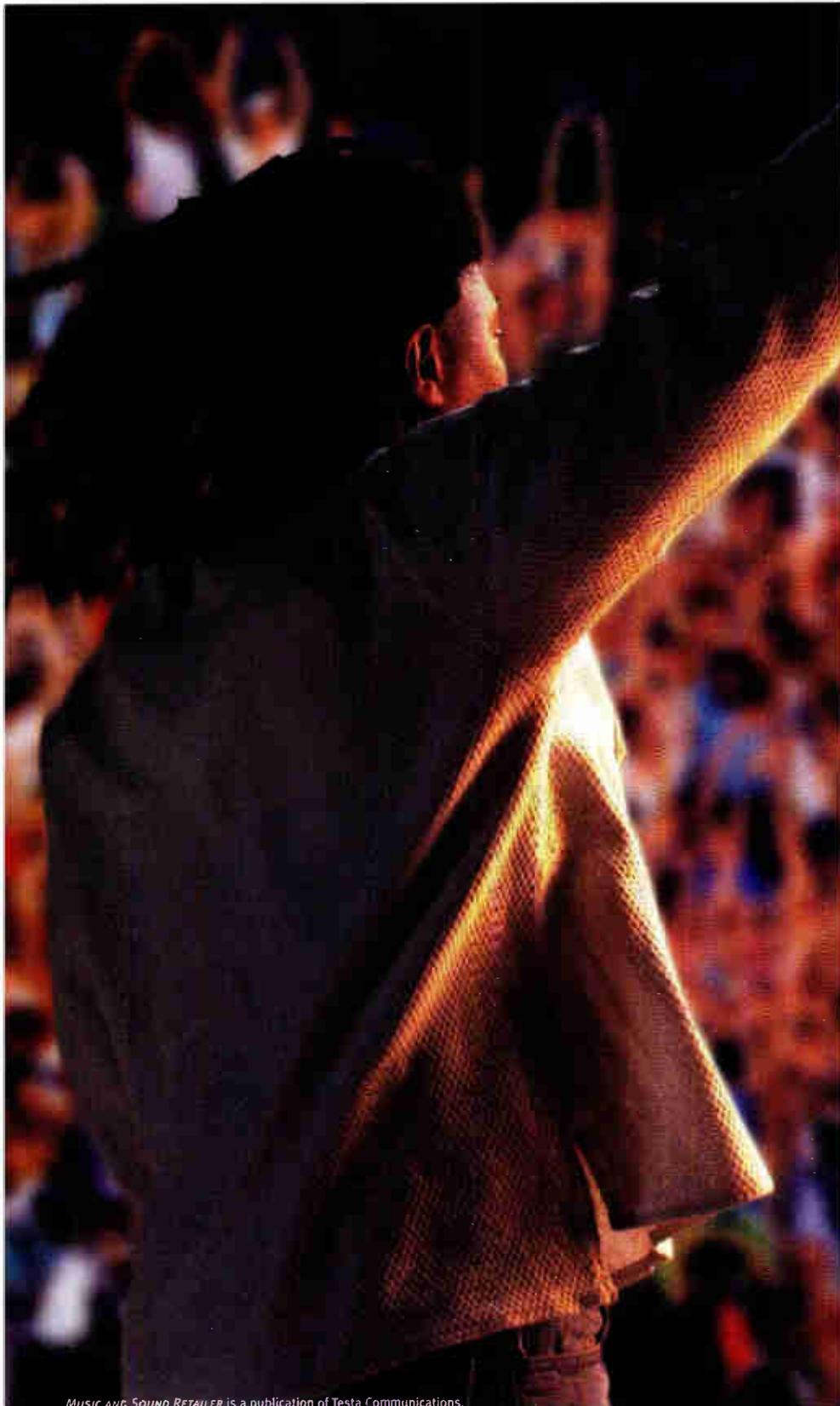
High Headroom, Low Distortion.

Transformer (Jensen) Balanced Output.

10-Year Limited Warranty.



Your music can't be felt if your voice isn't heard.



MUSIC AND SOUND RETAILER is a publication of Testa Communications.

GPS® Series Power Amplifiers by Peavey



CS® Series Power Amplifiers by Peavey



PV® Series Power Amplifiers by Peavey



It doesn't matter what kind of music you play, if your amplification is weak or unreliable your audience won't get what you're throwing down. Peavey offers power amps at price points and ratings to satisfy any need. That means we have your amp. And all our amps come with our patented Distortion Detection Technique that virtually eliminates distortion. We've earned our reputation for outstanding quality and reliability by responding to the needs of working musicians. In fact, our GPS 3500 is Music and Sound Retailer's 2000 Amp of the Year. So don't just play to your audience, move them with the power, performance and reliability of Peavey.



LISTEN TO THIS™

To learn more about our entire power amp family, visit your local Peavey dealer or go to www.peavey.com/sr/power_amps.cfm



soundstages that are larger, they are not optimized for music tracking and mixing the way the Right Track room will be. Filipetti estimates that the studio will be able to hold a 60- to 70-person orchestra with a choir. "There have not been any compromises made anywhere," says Filipetti. "Down to some innovative cable interfaces, it will be a first-class facility all the way."

For an engineer who has won tremendous acclaim—and three Grammys—for recordings mixed on the all-digital Neve Capricorn console at Right Track's Studio B, Filipetti's and Right Track's choice of a Solid State Logic 9000 J board for the new room may raise some eyebrows in the industry. Filipetti explains the rationale for investing in analog technology after helping lead the trend toward digital: "Although I've worked almost exclusively on digital consoles for the past several years, digital consoles

are still developing. We now have new standards and new formats, and a large-format console to do this sort of thing is three to four years down the road."

In their quest to find the ideal analog board for their new studio, Filipetti and Right Track manager Barry Bongiovi scouted world-class facilities in Los Angeles and London and returned to New York with a clear vote. "We talked to many engineers, and the consensus was that the 9k with the scoring panel was the way to go," says Filipetti. "It's universally recognized as being a fantastic-sounding console, and it's got the track record in the industry and the ability to do everything we need it to do."

Another of the 9000 J's attributes is its ability to handle 5.1 channel mixing projects, which Filipetti hopes to cultivate at the new facility. "Although we are billing this as an orchestral tracking room, that's not all we want to do there," he says. "We are trying to make this the finest stereo and 5.1 mix room on the planet. We've designed the control room to be a sophisticated mixing environment. Surround sound won't be an add-on—it'll be a full-fledged 5.1 and cinema mixing room, and for the rock and hip hop mixers, we've developed a scor-

ing panel that not only can be bypassed electronically, but can actually be removed from the console entirely."

For smaller, rock 'n' roll sessions that don't need the entire tracking area, the room will be partitioned according to the needs of the client, according to Filipetti. Similarly, the headphone system will be able to be customized for various uses. "Something that always bugs me about a lot of studios is that the headphone system always seems like an afterthought, when in reality the headphones and the communication system are the single most important thing in a studio," says Filipetti. "We've designed the headphone system from the ground up to provide every facility you could ever want."

Hearing Filipetti expound on the virtues of the new Right Track studio, one can't help but sense that the room is the culmination of his lifelong ambition to build a recording paradise where no detail is overlooked and no expense spared.

"This is the kind of studio that you dream about," Filipetti concludes. "With all the renewed interest in Broadway and film, and with the revitalization of New York, the timing seemed right." ■

Paul Verna is Mix's N.Y. editor.

Did you know this...

about

mitsui

CD & DVD

recordable media

Gold on Gold®

Professional applications require a life expectancy rating of 100 years or better. Mitsui *Gold on Gold*® is your only choice for a write-once technology that provides safe, longterm archival storage.

Patented Organic Dye

Our **highly compatible** DVD-R's are certified to 2X recording speed, CD-R's to 24X! Mitsui's **innovative DVD-R dye technology** is leading the next generation of optical media for consumer formats.

Custom Printing

Mitsui offers the only **"Full Surface Printable"** media, available in gold or white, for thermal transfer printing and **superior customer service** values in quick, cost-effective **custom silk-screen printing** for all CD & DVD products.

Superior Audio Recording

Mitsui 74 & 80 minute Audio CD-R's are a favorite of the **professional audio industry** for their fullness and warmth in sound reproduction, as well as their **resistance to heat and damage** from UV light.

mitsui advanced media, inc.
The Difference is Innovation.

www.mitsuidr.com
10045 Federal Drive, Colorado Springs, CO 80908
Phone 800/682-2377 • Fax 914/253-8623
email info@mam-a.com

great sound

JUST GOT EASIER



The ORIGIN STT-1



AT THE TOUCH OF A BUTTON

Vacuum Tube

OR

Discrete Transistor

Selectable at Every Function



with Twin Topology... combines a single channel of every Millennia solid state and vacuum tube audio function ...over 130 product combinations in one toolbox.



Transformer or Transformerless Input



Vacuum Tube Mic Preamp
Solid State Mic Preamp
Vacuum Tube DI Instrument Input

Eight Input & Output Choices



4-Band Vacuum Tube Parametric EQ
4-Band Solid State Parametric EQ



Vacuum Tube Opto-Compressor & De-esser
Solid State Opto-Compressor & De-esser



Uncompromised Millennia sonic performance. Priced under \$3,000

Millennia Media, Inc.
Pleasant Valley, CA

530-647-0750
Fax 530-647-9921

www.mil-media.com

World Radio History

Millennia
Music & Media Systems

CHRIS LORD-ALGE

MAKING EVERY MINUTE COUNT

Living in Los Angeles for more than 15 years seems to have had very little effect on Chris Lord-Alge's East Coast style. In case you haven't met the guy, I have to tell you, this is one rapid-action dude. His hallmarks are speed and efficiency, and he is definitely not into wasting time—his or anybody else's.

This elder scion of the Lord-Alge family started his career in his native New Jersey where he was a drummer in local clubs. Today, he is one of the most in-demand mixers around, and speculation about his formula for success runs rampant: How can he do it so fast and so often? That question becomes even more puzzling when you listen to a medley of his mixes, because, unlike the product of some other top mixers currently riding the charts, CLA's mixes all sound different. While listening to Dave Matthews Band, Faith Hill and Melissa Etheridge, you'll be hard pressed to recognize a CLA stamp.

Confident, opinionated, assertive (okay, aggressive!) and extremely



verbal, CLA is also eager to please. Those attributes, along with his inherent musical and technical talents, have created a winning combination and garnered him a long string of hits and two Grammy nominations. Among his Platinum mix credits,



Chris Lord-Alge at the SSL 4000 G Plus board at Image Recording, Hollywood.

Lord-Alge numbers Dave Matthews Band's *Everyday*, Green Day's *Nimrod*, Fastball's *All the Money Pain Can Buy* and Savage Garden's *Savage Garden*. He's frequently brought in to pinch hit on radio mixes; you've heard his work on singles by No Doubt, Everclear, Orgy, Barenaked Ladies, Nine Days and Foo Fighters, among others. Look a little further back in his discography and you'll find some other interesting artists: Collective Soul, Hole, Bad Religion, Meredith Brooks, Joe Cocker, Chris Isaak, Sprung Monkey and B.B. King, to name a few.

So how *does* he do it? I sat down with him one morning at his long-time home base studio in Hollywood, hoping to find out. Day after day, he cranks out the hits there, working on a 60-input SSL 4000 G Plus console in a control room that he has perfectly configured to accommodate his taste. It was a Saturday, around 11 a.m. when I dropped in, and he'd already been working

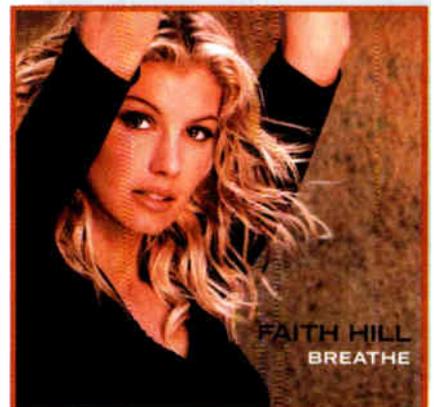
on some P.O.D. remixes for a couple of hours.

So, what time do you usually come in to work?

Well, I leave my house, which is 35 or 40 minutes away, at a quarter to nine.

Mix well, go home early.

Well, we try to get out of here at a reasonable hour. We only work late if we have to. If you do this six, seven days a week, you've got to have balance. I worked 12 hours a



BY MAUREEN DRONEY

Custom Consoles

Trident Series 80 5.1 and Oram Pro 24 modules can be combined in any frame size in any colour you like.



The choice is yours.....



Illustrated above is the Oram Pro 24-40 input console [list price \$61000] and the dual module Oram - Trident 32 input console [list price \$51000] with moving fader automation for \$28000.

Ask about the unique ORAM with TRIDENT "Buy-Back" plan when you upgrade that makes your console "future-proof".

Call for great deals - today

Dealer enquiries invited for these great products



ORAM PROFESSIONAL & TRIDENT AUDIO
LONDON, ENGLAND
Telephone: +44 (0)1474 815 300



ORAM PRO & TRIDENT AUDIO U.S.A.
CHICAGO, IL
Telephone: 847 530 8161

www.oram.co.uk

www.johnoram.com

www.tridentaudio.co.uk

day when I was starting out, and I still do it if it's necessary, but it's usually not. That's better for everybody. I really don't want people to go out to dinner and then come back here afterward and try to concentrate when they're tired. I just try to make it easy. I find that my clients like it better that way.

Why do you think people come to you to do a mix?

I think record companies look at mixers like baseball players. If they're going to put somebody in to pinch hit, they'd better hit a home run. They don't want to take any chances anymore; you've got to make their song happen. And if, time and again, you're turning in exactly what they want, they're going to come back to you. You can't have them call and say, "Well, I'm not sure about that." Because then you're not going to get hired the next time.

Yeah, but how does one do that?

I guess you just have the ear and the creative talent to pull it together. A big part of it is having the kind of mentality that knows it's not your song. You're making it for the clients and for the people who are going to buy it. If a record you're mixing is for 17- to 21-year-olds, whether it's edgy rock or more hip hop-oriented, you better make sure that's who you're aiming for. Of course, you have to like it; you're mixing it! You make it to where you like it, and you hope that when you like it, they all like it.

Now, I don't mean that all this is easy. It takes years to refine your tools and your talent to make it work for every type of music. But my work ethic is a strict routine—how I work my guys,



Chris Lord-Alge with Stevie Nicks, who called him a "master craftsman" on her most recent CD.

how I work—that I don't waste any time. I'm not sitting around watching TV or taking a long lunch. I just go in there and get it. There's plenty of time to eat, drink and be merry later, off hours. Socializing with the clients is one thing; you've got to make them feel at home. But generally, the clients I work with want to come in here, do a little refining, get a CD and run for the door. They think it's great that when I say it's ready at four, it's ready at four.

You frequently get hired to mix singles for the radio. What's different about doing that vs. mixing for an album?

You look at the album version, figure out what you think is, in your personal opinion, going to make it better and you take it to the next level. It's very competitive out there.

Are you friendly with many radio programmers?

Yeah, I know some programmers at the key stations in town. I know what their equipment does sonically to the record, I know what they're playing and what kind of song makes them jump, based on form or length or style. So I generally have a good idea if a song has even got a shot, and what's going to make it have a shot. Remember, people don't have any patience on the

radio. If they don't get it in like 20 seconds, they're switching stations.

You've mentioned your concern that people may not hear the radio version when they buy an album.

Personally, I think when you're mixing an album, you want to maximize every song. Whatever they thought was not a single, you try to make into a single.

By editing? Changing arrangements?

A lot of the time, it's just how you make it sound. You make it as competitive as possible. Then, if the thing is clocking in at 5½ minutes, you say, "Hey, by the way, I can pull a 3:30- or a 4-minute out of this for radio play." Half the time, they'll decide to use that version on the album.

You trim the fat. I know you guys like it long, you want it six minutes. But if your album is 70 minutes long on the CD, I think that's overkill. I can get the first four Beatles albums on one CD—that's how short they were. Length is important. Make people want to listen to it again! Twenty choruses at the end is just going to make them not want to ever hear it again.

Is it still a part of your technique to bounce tracks to a 3,348 and place them where you want them to come up on your console?

Absolutely. Pretty much everything comes in on Pro Tools, and I have my two crack assistants prep it the way I want it and transfer it.

Is that what you did with Dave Matthews Band's latest?

That came in on 48; it was on Pro Tools, and they transferred it themselves. I asked for two copies of each song so that I



Eric Clapton, Chris Lord-Alge and producer Rob Cavallo

960L

the face of reverb



New Version 2.5 Software

Stereo 96kHz Reverb Algorithms • Multi-Channel 96kHz Reverb Algorithms • Stereo 48/96kHz Delay Algorithms
Multi-Channel 48/96kHz Delay Algorithms • Stereo Delay Programs • Multi-Channel Delay Programs
For a limited time, register your 960L at www.lexicon.com/registration to receive a free copy.

lexicon
H

could manipulate one and leave one existing. By manipulate, I just mean parking tracks where I want on the faders digitally, without having to cross-patch. Or comping vocals or other parts that I think should go together. Because, for me, the less faders you have to deal with, the better it sounds. You don't need 90 faders to make it happen.

Do you listen to a rough mix before you start?

Generally, I don't want to hear it until I mix it. If it's what I call a "bug hunt," and the rough mix contains mutes and arrangement issues that are not locked into their tape, then I need the rough mix to find out what's going on. Even if I disagree with their arrangement, I'll make their arrangement happen first, then I'll have an alternate and say, "Here's what I think is better."

But with most of my clients, everything that's on that tape I use; every morsel is eaten. And in that case, I don't listen to their rough mix unless they are so married to it that I have to emulate it. Generally, I don't want to have any concept. I don't even want to know the song title. Put it up, here we go—com-



Chris Lord-Alge's early days.

pletely fresh. If you asked me what song I mixed yesterday; I may not remember the exact song title, but I'll always remember the hook and the vibe. That's what's important.

Because you're so into speed and efficiency, I'm surprised you haven't converted to hard drive random access.

It's not recognized as a professional medium that can be archived. What are you going to do? [What if you] put the hard drive away in some vault, and in 10 years, when they want to resurrect that album, that software is not to be found, or it doesn't work, or those files are corrupted?



Dave Matthews, Glen Ballard and Chris Lord-Alge during the session for the Dave Matthews Band's *Everyday*.

Yeah, that's really helpful. The format is not nailed down as a stand-alone medium that will sit in storage, and right now the 48-track is.

But what about all that wasted rewind time?

You know what? I need the rewind time. You record on the 3348 at the right level, and you set it up so it hits the console at the optimum level, which is something you don't generally see with Pro Tools. Pro Tools is a great recording and editing medium, and maybe at some point they'll have an interface that works with every console and can be put away for archiving. Until then, I want it on a piece of tape.

There have been many times lately that I've been trying to remix a single and they can't find the tape—because there is no tape. The guy with the Pro Tools file is nowhere to be found, and they don't know who edited what. I'll have to get all these different Pro Tools sessions to try to pull together one that makes sense for what they did in their final mix.

The truth is that a lot of guys who are doing it are making a mess of it. They don't notate properly, they don't archive properly, they don't have it pulled together. A record company ends up scrambling to find this record that they paid a million dollars to make.

Until they come out with the ideal medium, I say stick with one that works. People are saying, "Well, it's not 24-bit, it's only 16-bit." And I say, "If it sounds good, what do you care what the word length is?" Let the bits fall where they may. The

system I use works, and it sounds good.

You're known for your opinions on getting rock 'n' roll drum sounds.

Well, a drum kit is a kick, snare, toms and cymbals, but it's really one instrument. So when you're recording, of course you don't want a lot of crap on the kick drum, and you don't want tons of hi-hat in the snare, but you want to record it so that each mic complements the other. I'll EQ the hi-hat track to sound like a snare drum to help the snare if I need to, because the hi-hat is going to come through everything anyway.

Also, there's a disadvantage right off if you're recording the drums to digital. If you record the drums analog, you can make a lot of mistakes, and they're going to automatically sound like something because of what the analog tape does to it. You can't get that out of any kind of digital. A really good engineer can record digital and get away with it; but if you're still fishing around for the perfect drum sound, digital isn't going to complement it.

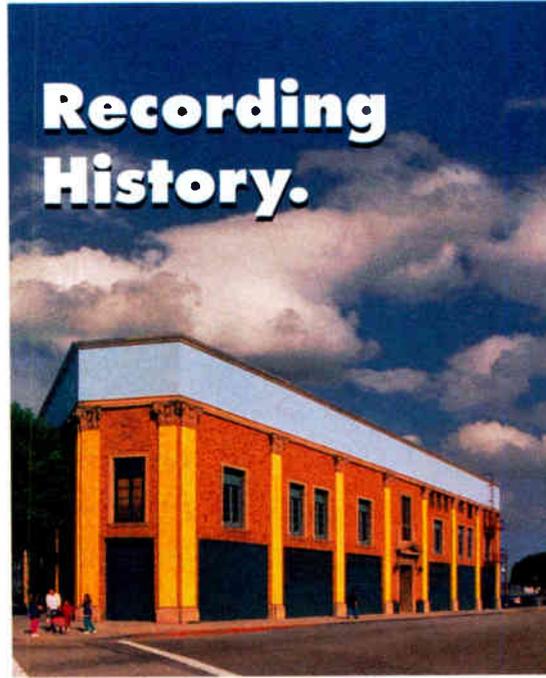
Analog is like one of those low riders driving around with tinted windows; it's got a vibe. You see through it, but not completely. There's a little tint. Digital is like a clear pane of glass that, if you're not looking, you'll walk right into. It doesn't do anything to the sound; if anything, it makes it worse, makes it more clinical. When I get records where I can't stand the drum sound, where it just doesn't feel right, I transfer it to analog and back just so I can bear listening to it. Because as a drummer, it's got to feel right to me.

What compressors do you like on drums? When drums are recorded, my preference

Aerosmith • Christina Aguilera • The Allman Brothers • Tori Amos • Howie B • Babyface • Burt Bacharach • The Band
 Bauhaus • The Beach Boys • Beautiful Creatures • Jeff Beck • Beck • Pat Benatar • David Benoit • Bono
 Toni Braxton • Bush • Mariah Carey • Johnny Cash • Ray Charles • Chemical Brothers • Eric Clapton • Stanley Clarke
 Rosemary Clooney • Natalie Cole • Phil Collins • Harry Connick Jr. • Alice Cooper • Counting Crows • Sheryl Crow
 Robert Cray • Crosby Stills and Nash • Crusaders • Ice Cube • The Cult • Devo • Neil Diamond • Snoop Dogg
 The Doors • Dr. Dre • Bob Dylan • The Eagles • Danny Elfman • Missy Elliott • Melissa Etheridge
 The Eurythmics • Evan and Jaron • Donald Fagen • Perry Farrell • Fishbone • Foo Fighters
 Fleetwood Mac • John Fogerty • Aretha Franklin • The Fugees • Peter Gabriel • Marvin Gaye
 Amy Grant • Grateful Dead • Guns 'n Roses • Charlie Haden • Sammy Hagar • Hall & Oats
 Herbie Hancock • George Harrison • Isaac Hayes • Ice Cube • N'Sync • Talking Heads
 Heart • The Rev. Horton Heat • Don Henley • Hole • Jars Of Clay • John Hiatt
 John Lee Hooker • Nelly Hooper • Rev. Horton Heat • Julio Iglesias
 Mick Jagger • Etta James • Rick James • Janes Addiction • Al Jarreau • Jayhawks
 Wyclef Jean • Dr. John • Elton John • Quincy Jones • Ricky Lee Jones
 Tom Jones • Kansas • B.B. King • Carole King • KD Lang • John Lennon
 Live • Lisa Loeb • Jennifer Lopez • Mase • Madonna
 Marilyn Manson • Ricky Martin • Master P • The Mavericks
 Maxwell • Tim McGraw • Crystal Method • Joni Mitchell
 Shawn Mullins • C Murder • Dave Navarro
 Randy Newman • Stevie Nicks • Nine Inch Nails
 No Doubt • The Offspring • Oingo Boingo
 Beth Orton • Ozzy Osborne • William Orbit
 Taj Mahal • Rage Against The Machine
 Neville Bros. • Robert Palmer



Recording Music.



Recording History.

Tom Petty and The Heartbreakers
 Stone Temple Pilots • Pink Floyd
 Primus • Puff Daddy • Bonnie Raitt
 Red Hot Chili Peppers • Lionel Richie • LeAnn
 Rimes • Lee Ritenour • Robbie Robertson • Lil' Romeo
 The Rolling Stones • Diana Ross • Johnny Rotten • Santana
 Brian Setzer Orchestra • Vonda Shepard • Sixpence None the
 Richer • Frank Sinatra • Smashing Pumpkins • Will Smith
 Bruce Springsteen • Ringo Starr • Steely Dan • Rod Stewart • Stone Temple
 Pilots • Sly Stone • Summertime • Supertramp • James Taylor • Tina Turner
 Steven Tyler • Tracy Ullman • Joe Walsh • Muddy Waters • The Wallflowers
 The Wayans Bros. • Nancy Wilson • Neil Young • Frank Zappa • Rob Zombie
SCORES / SOUNDTRACKS : The Bodyguard • Stigmata • Ace Ventura • Conair
 Dr. Doolittle • The Lion King On Broadway • Men Of Honor • Home Alone
 Bowfinger • There's Something About Mary • Vanilla Sky • Shawshank Redemption • Ali
 Boys And Girls • Million Dollar Hotel • Monkey Bone • Any Given Sunday
 Almost Famous • Autumn In New York • The Salton Sea • O'Brother, Where Art Thou?
 Good Will Hunting • The X-Files • Mulan Rouge • Tarzan • Anastasia • Southpark • The Hurricane
 The Man In The Iron Mask • Erin Brockovich • Pay It Forward • Remember The Titans • All The Pretty Horses
 Six Feet Under • Navy Diver • Boston Public • My Best Friends Wedding • Oscar & Lucinda
 Ally Mc Beal • Life With Dick • Mad City • King of the Hill • Salton Sea • Enemy of the State • Dead Poets Society

the art of recording music

The Village

villagostudios.com



MUSIC. SCORING. MIXING.

Pro Tools SECURE FIBRE CHANNEL RAID NETWORK All Studios

DVD

5.1

TI

ISDN

1616 Butler Avenue West Los Angeles, CA 90025 phone 310. 478.8227 fax 310. 479.1142 e-mail villageroc@aol.com

World Radio History

MIX MASTERS

is to try not to use any compression. Use the old Neve mic pre's, use the good mics, try not to over-EQ and add as much bottom as you can, because the bottom is the thing that's tough to get right. Try to make it so the mic pre's aren't clipping on the kick drum. Which happens all the time—can ya just listen to it, please? There's nothing wrong with the drums being a little plain Jane. If you want to mangle a couple of tracks with these cool compressors at the studio you're recording in, put them on a couple of extra tracks.

I'm not saying make the original drums boring—you try to go for something. Maybe the band's into Led Zepelin or that dry, old disco sound. Whatever. But try to do it so it makes sense, where you've got somewhere to go.

Sometimes I get drum tracks and they're so mangled that there's nowhere to go and I have to try to undo what they did. The rooms are distorted, or the snare is so compressed it's just a little "ping." I know you guys all want to experiment and try all these things, but try to leave some of it simple, straight-ahead, clear, because it's a lot easier to mangle it later than to unmangle it.

Compression can be dangerous in the wrong hands. It's like a gun; once you shoot a hole in something, you can't plug it.

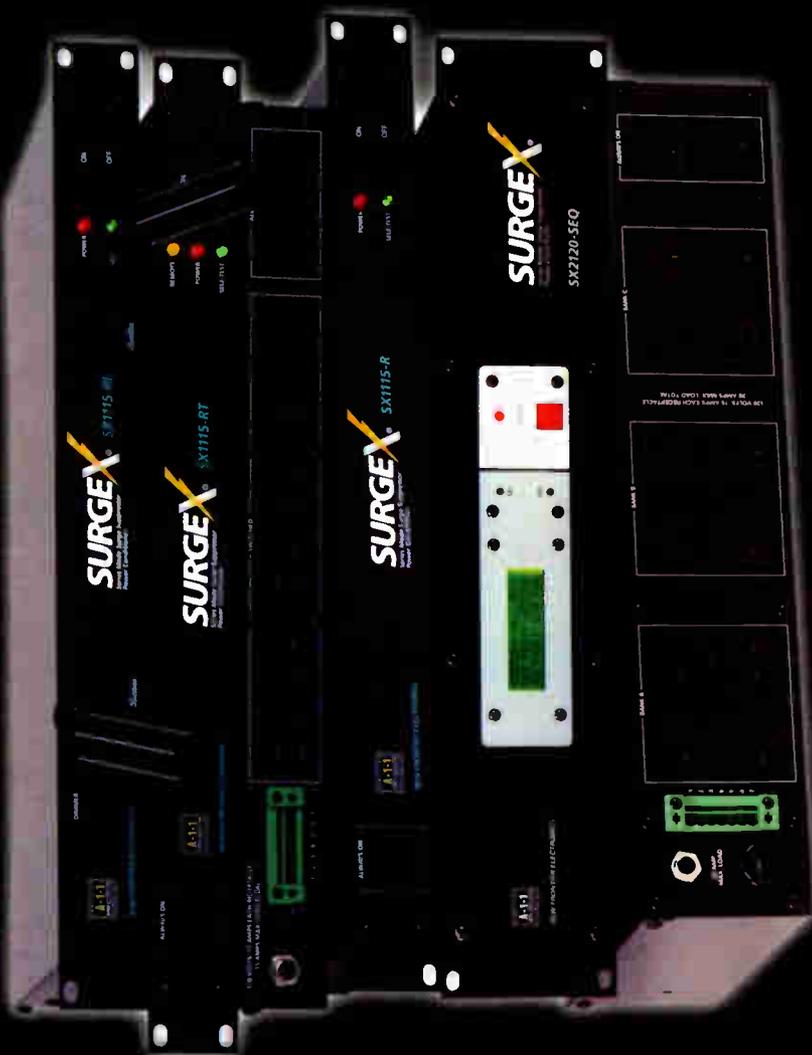
Okay, say you've been given some nice, plain-Jane drum tracks.

On the kick and snare I'll generally end up with some Manley EQs, and I go between Distressors and dbx 160s. A lot of times, the console compressor is perfect for the kick and the snare. Or I'll tinker around between an 1176 or an old Neve compressor—one of the verticals that I have.

A lot of times, I won't even touch the room tracks. If they're uncompressed, it can be even better; I can just ride them. Overheads, if they're kind of lackluster, an 1178 will put them right there.

When you're compressing drums, it depends on how aggressive the song is. If you have two pounds of baloney in a

Changing The Way You Look At Power Conditioning



SURGEX.COM

World Radio History

**You have to give
everything its
own identity
for the artist.**

**You can't put your
imprint on it.**

one-pound bag, and there's a wall of guitars competing with the drums, you've got to compress more and more to get the drums to stay punchy through the whole song. And if the snare drum isn't too high and it has some depth to it, that gets a lot easier.

I bear you use an oddball pair of Pultecs across the mix bus.

They're 1S3s, with consecutive serial numbers. They're a different bandwidth (than EQP 1As.) So the whole mix goes through tubes. Tube low end really helps the overall picture; it makes it sound more musical.

Listen to the radio. These days, it's all about the low end—getting it clear. Low end is the hardest thing to get right. High end is easy because everybody usually records so bright. And this console—old console that it is—has the sweetest-sounding high end. You crank the knob to the roof, and it's just enough.

It looks like you have two of every piece of gear.

Yeah, it's a little Noah's ark action. You can't go wrong with a pair of everything.



Push It



THE
NEW
CE4000



ATTENTION: CROWN'S CE 4000 IS THE MOST EFFICIENT PROFESSIONAL AMPLIFIER ON THE PLANET! THE CE 4000 COMBINES INNOVATION WITH LEGENDARY CROWN SOUND.

We asked our world-renowned Crown Audio Engineers to once again think outside of the box. And all they could come up with is the most efficient professional amp in the universe. Thanks to the CE 4000's scientific advancements, one 20-Amp circuit can now deliver 10,000 Watts of power! Combining Crown's patented BCA[®] technology with a Switch-Mode power supply allows the amplifier to draw just 8.5 Amps at peak while weighing in at only 34 pounds. Worldwide power capability is achieved thanks to on-board Power Factor Correction—a first at this price point. Crown's reputation for reliability, sonic purity, and innovation lives on in the new CE 4000. Contact us today for more info.



 **CROWN**

THE PROFESSIONAL'S CHOICE

www.crownaudio.com or 800-342-6939

 A Harman International Company

World Radio History

Like Neve compressors. I've got these 22609s with 2254s built into them; they were from the 8058. The next ones over, from the 8068, are the orange cap 2264Xs. Then, from the 8078 I have the 32264As.

I pretty much have the whole history of the Neve compressor. I have the very first one here—the 2252. Then it went to these 2254s, these 2264Xs, and then they came up with the 33609. I have a Rev A with the metal knobs—the original Class-A ones, very rare. They remade it a few years later with the 33609 C—the Rev C—I have a modified one. I also have a pair of 1073s, in case I have to fix something. *For a diehard SSL guy, you sure know a lot about Neve gear.*

Well yeah, I prefer projects that are recorded on old Neve consoles. Neve/SSL is the big complement.

What's this rumor that you don't like to change settings on your outboard gear?

It's true. On the limiters, that is. Rather than change a setting, I'll just buy another one and set it differently.

You're putting me on.

No, that's what I do. That's why I have so many. I have that one set for a certain sound, this one set for a different sound.



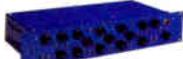
Chris Lord-Alge, the ultra-hip Chris Isaak and producer John Franks

I just power them up, plug them in and they're on the best setting. I change the EQs, but that's it. The limiters stay set to the optimum setting for that limiter. It's part of the gig; it helps the repeatability. *Okay, what's that 1176 set for?*

It's a gain structure thing, really. Each 1176 that I have here has a different sound. This is fatty, this is skinny, and that one is for vocals that are too boomy. I can listen to the vocal for three words and say, "Okay, put number three on



PE 1 C - Program Equalizer



EQ 1 A - Equalizer



MEC 1 A - Recording Channel



MP 1 A - Microphone Preamp



CL 2 A - Compressor



CL 1 B - Compressor



LCA 2 B - Stereo Compressor and Limiter

MASTERING TUBES

TUBE-TECH SMC 2A Stereo Multi-band Compressor

Introducing the world's first multi-band tube compressor - the new SMC 2A from TUBE-TECH. With 3 bands of stereo compression and variable crossover points, the SMC 2A delivers powerful control and flexibility for your most demanding audio tasks - making your stereo analog master. It combines independent band specific Threshold, Ratio, Attack, Release and Gain parameters with a single Master gain control.

If you are ready for the ultimate in classic all tube compression, visit your local TUBE-TECH dealer or call 1-888-4warmth for a dealer near you.



Exclusively Distributed and Supported by:

t.c. electronic
ULTIMATE SOUND MACHINES

TC ELECTRONIC INC • 742-A HAMPSHIRE ROAD • WESTLAKE VILLAGE • CA 91361 • USA
PHONE: (805) 373 1828 • FAX: (805) 379 2648 INFO@TCELECTRONIC.COM

SEE US AT AES BOOTH #1136

Q.

What is the best solution to your audio post needs?



Postation II

A sleek, sexy, totally integrated post production suite designed for speed, audio quality and ergonomic control.



Desktop System

A compact yet powerful audio workstation ideal for dubbing, editorial and ADR/Foley.



Vmotion

A networked random access hard disk video player/recorder completely controlled by touch screen technology.

AVtransfer

The ultimate professional audio file conversion utility. AES-31, OpenTL, OMF, WAV, BWAV and more!

A.

If you demand only the best for your studio, our range of professional audio post tools are the only answer...

DSP Media, put us to the test today!



DSP Media Inc. Los Angeles (818) 487 5656
DSP Media Inc. New York (917) 656 4379
DSP Media Ltd. London +44 (0)20 7664 5688
DSP Media Pty. Ltd. Sydney +61 (0)2 9714 5400

sales@dspmedia.com
info@dspmedia.com

www.dspmedia.com

him." Or number one, usually number one, my old blue, magical-sounding 1176—the first ones they made. Basically, I could put covers on my gear for weeks, and not have to worry about it. I'd just say, "That one's not right, plug in the next one. Okay, that's better."

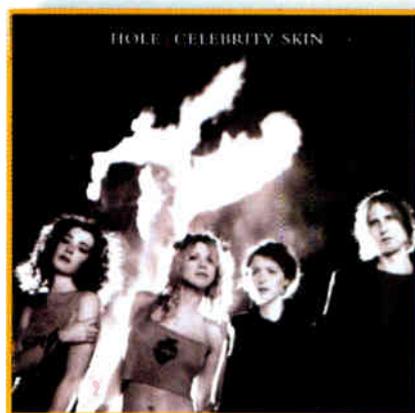
There are certain limiters that just stay patched into certain spots of the console—been there for a long time. And they work great because I always put my tracks in the same place.

One of the most important things about mixing is having a routine. That

may sound boring, but it works. I don't want to think about where the kick drum is on the console, or where the vocal is. They're always going to be in the same place, and I can worry about the song instead. Because it ain't about the gear; it's about the song. If you don't do the song justice, you shouldn't be mixing.

On my way over I was listening to songs you'd mixed for three different artists, and they all sounded completely different. I wouldn't have guessed that they were all mixed by the same person.

You would think, from how I have it set up here, that every mix is going to sound the same, like cookie-cutter mix-



ing. No. It's just convenience. Just because tracks are parked in the same place on the console, and a lot of times are going through the same gear, doesn't mean the music will sound the same. You have to give everything its own identity for the artist. You can't put your imprint on it.

What is it you love about this [SSL 4000 G Plus] console so much?

Bottom line, this console has attitude. In 10 more years, these consoles will be like old Neves. They're classic. This one was

**I would rather
compress a vocal hard
to get some
personality out.
It's like putting a
snazzy jacket on a guy
when he goes out
at night—
it adds attitude.**

installed in about 1985; it's modified as far as you can go, and it's in great shape. And it's got light meters, which I like. I'm all about the meters.

What do you mean?

I've got to see what's going on. I don't do this by ear only! I use the meters to balance things left and right, and to see what's going on with each fader so I can optimize the console.

They're set to show input?

No, the output of the fader—fader to mix—EQ'd and everything. It's all about maximizing the signal strength. You hit the tape machine a certain way, the tape

STUDIO MONITORS

"World-Class Monitors"

sometimes, our users say it best...

"D.A.S. has hit a grand slam home run over the center field fence. These are world-class monitors ...and there's no way that I'm going to relinquish them. My check is in the mail."

— Michael Cooper
Contributing Editor, Mix Magazine

"It is remarkable...the flattest response I have ever tested for a speaker. ± 1 dB from 65 Hz to 20 kHz!"

— Bruce Bartlett
Pro Audio Review

MONITOR SERIES 4 & 8

Distributed by
Sennheiser Electronic Corporation
One Enterprise Drive, Old Lyme, CT 06371
Tel: 860-434-9190 • Fax: 860-434-9220
www.dasaudio.com

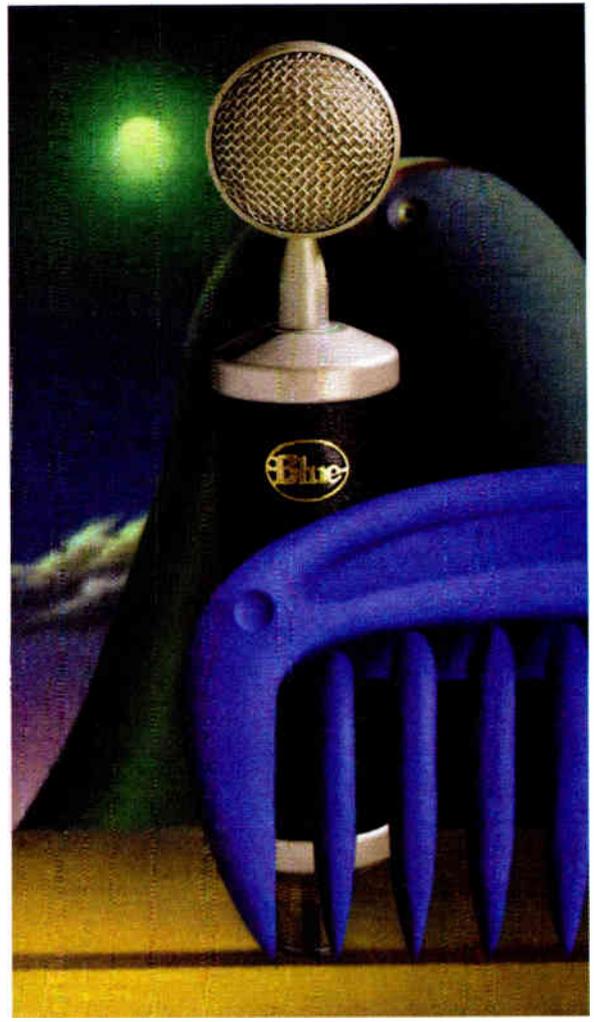
SEE US AT AES BOOTH #334



Like Father, Like Son.



BLUE Microphones is proud to announce the birth of our newest and most affordable microphone to date, the Baby Bottle. Following in the footsteps of our acclaimed tube Bottle mic system, the Baby Bottle is truly a chip off the old block. Each and every part of this solid-state, class A discrete condenser has been hand selected to insure nothing short of a stellar performance. Enclosed in a Lollipop spherical grille is a precision-machined, gold-sputtered capsule with a fixed cardioid pattern. In the tradition of our award-winning microphones, the Baby Bottle employs the styling, attention to detail, and hand-crafted quality for which Blue has become famous. The Baby Bottle is ideal for recording vocals, percussion, or any acoustic instruments, and comes nestled inside a velvet pouch protected by a beautiful cherrywood box. You've heard the buzz and read about us in all the pro audio circles. Isn't it about time you tried one for yourself? Experience the next generation of Blue microphones; experience the Baby Bottle. Contact your local BLUE microphone dealer for a demo.



Nestled in its distinctively plush cherrywood box, the Baby Bottle encompasses BLUE's formula for exquisitely designed, high-precision mics.



Microphones



Dragonfly



Blueberry



Mouse



Kiwi



Factus



Bottle



Baby Bottle

MIX MASTERS

machine is hitting the console a certain way, you're hitting the mix bus a certain way. You're at the sweet spot. All consoles have a pretty small sweet spot where it really sounds good.

That's something you don't hear mentioned much lately.

Well, everybody's thinking because they're digital, they don't have to worry about a sweet spot. Well, yeah, you do. Digital craps out so quick it's disgusting. In an all-digital console, the sweet spot is tiny—like a postage stamp. But there's a small window on any console where the headroom is right and where it really sounds the best. That's where I stay, in that window.

So, shouldn't SSL have called the new Classic console the Chris Lord-Alge "Special Edition"? You know, like a guitar.

Well, CLA is in Classic as it is. So they kind of did. Don't get me wrong. There's nothing wrong with new consoles. I'm not an old fogey saying I won't change anything. But when I go into a car race, I want to be in a Ferrari with a shifter, a steering wheel and a gas pedal. I don't want to have so many gauges that it deters me from winning. And I don't want to be here

all night trying to figure out the console or the automation.

The main function I like about the new digital consoles is that, if I have a mix done, and my client is late, I can start the next mix, have it in memory and pick up where I left off. But everything else hasn't



Is it live? Or is it studio?

outweighed this desk yet. What I'd really like is another one of these consoles put back to back with this one. Just think: It's cheaper, I can have mix number one here and mix number two here... If it was up to me, I would have this console hydraulically drop to the floor and have the other one

come up—like A and B stages at a concert. Bottom line, I like the way this rig works, just give me another one.

I'm an SSL guy since day one, and I like the MT, but I think this whole digital thing is in flux. Who knows where it's going to stop? To me, one big problem with a digital console is that this year it's good, next year it's not high enough resolution.

What format do you mix to?

Ampex half-inch 2-track, GP9 plus 6, and to 16-bit DATs with the Apogee PSX converter, and to CDs. I tried a couple of hard drive units, but I haven't had much success with them. I'm sure there are some great units out there, but the one that I had, as soon as it started skipping on the hard drive I gave it back.

Let's talk about vocals.

Vocals are the most important part of the track. And a lot of times they are not recorded as well as they could be, with the right limiter. You'd be surprised at how much compression you need to put on vocals to make them sit right in the track. Sure, you cannot compress it much and ride it, but it ain't going to have the personality that good old compression is going to give it.

Wired for Sound... 'Round the World

MUSIC/FILM/TV

scoring
mixing
mastering
pro tools
5.1 surround
dvd
isdn
ftp

Capitol
STUDIOS & MASTERING

CAPITOL STUDIOS AND CAPITOL MASTERING 323 871.5001 www.capitolstudios.com www.capitolmastering.com

GRAPHI-Q™: 5 PRODUCTS. 1 UNIT. 2 BUTTONS?

**32-bit Processing • 16 Channels
Hands-On or Hands-Off Control**

FBX Feedback Exterminator®

Up to 12 filters of the industry standard in automatic feedback control. Works in setup and during the program. Super-accurate algorithm places filters only on feedback, not on music.

Compressor/Limiter

Now with additional features: graphic transfer function display and stereo mode*

Digital Delay

Up to 1 second delay, adjustable in 20 microsecond increments



GRQ-3102 Front Panel Control (two in two out)

Graphic EQ

31 band, with ± 6 or 12 dB range and High & Low Cut Filters

Parametric EQ*

Up to 12 fully programmable filters

**New! Firmware/
Software Version 3.3**
Free upgrades available online.

"As far as I'm concerned, the Sabine GRQ-3102 is a technological masterpiece!"

— Edward T. Foster
Pro Audio Review, On the Bench, March 2001

Sabine's all digital GRAPHI-Q gives you a choice that no other product can give: 91 sliders, knobs and buttons for the ultimate in hands-on control – or the simplicity of using just two buttons on your computer mouse with our new Version 3.3 software. User-friendly and highly intuitive, this interface provides off-line editing, report printing, snapshot memory and Auto FBX Setup for up to 16 channels of audio.

- All functions work concurrently with independent control
- Link channels and functions with relational or absolute links
- View and edit response curves
- Save up to 70 presets
- Contact switching for remote preset changing

All these benefits come at a surprisingly low price for this high level of quality and reliability. Graphi-Qs are on the job worldwide in critical installations, from The Vatican (yes, *the* Vatican) to the New Orleans Convention Center. Call Sabine or visit our web site today and find out how the Graphi-Q can make you a hero.



*Controllable via G.F.Q. Remote Software only.



GRQ-3101 Front Panel Control (one in, two out)



GRQ-3101S: Blank Front Panel (one in, two out)



GRQ-3102S: Blank Front Panel (two in, two out)

SABINE®
ADAPTIVE AUDIO

PATENTED • MADE IN USA
www.Sabine.com

Tel: (386) 418-2000 • Fax: (386) 418-2001

*FBX and FBX Feedback Exterminator are registered trademarks of Sabine, Inc., and are the brand names of its line of automatic feedback controllers. Covered by U.S. Patent No. 5,245,665, Australian Patent No. 653,736, German Patent No. 69113486 Q, U.K. Patent No. 0486679, and Canadian Patent No. 2,066,624-2. Other patents pending.

I would rather compress a vocal hard to get some personality out. It's like putting a snazzy jacket on a guy when he goes out at night—it adds attitude. And nothing adds attitude more than 1176s. I have six to choose from. I also like Vac Racs, which you see I have eight channels of.

I've found that these tube Vac limiters are perfect for backgrounds, and a lot of times for rock records they're perfect for the lead vocal. They only have one setting: both knobs all the way to the right. That's the optimum setting.

My vocals are always in the 17-24 bucket, right in the middle, which is important because you also have to send them to a couple of faders to help the level. You don't want the vocal faders to be up too high, where they start to clip and the console is not in that window. So, why not just bus the vocals to two more faders right next to them, just to help the level, and you send your overall effects from those faders.

I generally don't put boatloads of reverb or chorusing on vocals; I just pan them left, right or center. If I have a song where all the backgrounds are mono tracks, I'll pound them up the middle be-

cause that blend may work better. Or I may stereoize them with a little harmonizer. I use an old H3000, or I'll use Early Reflection preset on a REV5 to make it a little stereo and not quite as dry-sounding.

The hardest thing to do is to get the vocal to sit right in the track. And then to de-ess them so they don't sound like they have a lisp, but to keep the sibilance under control.

What de-essers do you use?

dbx 902s. But a lot of times if you pick the right compressor, it kind of de-esses by itself. The tube limiters, especially, knock the esses off pretty good.

What do you monitor on?

NS-10s with an Infinity subwoofer that I got at Fry's for about 300 bucks.

A subwoofer?

You've gotta have a subwoofer; if you can't hear what's going on down there, you can't get it right. I know, some guys mix with subwoofers, they have it too loud, and their mixes end up with no bottom. But if you set it just right so you can hear that lower octave, you'll

EUROPADISK, LLC

CD REPLICATION

Retail-Ready Packages or Bulk

Work direct with the factory and save.
All products made in our plant, the U.S.
most complete facility!

- **CD Replication** - Fast and Competitive
- **Vinyl Records** - Direct Metal Mastering
- **Mastering Studio** - BB Charted Records Every Week
- **Cassette Duplication** - Lyrec w/ HX-Pro
- **On-Demand Printing** - Stunning Color
- **Graphics Studio** - Custom Design & Film Output
- **CD-R Silk Screening** - Up to 6 colors - Fast Turns

NEW! - Digital Business Cards & Shaped Disks

Best Service...Best Price...Period.

Free catalog or quote: **(800) 455-8555**
(718) 407-7300

Major credit cards accepted

EUROPADISK, LLC

Check out our cool website at: www.europadisk.com

SELECTED MIXING CREDITS

Dave Matthews Band: *Everyday*

Sugar Ray: *Sugar Ray* (mixed five tracks)

Dido: "Don't Think of Me" (radio mix)

American Hi-Fi: "Flavour of the Weak"

Faith Hill: "I Should Fall" and "Let's Make Love" (off of *Faith*, 1998 Grammy nominee)

Nine Days: "If I Am" and "Absolutely (Story of a Girl)" (off *The Maddening Crowd*)

Green Day: *Nimrod*

P.O.D.: *Fundamental Elements of Southtown* (six tracks)

Macy Gray: "I Try" (special retail mix)

Hole: *Celebrity Skin* (mixed four tracks)

Fastball: *All the Money Pain Can Buy*

Savage Garden: *Savage Garden*

Everclear: "I Will Buy You a New Life" and "Father of Mine" (off *So Much For the Afterglow*)

surround sound?



5.1 reasons why you need the ASP510

- 1 The ASP510 integrates seamlessly with any console.
- 2 Comprehensive control of monitoring and record functions for multiple surround sound formats.
- 3 Six preset monitor formats.
- 4 Supports three 5.1 Surround, three stereo sources and encoder/decoder insertion.
- 5 Eight inputs from console / 8 outputs to recorders.
- 5.1 5.1, 5.1 Film, LCRS, Dolby Surround, DVD-Video, DVD Audio, DTS, and SACD formats supported.



Manage your Surround Sound system direct from the ASP510's simple to use remote control

ASP 510

SURROUND SOUND CONTROLLER

audient

ANALOGUE SIGNAL PROCESSING TECHNOLOGY

www.audient.co.uk

U.S. distribution:

AUDIO INDEPENDENCE, LTD. 2140 West Greenview #7 Middleton WI 53562 USA
tel: (608) 831 8700 fax: (608) 831 7100 e-mail: sales@audioind.com



EXPLORE

sometimes dig for the deeper notes. Especially if you are going to do anything that's R&B- or rap- or hip hop-based, you've got to have the subwoofer so you can get the truck frequency. That low boom that all those guys in the trucks want to hear.

I also have my little Sony blaster. It's rackmounted, and that's the comparison. My little brother Tommy turned me on to it, and every client who comes in here wants to hear their mixes on it. If it doesn't sound good through 2-inch speakers on your little boom box, what's the

point? It's got to sound big on a small speaker. You are trying to make something sound larger than life on the smallest medium possible.

Speaking of your little brother Tommy, when I did an interview with him a few years ago, he spent the first half-hour talking about you.

Well, I did train him! He used to work with me, and I'm glad he's doing great.

On her latest CD, Stevie Nicks called you a "master craftsman."

That was really nice. A lot of what we



do is really crafting. Because sometimes you'll get what's kind of a mess without any real direction or arrangement—everybody playing the whole song. And you've got to weed it out. You try to maximize what they have, and a lot of the time, you're just opening it up where there is too much going on right away.

I do it by instinct. Like a 12-inch; just arrange it, make it slim, make the chorus go bang! Usually, I just do it and the client comes in and goes, "Wow! I like it." The vocal and the groove are standing out a little bit better now; the verses build, and it seems to go somewhere.

What's your advice to someone who wants to get the most out of hiring you to do a mix?

Let the artist and the producer live with the recording, to make sure that they like the arrangement. You don't want to go into the mixing room and say, "I don't know about that keyboard, or that guitar, I don't know about this or that." As soon as you start going "I don't know," you are never going to get done. Indecision shouldn't be in the mixing room. Let me make the record sound good; not try to weed through the arrangement. It's one thing to make a short version or an edit, but if there are parts that you are unsure about, don't even put them on there. Get rid of them. Make a decision.

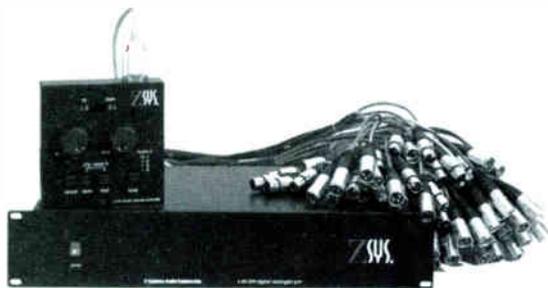
You're in a place to have a unique perspective of our industry and where it's going. What do you see?

We've experimented with techniques and with sounds; I think that we're going to get back to good songs. I would hope that we get more records with character, and not so much stuff that's cookie-cutter. But, at the end of the day, it's the housewife with a two-year-old, sitting in the kitchen with the radio on, or the guy driving his car at the beach with his girlfriend. A cool song comes on the radio, that's all that matters. ■

Digital Audio Essentials

from the digital audio interface experts

BIG Digital Audio Crosspoint Switches



The Digital Detangler Pro series

- Matrix switchers for AES/EBU and S/PDIF
- Fully asynchronous
- Sample rates to 192 kHz and beyond
- Hardware remote available
- Mac, PC software w/networking available
- Other control protocols available

Now shipping: z-128.128r
128x128 stereo-pair crosspoint!



Z-Systems Audio Engineering

Tel: 352.371.0990 ▷ Fax: 352.371.0093
z-sys@z-sys.com ▷ www.z-sys.com

SEE US AT AES BOOTH #950

Maureen Droney is Mix's L.A. editor.

1990

The world's first dual purpose console - the MIDAS XL3

2001

The world's first tri-purpose console - the MIDAS Legend 3000



WIN



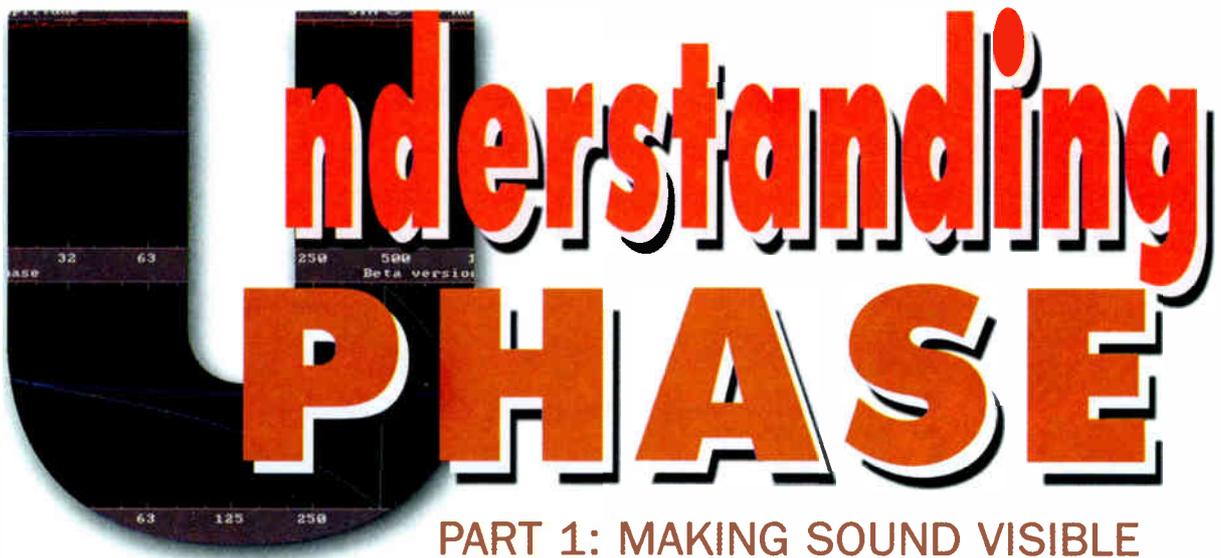
a MIDAS LEGEND electric scooter

Help us to celebrate the launch of our new console by winning one of our MIDAS Legend - brand, super electric scooters!

To enter visit us at

**PLASA - EARL'S COURT
LONDON ENGLAND
STAND B10 & E28
9 - 12 SEPTEMBER 2001**

**AES - NEW YORK - USA
BOOTH NUMBER 810
21 - 24 SEPTEMBER 2001**



Understanding PHASE

PART 1: MAKING SOUND VISIBLE

by **Bob McCarthy**

I can see sound. I can look at a speaker array and see the waves coming out of it as clear as the ripples on a pond. I can look at the walls of a room or concert hall and see the reflections.

I am not unique. Anyone can see sound. All you need is an understanding of phase response and how changing phase response over frequency affects the sonic quality of a single speaker, the interaction of multiple speakers and the interaction of the speakers in the room.

The majority of concert system engineers have never seen a phase vs. frequency response of their system. The low cost of dual-channel FFT analysis systems has made this information much more accessible than even just five years ago, but, still, very few know what to do with the results of this information when they get it. And yet not one of us would say it doesn't matter.

The purpose of this two-part series is to present phase in a practical context for system engineers who are anxious to apply the information to improve their decisions regarding speaker selection and alignment. In Part 1, we will explore

three principal avenues:

- How to read a phase response graph.
- How the phase response relates to the sound quality of a single speaker.
- The relationship between phase and polarity.

Part 2 will explore how phase delay can be used to optimize crossovers, maximize array performance and steer subwoofers.

PHASE OVER FREQUENCY

First, let's define phase in a way that makes sense to those of us who don't wear lab coats nor have letters trailing after our names. What we want is a way to visualize phase so that we can relate it to distance. If two speakers are a foot apart, how much phase shift will occur? Will they add or subtract? What will be the effect on the frequency response of reflections from a wall? These are the kinds of questions we can answer if we have a practical grasp of phase.

In order to become conversant about phase, the first step is to realize that relative phase is a circular function and cycles through the same start point like the hands of a clock—360° of phase equals one full rotation or cycle. Because phase describes the relative time difference between two signals, it can be expressed in degrees or radians, which measure the completed portion of a circular period or wavelength. For example, 90° of phase delay is a quarter of a period (wavelength) at any frequency. The amount of time delay it takes to move apart 90°, however, is frequency-dependent. Thus, a given time delay will produce different amounts of phase shift at different frequencies.

Acoustic propagation delay is

directly related to distance, varying slightly over temperature. In air, 1.0 ms of delay corresponds approximately to 1.1 feet of distance traveled by the sound wave. So, if we know the propagation distance, then we know the time delay. If we know the frequency, then we know the period (1/F) and the wavelength. (It helps if you can always think of frequency, period and wavelength together. Don't just think of 100 Hz. Think of 100 Hz, 10 ms, 11 feet.) Once you visualize distance in wavelengths, then you can see how speakers will interact with each other and a room. They will add or subtract depending on the difference in number of wavelengths between the speakers or reflections at a given position. This will be explained later.

Phase delay is the time difference expressed in periods (wavelengths). The practical implications of this are huge.

Example: One ms of delay = 1.1 feet of travel = 11° of phase delay (1/32 wavelength) at 31 Hz. One ms of delay = 1.1 feet of travel = 360° of phase delay (1 wavelength) at 1 kHz. One ms of delay = 1.1 feet of travel = 5,760° of phase delay (16 wavelengths) at 16 kHz. (See Phase Delay Reference table below.)

Now think of all the time you have spent pushing subwoofers a few inches to get them all in a nice line. Aesthetics are important, but don't pretend that 2° of phase shift is going to be worth the backstrain. On the other hand, those same two inches will cause almost 1,000° of phase shift at 16 kHz—it really counts up there.

CALCULATING PHASE DELAY

Let's start with the phase delay formula:

This formula can be used to calculate phase delay at a particular frequency or range of frequencies. Let's

do a single frequency first. For 180° of phase shift at 500 Hz, we get 1 ms as shown below:

$$T(\text{Delay}) = \frac{F \text{ Hi (Deg)} - F \text{ Lo (Deg)}}{360 \text{ Deg}} \\ F \text{ Hi (Hz)} - F \text{ Lo (Hz)}$$

Now let's apply this knowledge to a phase response display, as shown on a modern, complex audio analyzer. These analyzers compute the phase response by comparing the measured signal to a reference signal, which yields a relative phase over frequency response. (The term "relative" is used because we are measuring the difference in phase between two signals, not between one signal and an absolute 0° reference.) The Y-axis ranges a total of 360°, giving a straight-line view of the phase value on the circular phase cycle.

Visualize a racetrack. You can see where each car is on the circle, the difference being their relative phase. However, it can be a challenge to know whether they are on the same lap or not. So it is for these analyzers.

The screen shots shown in Fig. 1 introduce the relative phase over frequency graph. Figure 1a illustrates the response of a delay line with 1 ms of delay. The delay is the same at all frequencies, yet causes a different amount of phase shift at all frequencies. Why? Because 1 ms of delay causes a different percentage of change in the circular phase cycle. At 1 kHz, the 1ms delay is a full 360° cycle. Note that at 1 kHz, the phase response has returned to 0° after going down to -180°, up to +180° and back down. The sudden break in the response at 500 Hz is not a phase anomaly, but rather a visual represen-

Phase Delay Reference	90 Deg Phase Shift		180 Deg Phase Shift		270 Deg Phase Shift		360 Deg Phase Shift	
	Delay (ms)	Distance (ft)	Delay (ms)	Distance (ft)	Delay (ms)	Distance (ft)	Delay (ms)	Distance (ft)
50 Hz	5.00	5.63	10.00	11.27	15.00	16.90	20.00	22.54
100 Hz	2.50	2.82	5.00	5.63	7.50	8.45	10.00	11.27
500 Hz	0.50	0.56	1.00	1.13	1.50	1.69	2.00	2.25
1 kHz	0.25	0.28	0.50	0.56	0.75	0.85	0.25	0.28
5 kHz	0.05	0.06	0.10	0.11	0.15	0.17	0.20	0.23
10 kHz	0.03	0.03	0.05	0.06	0.08	0.08	0.10	0.11

Understanding PHASE

tation of the circular nature of the phase response, where +180 and -180 are the same point on the circle. This is called "wrap-around" and denotes a full cycle of delay when it reaches back to 0°. Going back to the racetrack analogy, the measured response is a lap behind the original signal.

$$T (\text{Delay}) = \frac{180 \text{ Deg}}{360 \text{ Deg}} = 1 \text{ ms}$$

500 Hz

Now let's look at other frequencies. At 500 Hz, the response shows 180° of phase shift, a half-cycle. Because the period (1/F) at 500 Hz = 2 ms, half a cycle is again 1 ms. At 250 Hz, we have 90° of shift, which is [one quarter] of a wavelength of the 4ms period. Same delay. Going upward, you can count two wrap-arounds at 2 kHz. This is 720° of phase shift, i.e., two cycles of a .5ms period. At 10 kHz, there are 10 wraps for a total of 3,600°, which is 10x the 0.1ms period, and once again we have 1 ms of delay. The phase delay formula can be applied at any frequency to the above trace, yielding the same result.

Now we move on to a conventional loudspeaker. Loudspeakers typically exhibit phase delay that changes with frequency due to physics issues beyond the scope of this article. The result is an increase in delay at lower frequencies, unless electronic phase correction circuits are employed to offset it. Figure 1b is typical of uncorrected speakers and shows an ever-increasing amount of delay below 4 kHz, as shown by the downward slope in the phase response. In the phase delay calculations of the delay line, the results were always the same: 1 ms. But here, each octave will give different results for the speaker, ranging from 0 ms at 8 kHz to 16 ms when it reaches 60 Hz. For the listener, this means that the sound it reproduces is smeared over time.

As an example, here is the phase delay calculation of the uncorrected speaker for the range from 4 kHz to 2 kHz:

Figure 1a: Phase response (lower window) of a 1ms delay line

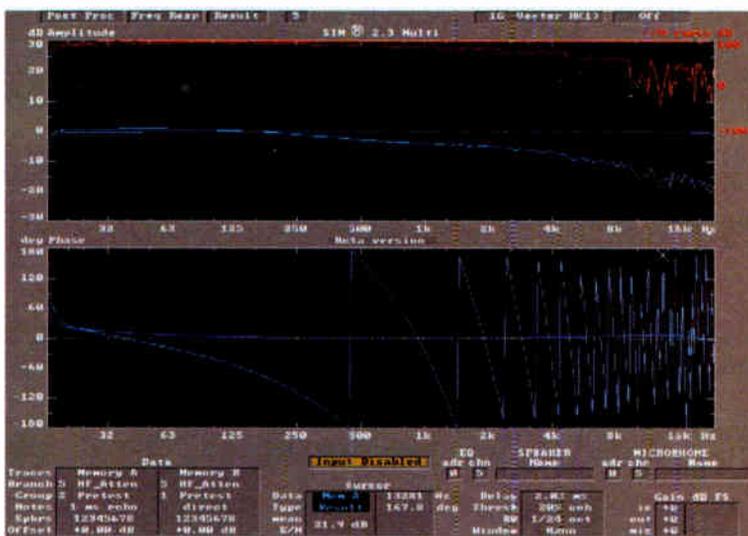
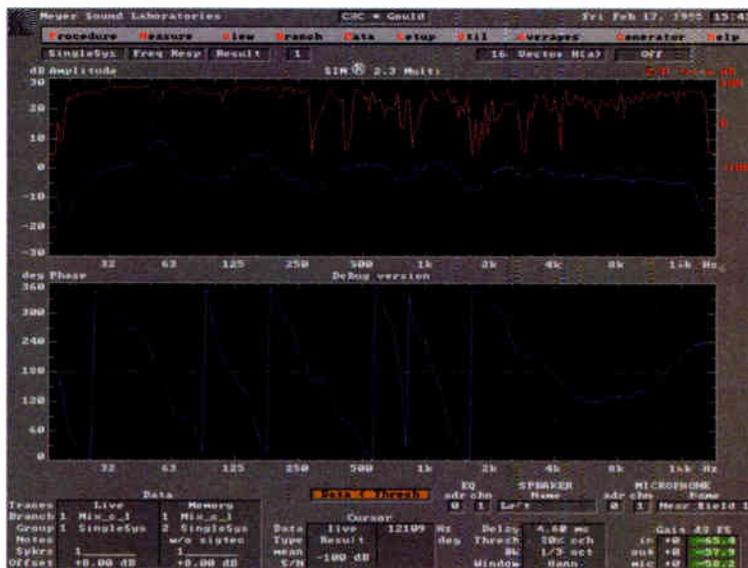


Figure 1b: Phase response of a typical uncorrected loudspeaker system



$$T (\text{Delay}) = \frac{0 \text{ Deg} - 180 \text{ Deg}}{360 \text{ Deg}} = .25 \text{ ms}$$

4000 Hz - 2,000 Hz

A loudspeaker with electronic phase correction is shown in Fig. 1c. Note that the phase response remains flat until around 250 Hz, where delay finally begins to accumulate.

The chart (Fig. 1d) shows the relative delay over frequency for each of the three examples.

Now, let's stop for a moment to consider the ramifications of this phase delay. Our industry is on a never-ending quest to make it more difficult for listeners to answer the question, "Is it live or is it Memorex?" Live sound direct

from an instrument to our ears does not have delay that changes with frequency superimposed on its original response.

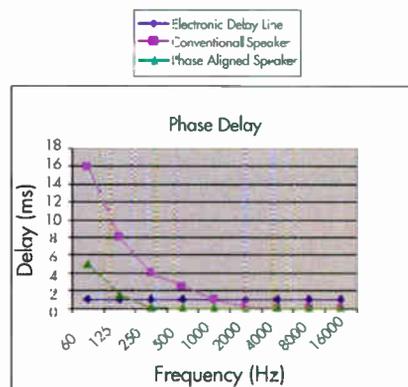
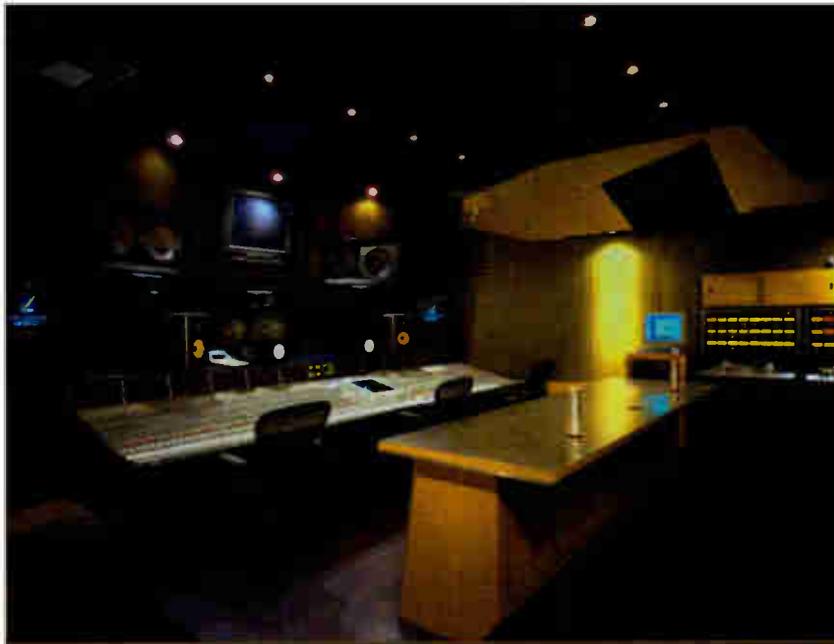


Figure 1d



E'RE

IMPROVING
UPON
PERFECTION

SSL 9080J with 959
Surround Center Section

Studer A-800 48 Track

ProTools MixPlus

.1 Surround by George Augspurger

Excellent Selection of Vintage
& State-of-the-Art Outboard Gear

12x12 Iso Booth

Secure, Valet Underground Parking

Coming Soon~ 4000 square feet of
Client Luxury, including Private Master
Suite, Chef's Kitchen, Gameroom,
Producer's Office, Jacuzzi, and more.



1140 N. WESTERN AVENUE, HOLLYWOOD, CA 90029
PHONE 323.462.7761 • FAX 323.462.3393
www.studio-atlantis.com



Get a copy of our latest full-color

2001-2002 School Catalog



www.recordingcareer.com .or. 818.763.7400

Understanding PHASE

It is an artifact of speaker physics. We would not tolerate such phase smear in our consoles or any other piece of gear. As speaker technology improves, the remaining clues that we are listening to speakers, such as distortion, horn signature and other artifacts, are reduced. Phase delay is a subtle but critical clue to our ears, and its reduction puts us closer to the real thing. All other things being equal, the speaker with the flattest

Figure 3a: Coverage pattern of a single speaker

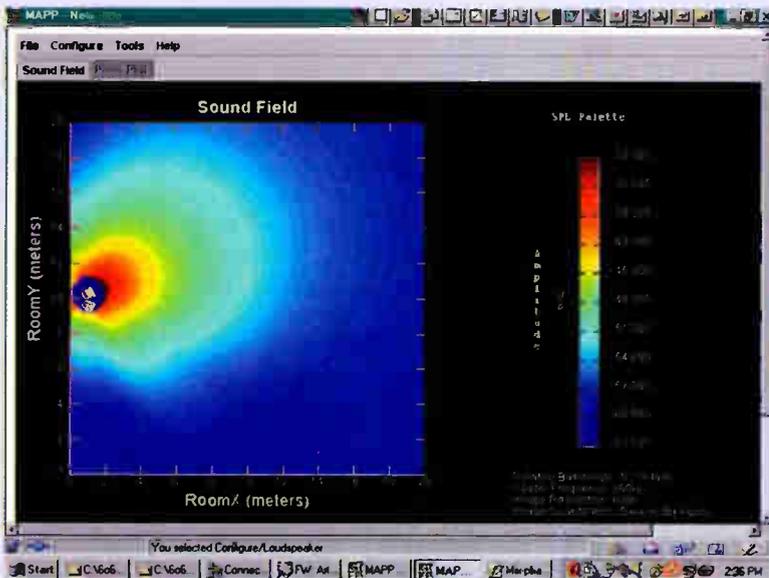


Figure 3b: Combined coverage pattern of two speakers, played at 60°

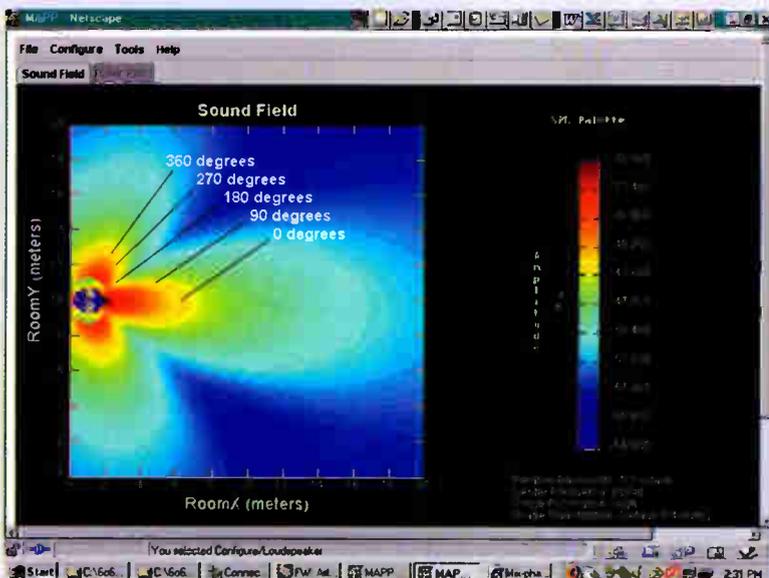


Figure 1c: Phase response of a loudspeaker with electronic phase correction



phase response sounds the closest to being there live. Every time.

PHASE AND POLARITY

Before we move to the next section, time for a pop quiz. How many milliseconds of delay results from 180° of phase shift?

Is that your final answer?

The correct answer is, "That's a trick question." Why? Because a frequency must be specified. So how many milliseconds of delay are equivalent to 180° of phase shift at 250 Hz? The answer is 2 ms.

Now, how much time delay do we get when we put a phase reverser in-line? It reverses all frequencies by 180°, so it must delay each one by a slightly different amount. That is quite a fancy delay circuit there! And I thought it was just swapping two wires! In reality, there is no such thing as a "phase reverser." It is a *polarity* reverser. Polarity reversers do not delay the signal. They invert the voltage or pressure component of the signal. While this does shift the phase, it does not change the phase delay time. That is not to say that a polarity reverse is unimportant. Anything that affects the phase will dramatically affect the way that different signals combine.

When two signals of the same frequency are combined, the summed response may be greater than or less than the original signals, depending on the phase. One plus one equals two, one or zero if summed at 0°, 90° and 180°, respectively. In a speaker array, the amount of addition will depend upon how close to 0° phase difference

MAPP DIAGRAMS COURTESY OF MEYER SOUND

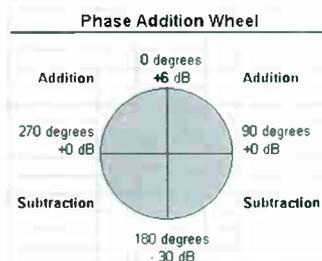
Understanding PHASE

there is in arrival times. The tendency of speakers to add or subtract is shown in Fig. 2, which illustrates the hemispherical nature of combination. Signals that combine on the 90° to 0° to 270° hemisphere will achieve constructive addition. Signals on the 90° to 180° to 270° side will subtract. Constructive addition is easily done at low frequencies where it takes path length differences of several feet to move out the speaker of the addition zone. The

highs, like football, are a game of inches.

The relationship between phase and polarity is illustrated in the series of simulations in Fig. 3. In this series, two speakers are played 60° apart, and the response is viewed at 250 Hz. In 3a, the response of a single unit is shown as a directional pattern reference. In 3b, both speakers are enabled, and the response shows a beam at the center of the array where the speakers combined at 0° relative phase, yielding 6 dB of addition over the response of a single unit at that location. The sides of the beam are formed in the area where the speakers are 90° of relative phase apart, creating minimal addition. The nulls are caused as we move into the cancellation hemisphere, with the deepest

Figure 2



spot being 180°. Side lobes appear where the signal is a full cycle (360°) out of time, allowing addition to occur again. At different frequencies, the position of the nulls and side lobes will change. The time between the cabinets stays the same, but the change in frequency causes the relative phase to change.

In Fig. 3c, there has been a polarity reversal in one of the speakers. The amount of energy generated by the speakers is the same as before, yet where it goes has reversed completely. Now, the side areas contain the bulk of the energy, while the on-axis area is in a null.

Finally, in 3d, we have a delay of 2 ms on the lower speaker. This is half a wavelength at 250 Hz. The 2ms delay steers the sound downward toward the delayed speaker in the direction of where the 0° addition area is centered. (This technique can be used to optimize arrays, the subject of Part 2.) Compare this to the polarity reversal above where the signal is flipped 180° (half a wavelength), but the result is quite different.

Figure 3c: Two speakers (60° splay). One speaker has its polarity reversed.

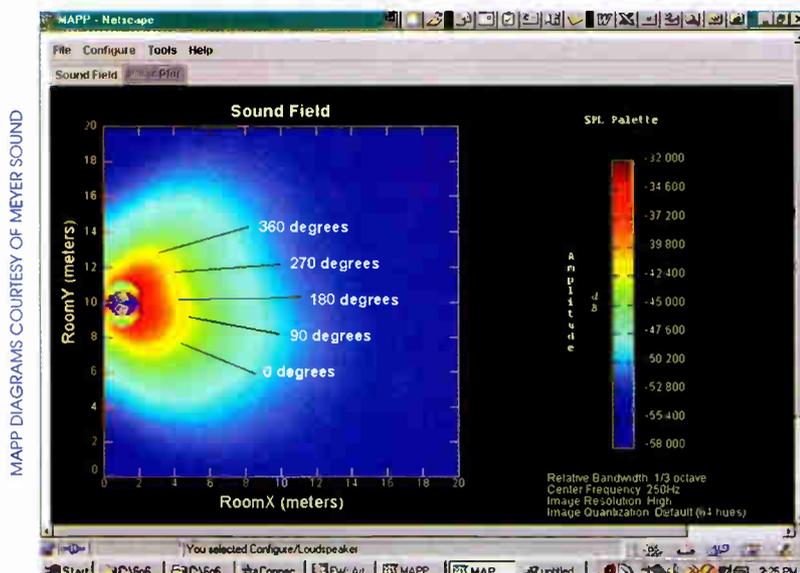
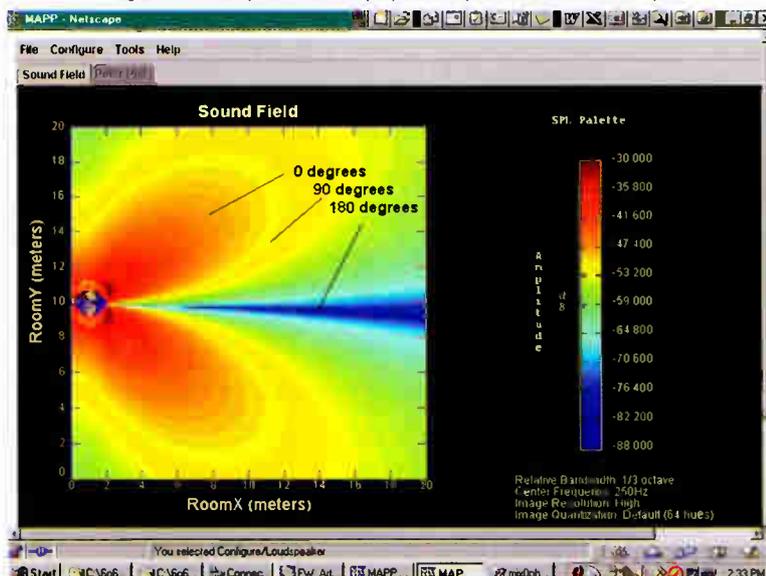


Figure 3d: Two speakers (60° splay). One speaker has a 2ms delay.

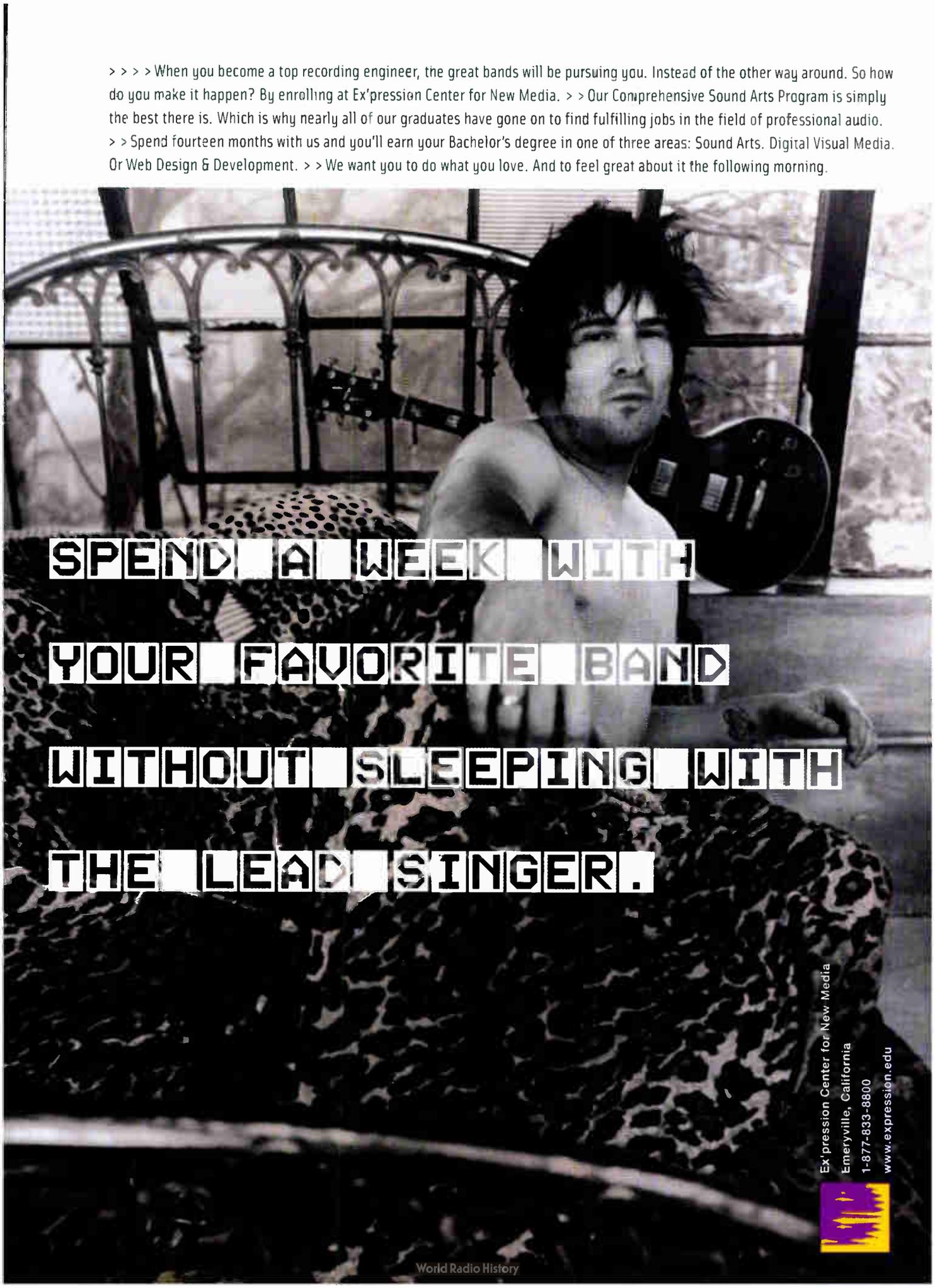


CONCLUSION

We should now be comfortable with the concepts behind a phase response measurement and have a feel for how phase affects our speaker systems. While phase is hard to see, its effects are easy to hear, and with increased understanding of phase, we can begin to harness its power rather than react defensively to its unexpected effects. In Part 2, we will actively use the phase response in the optimization of crossovers, the alignment of arrays and the steering of subwoofers.

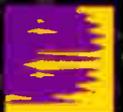
Bob McCarthy is a contributing editor to Mix.

>>> When you become a top recording engineer, the great bands will be pursuing you. Instead of the other way around. So how do you make it happen? By enrolling at Ex'pression Center for New Media. >> Our Comprehensive Sound Arts Program is simply the best there is. Which is why nearly all of our graduates have gone on to find fulfilling jobs in the field of professional audio. >> Spend fourteen months with us and you'll earn your Bachelor's degree in one of three areas: Sound Arts. Digital Visual Media. Or Web Design & Development. >> We want you to do what you love. And to feel great about it the following morning.



**SPEND A WEEK WITH
YOUR FAVORITE BAND
WITHOUT SLEEPING WITH
THE LEAD SINGER.**

Ex'pression Center for New Media
Emeryville, California
1-877-833-8800
www.expression.edu



Setting Up the

SAN

ADVANCED AUDIO RENTALS PUTS NRG RECORDING ON THE NETWORK PATH

When Wade Norton, chief engineer at NRG Recording Services, describes the old days—before the studio installed a Fibre Channel SAN to link its Pro Tools systems—things sound a bit unstructured in the asset-management department. “We had the studio’s Pro Tools systems and the clients’ Pro Tools systems,” he says, “with hot-swap drives being traded back and forth. There was no procedure for moving data around, no typical project workflow and no *de facto* standard for how things were done.”

The day-to-day operation, Norton recalls, was often chaotic. “The variations were endless,” he says. “Some sessions went flawlessly; some sessions were worse than others. We had multiple versions of projects, with nobody really keeping track or doing file management. Some clients looked to us to back up their material, and some did it themselves. Others would leave at the end of the day with a drive full of new material, when the studio should have held the ‘tapes’ for billing.”

BY PHILIP DE LANCIE

NRG's studios in North Hollywood, Calif., feature large, high-ceilinged rooms with Gothic and Moroccan styling, two full studio control room combinations—each with four isolation booths—and one mixing room. In addition to the Pro Tools 24|MIXplus systems in every room, the facility is outfitted with SSL and Neve consoles and Studer 24-tracks. Clients include artists such as Beck, Korn, Sugar Ray, Linkin Park, Papa Roach and Staind.

Recognizing the importance of bringing order and coherence to the way Pro Tools projects were handled at the facility, Norton and owner Jay Baumgardner consulted with Paul Levy, owner of North Hollywood's Advanced Audio Rentals. AAR specializes in digital audio rentals for post-production and music recording, while subsidiary BuyAudioGear.com is focused on hardware sales for high-tech audio applications.

Advanced Audio Rentals' portable Fibre Channel system, essentially a duplicate of the system installed at NRG. Specs: 512 GB of 36GB/10k Seagate Cheetah drives, with a 16-port Vixel fabric switch handling the routing. A Qualstar AIT2 auto-loading tape library can back up as much as 1 TB of data, unattended.



The main studio at NRG, currently under construction

FOCUSING ON FIBRE

"The studio's plan was to offer Pro Tools as a no-charge extra included in the studio's daily rate," says Levy. "Using Fibre Channel was Jay's idea. He wanted to get all of the noise from the hard drive bays out of the rooms. Using SCSI to do this was not practical because of SCSI's cable-length limitations."

Fibre Channel is both a data-transfer protocol used between network devices and a serial data interface. To confirm accurate data transmission, the protocol provides error-checking and data-reception notification. The primary burden of implementing these features is placed on the network hardware rather than the connected hosts and servers, so the throughput of a Fibre Channel network is actually higher than that of an Ethernet LAN (Local Area Network) with the same nominal transfer rate.

The Fibre Channel protocol is also designed to avoid the "data collisions" that can drag down the performance of Ethernet. Ethernet LANs are fine in a production environment for non-real-time data transfers, but Fibre Channel is designed to better handle real-time playback of time-based information such as audio and video. The downside is that a Fibre Channel setup is generally much more costly than Ethernet.

FUTURE DISC
SYSTEMS



HIGH RESOLUTION
AUDIO & SURROUND
MASTERING
CD & VINYL
MASTERING
DVD VIDEO
DVD AUDIO
DIGITAL EDITING
SERVICES

HEARING
IS
BELIEVING.
MASTERING STUDIOS

HOLLYWOOD
323/876-8733
FAX 323/876-8143

www.futurediscsystems.com



Setting Up the

SAN

Fibre Channel is typically used in a network configuration called a SAN (Storage Area Network). Each workstation on the network is equipped with a Fibre Channel Host Bus Adapter (HBA) PCI card, which is directly connected to a Fibre Channel switch. The switch, in turn, connects to the system's storage drives.



Studio manager Kit Rebhun with producer Eddie Kramer, working on a Jimi Hendrix project

What's unique about a SAN is that each host (workstation) on the system sees the storage as if it were a local drive (hooked directly to that computer) rather than a remote drive on a network. This greatly simplifies issues of version control. In a LAN with a central server, each user downloads files to a local drive, modifies them and then uploads them at the end of the session. With multiple users creating different versions, the potential for confusion is clear. But with a SAN, everyone with permission to access a given file works from and on the same version, stored on the same common storage.

DRIVING AWAY NOISE

Levy says that as far as NRG was concerned, the fact that a Fibre Channel SAN would allow sharing of files between workstations—as well as unattended tape backup—was initially just a bonus to the primary objective of reducing noise by removing drive bays from the control rooms.

"Fibre Channel was the only protocol that allowed the needed throughput at the distances required," Norton confirms. "No other options were really considered.

We knew of video post houses that were already using it. It just hadn't been used in an audio environment yet, that we knew of."

In addition to the cable runs supported by Fibre Channel—up to 500 meters—Norton was drawn to the flexibility of the system. "Since it's a very open architecture," he says, "expandability is just a matter of adding more hardware. Need more seats, but the switch is full? Add another switch. Need more drives? Add another drive bay. You don't need to re-

place your old hardware with new. You just add more."

Norton says NRG decided on a 16-seat switch to start. "Because of the ease of expandability, we knew that we could always add more later. So we only had to buy enough to cover what we wanted to do at that time. We dropped a Fibre line into every control room, and into every iso booth that was big enough to accommodate a full rig, monitoring and an operator."

The bulk of the system, Levy says, was designed around a configuration utilizing products from Rorke Data, for whom Levy's company is a dealer. Norton adds that Rorke's package included technical support for both software and hardware.

Summing up the system, Norton says it includes a Vixel 16-seat fabric switch, a 12-bay Rorke JBOD chassis populated with 12 36GB Rorke hard drives, a Rorke AIT2 tape backup with 10-slot autoloader, StudioNet volume management and network software, and a Macintosh G4 for backups, administration and transfers. The entire rack is powered through a Fenton UPS.

Levy says the 16-port Vixel fabric switch

PHOTO: DAVID GOGGIN

*Warm sunshine,
Cool studios*



3 Recording Studios · Remote Recording Truck
Dance Rehearsal Studios · Video Post Production · Live Band Rehearsals
Contact Susan Schilling: Ph 407.857.3414 · Email SusanS@t-con.com



Lucid SSG192 High Definition Studio Sync Generator

Stay in step.

Keeping all your digital audio and video devices in sync can be quite a drill. Now staying in perfect time is easy with the ultimate master clock from Lucid.

The SSG192 synchronizes individual audio and video devices into a cohesive unit that delivers clear digital sound. It can handle a variety of applications including music recording, Pro Tools, post-production, and more. Yes, the SSG can not only reference to house sync, but it can generate it as well.

The SSG192 compliments the other digital distribution solutions from Lucid. Make a clear choice. For more information visit our Web site or call (425) 742-1518.



was chosen for its "proven field-worthiness. Once you connect your JBOD chassis, the Mac G4 for admin and an uplink for another switch, you have 10 ports left."

Regarding system capacity, Norton says, "We're running 12 of the biggest drives we could get at the time: 36 GB. There's plenty of storage to go around, plus a samples drive and a couple of spares." The complete set of Seagate 10,000 rpm drives adds up to 512 GB of online storage capacity.

"The system is open-ended," Levy adds. "If you want more storage, you can install 73GB Fibre Channel drives, or daisy-chain another 12-bay chassis to add drives that way. The switch can uplink to other switches in the network—you don't have to throw anything away. Once Seagate releases their 36GB 15,000 rpm drives, we'll go over to those, as the performance is really incredible."

The storage is configured as a non-redundant JBOD (Just a Bunch Of Disks) rather than a RAID (Redundant Array of Independent Drives). "Jay and I decided that RAID redundancy was not worth the extra cost," Levy says, "or managing the extra complexity. NRG has been up for over a year with this system, and I haven't seen the switch or drive-rack fail yet."

While a JBOD provides less security than a RAID for a session in progress if there is a drive failure, the tape drive allows NRG to back up the data for every session. "The tape library has a native capacity of 500 GB," Levy says, "enough to back up the entire JBOD if needed. You can run the ALT2 tape drive at 2:1 compression all day, no problem, increasing the capacity to 1 terabyte. If that's not enough, the library can be upgraded to a 20-slot capacity, for a 2:1 capacity of 2 terabytes. And, if necessary, you can add multiple drives and magazines to push the capacity even further."

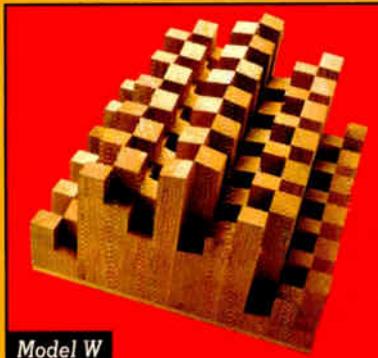
UP AND RUNNING

Rorke did the initial setup of the hardware, and trained Norton on the administration and maintenance of the equipment. "It was pretty straight-ahead," he says. "The part we had to do ourselves was to run the fiber-optic cable. Since fiber is optical, there is no interference to or from any other equipment. So we were pretty much open to putting fiber anywhere we thought necessary—and then some. Since I'd already run an Ethernet

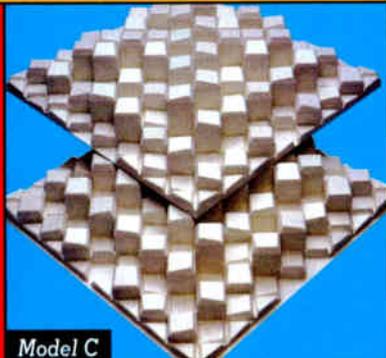


Acoustics First[®]

Materials To Control Sound And Eliminate Noise



Model W



Model C

The Art Diffusor[®]

The original, patented, extended range "binary array". Exclusive angled tops scatter upper spectral reflections. Increases the apparent acoustic space and controls flutter. Class "A", thermoformed models are now available from stock. Traditional wood versions are built to order.

Toll Free 1-888-765-2900

Web: <http://www.acousticsfirst.com>

SEE US AT AES BOOTH #1427

only one microphone can handle this much

emotion

Introducing the new Emotion C900 Microphone

from AKG. The one professional performance mic
that's there when you're ready to shine.

C900
EMOTION

The AKG C 900 condenser microphone is designed for an on-stage performance that clearly delivers your voice through even the loudest mix. Its revolutionary design features a frequency independent cardioid polar pattern optimized for on-stage use.

Like AKG studio mics, the C 900 also features a gold-splattered condenser placed in a shock-mounted 24-karat gold casing. In addition, the C 900 is packaged with our PB 1000 Presence Boost Adapter to provide even greater intelligibility. Raise the level of your next performance. Go for the gold.



RAISE THE LEVEL™

www.ake-acoustics.com

AKG Acoustics, 914 Airpark Center Drive, Nashville, TN 37217

tel: (615) 620-3800

fax: (615) 620-3875

World Radio History

SAN

Acoustic Consulting and Studio Design for the Media Industries

FRANCIS
MANZELLA
DESIGN
LIMITED

2000 TEC Nominee

Manhattan, NYC Photos: George Roos

Clients Include:

71 Records, Jamaica
Absolute Audio, NYC
C&C Music, New York
Manhattan Center, NYC
Masterdisk, NYC
NBC, Burbank & NY
Ochoa, San Juan
Satellite Mastering, Bangkok
Sound Station Seven, RI
Sterling Sound Chelsea, NYC
Zomba Records, NYC

Francis Manzella Design Ltd 9 North Shenorock Dr.
Yorktown Heights, New York 10598 USA
Ph 914.248.7680 Fax 914.248.7780 info@fmdesign.com

SEE US AT AES BOOTH #368

network in the building, the pathways were defined. But the equipment to prep fiber optics is expensive, so we chose to sub that out to another company."

Once the system was up and running, NRG was able to reorganize its approach to the use of Pro Tools in the rooms. "Users are assigned drives that only they have access to," Norton says, "so their data is secure from others. The data is backed up every morning. If there's a problem, we can restore any file, project or drive, from any given day during their session."

By now, Norton continues, clients have pretty much come to rely on the system. "Clients can go to any station and have access to their material. If there are any problems, the studio is fully involved. Instead of the client's rig being 'his problem,' it's now our equipment and 'our problem.'"

Levy says that as NRG began to use Fibre Channel on a daily basis, the studio started to realize that there were additional benefits to the approach, such as added security of a client's master source material. "When a client leaves the facility, they can take their session on hard drive, AIT or CD," Norton explains. "But we also keep a copy archived in our backup that can be restored at any time. So clients can always request additional backups."

Another benefit, Fibre Channel's expandability, is also making a big difference now that the NRG facility itself is growing. "The studio will be expanding into a second building a block away," Levy says. "It will be relatively easy to link multiple SANs via telco fibers." As a result, people at the two sites will be able to work together as if they were housed in one structure.

Overall, the SAN has brought a more structured approach to NRG's management of files and hard drive media, which have increasingly replaced tapes as the physical embodiment of a session's many long hours of trial and toil. The system also puts NRG firmly in the driver's seat.

"We now service and maintain all our own Pro Tools rigs," Norton says. "All studio staff are trained in their operation. The hard drives are routinely optimized and maintained. The session files are in the studio's possession at all times, and nothing is released until management okays it. The SAN lets the studio be in control." ■

Philip De Lancie is the new-technologies editor at Mix.

PH: 423-585-5827
FX: 423-585-5831
www.whisperroom.com

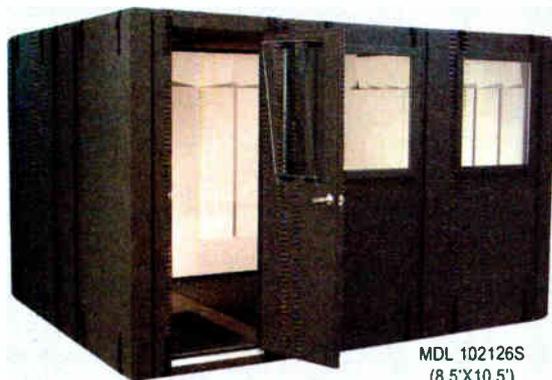
WhisperRoom INC.
SOUND ISOLATION ENCLOSURES

116 S. Sugar Hollow Rd.
Morristown, TN 37813 USA

Recording Broadcasting Practicing

WhisperRooms are now available in 17 sizes and 2 levels of isolation.

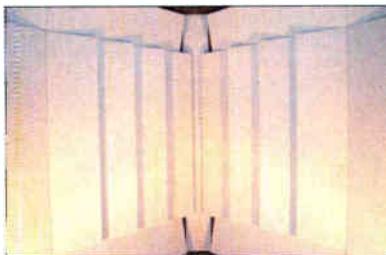
Sizes range from 2.5'x3.5' to 8.5'x15.5' Expansion packages are available for most models. Also available are door and wall window sound deflectors.



MDL 102126S
(8.5'x10.5')

NEW!! SOUNDWAVE DEFLECTION SYSTEM (SDS)

The *SoundWave Deflection System* is designed to convert parallel walls to non-parallel. Reflections and standing waves are controlled by the easy attachment of panels, designed to both redirect and trap sound waves. *SDS* packages are available for all WhisperRoom SE 2000 Models.



SEE US AT AES BOOTH #1266

clean dialogue

Developed for audio engineers working in post and dubbing, the DNS1000 is specifically designed to remove background noise from recorded and live dialogue. It suppresses traffic noise, wind, rain, general ambience, reduces reverberation, and is an essential tool for dubbing, post, and broadcast.



real time processing with near-zero latency means no loss of lip-sync



fast, intuitive, and very simple control interface



six processing ranges concentrate the power where you need it



advanced noise suppression algorithms offer faster, better results than you'll achieve with anything else



channel 1, channel 2 or stereo operation for maximum flexibility



DNS1000

dynamic noise suppressor

CEDAR



USA

CEDAR Audio USA
43 Deerfield Road
Portland
ME 04101-1805
USA

Tel: +1 207 828 0024
Fax: +1 207 773 2424
Web: www.cedaraudio.com
Email: cedarusa@cedaraudio.com

International Headquarters

CEDAR Audio
20 Home End
Fulbourn
Cambridge
CB1 5BS
United Kingdom

Tel: +44 1223 881771
Fax: +44 1223 881778
Web: www.cedaraudio.com
Email: info@cedaraudio.com

THE STORAGE SLAM

WHEN TECHNOLOGIES COLLIDE

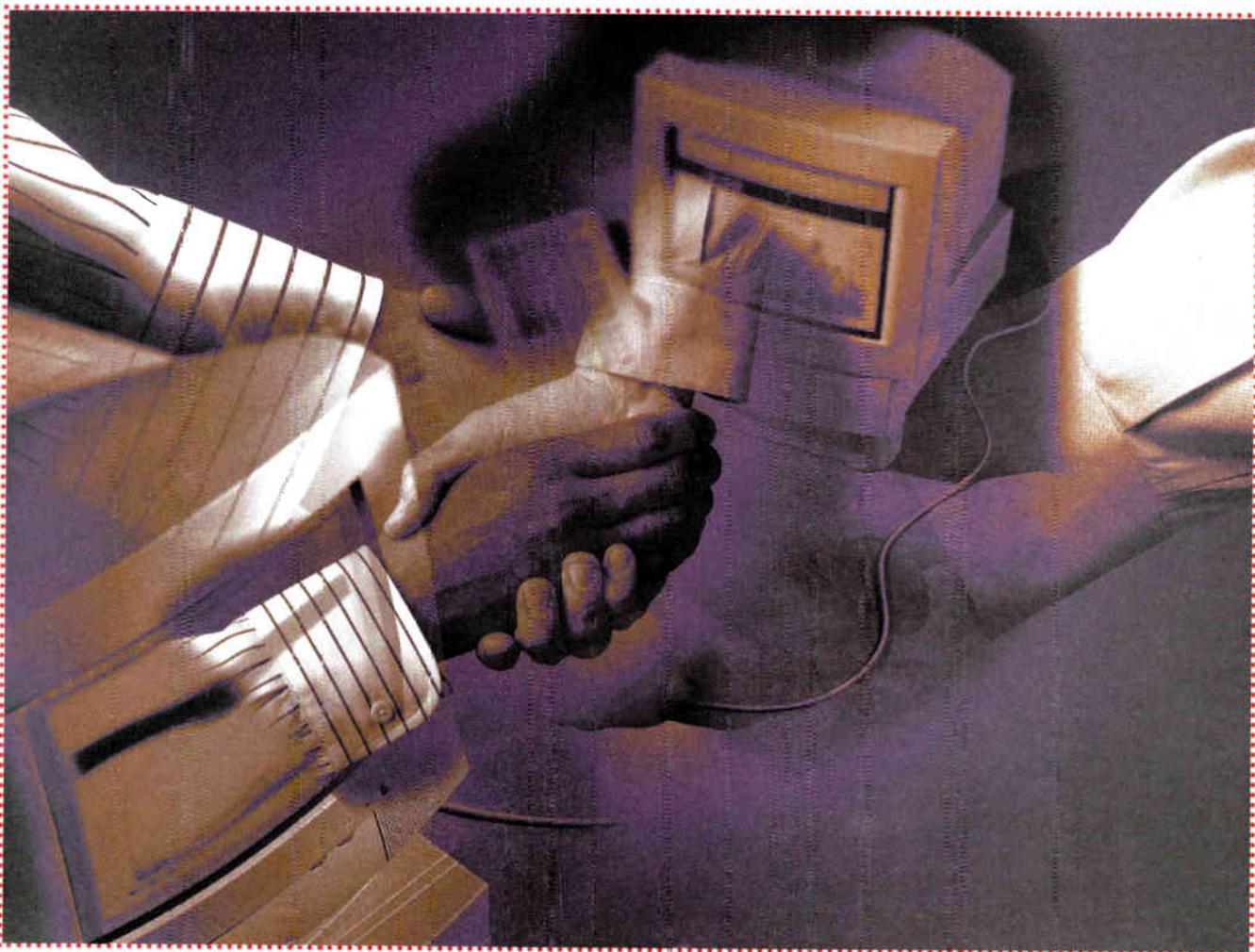


ILLUSTRATION: MAE LAROCBS

If you've been reading "The Bitstream," then you know I try to cover technology that, while not explicitly audio, nonetheless impacts your production environment now or in the near future. The slant for this column is convergence, and this month, the stars are assembled into a rare alignment that permits me to address the converging of several disciplines toward a potent prognostication.

Here are the facts:

- Brocade has debuted the 1200 switch,
- Cisco has debuted the SN 5420 router,
- SNIA has proposed a common HBA API,
- Fibre Channel on the motherboard has arrived,
- I have actually seen FibreToTheHome.

Let's detangle this jargon and see why these five events are important to you. First, the top two items: You have two industry leaders introducing products that promise to support wider ranges of protocols in single boxes than have been seen up to this point. Brocade's 1200 is a director-class switch that just happens to support 1, 2 and 10GB versions of Fibre Channel (FC), but also iSCSI and InfiniBand. A fabric connection from anything to anything: That's radical! Scalability, availability and forward compatibility via modular design means that, like everything else mentioned this month, you'll pay through

the nose for it; but we're talking a tsunami-class sea change comin' over the bow.

Cisco's contribution is, on the face of it, just another (yawn) router. But wait, look closely, and ye shall see that it supports iSCSI along with traditional IP traffic. This means that you can now route your storage traffic with the low cost and ease of management that you'd expect from TCP/IP and the QoS (Quality of Service) you'd typically get from Fibre Channel. Security, long a weakness of basic FC, should improve. However, although iSCSI will, in the long run, win in the storage arena because of reduced cost, FC is the current performance king for storage, and the DVD family is still the broadband

BY OLIVER MASCIAROTTE



SREV1 Remote



SREV1



Time to reflect on reverberation.

In the past, reverbs used IIR (Infinite Impulse Response) algorithms to recreate acoustic environments. They had limited memory and processing power and some did a pretty good job.

But using a FIR (Finite Impulse Response) filter algorithm can more accurately reproduce all the complexities of natural reverberation. The concept is not new but an enormous amount of processing power is required to manage the impulse (sampled) data.

Yamaha has decades of experience with the development of proprietary custom DSP LSI chips specifically for audio applications. Our new "convolver" LSI technology enabled us to create the SREV1 Sampling Reverberator.

Roominate.

The SREV1 uses up to 64 of our new convolver LSIs to deliver a remarkable 520,000-step convolution processing (up to 10.92 seconds per channel of convolution time).

This has enabled Yamaha to accurately sample some of the great environments around the world (Concertgebouw, Budokan, Avatar and Cello Studios, etc.) as well as churches, rooms, plates and other environments and provide them to you in 79 superb presets to cover virtually any need.

In case we missed something, SREV1 includes measurement and impulse response editing software so you can sample your own environments. Capture your favorite space.

SREV1 can function in stereo, dual 2-channel and 4-channel surround mode.

Add 4-band parametric EQ for every channel, instant program switching, selectable I/O formats, built-in CD-ROM drive, PC card loading and storage and a full function remote and you have the state of the art in reverberation, SREV1.

Space Available.

Join the revolution.



Yamaha Corporation of America • P.O. Box 6600, Buena Park, CA 90622

For additional information, please call (714)522-9000 • www.yamaha.com/proaudio

The Yamaha SREV1 is only available through Yamaha Commercial Audio dealers. For the dealer nearest you, check our web site dealer locator.
©2001 Yamaha Corporation of America. All rights reserved. Yamaha is a registered trademark of Yamaha Corporation.

Switchcraft Delivers More Sound Solutions!



VIDEO JACK SERIES



HPC CONNECTOR SERIES



AAA Q-G TWIST SERIES



FRONT ACCESS PATCHBAY SERIES



3.5MM PLLG SERIES



3502RA RCA PLUG SERIES



TT253NC SERIES

That's because the broadcast/audio industry continually turns to us for quality components. From jacks and plugs to connectors and patchbays. Switchcraft has been improving the sound quality of recording studios for decades.

By responding to the evolving and growing needs of our customers, the Switchcraft name is now seen virtually everywhere in recording studios around the globe. Because of our reputation for constant innovation, we are becoming your one-stop expert supplier. No one can deliver solutions tailor-made for your broadcast studio requirements better than Switchcraft.

Get your own sound solutions: call us today at 773-792-2700.

Switchcraft®

www.switchcraft.com

Switchcraft, Inc.
5555 North Elston Avenue
Chicago, IL 60630
Phone: 773-792-2700
Fax: 773-792-2129
sales@switchcraft.com
www.switchcraft.com

delivery medium of choice.

I don't know about you, but I spend way too much time managing IT resources, and we all like to cut management expenditures. Well, SNIA, the open industry watchdog for networked storage, has proposed a common HBA, or Host Bus Adapter, API that can be shared by the industry. This translates into different HBAs from various vendors all appearing as peers in an IT manager's management application of choice, which is not currently the case. (Each vendor uses some subset of open or proprietary protocols for monitoring and control of its HBAs, so you never know what method will work for a particular product.)

This initiative assumes that, in the long term, vendors will realize that working for their customers is more profitable than working exclusively for their investors [insert OMas mantra here: Open Is Good]. We'll see if the industry embraces the open approach to management, but we can dream, can't we?

For demanding storage applications, like high-density, multi-user media production, networked storage makes fiscal sense. But initial expenditure and reoccurring costs can be daunting. Now, manufacturers have taken a subtle but important step, moving their controller technologies from a plug-in HBA direct-

ly onto the motherboard of workstations and servers. This will reduce cost and power draw while improving reliability. Along with SATA, eliminating an HBA will further shrink the form factor as well.

The last bit of information I'll offer up to you concerns a recent visit to the South of Market Area (SOMA) in San Francisco. I was on my way home from a meeting when I was lured into the lobby of a new condo here in SOMA. To my amazement, the sales mantra included two Cat 5 wires, two coaxial cables and one fiber-optic line. Ye Gods, fiber to the home—think of the bandwidth! This augurs well for the eventual appearance of fiber in every metro area. Granted, this crib was priced in the mid-\$400k range; it damn well better have fiber for that price.

As I said before, you gotta pay to play while the tech is new, but all this stuff will trickle down to you-and-me levels in a surprisingly short time. So, save your newly inflated dollars and stand ready to catch any flying bits when storage technologies collide.

OMas has had a welcome break from attending conferences. He is pleased. This column was created while under the influence of Traffic's classic eponymous work and Marillion's Anoraknophobia. For links, back articles and occasional commentary, visit <http://seneschal.net>.

PEDANT IN A BOX

HBA: Hardware that provides interface services, both at the physical layer and the software or logical layer, between some communication standard and a computer's operating system. Examples are the common PCI or ISA cards that allow you to add Ethernet, 1394/USB, Fibre Channel or RS-422 ports to your existing computer.

API: Application Programming Interface, a set of prebuilt code that allows programmers to circumvent getting their hands dirty with the inner workings of some complex, low-level mechanism. This approach allows communication with the mechanism as an abstract, idealized object with a common, predetermined set of building blocks instead of non-standard, idiosyncratic syntax that changes as the mechanism evolves. An API provides both a vocabulary and syntactical framework over which remote fly-by-wire interaction can occur. APIs are usually provided by vendors to third-party developers so the developer can talk to the vendor's product. Meanwhile, the vendor is free to modify the product, confident that the abstraction layer or translation overlay that the API provides will maintain communication with the third-party product.

Director-class: There are all sorts of interconnect devices for Fibre Channel, ranging from inexpensive, 8-port dumb hubs with spotty QoS and poor availability, to massive, 128-port switches with excellent QoS and bulletproof, 7/24/365 availability. Director-class describes the latter, at the apex of the FC food chain and ready to take on the largest of storage network fabrics.

Again!



QG Patchbay Series

- 16 or 32 E Series QG panel mount connectors
- 1RU or 2RU rack unit heights
- Rugged cable tie bar



MT Patchkit Series

- 48 or 52 MT jacks with nickel-plated steel frames
- Gold-plated, cross-bar switching contacts
- Rugged, heavy-duty steel cable tray



3502RA RCA Plug Series

- Rugged, heavy-duty cable clamps
- Large handle
- Available with gold and black finishes

Switchcraft

www.switchcraft.com

5555 North Elston Avenue Chicago, IL 60630
 Phone: 773-792-2700 Fax: 773-792-2129
 sales@switchcraft.com www.switchcraft.com

STUDIO PROJECTS C1

CARDIOID CONDENSER MICROPHONE

PMI Audio, the USA distributors of JoeMeek and Trident-MTA gear, now offers a new family of studio mics. The line's rather unassuming "Studio Projects" name may be a bit misleading. While the SP mics are inexpensive, their sound and construction quality belie the low price.

All Studio Projects mics are side-address, large-diaphragm condensers of similar construction, and include the cardioid-only C1, the multiple pattern C3 and the T3—a multipattern tube mic.

The C1 is attractive and housed in a heavy cylindrical aluminum case about eight inches long and a little over two inches wide. No roll-off or pad switches are provided. (They are included in the C3 and T3 models.) The mic has a serviceable—if not ultra-rugged—elastic band shock-mount and a nice "flight"-type case. My main complaint with the latter is the rather ugly and irregular cutting of the foam padding in the flight case.

Center electrode microphones with gold-sputtered membranes and transformerless FET circuitry have become almost a de facto standard for this type of microphone. The folks at Studio Projects have wisely stayed with this tried-and-true recipe. Frequency response is listed at 20-20k Hz, self-noise at 17 dB (A-weighted) and sensitivity at -37 dB. Again, typical measurements for a mic of this class. The C1 can handle SPL levels of over 130 dB, a little better than most mics in this category. This allows the C1 to be used in situations that would overload other microphones of this type.

I plugged the C1 into a PreSonus MP20 preamp and recorded a male vocal. My initial reaction was, "I've heard this sound before." What I didn't realize at first was that I was hearing the mic without the usual touch of broadband, upper-end tweak that I typically apply to add a bit of "air"

to lead vocals. Without any tweaking at all, I achieved the desired timbre. Curious about this, I asked my friend Morgan Pettinato at Eastcoast Music Mall to run a TEF analysis on a C1 he had in stock. The resulting graph revealed a smooth, broad and rising curve in the 10 to 12kHz range. The C1 was inherently adding the "air" that is sometimes needed with some other large-diaphragm condenser mics. Lest I leave you with the impression that this mic is overly colored, that is not the case at all. The small upper-range bump is subtle and pleasing—a definite plus in many applications.

An overdub session with a tenor sax let me try the mic on higher SPL sources. Saxophones are often recorded with ribbon mics, but the C1's extended high end and high-SPL handling had me curious. This time, I ran the mic through the JoeMeek Studio Channel VC1QCS, but used the unit's insert jack to bypass its compression/EQ sections to track with the preamp section alone. The VC1QCS utilizes Ted Fletcher's new "current sensing" technology, which matches the mic's impedance to the pre, previously done with transformers.

I placed the C1 about three feet away from the sax, slightly lower than head level, in about the same position I would normally place a ribbon mic. The result was immediately gratifying. The sax came through with outstanding warmth and clarity, and, again, no EQ was needed. Next I tried the mic about six inches from the bell. This produced a biting sound that would be great on rock sessions. Even with this close proximity to a wailing sax, the mic never came close to overloading. The saxophonist—a veteran player in the New Orleans recording scene—repeatedly asked me if he could borrow or buy my C1 test unit!

The Studio Projects C1 lists for

BY PETE LEONI



\$300. I purposely saved that bit of information 'til the end of this article. It would be too easy for some people to dismiss this mic based solely on price. On price alone, the C1 is an obvious choice for a small studio on a budget, but more importantly, its excellent sonic quality and high-SPL handling make it a great choice for any studio looking for a quality, large-diaphragm condenser mic—or several.

Dist. by the PMI Audio Group, 23773 Madison Street, Torrance, CA 90505; 877/563-6335 (toll-free); fax 310/373-4714; www.pmiaudio.com. ■

Pete Leoni is the technical director at QPerformance, a division of Eastcoast Music Mall. He can be reached at demotech@qperformance.com.

LIBERATE

your thinking

analog ears | digital minds

Pure analog sound—all of us at Universal Audio know there are times when there is no substitute for it. Our UA Classics such as the LA-2A, 1176LN and 2-610, reflect our passion for natural sounding audio that is true to the original, yet enhances the sound you hear. Our new M610 single channel pre-amp also reflects that passion with it's all tube, high quality sound. With our analog legacy spanning back more than 40 years, it's easy to see that our digital minds understand the needs of today. Our new Powered Plug-Ins are the perfect example, because our analog ears are at the heart and soul of each and every one.

Our UAD-1 card, with it's super-computer DSP chip technology, is what drives these Powered Plug-Ins. Adding a UAD-1 to your host-based digital audio workstation means you'll never have to sacrifice audio quality again. You're free to use the full power of your DAW without compromise—running Powered Plug-Ins with minimal impact to your CPU—to create your music without limitations.

UA Powered Plug-Ins take every nuance of our analog passion and deliver it digitally with exquisite effects like RealVerb Pro, and true-to-life emulation of our legendary LA-2A and 1176LN classic hardware—all running on our super-charged PCI card. Just one listen and you'll hear how Powered Plug-Ins will liberate your DAW, even better—liberate your ears, mind and music.

To find out more, visit an authorized UA dealer, www.uaudio.com, or call us at 831.466.3737.

To see and hear the new M610 and get a special first look at the newest Powered Plug-Ins, stop by our booth 1366 at the 2001 AES New York show, or check us out online September 21st, for a virtual preview at: www.uaudio.com



UNIVERSAL AUDIO

LEXICON 960L

MULTICHANNEL DIGITAL EFFECTS SYSTEM, VERSION 3.0

The best thing about software-based effects systems is that they're, well...software-based. By updating software via a new disk, data cart or the occasional download, existing customers can add fresh sounds or new features and keep their equipment up to date without major hardware modifications. Lexicon first implemented the software-based strategy back in the days of the first 224, and the tradition was well-established by 1986 when the 480L arrived; 15 years later, Lexicon still offers updates for its former flagship reverb.

At last year's AES show in Paris, Lexicon unveiled its new champion, the 960L. An impressive performer, both in terms of its powerful, new surround-capable algorithms, the 960L offers an advanced LARC2™ remote and a 24-bit, 8-in/8-out architecture that supports stereo and surround production at up to 96 kHz for broadcast, film, audio post and music applications.

In January of 2001, barely a year after the product was first shown, Lexicon released Version 2 software, which offers support for an additional reverb card (effectively doubling the system's DSP horsepower), along with mappable I/O and 16 I/O support. Additional features include Machine Global Mix and Global I/O control, dual LARC2 support, 4x4 configurations, cascading operations and enhanced input metering—all from a free upgrade CD.

A month ago, Lexicon released V. 2.5 software—another free update distributed on CD—with 100 new factory programs boasting seven newly developed stereo and multichannel delay algorithms. The new software also includes new 96kHz reverbs, surround plate and chamber sounds, and a selection of interesting, useful multichannel and stereo delays—seven banks of new effects in all.

At the 2001 AES show in New York City, Lexicon will unveil Version 3 software—perhaps the most ambitious 960L upgrade to date. Whereas previous updates for the unit focused on routings, hardware support functionality and new sounds, Version 3 significantly ups the ante on the 960L's automation capability, while adding the power of LOGIC7 surround processing.

Developed by Lexicon, LOGIC7 is a sophisticated DSP encode (and consumer playback) system that provides improved multichannel reproduction from matrix-encoded and 2-channel stereo recordings. Beyond the left/right front channels and matrixed center channel, LOGIC7 can offer full bandwidth, stereo rear channels from either surround-encoded or 2-channel sources, as opposed to the mono-only surround derived from Dolby Pro Logic processing on surround-encoded sources. As its "LOGIC7" name implies, the playback process can expand both 5.1 and 2-channel soundtracks for 7.1 and virtual 7.1 channel playback. Pros will appreciate LOGIC7's ability to easily upmix a 2-channel master to 5.1 channels and to downmix a surround master to encoded stereo for playback on any stereo or surround system. This surround-to-stereo-to-surround process is commonly referred to as 5:2:5 or 5:2:7, and offers a useful tool for surround production.

Since Lexicon first unveiled the 960L, with the touch-sensitive moving faders and joystick on its snazzy LARC2 controller, people have wondered why these controllers only exist for editing parameters. In fact, the 960L's automation capability was



limited to receiving MIDI program change messages—hardly impressive from the company that developed pioneering products such as the PCM 70, which offered Dynamic MIDI™ real-time control of effects parameters back in 1985. However, this all changes with the Version 3 software release; the 960L now offers full-blown automation control of all effects parameters, including panning within the surround programs, and the moving faders track moves in real time. The joystick does not move, but any moves are tracked by the cursor within the panning window on the 960L's large display.

Currently, no offline automation data editing is available, but to make automation changes, one merely makes another pass, enters Update mode, redoes the move and simply picks up at the "out" point with the motorized faders, precisely repeating earlier moves. As with all 960L presets and user data, automation moves—defined as SMPTE timecode events, translated via the unit's MIDI Time Code (MTC) input—are stored directly to the 960's internal hard drive as session data and can be archived to floppy disk for long-term storage or moving to other systems.

Version 3 software for the Lexicon 960L debuts at AES; initial deliveries are expected to begin Q/1 of 2002.

Lexicon, 3 Oak Park, Bedford, MA 01730; 781/280-0300; fax 781/280-0490; www.lexicon.com. ■

BY GEORGE PETERSEN



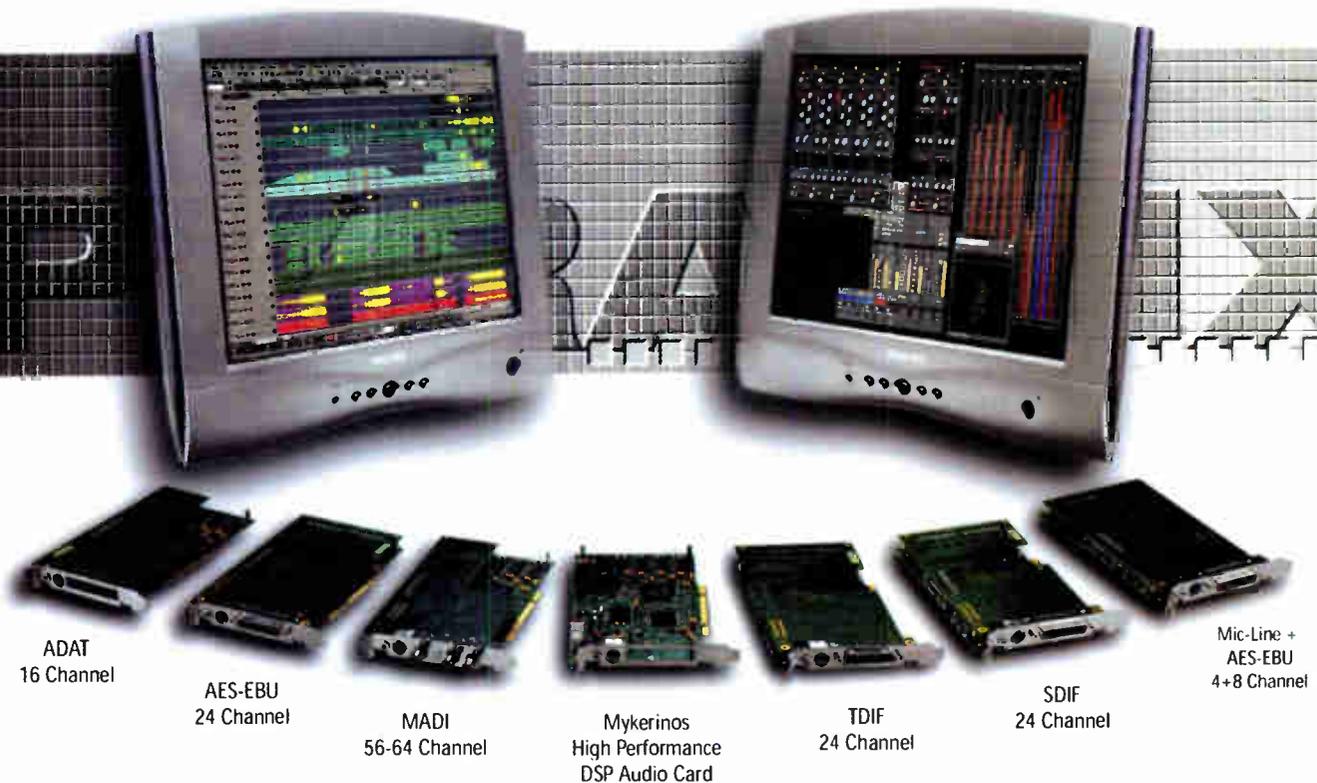
The **next damned**
closest thing to
analog

since **DIGITAL**
was **invented.**

Pyramix

Virtual Studio

Now with Multi-track **DSD** Option!



Pyramix V4.0 – the purest Digital Audio Workstation Ever!

www.merging.com

24/96

24/192

32/384



DSD
Direct Stream Digital



Contact Merging Technologies • info@merging.com • Switzerland Tel: +41 (21) 946 0444
USA Tel: +1 (847) 272 0500 • Europe/Asia Tel: +44 (0) 1606 892788

World Radio History

SONY DRE-S777/PAC

SAMPLING DIGITAL REVERB

There's something very different about this one. A first glance at the classic lines of the Sony DRE-S777's cherry wood veneer front panel—which looks like the dashboard of an old Jaguar (great choice, by the way)—tells you that you're in for a special ride.

Though the DRE-S777 is a digital reverb, the feature that makes it stand out is that it uses real sampled halls and spaces, as opposed to digitally simulated environments. It also offers a sampling option so that users can capture favorite acoustic spaces of their own. A newly developed DSP allows Real Impulse Response (RIR) processing, providing high-speed calculations that re-create natural reverb based on actual acoustic spaces.

The DRE-S777 is a software-dependent unit. Using the front panel CD-ROM drive, users can load a variety of existing acoustic spaces, and user-sampled environments can be loaded from Memory Stick removable media via a front panel card slot. Included with the unit is a CD-ROM with some very good sampled spaces to work with: two halls, two churches, a studio and two plate reverbs.

For more variety, an optional series of sampled halls and spaces from around the world is available. The DASK-S700 Complete World Sample CD-ROM Library (\$930) includes three sampled reverb software packages: European Acoustic Spaces (DASK-S701), American Acoustic Spaces (DASK-S702) and Japanese Acoustic Spaces (DASK-S703). The library offers reverb sample algorithms for a diverse collection of pre-recorded spaces, including well-known recording studios (e.g., New York City's Avatar and Ocean Way in L.A.), concert halls and cathedrals from around the world, some interesting utility spaces (try the Goto Planetarium or Tokyo's Tamanoyu Bathhouse for some "different" sounds) and natural environments, such as Japan's



Kamaishi iron mine and even the Grand Canyon—the latter captured with the help of Paul Winter.

THE HARDWARE

The DRE-S777 is now offered in two versions to suit various user needs. The \$9,000 DRE-S777/2 is a digital-only I/O model (2 channels in/4 channels out, both in AES/EBU track-pair format on XLRs), and is intended for applications where analog interfacing is not required, such as studios with digital consoles. The \$11,500 DRE-S777/PAC features analog I/Os (2 in/4 out) with high-quality 24-bit A/D and D/A conversion, and is ideal for traveling engineers who work on a variety of consoles. The DRE-S777/PAC should also appeal to rental companies, studios with analog boards, and hybrid facilities with both analog and digital mixers that need to move the DRE-S777 between rooms. The DASK-S704 sampling hardware/software option that allows users to sample their own spaces is \$930.

Both the DRE-S777/2 and DRE-S777/PAC models now include the (previously optional) DABK-S703 DSP expansion card, which allows the normally mono-in/stereo-out unit to operate in different modes: stereo in/stereo out; mono in/4-channel out; mono in/stereo out (at 88.2 or 96 kHz); and split in/4-channel out (two sets of mono inputs are output as two sets of stereo outputs). My personal favorite is the split-mode feature whereby two mono inputs drive two sets of stereo outputs (the

popular Lexicon 480 configuration), which allows you to run two different reverbs. You get twice the reverb for the buck.

Other features include 24-bit resolution, 4-band EQ, 92 user preset memories, self-diagnostics, MIDI control, Memory Stick storage and silent (fan-free!) operation. On the rear panel are the digital and/or analog inputs/outputs, word sync in/out on BNC connectors, MIDI In and Out/Thru jacks, AC cord socket, a chassis ground lug and an RS-232 port for maintenance/servicing.

IN SESSION

Loading up the DRE-S777 software from CD-ROM reminds me a lot of a Sony PlayStation. However, the unit does take a while to load: three minutes to be exact! If you're unsure which parameter to hit and accidentally press Load, then you'll have three minutes of waiting while you hold that thought and retain the creativity of the moment. This is the DRE-S777's major downside, but—like a PlayStation—once you're used to the parameters and can navigate around, you are definitely in for an ear candy treat.

The two-rack-space front panel is simply laid out, with one knob for entering parameter data values or selecting presets, four soft keys and a large display window. The window display is easy to use and extremely intuitive. You don't even need a manual to use it. (Not a suggestion, just an example of the unit's user-friendliness.)

The DRE-S777 is well-thought out, and it doesn't have a thousand pa-

BY JIMMY DOUGLASS

State-of-the-art printing!

3-color on-disc printing!

Free UPC bar code!

Money-back satisfaction guarantee!

Custom graphic design from award-winning designers!
(or we'll work with your design files)

Complete CD packages in just **12** working days!

Disc Makers gives you the fastest turn time available for CD replication – your complete CD package, including design, insert printing, three-color printing on disc, CD replication, and packaging will ship in just 12 working days! You get a complete package, not some stripped down version. No one does it faster. And every Disc Makers CD package includes over \$1,200 in extra services, including a FREE UPC bar code for retail sales – a \$750 value! – and 300 full-color, 11" x 17" posters for \$99 – a \$491 savings!

Call today for a **FREE Disc Makers catalog!**
1-800-468-9353



 **DISC MAKERS®**
CD, CASSETTE, AND VINYL MANUFACTURING MADE EASY

1-800-468-9353
www.discmakers.com

rameters or bells and whistles (like some other digital units), but it has just enough truly useful parameters, like input trim, reverb decay time (variable from 0.3 to 5.5 seconds), up to 500 ms of predelay, peak hold meter settings, wet/dry levels, bypass, mutes and 4-band equalization (with fully parametric mid bands) available for each sampled venue. One reason for the DRE-S777's limited parameter control for adjusting reverbs is that it's based on actual sampled environments, which can be made smaller—useful for keeping large spaces under control—but can't be made

larger. Along with various cute icon images of stages, halls, churches, spaces, etc., the display shows a diagram of the mic and speaker (sound source) placement for each sampled reverb. Users are given the ability to change and adjust these different speaker/microphone placement perspectives: very clever, very useful.

SAMPLING!

Other than the fact that it sounds great, the DRE-S777's self-sampling feature—its ability to actually sample your own favorite spaces—really sets this box apart from any other unit I've used. The sampling option includes a 64MB Memory

Stick, which is used to store reverbs sampled by the user. In addition, this Memory Stick (which is encrypted with a special key) also allows nine "cached" presets to be stored permanently on the stick for quick access. It's actually possible to store from 10 to 15 samples on a Memory Stick, depending on the file size of the parameters used when sampling the room.

One of the DRE-S777's odd redundancies is that it requires Memory Sticks for user storage, yet the front panel has a PC card slot, so the Memory Stick must be placed in a PC card adapter (included with the unit), which slides into the slot. Buy lots of sticks and have fun experimenting.

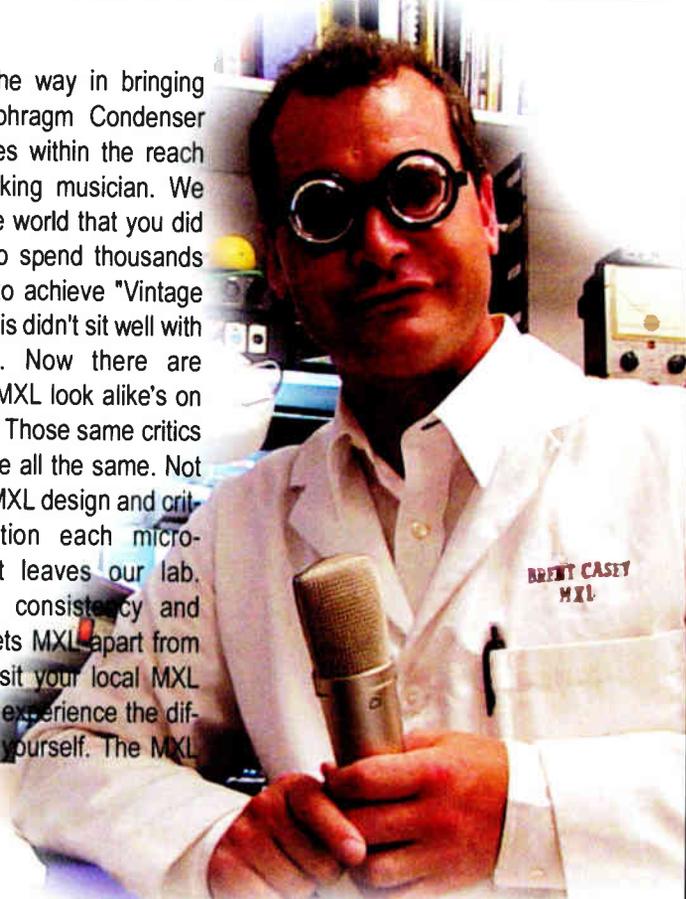
In concept, the sampling process is easy but requires a fair amount of time, some loud SPLs and more time (and pa-

MXL

"YES, THERE IS A DIFFERENCE!"

MXL led the way in bringing Large Diaphragm Condenser Microphones within the reach of the working musician. We showed the world that you did not need to spend thousands of Dollars to achieve "Vintage Sonics". This didn't sit well with our critics. Now there are dozens of MXL look alike's on the market. Those same critics say they are all the same. Not So! We at MXL design and critically audition each microphone that leaves our lab. Innovation, consistency and reliability sets MXL apart from the rest. Visit your local MXL Dealer and experience the difference for yourself. The MXL Difference!

Now with 3 year warranty
www.MXLmics.com
1-800-800-6608



Spaces: The Final Frontier

A Sony engineering team traveled the globe to sample actual acoustic signatures from legendary venues. Using a unique "convolution" technique that converts a sweep tone generated at a sampling site into millions of frequency-dependent pulse tones, the team collected a well-defined acoustical footprint for each sampled space, and they are now stored on various CD-ROMs. Priced at \$930 (or \$500/CD separately), the DASK-S700 Complete World Sample CD-ROM Library features three sampling reverb software collections:

DASK-S701: European Acoustic Spaces

- Concertgebouw, Amsterdam
- Grosser Musikvereinsaal, Vienna
- Konzerthaus, Berlin
- Westerkerk, Amsterdam
- Jesus-Christus-Kirche, Berlin
- St. Vincent de Cardona, Cardona

DASK-S702: American Acoustic Spaces

- Avatar Studio A, New York City
- Ocean Way Studio B, Los Angeles
- Enterprise E2, Los Angeles
- Giandomenico Studios, New Jersey
- St. John the Divine Church, New York City
- Grand Canyon, Arizona

DASK-S703 Japanese Acoustic Spaces

- Sedic Audio Studio, Tokyo
- Yokohama Nohgaku-dou Noh Hall, Kanagawa
- Tamanoyu Bathhouse, Tokyo
- Ohya Shiryokan Stone Quarry, Tochigi
- Kamaishi Iron Mine, Iwate
- Goto Planetarium Dome, Tokyo
- Hotaka Mountain Range, Nagano

ACID™ PRO 3.0

LOOP BASED MUSIC CREATION TOOL

NEW!



NEW FEATURES:

- BeatMapper® - synchronize complete songs
- MIDI record and playback
- 18 powerful DirectX audio effects
- Video scoring track
- Cutting-edge remix tools

FEATURES

- Create original, royalty free music
- Arrange and edit audio loops
- Pick, paint, and play interface
- Choose from hundreds of multi-genre loops
- Real-time pitch and tempo matching
- Unlimited audio tracks
- Record vocals and music directly into the timeline
- Rip Audio & Burn to CDs
- Video reference track - AVI, MOV, MPEG
- XFX1™, XFX2™ & XFX3™ DirectX audio effects
- Master, track, and assignable audio-effects
- MIDI file support
- DLS sample file support
- Tempo and Key mapping
- Locking Volume, Pan, and Effects envelopes
- Create DJ-Style mixes and drum fills with Chopper™
- Open multiple file formats in the same project
- Open in MIDI editor option
- Includes Sound Forge® XP 5.0 digital audio editor
- Edit across multiple tracks with ripple editing
- Generate and chase MIDI Time Code
- "Get Media" option to locate media from the web
- Exclusive New Media for registered owners
- 16-bit and 24-bit audio support
- Mix several tracks into a new one (track bouncing)
- Export/Save as WAV, MP3, WMA, RM, AIF, and PCA

"ACID™ HAS NOW BECOME PART OF MY CREATIVE TOOL KIT."

"I've been writing looped-based music since the 70's, and I've been looking for something like this ever since to come along and speed-up the process. ACID is dead easy! It calms your fear of using new technology for music creation."

David Torn - a.k.a. SPLaTTeRcELL - composer, guitarist, producer, and remix artist, is one of the most talented individuals working in music today. His brilliant resume includes solo releases and session work with an amazing assortment of artists - Charlie Clouser (Nine Inch Nails), k.d. lang, Me'shell Ndegéocello, Ryuichi Sakamoto, David Sylvian and Laurie Anderson, just to name a few. David's sounds have also added drama and texture to many feature films, including Traffic, Three Kings, A Knight's Tale and The Score being among his most recent. Learn more about David and SPLaTTeRcELL at: www.galore.com/davidtorn.nsf



NEW DAVID TORN LOOP LIBRARY
TEXTURES FOR ELECTRONICA AND FILM MUSIC



Sonic Foundry™, a leading developer of digital media and Internet software tools, products, and services, is proud to have received numerous industry awards.

SONIC FOUNDRY™

SONICFOUNDRY.COM 1.800.577.6642

tience) to experiment. I tried to sample the Hammerstein Ballroom in New York City, but between the room's heavy booking schedule and my availability, I didn't have enough time to get exactly what I wanted. Hammerstein would be a good arena to add to the collection of other halls available for the DRE-S777, and once I finish some of my current West Coast projects, I plan to spend a little more time and get it right. However, I do have something sampled on my disk, and even though it wasn't what I would consider the sweet part of Hammerstein, it's, nonetheless, still a

useful space and I now have a sampled space that no one else has.

TAIL OUT

There are plenty of useful spaces in the CD-ROM library (see sidebar for complete list), but I fell in love with the Giandomenico Studio. Originally a movie house in the 1920s and 1930s, it was later turned into a photographic studio but was a popular site for recording classical music, with a full, fairly bright ambience. I understand the building has since been torn down, but its ambience is now preserved forever on disk in the DRE-S777.

Will the DRE-S777 change your life?

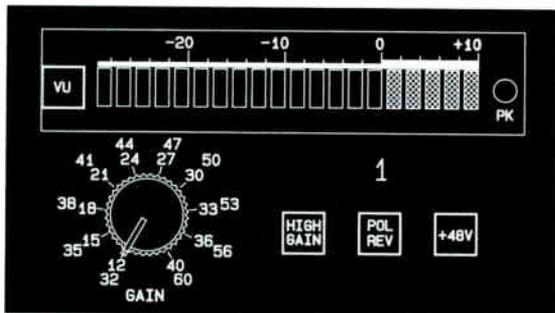
Probably not, but it does make you want to go and find more things to use reverb on. With this machine, the old days of smooth, round, warm reverb have returned. Did I mention that it sounds great? Well, it sounds awesome. It is amazingly quiet—no complaints here. The sound of the halls and churches is supreme. To an old-skool fool like myself, if I hadn't seen it with my own eyes, you couldn't have convinced me with my own ears. The algorithms are so smooth. The sound is warm—yet clean—without any of that digital brittleness usually associated with digital reverbs.

Now that I've used this box for a while, I don't think Sony will ever be able to get it back from me. This one's a keeper!

Sony Professional Audio, 1 Sony Drive, Park Ridge, NJ 07656; 201/930-1000; fax 201/358-4907; www.sony.com/proaudio. ■

Jimmy Douglass is a New York-based producer/engineer whose recent projects include Gimwine and Missy Elliott in 5.1.

**M-1
MICROPHONE PREAMPLIFIER**



(Actual size)

Excellence

Since 1987 the M-1 mic preamp has been impressing artists, engineers and listeners around the world. Typical comments: "Whoa!" "Even the producer could tell the difference." The audio circuitry is simple, elegant and superior:

- **Jensen JT-16-B mic-input transformer**, Jensen's best mic-input model. If you thought transformers were a compromise, you haven't heard this one!
- **990C discrete op-amp** provides extremely low input noise, excellent output characteristics and superior sonic performance. Class-A operation.
- **No coupling capacitors in the signal path.** Capacitors degrade the signal. Transformerless circuits need them. Cheaper circuits use them. Not the M-1.
- **VU-1 LED meter option** (shown) provides great metering where you really need it.
- **Jensen JT-11-BMQ line-output transformer option** (Jensen's best).
- All push-buttons are LED backlit, dimly when off, brightly when on. Channels and options can be added later. Much more. 15-day trial period. Experience **excellence!**



THE JOHN HARDY COMPANY

★★★★★
Ask about the Jensen Twin Servo® 990 mic preamp!

Phone: 847-864-8060 P.O. Box AA631 Evanston, IL 60204 Fax: 847-864-8076

**Spec Sheet:
Sony DRE-S777/PAC**

DSP

Reverb Algorithm: Real Impulse Response
Reverb Time: 0.3 to 5.5 seconds
Reverb Predelay: 0 to 500 ms
EQ Type: 4-band, ±12 dB

HF Shelving, 2 to 19 kHz
MHF Parametric, 640 to 12.4k Hz (Q=0.1-4)
MLF Parametric, 52.6 to 1k Hz (Q=0.1-4)
LF Shelving, 5.1 to 420 Hz

DABK-S701 A/D Converter

Input Impedance: 10k or 600 ohms
Dynamic Range: 110 dB
Signal/Noise Ratio: 110 dB
THD: 0.005% (-20 dBFS)
Nominal/Max Input: +4/+24 dBu
Crosstalk (@ 8 kHz): 90 dB
Bandwidth (44.1/48 kHz): 20 to 20k Hz (+0.2/-0.3 dB)
Bandwidth (88.2/96 kHz): 20 to 40k Hz (+0.2/-0.3 dB)

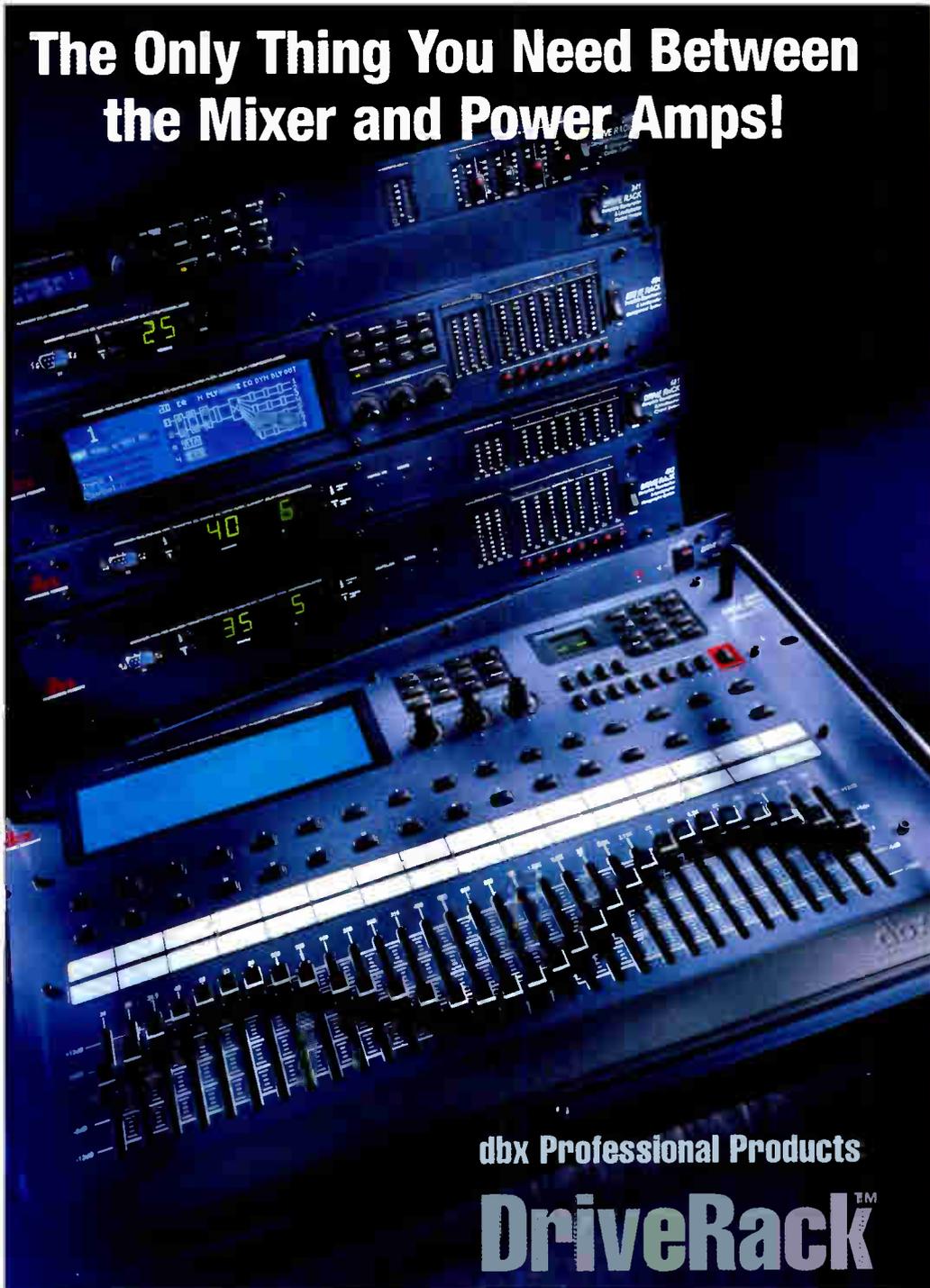
DABK-S702 D/A Converter

Output Impedance: under 50 ohms
Dynamic Range: 110 dB
Signal/Noise Ratio: 110 dB
THD: 0.015% (-20 dBFS)
Nominal/Max Output: +4/+24 dBu
Crosstalk (@ 8 kHz): 90 dB
Bandwidth (44.1/48 kHz): 20 to 20k Hz (+0.2/-0.3 dB)
Bandwidth (88.2/96 kHz): 20 to 40k Hz (+0.5/-0.6 dB)

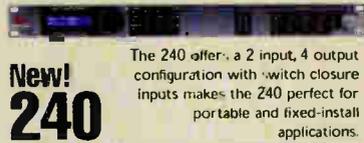
Dimensions

Size (in inches): 19x3.5x20.4 (WxHxD)
Weight: 33 lbs., loaded

The Only Thing You Need Between the Mixer and Power Amps!

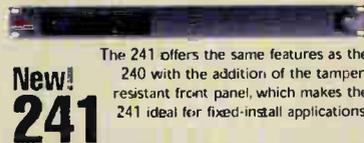


dbx Professional Products
DriveRack™



New!
240

The 240 offers a 2 input, 4 output configuration with switch closure inputs makes the 240 perfect for portable and fixed-install applications.



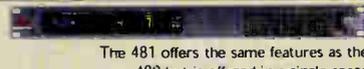
New!
241

The 241 offers the same features as the 240 with the addition of the tamper-resistant front panel, which makes the 241 ideal for fixed-install applications.



480

The 480 is the flagship piece in the DriveRack line. Its 4 Input, 8 Output XLR configuration and full network capabilities allows it to manage virtually any loudspeaker system.



481

The 481 offers the same features as the 480 but is offered in a single-space chassis with Euroblock connectors and a tamper-resistant front panel.



482

The 482 offers the same features as the 480 with a tamper-resistant front panel, making it ideal for permanent install applications.



480R

The 480R is the master remote controller for the 480 Series DriveRack products. All aspects of any 480, 481 or 482 can be controlled by the 480R.

dbx

PROFESSIONAL PRODUCTS

www.dbxpro.com

You name the application... We've got you covered. The **DriveRack™** Complete Equalization and Loudspeaker Management System from dbx Professional Products is the only all-inclusive toolbox required between the mixing console and the power amps. All aspects of loudspeaker management are now self-contained and have been optimized under the hood of a single **240, 241, 480, 481 or 482** DriveRack unit. Regardless of the size and sophistication of the application, there is DriveRack product that can accommodate your needs. Contact your local authorized DriveRack dealer and take a DriveRack for a thorough test drive today.

480 Series DriveRack™ Features

- 4 Inputs and 8 Outputs
- 31-band graphic or 9-band parametric equalizer on every input (pre-crossover)
- Dual Real Time Audio Analyzers (on inputs 3&4)
- Butterworth, Bessel or Linkwitz-Riley crossover filters
- Multiple Crossover Configurations
- Time Alignment and Transducer Alignment Delays
- Compressor/Limiter on every output
- Speaker Compensation EQ (post crossover)
- Multi-level Security System
- Separate House and Show EQ with individual lockouts
- Triple redundant back up of all parameters when running network, 480R or PC GUI
- TYPE IV™ A/D Conversion System

240 Series DriveRack™ Features

- 2 Inputs and 4 Outputs
- 31-band graphic or 9-band parametric equalizer on every input (pre-crossover)
- Butterworth, Bessel or Linkwitz-Riley crossover filters
- Multiple Crossover Configurations
- Time Alignment and Transducer Alignment Delays
- Compressor/Limiter on every output
- Speaker Compensation EQ (post crossover)
- Multi-level Security System
- TYPE IV™ A/D Conversion System
- Switch Closure Inputs

For information call: 1-800-777-1363 • Harman Music Group • 8760 South Sandy Parkway • Sandy, Utah 84070 • www.dbxpro.com

H A Harman International Company
World Radio History

APOGEE ELECTRONICS TRAK2

MIC PREAMP/DIGITAL CONVERTER SYSTEM

Since its very beginnings, Apogee Electronics has been on the leading edge of pro audio. More recently, the company has become a premier supplier of outboard converters for discriminating users.

Apogee has included preamps in stereo A/D converter boxes for at least a decade, but with Trak2—its latest offering—Apogee has delivered a world-class stereo preamp paired with an

standard are wordclock/video sync I/O and a com port with a breakout cable for serial communications, and MIDI In/Out/Thru for remote control via a free Trak2 Remote Control application for Mac computers running OMS. In addition to the onboard AES-S/PDIF output, two Apogee Multimedia Bus (AMBus) slots accommodate a variety of cards for directly interfacing with Digidesign Pro Tools, Alesis ADAT,

you've set preamp parameters (gain/pad, phantom in/out, polarity reverse, HP filter, desired routing, DSP options, etc.), operation is mostly set-and-forget, and users can store frequently used settings in memory.

The built-in, high-output headphone amp is useful, and will especially be appreciated in location recording situations where you need to make sure everything's flowing



equally amazing 24-bit/96kHz ADC. Retailing at \$3,995, Trak2 also includes a host of signal processing functions: Soft Limit™ overload protection, Soft Saturate™ analog tape compression effect, the Apogee low-jitter master clock, and Apogee's industry-standard UV22HR™ bit reduction for retaining the punch of 24-bit signals when storing audio at 20 or 16 bits. Going a step further, Trak2 offers more I/O and routing options than some digital consoles on the market.

The front panel has a backlit LED menu display, simple cursor key/datawheel entry, LED status indicators, two ¼-inch/XLR Neutrik Combo aux inputs (line- or instrument level) that doubles as a hi-Z stereo direct box, a headphone output and 22-segment LED meters.

On the rear panel are two XLR mic "send" jacks that route the analog output from the preamp to external devices such as a tube limiter. Two XLR line inputs can either receive outputs from a console or act as returns from the preamp sends above. Also stan-

Tascam TDIF, SDIF-II, SSL HiWay and others. Another option is a 2- or 8-channel D/A card expansion slot, providing high-quality D/A conversion for mixing/monitoring from any source connected to the AMBus slot. Connectivity is *not* an issue here.

This is no ordinary preamp, and using the Trak2 requires a brief adjustment time. However, despite its menu-driven operation, navigating through the function pages is a straightforward process that can be mastered in minutes. Four cursor keys and a push-to-click datawheel take the user through various setup and operation menus. Navigation is easy, although some moves require a lot of button pushes. With this in mind, Apogee provides two Quick Keys for jumping to frequently used screens, and there are some hidden shortcuts (various presses of multiple cursor keys) that speed things along—assuming you can remember the shortcut. Fortunately, once

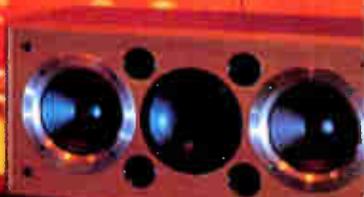
properly. Unfortunately, the only way to get to its volume is via the headphone menu, so rapid changes aren't its forté, but on the plus side, pushing both Quick Keys takes you right to the headphone menu.

IN USE

Over a period of months, on all sorts of sessions, Trak2's versatility and impeccable audio performance impressed me. The preamps are clean and transparent, with tons of headroom and a 90dB gain range that was an ideal match for my low-output Royer ribbon mics. The preamp's response is uncolored, but if you want a little more personality, the Soft Saturate analog tape emulation adds smooth, warm compression without being overbearing. I really liked the Soft Saturate for laying bass guitar tracks to disk using the auto-input-sensing, front panel DI inputs. The Soft Limit feature does a great job of removing the worry from digital overloads, particularly when tracking unpredictable sources (like all the

BY GEORGE PETERSEN

The Next Step in the Evolution



TSM-300 Near Field Studio Monitor

In keeping with our philosophy of providing state of the art speaker technology for today's uncompromising professionals, TAD/Pioneer introduces the next step in the evolution of Near Field Studio Monitoring Systems... models TSM-300.

Utilizing Linear Power Response design woofers (edgeless) and a titanium HF driver with tractrix "AFAST" horn, the TSM-300 reproduces sound with clarity and imaging not thought possible in a compact size speaker system.



TAD® Technical
Audio Devices
Professional Loudspeaker Components Division

Pioneer

1925 E. Dominguez Street • Long Beach • CA 90810 • U.S.A. Tel: 800-872-4159 • <http://www.tad-pioneer.com>

World Radio History

FIELD TEST

bands I work with), but it's just amazing when creating huge, in-your-face pop or rock mixes.

Clearly, Trak2 is no lightweight—especially in terms of its 14-inch depth and massive heft. Even after extended periods, the unit runs fairly cool, thanks to massive heat sinks and a small internal fan, which is barely discernible in the quietest of control rooms. The meters are fast-acting and switchable to various ballistics, scales and peak hold options. They can also be selected to operate as phase meters, which is a great resource for tracking stereo sources

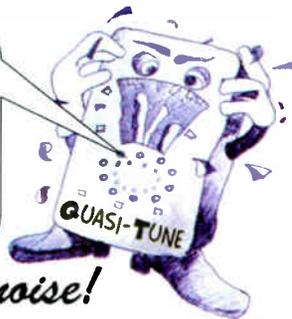
or mixing. Nice!

Apogee is best known for its digital converters, and Trak2 does not disappoint. The 24-bit A/D (117dB dynamic range) converter can run at 44.1, 48, 88.2 and 96 kHz, while its noise floor is absolutely nonexistent. This, combined with its versatile routing to any of its digital outs, award-winning UV22HR processing, low-jitter clocking and high-performance preamp, makes this a studio powerhouse for the small or large facility.

Apogee Electronics, 3145 Donald Douglas Loop South, Santa Monica, CA 90405; 310/915-1000, fax 310/391-6262; www.apogeedigital.com. ■

If your tuner could talk:

"Oooops!
A little flat...
Now a little sharp...
Yeah!... NO, wait...
Flat again...uh...
Still flat...
Nope, back to sharp...
...Aw, that's close enough."



Put an end to all the noise!

Introducing the Peterson VS-1 Virtual Strobe™ Tuner

The affordable new Peterson VS-1™ tuner with *Virtual Strobe Technology™* gives you the clear, instantaneous response you need to quickly achieve perfect tuning...and the great sound that comes with it. The inaccuracies, overshooting, and jittery displays of other digital tuners are *history!*

- Extremely Accurate
- Hands-Free Auto-Note Operation
- Smooth Instantaneous Response
- Rugged Enough For The Road
- Small Enough For Your Gig Bag
- Battery or AC Powered
- Exclusive "Sweetened" Guitar & Bass Tempered Tunings
- Standard And Exclusive Guitar (Capo/Drop) Note Transpositions
- Line Out Audio Mode
- EXT IN/THRU Lets You Keep The VS-1 In Your Audio Chain
- Large Easy-To-Read Backlit Display

Strobe Tuning...Behind All The Great Music

(www.PetersonTuners.com) (cust)

*VS-1, Virtual Strobe, and Virtual Strobe Technology (patent pending) are trademarks of Peterson Electro-Musical Products, Inc.



peterson
ELECTRO-MUSICAL PRODUCTS, INC.

11601 South Mayfield Avenue, Alsip, Illinois 60803-2476
708-388-3311 Fax 708-388-2341
E-Mail: PetersonTuners.com • www.PetersonTuners.com



SPEC SHEET: APOGEE TRAK2

Preamp

Gain/attenuation range:

-90 to +90 dB

Gain steps:

0.5/1/2/3/4 dB (user defined)

Inputs:

mic/line/instrument
(switchable)

Phantom power:

+48VDC, auto sensing

Tweaks:

-20dB pad, phase
40/90Hz HPF

Sends:

balanced/unbalanced,
+28dBu gain adjust

Returns:

balanced/unbalanced,
+4 dBu or -10 dBV

Digital I/O

ADC Connections:

Built-in AES-S/PDIF out with
two AMBus slots supporting
multiple formats, including
Pro Tools, ADAT, TDIIF, SDIF-II, etc.

Sampling:

44.1/48/88.2/96 kHz

Output:

24-bit, with 16/20-bit
support via UV22HR

Optional DAC:

2- or 8-channel
24-bit/96kHz

Crystal:

44.1 to 96 kHz

Wordclock I/O:

44.1 to 96 kHz

Internal Clock:

Apogee Ultra-Low Jitter circuit

General

Headphone amp:

40-watt

Video:

optional sync to NTSC,
PAL and B&W video

Control:

MIDI In/Out/Thru and
RS-232 serial

DSP:

Soft Limit, Soft Saturate,
DC removal from
digital inputs

Dimensions:

19x1.75x14 inches (WxHxD)

DPS24 Digital Personal Studio



24 reasons why it's the professional choice

1. 24-track digital audio workstation
 2. 16/20/24 bit recording for CD and DVD-A applications
 3. 32 to 96kHz sampling rates for variable bandwidth
 4. No data compression for artifact-free recording
 5. Sample-accurate, multi-channel graphic waveform editing
 6. Intuitive, multi-mode edit suite features time-stretch, pitch-shift, normalize, reverse, BPM matching & fast transport/edit control
 7. 44-channel/20-bus digital audio mixer with 8 subgroups & 4 stereo FX returns
 8. 28 balanced analog inputs
 9. Balanced inserts on inputs 1-4 enable direct A/D converter connection for external mic pre's
 10. Dynamics processor (compressor, limiter, and noise gate) for all 44 mixer inputs plus L/R master
 11. Q-channel™ automated multi-function channel strip
 12. 100mm motorized Q-touch™ capacitive-touch faders controlling 5 fader banks
 13. Built-in dynamic & scene mixer automation.
 14. Q-Link Navigation™ for fast, one-step movement to all major functions
 15. Powerful 56-bit/4 channel multi-FX processor with realtime vocal pitch-corrector
 16. Multi-angle LCD pod with 6 Q-knobs™ for realtime FX auditioning & control
 17. FX library stores custom presets for instant recall
 18. Talkback mic enables uninterrupted headphone & studio bus monitoring
 19. Footswitch port supports ADAT™ LRC remote
 20. 30 Gb internal IDE HD plus built-in 5.25" drive bay with CD recorder option
 21. Wide-SCSI option for external data storage devices
 22. Three expansion slots for high-speed interface & control capability
 23. 5.1 surround mixing* and monitoring
 24. USB interface for PC running Akai ak.Sys control & networking software with TrackView display
- *Future software upgrade



Q-link NAVIGATION

akaipro.com

ak.Sys.
AKAI professional
Control & Network
Systems

AKAI
professional

Akai Musical Instrument Corporation 4710 Mercantile Dr., Fort Worth, TX 76137 Ph. 817-831-9203 Fax 817-222-1490

In Canada contact: Power Music, 6415 N.W. Dr., Unit 22, Mississauga, Ontario L4V 1X1 Phone 905-405-1229 or Fax 905-405-1885

World Radio History

NEUMANN D-01 SOLUTION D

DIGITAL MICROPHONE SYSTEM

At last, the final component in the recording chain is digital. However, in order to realize the dream of a digital microphone, two major problems had to be solved, and that has taken some time. The first requirement was a converter capable of doing justice to a mic capsule. It was 70 years ago when Georg Neumann perfected the condenser capsule and at once eliminated the mic as the weak link in the recording chain—at least in terms of dynamic range. That remains true today, even in digital systems. The industry also required standards for creating, controlling and transmitting digital signals. Now it appears that both of these problems have been solved, and Neumann is again leading the way with what they call “Solution D.”

There have been previous digital microphone attempts; some of them started before the ink was dry on the AES/EBU digital signal transmission standard. The method is obvious: Place a preamp and A/D converter inside the mic body. There are several reasons why this does not work well.

First, mic capsules have a dynamic range of at least 125 to 135 dB, while 16-bit converters are capable of only 98 dB at best. Just which portion of the capsule's range needs to be converted depends on the sound source. A preamp gain setting that works for distant pickup of a classical trio will overload when the mic is placed near the bell of a trumpet. This is why recording consoles have a mic preamp gain trim—a control not available on the preamp in previous digital mics.

Second, there is a clocking problem. All the converters need to be synchronous. This usually requires some sort of house clock, but there was no way to send that upstream

to the mic. It would be possible to have all other components in the system sync to the mic, but this only works if there was just one mic. Alternatively, we could resample at the console end and let the sources run asynchronously, but that is a lossy step with some sonic penalties, and, even worse, it requires a certain amount of latency, which adds phasing and delays that we would rather not deal with.

Finally, we end up with a mic that is not truly digital. The preamp

and converter have imperfect analog stages, especially the high-gain mic preamp. Generally, as the gain boosting increases, a preamp's sonic fingerprint becomes more audible. Mic preamps tend to be the most-colored stages in a recording console and typically have gains from 30 to 60 dB. These circuits would have to be even less than ideal when you consider that they're designed to work within the voltage and current limitations of a remote power source. On top of that, current converters have 24 bits of resolution at best, and that is usually



BY JOHN MONFORTE

M3D

Keeping the third dimension in line™

Control the vertical
Control the horizontal



**...right to the outer limits
of sound reproduction.**

**Introducing Meyer Sound's new M3D Line Array Loudspeaker System –
the first totally integrated, self-powered, directionally controlled line array.**

BroadbandQ™ Directivity Control marries a remarkable new high-frequency REM™ (Ribbon Emulation Manifold) and Constant-Q horn with our award-winning low-frequency directional control technology. The result is consistent 90-degree horizontal coverage from 35 Hz to 18 kHz with more low-frequency power than any other line array system.

Greater Flexibility – Unlike other line array systems, the M3D is arrayable horizontally in multiple columns. And because it's compatible with most of our Concert Series products, you can mix and match down fills and short-throw arrays to optimize near-field coverage.

Self-Powered Integration – Meyer's proven 4,800-watt four-channel amplifier with proprietary, phase-corrected processing powers the M3D. RMS™ (Remote Monitoring System) interface is fitted as standard.

Interested? Call us for a brochure and the name of your local representative. And check out www.meyersound.com/m3d. There's lots of information there...

**The M3D with BroadbandQ technology.
Taking the line array to the outer limits of sound reproduction.**

- Self-powered, quick to set up
- Arrayable vertically and horizontally in multiple columns
- Captive QuickFly™ rigging with custom CamLink system
- RMS™ (Remote Monitoring System) standard
- Immensely powerful

Meyer Sound Laboratories, Inc.
2832 San Pablo Avenue
Berkeley, CA 94702
Phone: 510-486-1166
Fax: 510-486-8356

**Meyer
Sound**
www.meyersound.com/m3d

only on paper anyway. Practical products available today have a range that is around 100 to 115 dB, not nearly enough to pass along the extraordinary range of a condenser capsule.

HOW IT WORKS

With its Solution D system, Neumann proposed a revolutionary approach to converting a capsule's signal that does not rely on intermediate analog stages and is not limited to present-day PCM standards. In order to capture the full dynamic range of the capsule, two delta sigma converters are employed that share the dynamic range of the capsule, as shown in Fig. 1. The capsule feeds one converter through a nonlinear network that is transparent to high-level signals. The capsule also feeds an amplifier that boosts the signal 24 dB for detection by a second converter dedicated to the low-level portions of the signal. The amplifier and nonlinear network are incorporated in a feedback loop that ensures that, no matter how imprecise this network may be, whatever portion of the signal that is not sifted out to the high-level converter will be unconditionally sent to the low-level converter. Figure 2 shows the resulting wave shapes and what they look like once combined.

Once in the digital domain, the two converter outputs are summed, with the high-level converter's noise gated out. Both converters are in play the entire time. The advantage of this approach is providing a seamless hand-off between the two paths, while avoiding any distortions that would result from switching between two converters. The resulting signal has an astonishing resolution of 28 bits.

Figure 3 shows the spectra of the component signals and the net result. While each component is highly distorted, this distortion is fully predictable and completely canceled after summation.

THE DIGITAL ADVANTAGE

Besides eliminating the sonic colorations

Figure 1: How signal passes through the Solution D system.

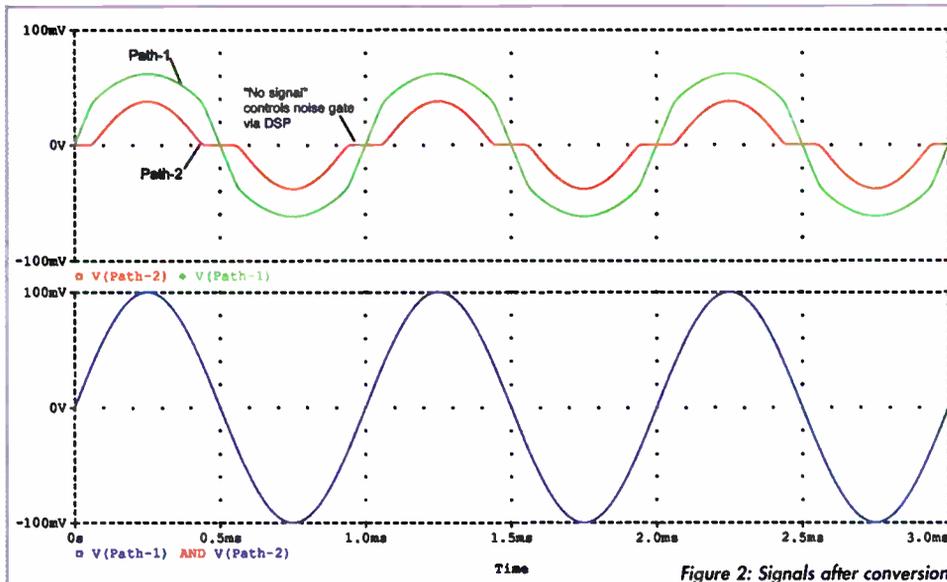
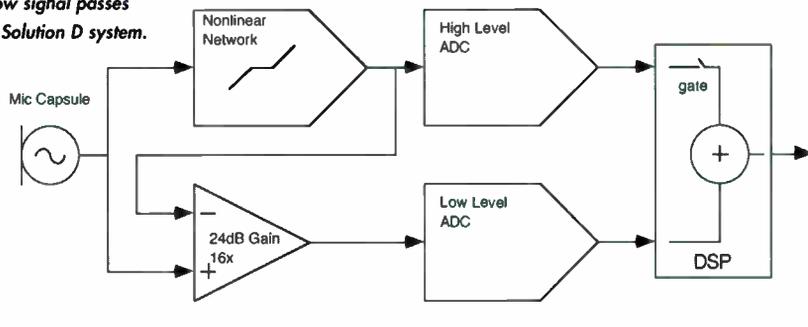


Figure 2: Signals after conversion

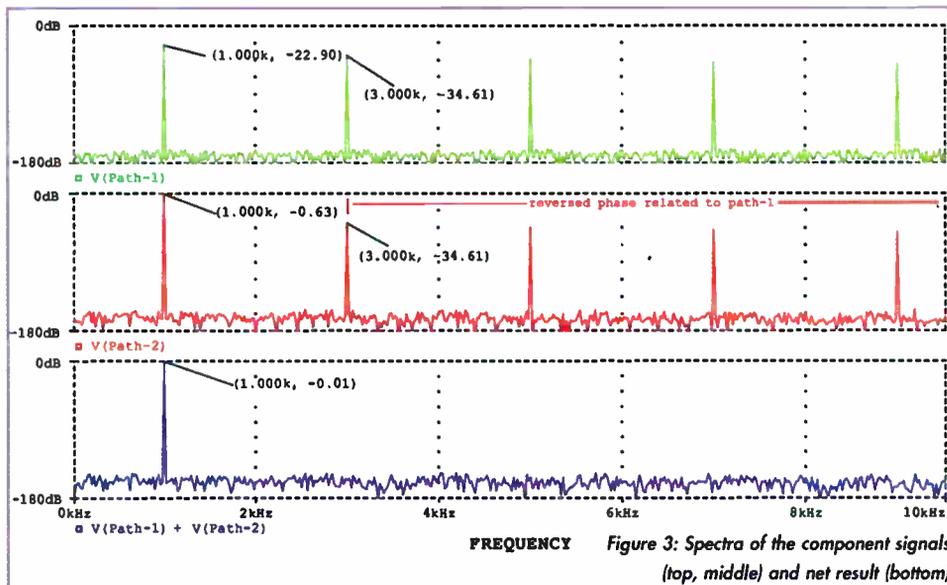


Figure 3: Spectra of the component signals (top, middle) and net result (bottom)

of a mic preamp and removing the possibility of noise pickup in the interconnections, there are other benefits to a digital mic. Most obvious are the cost savings from eliminating mic preamps and A/D converters in the console. Depending on the specific console architecture, this could represent a significant savings.

Another useful feature is the ability to include some simple DSP functions in the microphone itself. Certainly, the standard features such as gain, low cut and pattern selection could be implemented. The processing can also include a signature response curve designed for a particular broadcast station or talent. It would also

WHAT REALLY MATTERS IS THE SOUND

BurnIT
CDR830 COMPACT DISC RECORDER



Sonically, the 830 excels with its 24-bit AD/DA converters.

The 24-bit Delta-Sigma D/A converter has a beautiful, warm, balanced sound, clear in the highs with excellent stereo separation.

The CDR830 BurnIT is ideally suited for use in the recording studio or broadcast environment. The sound quality is superb, and the unit has the usual HHB reliability.

Candace Horgan
Mix, April 2001

...one of the main reasons to get a stand-alone CD burner is sound quality, and here is where

BurnIT really excels. I have found all of HHB's CD recorders to have excellent audio quality ...

I just know what my ears tell me - that the BurnIT sounds great.

David Darlington
HomeRecording, June 2001

HHB Communications USA Inc · 1410 Centinela Avenue, Los Angeles, CA 90025-2501, USA
Tel: 310 319 1111 · Fax: 310 319 1311 · E-Mail: sales@hhbusa.com

HHB Communications Canada Ltd · 260 King Street East, Toronto, Ontario M5A 4L5, Canada
Tel: 416 867 9000 · Fax: 416 867 1080 · E-Mail: sales@hhbcanada.com

HHB Communications Ltd · 73-75 Scrubs Lane, London NW10 6QU
Tel: 020 8962 5000 · Fax: 020 8962 5050 · E-Mail: sales@hhb.co.uk

SEE US AT AES BOOTH #1200 www.hhbusa.com



be possible, with a dual-diaphragm capsule, to derive a polar pattern that is, say, omni at low frequencies but gradually changes to cardioid at high frequencies. I sure could use that one! Peak limiting or compression could be inserted there, and anyone who records live would be interested in a clip-proof channel. Other applications are possible outside of music recording. A noise-canceling mic can be derived with much more control than has previously been possible, for instance.

Stereo mics can include M-S processing. Ambisonic arrays (such as in the Soundfield mic) can be realized inexpensively and with greater accuracy. As with any new technology, we may not yet be aware of the "killer app," but the hooks are there to implement ideas we have not yet considered.

The AES 42-2001 standard (which Neumann participated in creating) offers other advantages as well. The signal sent downstream is in the familiar AES/EBU signal (aka AES3) format—a stereo signal containing status and user bits. These bits can be utilized to tell the receiver what mic is present. This tells the console what sort of control is available in that particular model of mic. From this data, the console knows what the mic's set-

tings are. The bits can also indicate if the mic is synched and ready. Because the data is stereo, a mono mic could send pre- and post-processed signal versions to separate inputs, or deliver each side of a dual-diaphragm capsule to independent tracks, allowing its pattern to be adjusted after recording.

The AES 42 standard provides for powering the mic and its circuitry with a common-mode DC voltage that is placed on the cable. Also included is a common-mode AC signal, which consists of data that can be used to control the mic from the console end and even provide a tally that indicates when the mic is live.

Contained in this upstream data is the signal that allows the mic to sync with the recording system. Rather than send the actual clock itself, which could be significantly degraded after passing through the cabling, an 8-bit data word is sent that describes the amount of error in the mic's clock. The microphone then interprets this to adjust its own clock accordingly. This allows for very low jitter—less than 1 picosecond in the audio range. Figure 4 shows one possible implementation of the standard.

Although the capacity of the upstream channel is limited, it is possible to use it when the mic is off-line to program spe-

cialized DSP functions in the mic. The specialized functions mentioned previously can be sent to the mic, as long as they are within the processing capability designed into that particular microphone model.

THINGS TO COME

Release of the D-01 mic is imminent. In addition to implementing the digital technology, its all-new capsule design represents the cutting edge in dual-diaphragm mics. Other digital models are sure to follow. Neumann is also providing an AES 42 interface (the DMI-2) and remote-control software (RCS), which will be necessary until compatible console inputs become available.

Clearly, the D-01 represents an important first step in advancing digital microphone technology, offering the promise of powerful, new tools that could change the way we record.

Neumann USA, 1 Enterprise Drive, Old Lyme, CT 06371; 860/434-5220; www.neumannusa.com. ■

John Monforte lives in the virtual world at www.personal.umich.edu/~monforte/, where you can find audio, semiconductor design, holography, vintage tractors and more.

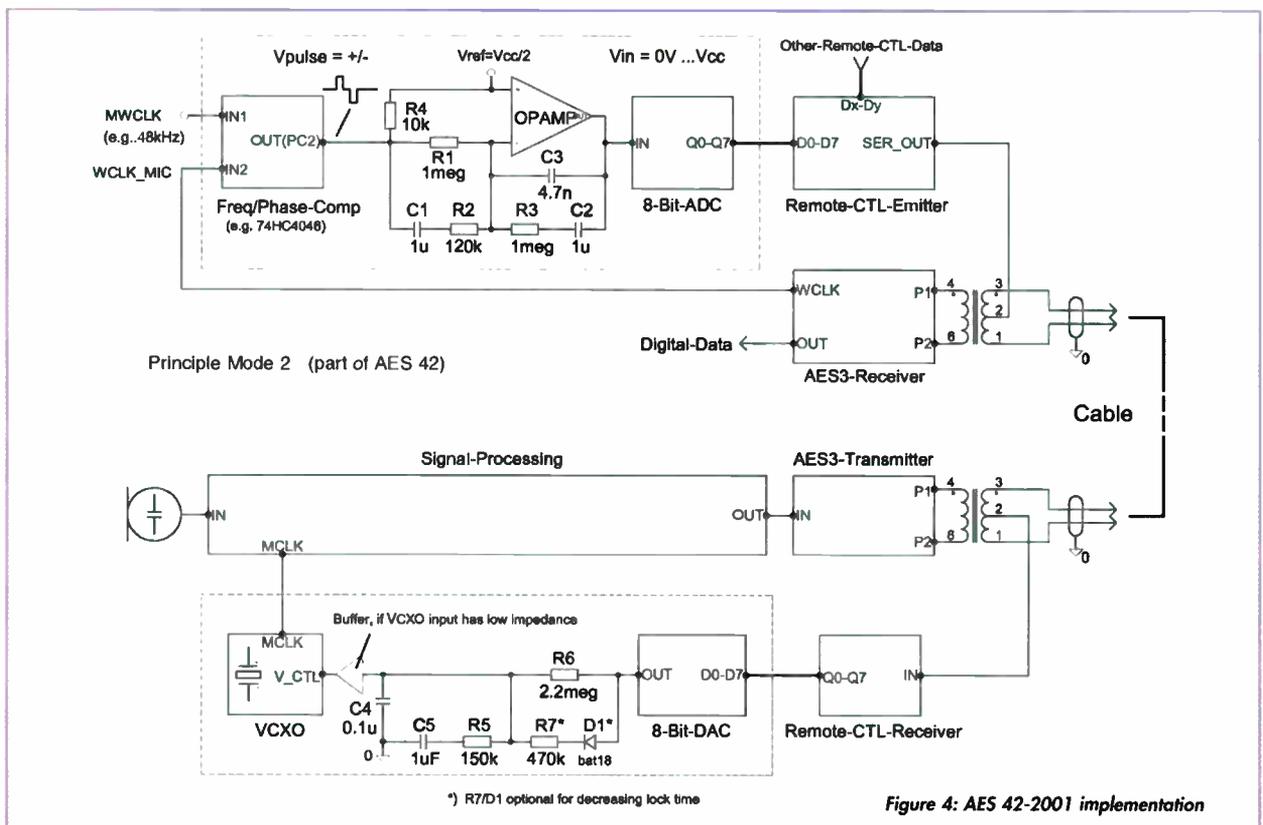


Figure 4: AES 42-2001 implementation

EXPERIENCE EXTASY.

THE BEST OF ALL WORLDS

EXTASY RECORDING

NORTH

104 Input SSL 9000J

Large Tracking Room with

4 Isolation Booths

Excellent selection of

current and classic

microphones and outboard

gear featuring over 100

Neve mic pre/EQs

Protools Mix Plus systems

Rare vintage synthesizers

Avid Editing Suite



EXTASY RECORDING

SOUTH

Custom 80 input Neve 8078

GML Automation System

Vintage and State of the Art
microphones and outboard gear

Protools Mix Plus System

onic Solutions Mastering Suite



EXTASY RECORDING STUDIOS

NORTH 5253 LANKERSHIM BLVD., NORTH HOLLYWOOD, CA 91601 PH 818-761-3882 FAX 818-761-0545

SOUTH 8000 BEVERLY BLVD., LOS ANGELES, CA 90048 PH 323-655-9200 FAX 323-655-0947

World Radio History

YAMAHA SREV1

MULTICHANNEL DIGITAL SAMPLING REVERB

The rapidly decreasing cost of DSP power over the past few years has allowed for the evolution of a new breed of reverb: the digital sampling reverb. The technology is called "convolution processing" and entails taking sonic "fingerprints" of acoustic spaces by measuring the impulse response of the environment, similar to "shooting" a room for acoustic measurement. Time-stretched pulses are recorded via carefully placed microphones, and the resultant impulse-response data is used to "convolve" the characteristics of the recorded environment onto any audio signal. This way, in theory, the reverberant tone of any previously measured space—from the Taj Mahal to a Gold Star echo chamber—can be made available for use in a recording studio environment. The SREV1, Yamaha's first offering in the brave new world of sampling reverbs, ships with a CD-ROM containing preset reverb programs of some well-known venues from around the world. These include the Concertgebouw in Amsterdam, King's College Chapel at Cambridge, Avatar Studios in New York, and Cello in L.A., among others. Yamaha has plans for a CD-ROM library to be released in the near future.

A 3U rackmount unit, the SREV1 can be used as a stereo reverb or as two fully independent 2-channel reverbs with separate inputs, outputs and program settings. The unit also has a 4-channel mode for surround applications. Thirty-two of Yamaha's new convolution chips provide the necessary horsepower for the unit, allowing for a maximum of 5.46 seconds of reverb time per channel in 2-channel mode, or 2.73 seconds in 4-channel or 2-channel x2 mode. Yamaha also makes an optional expansion board (DB-SREV1 DSP) that doubles the reverb times in all modes.

The SREV1 features 24-bit I/O, 32-bit internal processing with 48kHz internal wordclock. External wordclocks of 44.1 kHz and 48 kHz are



supported and can be sourced via the dedicated BNC wordclock input, AES inputs or card slot inputs. Unfortunately, the SREV1 is not 96kHz-capable, a definite strike against it for potential users now working in a 96kHz environment or those looking to enter that realm in the near future.

Up to four SREV1s can be linked serially and controlled using the optional RC-SREV1 remote controller, which features a 320x240-dot graphical display with fluorescent backlight, adjustable brightness and contrast, and four motorized faders for parameter editing. Two AES/EBU inputs and outputs are built in, and two mini YGDAI (Yamaha General Digital Audio Interface) slots offer various analog and digital I/O options (AES/EBU, ADAT, Tascam). Inputs can be assigned to channels individually, allowing various input/output configurations.

Measured impulse-response data are combined with variable parameters, such as reverb time and initial delay, to form reverb programs, which can be stored either in Quick memories or on the Internal Card or PC Card. Up to six programs can be stored in Quick memory in 2-channel or 4-channel mode; 12 in 2-channel x2 mode. Programs in Quick memory can be recalled instantly via the RC-SREV1 remote or by MIDI program changes. Projects, which contain all of the Quick memory programs and the

current program settings, provide a convenient way to manage programs and settings for a particular job. Projects can be stored on the Internal Card or PC Card.

Program editing is handled at two levels: Main parameters and Fine parameters. In the Main parameter mode, channel parameters, such as reverb time, initial delay, reverb balance and EQ, are grouped so that main parameters can be tweaked simultaneously. Fine parameter editing adds pre-convolution 4-band PEQ, post-convolution 4-band PEQ and impulse-response data loading. Reverb parameters can be edited individually or grouped. Reverb balance and reverb level parameters for each channel can be controlled individually via MIDI control data.

THE ARCHITECTURE

The architecture of the SREV1 is pretty straightforward and intuitive. The RC-SREV1 control surface displays the various program, parameter and utility pages, along with system status and signal level meters. In addition to showing parameter values numerically, reverb and EQ parameters are displayed graphically. The program title is displayed prominently, and each page is divided via tabs. In 2-channel x2 mode, two numbers and titles are displayed: one for program A and one for program B. Program numbers appear only when programs are recalled or stored in Quick memory

BY WALT SZALVA

GREAT AUDIO IN 4.03 MINUTES

Introducing the Ashly Protea Digital Crossover.

We sent our new Protea Digital Crossover to a respected audio expert, just to see what he thought. We asked him to please let us know how long it took him to get it not only up and running, but sounding good. Without any instructions, and never having seen one before, he had his system up and running in 4 minutes and two seconds—tuned to perfection. With an intuitive interface as well as a full cache of features such as parametric filters and delay on all four inputs and all eight outputs, full limiter functions, and everything you've come to expect in an Ashly crossover, we think that you will find it as powerful as it is easy. And for this much power, you'll find it easier on your wallet than anything else you may have been considering. See your Ashly dealer, visit our web site or give us a call.

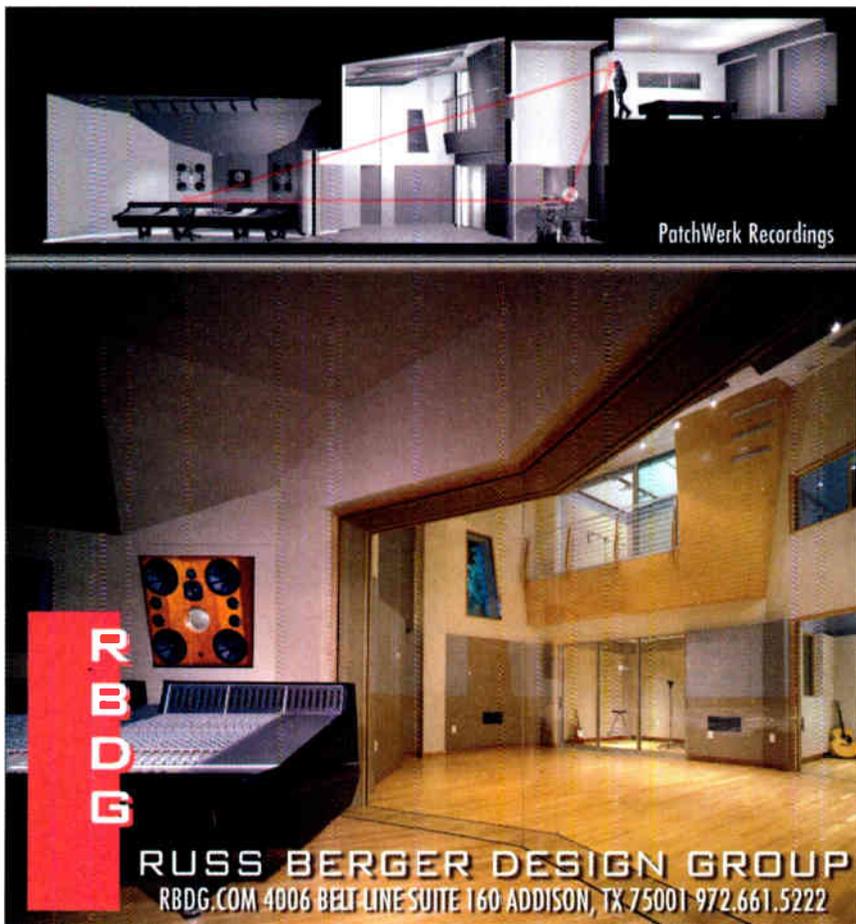


Protea System II 4.24C Digital Crossover/System Processor

Ashly Audio, Inc. 847 Holt Road, Webster, NY 14580-9103
Toll Free: 800-828-6308 • Tel: 716-872-8010 • Fax: 716-872-0739 • <http://www.ashly.com>

ASHLY

International Agents: E&E Exports, Inc., 17922 Sky Park Circle, Suite P, Irvine, CA 92614 • Tel: 949-440-0760 • Fax: 949-440-0766
In Canada: Gerraudio Distribution Inc. • Toll Free: 888-462-8346
In Mexico: Comercializadora Gonher S.A. de C.V. • Tel: 52 (17) 16-82-00
In Latin America: Tropical Music • Tel: 305-740-7454



Bass Management for Surround Sound

It's common knowledge that effective multi-channel monitoring requires accurate reproduction of low-frequency energy. Traditionally, achieving this goal has been difficult. But with the Model 65 from Studio Technologies, **bass** management is now available in a simple, yet powerful product.

The Model 65 provides a 5.1 input, along with five main and two subwoofer outputs. Using conservative filter design, the all-analog circuitry redirects bass energy from the main inputs to the desired subwoofer outputs. While you can use the Model 65 right out of the box, we've made certain that you can "tweak" it to meet the needs of your specific application. Want to try 10.2? No problem with the Model 65!

Of course, the Model 65 is directly compatible with Studio Technologies' StudioComm for Surround products, as well as being easily connected with other surround sources. For more information, call us or check out our website.

**STUDIO
TECHNOLOGIES
INC.**

5520 West Touhy Avenue, Skokie, IL 60077 U.S.A.
(847) 676-9177 Fax (847) 982-0747 www.studio-tech.com

and do not appear when they are loaded externally from a drive.

The various pages can be scrolled through with up/down and left/right cursor keys. Parameters can either be adjusted by the four faders (as assigned to their respective parameters) or with a shuttle wheel. Buttons marked +1/-1 located close to the shuttle wheel allow for incremental fine adjustments. Lately, I've been using a couple of pieces of gear with touch screens, so when I first powered the SREVI up, I began by touching the various menu tabs; at the top of my wish list would be a touch screen interface. However, I found the control surface to be very responsive and easy to use. The graphic representations of curves and slopes were clear, and parameter changes were visually updated very quickly. Within a few minutes of setting the unit up, I was effortlessly cruising through the menu hierarchy.

Pages are grouped as Program, Parameter Main, Parameter Fine and Utility pages, and tabs show the titles of the pages available in each group. The Utility page contains the controls for the reverb mode (2CH, 4CH, 2CHx2), I/O routing, input and output metering, and MIDI. Other parameters include the sampling rate at which the unit is operating, Bypass On/Off and Selected SREVI. (This displays which SREVI is being addressed in a multi-unit environment.) The obligatory Edit Status indicator shows whether or not the current reverb program has been edited since it was last recalled. The status of each of the four faders appears along the bottom of the display.

Input and output signal levels can be set on two different pages: either the Main 2 page (within the Main Parameter page) or the Meter I/O section of the Utility page. On the Main 2 page, levels are adjusted for all channels simultaneously as a group, while the Meter I/O page allows for separate control of each channel. Meters displayed on the RC-SREVI remote include the 14-segment meters on the remote display pages, and the 11-segment meters on the Meter I/O page. The SREVI has signal and clip meters as well, and a Peak Hold function works with all of the meters. In 2-channel mode, input and output signal levels can be metered simultaneously. In 4-channel or 2-channel x2 mode, however, either the input or output levels can be metered, but not simultaneously.

The Parameter Main section contains the controls for the Main 1 and Main 2 pa-

RAVE REVIEWS

The Røde NT1000 Launches With Rave Reviews



"...the lowest noise floor you can get."

"These microphones are standard-setters that the entire industry would do well to study."

- Bruce Richardson

Bruce Richardson - ProRec Recording Magazine
The complete review is available at www.prorec.com

"The U87i was woolier, the NT1000 clearer and slightly brighter. Over time, I became bothered by the self-noise of the U87i, because it veiled the low-level detail that was audible with the NT1000 and NTK."

"In every situation, both the NT1000 and NTK had lower self noise than either U87."

- Ty Ford

Ty Ford - Mix Magazine
The complete test report is available at www.mixonline.com
and in the June 2001 Issue of MIX magazine.

RØDE
MICROPHONES



USA - Ph: 310 328 7456 INTERNATIONAL - Ph: 61 2 8765 9333 Fax: 61 2 8765 9444
info@rodemicrophones.com www.rodemicrophones.com/NT1000

World Radio History

rameters. Basic parameters, including Reverb Time, Initial Delay, Pre EQ Low Gain and Pre EQ High Gain, can all be adjusted on the Main 1 pages. The Main 2 pages contain the controls for Reverb Balance, Input Level, Output Level and Pre EQ HPF frequency. Channels in the Main 1 and 2 pages are grouped, so adjusting any one parameter in one of the Main pages affects all of them simultaneously. Parameters can be adjusted for each channel individually on the Fine parameter pages.

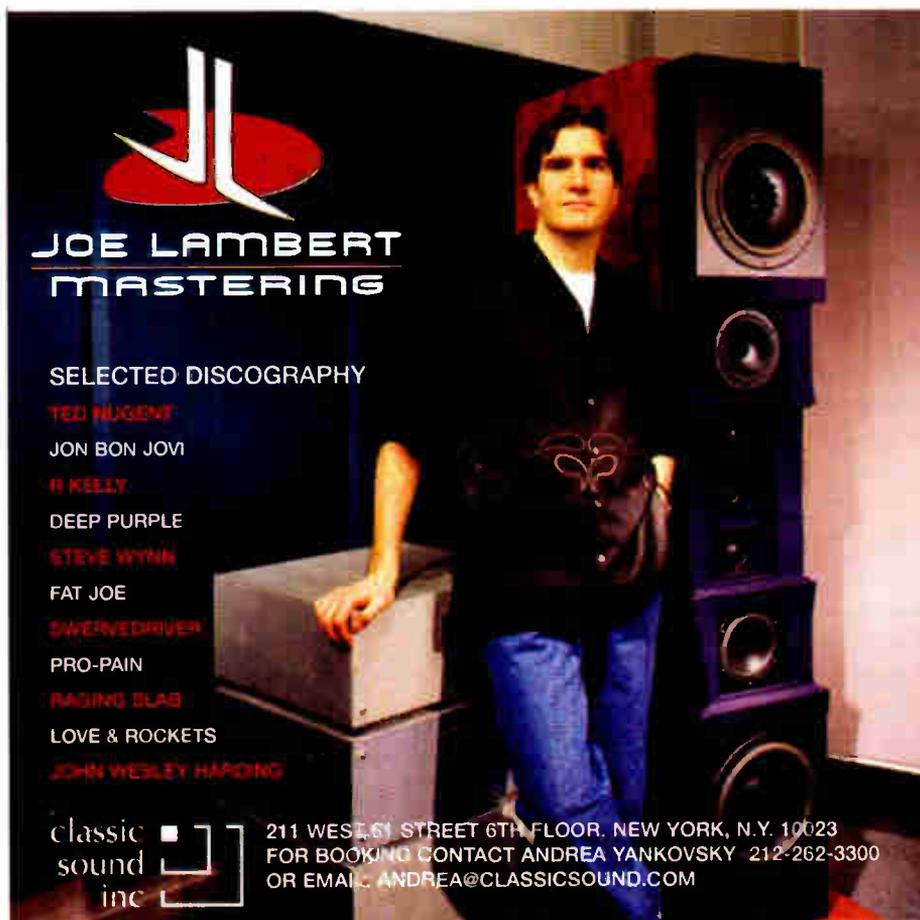
In the Fine parameter section, the Reverb Time, Initial Delay, Reverb Balance and Reverb Level parameters can be adjusted for each channel individually or grouped. Pre EQ parameters, which can be adjusted for each channel individually, consist of a variable frequency HPF and fully parametric 3-band EQ. Post EQ parameters can also be adjusted for each channel individually and consist of a fully parametric 3-band EQ. In 4-channel mode and 2-channel x2 mode, two Pre EQ and Post EQ pages are available, so adjusting parameters in a surround or dual reverb environment is fully enabled.

THE SOUND OF CONVOLUTION

On the macro level, the idea of being able to dial up various reverberant spaces is an appealing alternative in a world governed by the predictable (albeit very numerous) algorithmic options offered by some of the high-end reverbs that I've used over the past few years. You can't afford to book a session at Avatar? No problem, we can bring a little Avatar to a studio near you. Of course, it's not the same, but in terms of having various reverb "signatures" available as options, the SREV1 has a lot to offer. Even with the relatively small library that ships with the unit (as mentioned above, Yamaha is planning to release more "spaces" in the near future), there is a wide variety of choice, and the overall sound of the unit was downright amazing. The textures run the gamut from bright and plate-like to gooey and wooden. I used the unit in a number of mix situations and it was a pleasing change from my usual reverb options. I suspect that it's only a matter of time before sampling reverbs such as the SREV1 are a common element in nearly every studio.

Yamaha Corp. of America, 6600 Orange-thorpe Ave., Buena Park, CA 90620; 714-522-9011; fax 714-522-9522; www.yamaha.com.

Composer/producer Walt Salva owns Planet 3 Productions in San Francisco.



**JOE LAMBERT
MASTERING**

SELECTED DISCOGRAPHY

TED NUGENT
JON BON JOVI
H KELLY
DEEP PURPLE
STEVE WYNN
FAT JOE
SWERVEDRIVEN
PRO-PAIN
RAGING BLAB
LOVE & ROCKETS
JOHN WESLEY HARDING

classic sound inc

211 WEST 51 STREET 6TH FLOOR, NEW YORK, N.Y. 10023
FOR BOOKING CONTACT ANDREA YANKOVSKY 212-262-3300
OR EMAIL: ANDREA@CLASSICSOUND.COM

West L.A. Music was "there" when music history was being made supplying equipment to top artists like those pictured here. From onstage at Rock concert's in the 70's, to the digital multimedia 2000's, we've helped the best players... play their best.



We Will Beat Any Deal!

Phone, Fax or Email us today!

Tel: (310) 477-1945 • Fax: (310) 477-2476

Email: sales@westlamusic.com • Website: www.westlamusic.com

West L.A. Music



MUSICIAN'S FRIEND

THE MUSICIAN'S CHOICE FOR GREAT GEAR AT GREAT PRICES!



MACKIE.
CFX12 Mixer
634247Y List \$699.00

\$579⁹⁹

APPLY YOUR CHOICE TODAY! SAME AS CASH!

3 MONTHS
MINIMUM PURCHASE OF \$199

6 MONTHS
MINIMUM PURCHASE OF \$499



APHEX SYSTEMS 204 Exciter 181820Y List \$399.00 **\$299⁹⁹**



BurniT CDR 830 243002Y List \$699.00 **\$549⁹⁹**




YAMAHA
MS400
600953Y List \$849.00

\$679⁹⁹ each



TLM-103
271399Y List \$995.00

\$799⁹⁹

FREE CATALOG!
ONE-YEAR SUBSCRIPTION

CALL 800-776-5173
or visit us online at www.musiciansfriend.com

TAIYO YUDEN
16X Silver CDR with Jewel Case
950168Y List \$3.96

Five Easy Ways To Order!

- Call: 800-776-5173
- Click: www.musiciansfriend.com
- Write: P.O. Box 4520 Medford, OR 97501
- Fax: 541-776-1370
- Lease: 800-359-4790

Rapid Delivery!
• Most orders shipped same day!*

45-Day Double Guarantee!

- Money-Back Satisfaction Guarantee
- Best Price Guarantee



ONLY 69¢ each

OPEN 24 HOURS A DAY

WEEKLY WEB FREE GEAR GIVEAWAY!
WORTH UP TO **\$1000**

musiciansfriend.com

Limited to stock on hand; prices subject to change; standard catalog shipping rates apply.
*On orders received by 5PM ET Mon.-Fri.
†Additional delivery charges for 2-day service.

To get your **FREE** Catalog subscription, fill out this handy coupon and mail to: Musician's Friend, Dept. 170, P.O. Box 4520, Medford, OR 97501

Name _____

Address _____

City _____ State _____ Zip Code _____

E-mail address _____

Area(s) of interest:

Studio (recording) Guitar Bass Keyboard Drums

Stage (PA, lights, etc.) DJ

FREE CATALOG CODE: 170-0110
SPECIAL ORDER CODE: MIMA1002

ADK A-51TC

LARGE-DIAPHRAGM TUBE CONDENSER MICROPHONE

ADK made waves a few years ago with the debut of its A-51 (Area 51) Series of affordable—around \$400—large-diaphragm FET condenser mics. Following on that success, ADK introduced a series of tube condensers, including the model A-51TC reviewed here, and the flagship Area 51TT.

The A-51TC sports a, um, “classic” appearance and is solid and well-built. Its aluminum casing measures 6.5 inches long and 2.1 inches in diameter, and the mic weighs 18.5 ounces. Inside, there’s a 1-inch diameter capsule with a cardioid polar pattern—the more expensive 51TT has dual 1-inch diaphragms and nine polar patterns, and a 6072 vacuum tube. Sensitivity is given as 14 mV/Pa \approx -37 dBV (0 dBV), with a frequency response of 20 to 20k Hz and a max SPL of 125 dB (1% THD @ 1 kHz). Retailing at \$999, the mic includes a power supply, shockmount and hard case.

I used the A-51TC in my project studio over a two-month period. I tested it using a variety of mic pre-amps, both tube and solid-state, but mostly I used the onboard mic pre’s in my Yamaha 03D digital mixer. The 03D’s mic pre’s are clean and were a good match for the A-51TC’s tube-driven character. By extrapolation, it is reasonable to assume that the mic would perform well in combination with most digital systems.

My first experience using the A-51TC was a poetry reading session. The previous night we had used another large-diaphragm tube mic—that costs twice as much as the ADK—with mixed results. The A-51TC had considerably more richness and character, handled the sibilants and plosives much more smoothly, and was easier for the (male) talent to “work” closely without bumping up against the proximity effect. It also sucked in the faint, unwanted background sounds with greater definition and clarity, but that wasn’t the microphone’s fault.

I also used the A-51TC to record acoustic guitar and Dobro. In both cases, I placed the mic slightly off-axis, about 18 inches away from the playing area of the instrument, and got a full sound, with the right touch of crispness in the top end. The lower frequencies on the Dobro were rendered particularly effectively, in balance with the highs, which is not the case with many mics, even large-diaphragm condensers.

The A-51TC handles a variety of percussion instruments. It captured both the low boom and the high “tok” sounds of a long-throated doumbek—while at the same time picking up the most subtle hand sounds—all in perfect balance. Placed just inside the bottom of a small conga, the ADK delivered a tight, punchy sound. When it was used to record a set of car keys on a ring (used as a percussion instrument), there was no excessive



kHz—but it was a pleasant fuzziness.

Placed directly in front of a blaring guitar amp, the A-51TC easily held its own, enriching the sound with a throaty warmth, making the relatively small amp sound huge, particularly on heavily distorted settings. Finally, the A-51TC did an excellent job on a male blues vocalist, capturing the richness and gritty complexity in great detail. The vocalist *loved* the sound of the mic and asked if it could be used for a live performance.

Overall, the ADK A-51TC has a large and likable sound, and the coloration it does impart was a good match for a variety of sources, especially those with complex harmonics and overtones. If you are searching for a large-diaphragm tube condenser in the \$1,000 range, then you should give the A-51TC an attentive listen.

ADK Microphones, 10816 N.W. 69th Ave., Ridgefield, WA 98642; 360/566-9400; fax 360/566-1282; www.adkmic.com. ■

The associate editor of Onstage magazine, Barry Cleveland also plays guitar in the improvisational quintet Cloud Chamber (www.innerviews.org/inner/cloud.html) and is the author of Creative Music Production: Joe Meek’s Bold Techniques (www.artistpro.com).

ADK A-51TC Spec Sheet

Type: Condenser Pressure Gradient
 Vacuum Tube: 6072
 Sensitivity: 14 mV/Pa \approx -37 dBV
 (0 dBV=1v/Pa)
 Bandwidth: 20 to 20k Hz
 Impedance: <250 ohms
 Max SPL: 125 dB (1% THD @ 1 kHz)
 EIN (DIN 45405 CCIR 468-2): 28 dB
 EIN (IEC 268-4, A-weighted): 18 dBA
 S/N ratio @ 1 Pa: 76 dB
 Connector: 7-pin XLR
 Body Size: 6.5x2.1 inches
 Body Weight: 18.5 ounces

scratchiness. In short, the mic basically reproduced the full range of sounds present, without overly emphasizing any particular frequency. That’s not to say that there was no personality imparted to the sound, because in all cases there was a tiny bit of (tube) fuzziness at around 8

BY BARRY CLEVELAND

Every great connection starts with a NEUTRIK® connector

and every NEUTRIK connector starts with an innovative design

new

Easycon®

- Gold IDC or SOLDER contacts standard. No more tarnished connections
- 3 parts only...for the fastest field or production cable assembly on the market
- A cable strain relief that grips like a vise—without damaging the attached wire.

new

2-pole Speakon®

- 2 poles only—reduced cost and assembly time
- Mates with 2 or 4 pole Speakon receptacles
- Integrated strain relief for all cable sizes 6–10mm
- Combination pozidrive and slot screw terminals

new

75ohm BNC

- Built to be a "true" 75ohm connection for DTS/HD. A totally new design that includes a rear twist boot for easy turning onto the mating jack.
- Bulkhead jacks are available in a "D" series housing or as a single feed-through in isolated or grounded versions.
- Parts are precisely machined, not diecast for rugged reliability.
- VSWR/Return loss: $\leq 1.10 / >26$ dB up to 3GHz.

SEE US AT AES BOOTH #836

MACKIE MDR24/96

DISK-BASED DIGITAL MULTITRACK

Disk-based digital multitracks keep becoming more affordable. No strangers to building low-cost/high-performance gear, Mackie now breaks the oxide ceiling with its MDR24/96, a 24-bit, 24-track disk recorder at a rock-bottom street price of \$1,999.

The new MDR24/96 is essentially similar to Mackie's acclaimed \$4,999 HDR24/96—without the sophisticated editing features and keyboard/mouse/screen-based GUI. Although the MDR24/96 lacks large-screen editing/control, it includes basic, nondestructive cut/copy/paste editing functions with up to 999 levels of undo, which is certainly enough for most studio tasks, including comps, vocal or solo takes, and basic arranging. According to Mackie's Scott Garside, the new recorder "provides a perfect recorder alternative for users who don't require the advanced graphical editing capabilities of the HDR24/96, but would still like a 'plug-and-play' machine—essentially, people who are more interested in making music than reading manuals."

Like its well-known sibling, the MDR24/96 is a stand-alone (no computer required) 24-bit/24-track recorder housed in a four-rackspace chassis. From the front panel, the two machines look similar—with good reason. By having the two products share common parts and technologies, Mackie was able to keep the MDR24/96's quality up and the price down. Fully compatible with Mackie's HDR24/96, the MDR24/96 includes an internal 20GB Ultra-DMA hard disk, providing more than 100 minutes of 24-track recording at 48 kHz, and a second bay accepts interchangeable media, such as Mackie's M90 22GB removable hard drives or 2.2GB Mackie PROJECT cartridges.

With a few exceptions, the



MDR24/96 looks and operates a lot like most MDMs, so most users can begin recording minutes after unpacking the unit. Familiar-looking, tape recorder-style keys (RW/FF/Stop/Play/Record) handle basic transport functions, along with a bank of 24 (selectable) peak/VU LED meters with track-arming lights and buttons beneath each track.

A large, bright, numerical LED shows locations in hours/minutes/seconds/frames or bars/beats/ticks, and includes status LEDs indicating clock and bit status. A floppy drive allows users to load software updates, tempo maps or re-install the system software, should the user later install a larger internal hard disk. (A 20GB drive is included as standard equipment.)

The MDR24/96 uses the same card format as the HDR24/96 and Mackie's D8B digital console, and the new unit ships with its three card slots filled with 8-channel, 24-bit, 48kHz analog I/O cards. Each analog card has eight analog inputs and eight analog outputs (all are +4dB line-level), terminated as two 25-pin D-sub connectors that are pin-compatible with the Tascam DA-88 connectors, so all the user needs to do is connect some DB25-to-XLR (or TRS) snakes and start tracking.

Alternatively, users can mix and match from a variety of optional cards, such as the \$450 DIO-8 (eight

channels of Tascam TDIF and ADAT Lightpipe digital I/O); the \$399 PDI-8 (eight channels of AES/EBU digital I/O on a single DB25 connector); or the bargain-priced OPT-8 (\$99), with eight channels of I/O in ADAT Lightpipe format. The recorder also supports 96kHz recording (which halves the number of tracks to 12) by using three of the PDI-8 AES cards in Double-Wide (double-wide) mode, fed from external third-party 96kHz A/D converters.

Standard sync and clocking capabilities include MID IMMC/MTC, SMPTE, video black burst and wordclock. A standard 100BaseT Ethernet port for connection to PCs and networks is included. The recorder also stores audio in standard .WAV format, making DAW transfers to/from the MDR24/96 a snap. The MDR24/96 is also compatible with Mackie's \$1,499 Remote 48 Pro remote control, a comprehensive autolocator/remote/synchronizer that can operate two Mackie hard disk recorders from a single control surface, allowing an MDR24/96 and a HDR24/96 to function seamlessly as a full 48-track digital recording system.

The MDR24/96, with a street price of \$1,999, is slated to begin shipping by the time you read this.

Mackie Designs, 16220 Wood-Red Road N.E., Woodinville, WA 98072; 425/487-4333, fax 425/487-4337; www.mackie.com. ■

BY GEORGE PETERSEN

12 ms



...hear other USB interfaces later.

Hear the EMI 2|6 now...

Latency

A live feel and superb audio quality are vital, especially when playing software instruments. You want to hear the music as you play it. Now, with the EMI 2|6, you can. With other USB audio interfaces, it's often a case of too little, too late, because latency between the computer and the interface results in a disturbing signal delay. Not so with the EMI 2|6. Thanks to a unique driver architecture, it's the USB audio

interface with the lowest latency currently available. And the only one with 6, 24 Bit, analog outputs. Zero Latency Monitoring and S/PDIF digital connectors round out a professional mobile audio interface that's ideal for both live and recording situations. Regardless of whether you use it with a laptop on stage, in the studio or for DVD 5.1 Surround playback, the EMI 2|6 is definitely the right choice.



STUDIO NETWORK SOLUTIONS

A/V NET DISK STORAGE SYSTEM

Studio Network Solutions is a system design/facilitator company specializing in networking systems for the audio and video production industries. The main focus of SNS is on Fibre Channel technology, which offers data transfers over wire or fiber-optic cables at rates in the gigabit/second range—fast enough to handle even the most demanding production chores.

SNS made a major splash at this year's NAB convention, where it unveiled A/V SAN PRO, a Storage Area Networking (SAN) solution for the audio, broadcast and video post communities. A/V SAN PRO offers both scalability and large storage capacity, but what really turned heads was its seamless integration with Digidesign Pro Tools MixPlus systems and simultaneous access by multiple users, followed by the development of rock-solid device drivers and software interfaces supporting Mac and NT workstations and even Tascam machines. Partnering with leading-edge companies—such as AITO Technology, JMI, JMR/Fortra, Vixel and Seagate—SNS can create systems from the best available suppliers, without having to reinvent the wheel or depend too much on esoteric, proprietary components. For example, in the storage department, SNS exclusively uses Seagate drives. "They're the best drives available and the only drives that have passed our interrupt tests," says SNS chief systems designer Gary Holladay.

At AES, SNS will debut its next generation of cross-platform (PC and/or Mac), multi-user networking products. Partnering with Lucent and Vixel, SNS has developed A/V NET, a wide-area Fibre

Channel system that allows users to network within a 250-mile radius, securely mounting and utilizing hard disks in remote locations in real time with performance superior to that of SCSI. The physical interface is essentially an A/V SAN PRO on a Lucent backbone. "This is a dedicated point-to-point private network—it's *not* the Internet and it's as secure as a bank transaction," Holladay explains.

In addition to file-sharing, the SNS network provides numerous other solutions, such as off-site backup, storage, maintenance and archiving services. Performance is also an issue. Aside from the obvious connectivity benefits, A/V NET delivers the performance required to take full advantage of applications like Pro Tools and Avid, without having to deal with SCSI's inherent throughput issues.

SNS will demonstrate A/V NET on the AES show floor by interconnecting DAWs from different manufacturers, connecting various locations around the exhibit hall to a central SAN at the SNS booth via of fiber-optic cable. "People have been needing something like A/V NET for a while," Holladay adds. "It's not like this is brand-new technology—the difference today is that we now have the bandwidth and the speed of Fibre Channel. It's certainly fast enough to work on files in real time. You can mount the hard drive from up to 250 miles away, and you can record 64 tracks of 24-bit/48kHz on one drive in a Pro Tools system. With Nuendo, we've been getting even better results—with up to 120 tracks of playback from one drive. Also, A/V NET can be a RAID solu-

tion if redundancy is necessary, but for most of the audio and video applications we deal with, the technology and throughput of our networks are faster than workstation users need.

"The 250-mile figure is a physical limitation," Holladay admits. "Fibre Channel is theoretically capable of carrying data to longer distances, but I believe the 250-mile limitation is a function of the Lucent hardware. However, we are constantly looking at ways of extending this, and eventually we'll hit the 800- and 2,000-mile marks."

SNS has designed several products that cater to the ever-changing audio industry. The first is a single-rackspace Fibre Channel storage enclosure offering the same performance as A/V SAN PRO, but at a lower price and intended for users who need better performance than SCSI but don't necessarily need a network. Priced a few hundred dollars more than an SCSI system, the newly released A/V SAN can record and playback 64 tracks of 24-bit/48kHz on one drive. Exact pricing for the 4-drive-capable unit—shortloaded with two 72GB drives (144 GB total), host bus adapter, cables and two empty bays for future expansion—would list around \$5,999.

Holladay is optimistic about the new unit. "Once people get this single-rackspace product, it will spell the end of SCSI-based solutions. And with FireWire backup systems—which everybody is moving toward—there won't be a need for SCSI at all."

Studio Network Solutions, 1919 Innerbelt Business Center Dr., St. Louis, MO 63114; 314/423-4787; fax 314/423-4867; www.studionetworksolutions.com. ■

BY GEORGE PETERSEN

EVERYTHING FOR THE RECORDING PROFESSIONAL

NEW GEAR



We stock thousands of pro-audio products from hundreds of manufacturers. From a single microphone to a turnkey studio system, you'll find it all at www.proaudiodesign.com. Or if you need advice, our staff of experienced audio professionals are ready to take your call.

USED & VINTAGE



We always carry a large inventory of desirable used and vintage gear and are experts at locating hard-to-find equipment. And because we refurbish everything in our own workshops, all items are sold with a warranty.

SYSTEMS INTEGRATION



We have successfully designed and installed every studio, large and small, providing a full service including room design, equipment supply, custom monitoring and wiring. Call Professional Audio Design to discuss your project.

PRE-OWNED CONSOLES



With extensive factory authorization from SSL, our workshops are world renowned for preparing pre-owned large format consoles for resale. Sales include optional installation by our own technicians. Call today for a current list of SSL, Neve, Trident, etc.

Find it all at Professional Audio Design
Visit our new website: www.proaudiodesign.com

Professional Audio Design, 357 Liberty Street, Rockland, MA 02376
Phone: (781) 982 2600 Fax: (781) 982 2610 Email: info@proaudiodesign.com

**Professional
Audio
Design
Inc.**



SEE US AT AES BOOTH #1036

dB TECHNOLOGIES 4496

MODULAR DIGITAL CONVERSION SYSTEM

Anyone who has spent any time dealing with audio in the digital domain has learned that below the "perfectly" calm surface lies a breeding ground for trouble that, upon occasion, makes one wish for the return of simpler analog days. One thing that we have all learned is that it's all about money. We don't expect the 16 preamps in a \$3k console to sound as good as preamps that cost \$1k each. Likewise, we don't expect a set of D/A converters in a \$1k studio-in-a-box to sound as good as a stand-alone converter that costs \$5k. The only question, really, is, where do we throw the money?

Throwing your cash at D/A converters is a good idea if you need a pristine monitoring environment. Maybe you've just opened a 5.1 room and you really want to impress your clients. While surround mixing, you want to hear every low-level detail to make sure it's where you want it to be. However, until the consumer base ponies up for equally spiffy converters, the audio will probably never sound better than it does in your studio. More to the point, great D/A converters also only make sense if you need or want to take a trip to the analog world—to that great-sounding analog mixing desk to any "old faithful" analog processors you may still like, or to a high-quality analog archive.

If those aren't your concerns, then toss the money at the A/D converters with higher sample and bit rates first. You'll hear the difference immediately, and the truth is painfully undeniable: It's much better to know that your work could sound better through better A/Ds than to know you're losing something right off the bat with "average" A/D conversion.

It is with that awareness that I approached the dB Technologies Conversion System, a system comprising individual modules that can be loaded a la carte into one or more single-rackspace power chassis. These

are not vaporous software plug-ins; these are flesh-and-blood, rack-mounted hardware modules that accomplish a variety of analog and digital chores. Multiple chassis can be chained to provide a synchronized multi-channel system.

The single-rackspace 4496 power chassis (\$895) provides power, fan and I/O connectors. (The fan can be disconnected in most cases.) Into that five-slot frame, you can load any of six modules: M•SYNC-1 (\$369), sync module; M•AD-824 (\$1,495), a 2-channel A/D converter; M•DA-824 (\$1,345), a 2-channel D/A converter; M•DD 1-2 (\$495), a single-to-dual AES translator; M•DD 2-1 (\$495), a dual-to-single AES translator; and M•BY2 (\$695), an up-sample/down-sample converter.

The M•SYNC-1 module, with a pair of rear-mounted I/O BNC connectors and 2x frequency switch, provides internal, AES or wordclock sync options. The front panel of the M•SYNC module offers switching for 44.1, 48, 88.2 and 96 kHz. There's also a Wide/Narrow toggle switch; Wide for varispeed operations, Narrow for locking to signals within ± 150 ppm. Narrow lock results in reduced jitter when operating with a single sample rate. A M•SYNC module must be used if a M•AD-824 converter is in the rack, or to sync a series of racks. When reading an external source through its rear-mounted BNC connector, the M•SYNC-1 can read varispeed sample rates between 40 to 54 kHz or 80 to 100 kHz.

The M•AD-824 2-channel A/D module was the most interesting to me. Analog connections, via XLR, can be balanced or unbalanced, and internal jumpers allow modification for pin 2 or pin 3 high connections. The M•AD-824 operates at 24, 20 or 16-bit modes. The LED meters are very pre-



cise at the top. A separate LED represents each dB from -9 to 0 dB. The reference level is also adjustable from -10, -12, -14, -16, -18 or -20 dBFs. Front panel 20-turn pots are used to align the audio with the reference levels. For systems with more than two A/D modules, one must be set as master and the others as slaves via internal jumpers. Masters are easy to identify during startup because their -9dB LEDs flash, while the slaves do not.

The A/D module also features both analog hardware-based soft saturation and non-overloadable digital software saturation, and a choice among dither or two flavors of Acoustic Bit psycho-acoustic enhancement. The analog and digital saturation circuits, with their adjustable thresholds, provide a wide variety of the same sort of density and squeeze I'd normally associate with analog tape compression. So if you've been clinging to analog because you and your clients really enjoy smacking analog tape, you now have a worthy digital alternative.

The analog saturation circuit has an internal jumper that moves the threshold from -3 to -6 dBFs. Lower the threshold and the saturation circuitry has more effect on the audio. The digital soft saturation can be set to provide +6 dB of loudness, each of which has slightly different transfer curves. Whereas a typical compressor reduces gain changes in attack and release envelopes, the digital soft saturation algorithm works on each sample. All samples below threshold are

BY TY FORD

NAB 2001
Las Vegas

The making of a “real-world” cinema

This year at the National Association of Broadcasters (NAB) Conference and Trade Show, Waskul Entertainment, a leading content creation company based in Southern California, created a high-definition electronic cinema that received rave reviews. The theater was packed with standing room only during all performances. When it came to choosing a storage solution for the cinema, Waskul Entertainment relied on the StorCase InfoStation™, a rugged and versatile 9-bay back-plane RAID-ready enclosure.

“We wanted to show the NAB audience a truly affordable, high-definition production solution that they could depend on in the real-world. With a performance scheduled every hour, reliable storage was a must. Throughout the NAB show, the InfoStation performed flawlessly and provided the sustained data rates that we needed to play back our high-definition content. It’s a great product that can be easily integrated into today’s demanding production environments”, said Steve Waskul, President of Waskul Entertainment.

“When you’re as serious as we are about creating exciting content that will entertain and inspire an audience, you want the best tools available for the job – tools that give you an edge in expressing yourself creatively while making the most of the finite amount of time available. You also want cost-effective solutions that provide an excellent return on your investment. We found the StorCase InfoStation to meet all of these criteria,” added Waskul.



For more information regarding the InfoStation, log onto the StorCase Web site at www.storcase.com and take the virtual InfoStation tour, or contact StorCase at (800) 435-0068.

 **StorCase**[®]
TECHNOLOGY
A Kingston Technology Company

Providing rugged, upgradable storage products worldwide.

“We wanted to show the NAB audience a truly affordable high-definition production solution that they could depend on in the “real-world.”

— Steve Waskul
Waskul Entertainment



FIELD TEST

amplified by +6 dB.

The M•DA-824 D/A converter has XLR outputs with balancing jumpers similar to those on the A/D module. A toggle switch on the front panel allows pin 2 or pin 3 operation. LEDs consist of a Lock light and indicators for 44.1, 48, 88.2 and 96kHz operation. A three-way Wide, Narrow and CrystalLock™ switch can be set Wide for varispeed operation—which comes in very handy when working on any film or video projects with pull-up or pull-down issues—and Narrow for reduced jitter.

CrystalLock™ activates a temporary buffer and special DSP to further reduce jitter on 2-channel sources. Got some old DATs that are getting funky? Try CrystalLock™. As CrystalLock™ looks at an incoming AES stream, its DSP measures the sample rate. The internal buffer captures the signal for about six samples. The DSP circuit changes the rate of the internal crystal to the exact frequency of the AES stream. Then the stream is relocked to the crystal.

Output gain for each channel is front panel-adjustable from 0 to +24 dBu for balanced, and -6 to +18 dBu for unbalanced operation. A maximum of +27dBu balanced (for those situations where levels are hot and the next stage can handle it, like some Dolby encoders) can be achieved by removing two resistors from the board.

OTHER MODULES

In addition to the A/D and D/A converters and Sync module, dB Technologies has bidirectional solutions for those pesky two-wire AES/EBU, 88.2/96kHz bit-split situations where you want the higher sample rate, but your system tops out at 44.1 or 48 kHz. What the M•DD I-2 splits in two, the M•DD 2-1 recombines. The M•BY2 synchronous upsample/downsample converter does 2:1 or 1:2 conversion for those 44.1 to 88.2 and 48 to 96kHz chores with a filter to get rid of frequencies above the Nyquist limits. It also comes in handy for people mixing at 96 kHz who need AC-3 files at 48 kHz and don't want to make a second pass. The module has one input and two outputs, so it can also act as a digital distribution amp.

THE SOUND

At the head end, I used a Schoeps MK41 hypercardioid mic into an Aphex 1100 preamp with both analog and 48kHz, 24-bit AES outputs (and recently upgraded the op amp chips in front of the 1100 A/D converter). I then ran line out to the dB Technologies M•AD-824 analog input, and digitally out through a Graham Patten AES-

DATS impedance and level converter to the S/PDIF (IEC) input of a Digidesign Digi 001 operating at 24-bit, 48kHz. A call to the local Digidesign rep confirmed that the S/PDIF TOSLINK ports and the rest of the Digi 001 could handle the 24 bits. This gave me the opportunity to compare the dB Technologies A/D converters with the Aphex 1100 and Digi 001 converters.

I used a Martin D28S acoustic guitar and recorded six separate tracks using the Aphex 1100 preamp. From the analog outs of the preamp, I first routed through the dB A/D with no effects, then with its Analog Saturation, then with Digital Saturation, then through the Aphex 1100 24-bit, 48kHz converter, with and without the Aphex MicLim feature. Finally, I plugged the Schoeps right into the Digi 001 preamp to test the Digi preamp and converters.

I monitored playback directly from the Digi 001 analog output, which, of course, meant its D/A converters. The Martin sounded very nice through the straight dB Technologies A/D converters. With Analog Saturation on, the top end got slightly softer—silky. With Digital Saturation, the sig-

Spec Sheet: dB 4496 System

4496 PSU/Rack

Capacity: up to 4 modules (2/4/6/8 channels)
Input voltage: 90 to 264 VAC

M•AD-824 Stereo ADC

Noise: -118 dBFS ±1 dB (A-weighted)
Distortion: 0.00125% FS typical (1 kHz @ -1 dBFS)
Sample rate: 44.1/48/88.2/96 kHz
Varispeed range: 38 to 51kHz and 76 to 98 kHz
Channel separation: -100 dBFS (@ 1 kHz)
Flatness (±0.05dB) response: 10 to 20k Hz
Phase linearity: 2° (10 to 20k Hz)
Digital output: 16/20/24 bits, 110-ohm AES/EBU
Analog inputs: Balanced/unbalanced 12 to 24 dBu FS
Gain adjust range: +12 dB

M•DA-824 Stereo D/A

Noise: -110 dBFS (20 to 22k Hz unweighted)
Distortion: 0.002% FS (1 kHz @ -1 dBFS)
Sample rate: 44.1/48/88.2/96 kHz
Varispeed range: 32 to 100k Hz wide lock mode
Channel separation: -100 dBFS (@ 1 kHz)
Flatness (±0.05dB) response: 10 to 20k Hz
Phase linearity: 2° (10 to 22k Hz)
Digital input: 16/20/24 bits, 110-ohm AES/EBU
Analog outputs: Balanced (27 dBu max); unbalanced (21 dBu max)
Gain adjust range: 24 dB

M•Sync-1 Clocking Module

Internal crystal: 44.1/48/88.2/96 kHz
Varispeed range: 37 to 52 kHz and 74 to 100 kHz
External sync: Wordclock or AES

Console goes...here

Littlite

Hamburg, MI 48139 USA
810-231-9373
Fax 810-231-1631
litesls@caeinc.com
www.littlite.com
1-888-548-8548

Made in the USA Lifetime Warranty

SMALL WONDER



wide dispersion
FRONT OF HOUSE
WEDGE MONITOR



Easy: Plug & play system includes optional LS400 sub, PS8TDC controller or PS8AMP

Light: Neodymium drivers mean less weight (only 7.5 kg, 16.5 lbs) and low magnetic leakage

Powerful: 125dB Peak SPL @ 1m, 69Hz-19kHz +/- 3dB (43Hz-19kHz with LS400 sub)

Flexible: Rotatable horn and unique cabinet make the PS8 ideal for PA stage monitor and fill-in

Affordable: Two-way passive design and advanced electronics gives reliable bi-amped performance from one amp channel

It used to be that bigger was better. But these days many of the most advanced products we use are smaller and more efficient than ever before, thanks to modern technology.

The PS8 loudspeaker system skillfully combines new proprietary Neodymium drivers with the practical engineering and features of Nexo's renowned PS Series, creating a versatile performer with astonishing power and amazing clarity. At levels that even much larger speakers can't match.

Small wonder that the PS8, in less than a year since its release, has earned a reputation worldwide as a truly indispensable solution for PA, A/V and installed sound projects large and small. But the proof is in the hearing with the PS8. And once you hear it, you'll know.

The PS8 is one Small Wonder.

To experience the surprising PS8 for yourself, contact your nearest Nexo dealer.

NEXO

INNOVATE

NEXO S.A.
154 allée des Erables
ZAC de PARIS NORD II B.P. 50107
F 95950 Roissy CDG CEDEX
France

Tel: +33 1 48 63 19 14
Fax: +33 1 48 63 24 61
E-mail: info@nexo.fr

NEXO Limited
9 Lyon Road
Walton on Thames
Surrey
KT12 3PU
United Kingdom

Tel: +44 1932 886 007
Fax: +44 1932 886 008
E-mail: info@nexo.uk.com

Nexo USA, Inc.
2165 Francisco Blvd
Suite E2
San Rafael, CA 94901

Phone: 1-415 482 6600
Fax: 1-415 482 6110
E-mail: info@nexo.usa

NEXO Far East Pte Ltd
101 Telokong, 23 Geylang
#06-04 Prosper House
Singapore 388399

Tel: +65 742 5660
Fax: +65 742 8050
E-mail: info@nexo.sg.com

w w w . n e x o - s a . c o m

World Radio History

RECORDING ENGINEERS AVAILABLE

Located in Dix Hills, Long Island, NY, Five Towns College trains students in world-class facilities both on and off-campus. Designed by the multi-TEC award winning Walter-Stork Design Group, the College's studio complex houses several professional audio studios, featuring the SSL 4048G console with a G computer. Students also work with various state-of-the-art digital technologies, including ProTools and Media 100 Workstations.

Five Towns College graduates know all phases of audio production, and receive advanced training in MIDI, mixing, and post-production. Most graduates have interned at a major New York City studio as part of their professional preparation.

Five Towns College offers associate, bachelor and master degrees in music, theatre, business and liberal arts. Graduates from the Music Department are also professional musicians with skills in arranging, composition, and conducting; while Business Department graduates have strong training in management, marketing, finance and accounting, as well as audio and/or film/video.

Employers seeking to hire professionally trained and pre-screened graduates, should contact:

**FIVE
TOWNS
COLLEGE**



*When you're serious about
music and the performing arts!*

CAREER PLACEMENT OFFICE

305 North Service Rd.
Dix Hills, NY 11746-5871
or call
(631) 424-7000 X 163

www.fivetowns.edu

FIELD TEST

nal got at least 5 dB louder without overdriving, but the character of the sound—I'd call it density—increased. The audio was less silky, thicker, with a slight edge on top. Got clients who always want it loud? Go right for this setting.

The Aphex 1100 A/D was warmer, with slightly less top end as the straight dB. The Aphex with MicLim engaged sounded more like the straight dB, but was louder because I could kick the input sensitivity up another 3 dB and let the Aphex MicLim circuit prevent the digital overs. The Digi 001 preamp and A/D converter were my least favorite. The sound was noticeably edgier and less natural.

I then ported the tracks via S/PDIF to a new iZ RADAR 24 operating at 24-bit, 48kHz, and listened again in a different monitoring environment. With the RADAR D/A converters, the Digi 001 preamp A/D converter track transformed nicely from edgy to bright, but for the most part, the tracks began to sound more similar and better.

To check out the dB Technologies D/A converters, I patched the straight dB track out of both the RADAR analog and AES/EBU digital outputs. I connected the AES/EBU output to the dB Technologies D/A converter and compared both versions of the same track. Both sounded great, and, although there was a very minor difference, I could not describe it.

IN CONCLUSION

Without question, the dB Technologies A/D converters and D/A converters resulted in improved audio. The analog and digital saturation and other dither options give one the power to make louder sounds and to emulate analog tape compression. The D/A module's ability to reduce jitter is also appreciated, as is the Wide clock for varispeed operation. The other modules are important parts of any studio's digital toolbox until we're all on the same 24/96 (or higher) single-wire digital "bullet train." Having all of the modules in a coherent system is also a welcome idea. I think analog and digital saturation circuits are important enough to consider putting them in a separate D/A or D/D module so they can be used to process audio that is already in the digital domain.

dB Technologies Inc., dist. by Audio Interview Design, 1155 N. La Brea Avenue, West Hollywood, CA 90038; 323/843-1155; Fax 323/845-1170; www.aidinc.com. ■

Ty Ford resides in The Land of Pleasant Living and may be reached at www.jagumet.com/~tford.

Aardvark
API
Apogee Electronics
Audix
B&B Systems
Brauner
Bryston
Calrec
Drawmer
Gefen Systems
Genelec
Great River
Lexicon
Lucid Technology
MediaFORM
Mytek
PMC
Prism Sound
Quartz Electronics
Rorke Data
Sonic Solutions
SoundField
Westlake
White Instruments
Z-Systems

**30
years!**

now in our 30th year of
helping our customers
choose the very best

studio consultants, inc.

321 West 44th Street, New York, NY 10036
(212) 586-7376

Equipment, support, and design services for
professional audio facilities and broadcasters
in the New York area—since 1971.

Thinking of buying musical equipment?

'THINK SAM.'



Since 1924, when Sam opened his first music store in Brooklyn, New York, musicians have come to rely on the Sam Ash family for the biggest selection, best service and guaranteed lowest prices.

...It's 2001 and we're still rockin'!



WIN ON THE WEB!!!
Today's Hottest Music Gear!

Get Your **FREE** samash.com Catalog!

samash.com

The on-line musical instrument megastore!

Check out our new website!

1-800-4-SAMASH • www.samash.com

Samash.com is part of the Sam Ash family of companies, including 30 musical instrument megastores nationwide.

KS ADM 2

TWO-WAY POWERED REFERENCE MONITORS

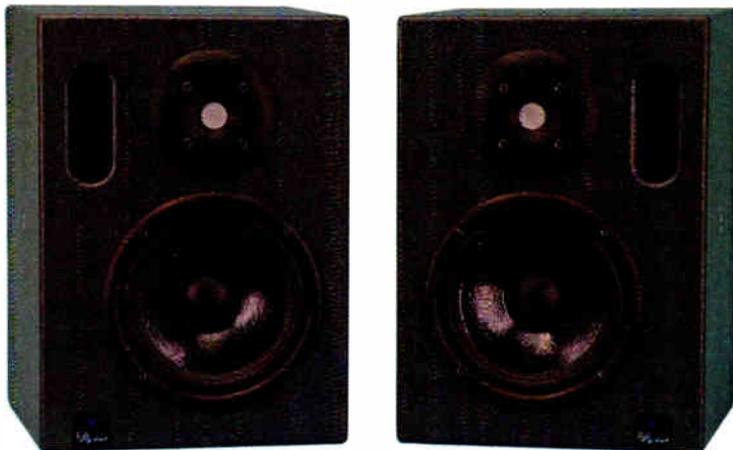
Speaker manufacturers have endeavored for decades to create a reference monitor that could reproduce complex, broadband audio without imposing a sonic signature of its own. But the immutable laws of physics demand that speakers must exert some physical and electrical influences on whatever signals they transduce, thereby skewing the sound. Which prompts the question: If you can't prevent something, then why not simply undo it? That's what German speaker manufacturer KS Beschallungstechnik GmbH has done with its new ADM line of active, digital studio monitors.

KS had the brilliant idea to use high-powered DSP to program a unique *inverse transfer function* equalization curve for each of the ADM Series monitors, thereby neutralizing any inherent coloration effects. (For an in-depth look at the technology behind the KS ADM 2, see the sidebar "Thinking Inside the Box.") In theory, the compensated monitors would then offer virtually perfect impulse and frequency response.

KS's ADM 2 Studio Monitor lies in the midrange, both in terms of price and size, of the ADM product line. An integrated system, the ADM 2 consists of a two-way monitor with internal amplifiers and A/D/DA converters, onboard DSP (including 250-band equalization) and an optional remote level controller. As one would expect, all this costs a pretty penny: \$4,950 list per monitor, or \$9,900 for a pair. (The remote costs \$295 extra.) But, you also get what you pay for. What I heard blew me away like a hurricane. The ADM 2 represents a paradigm shift for studio reference monitors.

FEATURES AND SETUP

The ADM 2 can accept analog or digital input via connections on the cabinet rear. A female XLR jack routes analog input to 24-bit sigma delta, 64x oversampled A/D converters. An



AES/EBU connector accepts digital input at 32 to 56 kHz (continuously variable) sampling rates. Wordclock inputs are noticeably absent. Sixty-MHz, 32-bit floating point DSP provides the FIRTEC digital processing (see sidebar for more info) and crossover and protective limiting functions for the monitor's two drivers. Latency is specified at 6 ms for digital input, 7 ms for analog.

An internal 24-bit DAC feeds two MOSFET power amps for each monitor; a 100-watt amp powers the high-frequency driver, while a 200W amp drives the woofer. The slew rate for the power amps is a respectable 80 V/ms or better. A pair of ADM 2s produces a maximum peak SPL of 122 dB and continuous SPL of 116 dB at one meter. The ADM 2's frequency response is specified as 50 to 22k Hz, ± 0.5 dB, and 38 to 22k Hz, ± 3 dB.

You'll want some heavy-duty monitor stands for the ADM 2s. Each monitor cabinet weighs approximately 43 pounds, and measures roughly 16½ inches high by 12 inches wide by 12½ inches deep. KS needs to provide more substantial packing for shipping these beauties—the cardboard inserts on the in-

side of the box were totally inadequate and did not prevent two units from arriving damaged. (KS has indicated that it will rectify this shortcoming, possibly substituting returnable flight cases for cardboard shipping boxes.)

KS's literature specifies that the ADM 2 incorporates an 8-inch radiator driver and a 1-inch compression driver. But the high-frequency driver is actually closer to five inches in diameter. It's mounted directly behind an extruded, exponential waveguide that provides a 1-inch-diameter opening for the driver (hence, the 1-inch specification). The woofer cone is made from lacquered paper and is coupled to a rubber surround. A front-firing, elliptical bass reflex port, tuned to roughly 42 Hz, graces the gray-black, textured, 22mm MDF cabinet. Mounting hardware is provided on both side panels, for horizontal orientation.

A small toggle on the ADM 2's rear panel switches between analog and digital audio input modes. In addition to the female XLR for analog input, there is a male XLR output. This provides audio pass-through to KS's optional ADM W subwoofer (\$3,250). There are also both male and female XLRs for digital audio connections. The female jack accepts

BY MICHAEL COOPER

WE'VE ADDED SO MANY NEW FEATURES THAT WE SHOULD PROBABLY CALL IT THE DIGITAL 8•BUS MK. 3.0



Mackie Real Time OS™ 3.0 Fat Channel Screen.



New 3.0 Mix Editor Window



New 3.0 24-Ch. Overview Screen



Massenberg Stereo Parametric Equalizer

Other digital mixers get old. The Mackie Digital 8•Bus gets better and better.

We just added over 50 significant enhancements with our new, free Mackie Real Time OS™ 3.0 upgrade including...

- 3rd-party plug-ins
- Enhanced dynamics
- Pre-DSP inserts
- 200 levels of undo
- 48-channel overview screen
- 24-bit Alt I/O
- An advanced Mix Editor with auto-punch, view sizing arrows, auto-loop SMPTE time code boxes, Loop In/Loop Out, Punch In/Punch Out and Locate markers in the time bar
- Event Automation Track
- Enhanced Surround Sound mix environment with Depth of Center and LF Gain Control for each channel, surround-corrected bus and track assignment, front-to-rear pan via D8B control surface or MIDI and a 72-channel Overview window that instantly shows you where everything is
- Enhanced, flexible MIDI I/O mapping for all channel strip and Master parameters
- 24-bit plug-in inserts across the main L/R buses

We could go on and on. But the main point is that if you buy a Mackie Digital 8•Bus now, you're not just getting a superb, productivity-boosting creative tool. You're buying the only digital console with an open architecture that provides for future enhancements, too. Mackie Real Time OS™ 3.0 is dramatic proof... and there's more to come.

Call for an excruciatingly detailed brochure or log onto our web site for more information on the remarkable Digital 8•Bus.

MACKIE
Digital Systems

World Radio History

www.mackie.com • 800.258.6883



Drawmer™ Expander Plug-in



Acuma Labs™ Filter Machine™ and more.



Antares™ Auto-Tune™

Made by
Mackoids in
Woodinville
WA, USA



AES/EBU input, and the male serves as a digital signal pass-through to a second speaker. It doesn't matter which speaker gets the input first; simply patch an AES/EBU cable from, say, your digital mixer to either ADM 2 in a stereo pair, and then patch another AES/EBU cable from the first speaker's digital pass-through (male XLR) connector onto the second speaker's digital audio input.

A front panel LED serves as both a power status indicator and as a guide for L/R speaker setup. The LED for the left speaker is situated in the bottom-left corner below the woofer (when the speaker orientation is vertical); the right speaker's

LED is in the bottom-right corner.

A rear panel stepped control knob attenuates the ADM 2's level up to 32 dB in 4dB increments. This works for both analog and digital audio input modes and, because the attenuator follows the on-board DAC, no reduction in wordlength occurs. An additional knob setting, marked Off, provides infinity attenuation (muted output).

The ADM 2 can also be attenuated via the optional Model 01091 handheld, wired remote box (\$295). This is connected to one speaker cabinet's rear panel via a captive 7-meter cable, fitted with a D-type connector. You then patch a companion cable of equal length from the first speaker to the next, using a pass-

Thinking Inside the Box

To understand how KS's technology transcends the ordinary limitations of speaker performance, let's first take a look at a speaker's inherent shortcomings. Every driver has an infinite impulse response; that is, inertial forces cause it to move both before and after a signal is reproduced. This unrelated movement distorts the original waveform's frequency, amplitude and phase components, causing skewed spectral balance, smeared transients and phase anomalies such as comb filtering. Multiple drivers, along with active circuitry and the cabinet's acoustical response, compound the distortion.

The composite result of these aberrations can be quantified in the monitor's transfer function curve. The transfer function is essentially the sonic signature—both electronic and acoustic—that the monitor imposes on the source signal. Put another way: If you were to subtract the input signal's frequency response curve from the signal at the monitor's output, then the curve of the remaining signal—the speaker's transfer function curve—would show the speaker's unwanted contribution to the sound.

After a 25-hour burn-in period, KS measures the transfer function of each new ADM 2 monitor, using 22ms bursts of full-bandwidth audio to excite the monitors. An inverse equalization curve is then computed and mapped into the memory of the ADM 2's onboard 250-band digital equalizer, making sure that the curve is properly aligned along the timeline with the monitor's transfer function curve. KS refers to this inverse equalization curve as a Finite Impulse Response (FIR) curve, and to the pro-

prietary KS technology as FIRTEC (pronounced "Fire-Tech") processing. In theory, FIRTEC processing should completely neutralize, or cancel out, the ADM 2's sonic signature, producing an accurate reproduction of the source material.

A unique, custom FIR equalization curve is applied to each and every speaker before it leaves the factory. That is, an average response curve is not computed from a sample set of units. Each monitor gets the exact curve needed to compensate for any manufacturing tolerances (or deviance in the physical properties of materials used) that may have affected that individual monitor. Once computed, this custom EQ curve is programmed into non-volatile memory inside the monitor and made available to the user via a preset selection knob on the monitor's rear panel. The FIR curve is also logged against the assigned serial number for future reference.

Upon request (and currently at no extra charge), KS will also program a second preset equalization curve that tweaks a particular ADM 2's response to compensate for control room's acoustics (in addition to compensating for the speaker's transfer function). In order to compute the needed curve, KS will need a recording of swept tones, taken at the mix position. KS will then return some PC software that contains the computed inverse EQ curve for the room in question. The software may be downloaded via the ADM 2's remote-control connector. The downloaded preset is stored in non-volatile memory inside the monitor, and can be recalled via the preset selection knob on the unit's rear panel.

—Michael Cooper

Jacks & Panels
•1/4" Long-Frame
•MINI

Pre-wired Panels
•Punchdown
•EDAC •3-Pin •Sub-D

Patch Cords

audio accessories
audio-line

Audio Accessories, Inc.
25 Mill St. Marlow, NH
603-446-3335 fax: 603-446-7543
CA Office: 510-223-2400
www.patchbays.com

SEE US AT AES BOOTH #1132

Royer Labs Presents the Unthinkable - Phantom Powered, Active Ribbon Microphones



"The increased gain and the clarity of the R-121A is ridiculous - this is an amazing development in ribbon microphones!"

Ross Hogarth

(Grammy winner - Jewel, Roger Waters, Keb Mo, Coal Chamber, Black Crowes, REM)

"I'm using R-121's all my guitars and drums - it's really an amazing mic."

Noel Golden

(Engineer - Matt Serletic, Matchbox 20, Willy Nelson, Edwin McCain)

"I never go anywhere without my Royers."

Bruce Swedlen

(Grammy winner - Michael Jackson, Quincy Jones, Duke Ellington)

R-121A

SF-1A

SF-12A

Introducing the Active Series

Imagine a ribbon microphone with all of the gain of a condenser mic. Imagine a ribbon microphone that isn't affected by impedance mismatches, low gain mic preamplifiers, cable length, etc. Imagine a fully discrete, 100% Royer-designed phantom powered circuit joining a deliciously warm, natural sounding ribbon element to the outside world.

Imagine how good a high gain, optimally loaded Royer ribbon microphone would sound!

You can stop imagining. Royer Labs announces the radical next generation of ribbon microphones **The Active Series** based on Royer's highly acclaimed award-winning modern ribbon microphones. The future of ribbon microphones, brought to you today by Royer Labs.



Royer Ribbons - Hears Like Your Ears

www.royerlabs.com 818.760.8472 Burbank, CA
HANDMADE IN THE USA

MERCENARY FOR HIRE

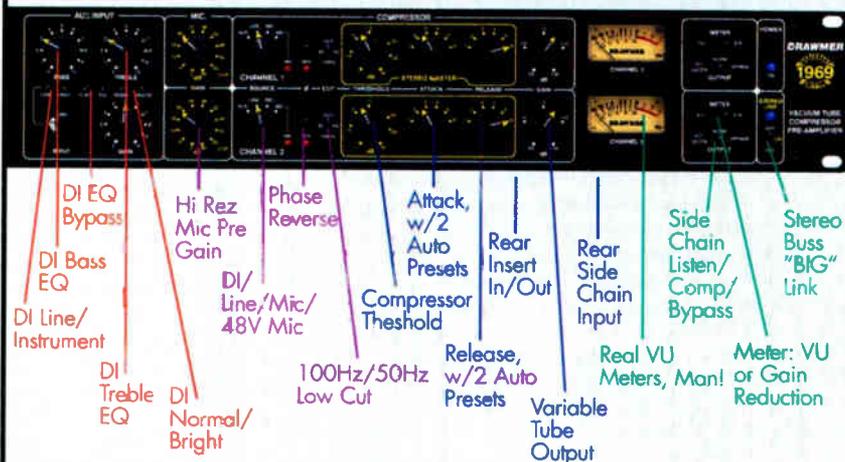
KILLER SOUND, KILLER PRICE, KILLER BOX!

Active Tube
Instrument DI

Twin Hi-Rez
Mic Preamps

Twin JFET
Stereo Buss
Compressors

Variable
Tube Output



**The Drawmer 1969
Mercenary Edition
\$2,949 MSRP**

TRANSAMERICA AUDIO GROUP DRAWMER

Call Us at: (702)365-5155
www.drawmerusa.com

FIELD TEST

through D connector on the first monitor's rear panel. The remote allows the user to adjust levels simultaneously for all ADM 2s in a system (including multichannel surround setups); level adjustment is post-DACs in order to maintain bit depth. While a mixing console control room monitor pot will also provide control over analog levels, the remote's control over digital levels makes it especially useful. The remote also provides a convenient toggle for switching between analog and digital audio input modes. Furthermore, the remote box's level attenuator knob provides much smaller increments of level change than the speaker's rear panel control. Nevertheless, I was pleased to find that the rear panel attenuators remain active with the remote hooked up.

Also found on each monitor's rear panel is a low-frequency room equalization knob. This steps through the two FIR equalization presets (see sidebar), plus eight other filter settings that modify the presets. The eight modified filter settings provide varying degrees of boost or cut at 20 Hz, with four settings modifying the inverse-transfer function preset curve, and another four modifying the preset that also counters room modes.

A power switch, detachable AC cord and heat sink (for the onboard amplifiers) round out the ADM 2's rear panel features.

I'M ALL EARS

For my critical listening tests, I listened to some of my favorite CD releases that I consistently use as a reference, spanning rock, pop, country, techno, folk and Celtic music styles, plus several of my recent stereo mixes. My review units only had the inverse-transfer function FIR curve and its four modified filter settings stored in memory, as I did not request additional DSP to correct for room modes. Although the modified filter presets could be very useful in some control rooms, the ADM 2s sounded best in my room using the unmodified FIR preset (i.e., no additional boost or cut at 20 Hz), so that's what I used to review the speakers' performance.

I could immediately tell that the ADM 2s' FIR curves were calculated from test signals passed through the monitors' A/D converters, because analog input mode sounded so much better than digital input mode. (It's a real testament to KS's FIRTEC technology that, even with one additional conversion, the analog inputs eclipsed digital in sound quality.) Compared to digital, analog input exhibited noticeably better transient response, more extended

THE SAC-2K

The one computer control surface for now and the future! MOTU Digital Performer, Steinberg VST and Nuendo, Emagic Logic and Sound Diver, Digidesign Pro Tools from Mix Plus, 001 to Pro Tools Free, Creamware, SEKD and many more. For all synthesizer programmers, you can program any virtual or hardware MIDI instrument with total parameter names and amounts laid out the way you always wanted it!



Look for the new SAC-8x expansion and our new surround matrix for the total professional environment!

Radikal Technologies
1119 North Wilson Avenue
Teaneck, New Jersey 07666
201-836-5116 phone
201-836-0661 fax
radtek@idt.net
www.radikaltechnologies.com



RADIKAL TECHNOLOGIES

SEE US AT AES BOOTH #1130

TASCAM GigaStudio™ and GigaSampler™: The World's Biggest, Fastest, Best Sampler. Period.



We don't like to brag, but there's no question: TASCAM GigaStudio and GigaSampler offer the very best sample playback performance of any sampler, hardware or software, ever made. The reason is simple: they are the only samplers that employ a patented technology allowing samples to stream from your PC's hard drive instead of being limited to RAM storage. The result is amazing: you can access up to 160 voices of HUGE samples (over four gigabytes in size), and the resulting detail, realism and sonic quality blows away any other sampler. Period.

As performance tools, GigaStudio and GigaSampler rule. Their incredibly low latency when accessed with any GSIF computer interface allows for fast, tight, real-time musical

performances that are indistinguishable from playing a "real" instrument. Plus, GigaStudio's QuickSound™ technology enables instant location and previewing of samples and instruments in real-time. Its zero-latency NFX™ effects provide professional-quality signal processing for your samples. And if you need great sound libraries, the world's finest have been created expressly for GigaStudio and GigaSampler (and you can easily convert your other sample files into the Giga format).

So if you're into the very best that sampling technology has to offer, get into Giga. Visit your TASCAM dealer or check it out online at www.tascam.com, because when it comes to sampling, bigger and faster is always better. Period.



GigaStudio, GigaSampler, QuickSound and NFX are trademarks of TASCAM. All specifications subject to change without notice.

www.tascam.com

All copyrights are the property of their respective holders



TASCAM®

FIELD TEST

and crystalline highs, slightly smoother high mids, more open low mids and tighter bass. The pitch of bass guitar notes was also better defined with analog input. In comparison, digital input sounded a tad flabby in the bass, less open and detailed, and exhibited a slight glare in the upper mids. It's not that digital input mode sounded bad, however; it actually sounded quite good. But analog mode sounded so spectacular that digital suffered by comparison.

In fact, I'd never before heard two-way monitors achieve such accurate spectral balance and extended response. Particularly impressive was the reproduction of low bass frequencies. You won't need a subwoofer with these babies. When the subterranean bass on Paula Cole's "Tiger" (from her *This Fire* album) kicked in during my listening tests, I literally whipped around to turn off my subwoofer—it was already off! The ADM 2s reproduced low bass so effectively that the bottom of my seat vibrated, with only 85dB SPL at the mix position. The rest of the spectrum, all the way up to airy highs, was so proportionally balanced and coherently reproduced that I just sat there slackjawed, lis-



The rear panel features XLR I/Os and a toggle that switches between analog and digital audio in.

tening in awe. I couldn't hear any smearing of transients, as is common with other speakers.

Unfortunately, the ADM 2's imaging was less than great. The monitors' stereo sound stage localization was a little ghostly. The depth of the image also could have been better. While the monitors are adequate in this regard, they do not offer the pinpoint imaging of D.A.S.

Monitor-8 or Hafler M5 monitors, for example, both of which cost a fraction of the ADM 2's list price. But those monitors can't touch the ADM 2's extended bass frequency response.

I suspect that the addition of word-clock inputs or a digital link between the monitors might tighten up the imaging and improve depth. Another design improvement would be to use a common DSP card to clock both speakers; as it stands now, each monitor has its own card. I'd also like to see a FIR equalization preset for digital input so that it can sound as accurate as the analog path.

Nevertheless, the ADM 2s—at least in analog mode—are the ultimate reference for checking spectral balance and transient content in your mix. They are articulate yet sweet, clear yet warm, detailed yet non-fatiguing. Bottom line: The ADM 2s sound absolutely amazing.

CAP Audio Professional Corp. (U.S. distributor for KS Beschallungstechnik GmbH), Weaver Park, 1060 Cephas Dr., Clearwater, FL 33765; 727/447-9656; info@cap-audio.com; www.cap-audio.com. ■

Michael Cooper is a Mix contributing editor and owner of Michael Cooper Recording in beautiful Sisters, Ore.



Burlington A/V Recording Media, Inc.

106 Mott Street • Oceanside, New York 11572

maxell

USA & Canada
1-800-331-3191
NYC Area:
516-678-4414
Fax: 516-678-8959

- Shipped From Stock
- Great Prices
- Immediate Delivery



Visit our Website: <http://www.burlington-av.com> • E-mail: sales@burlington-av.com

Call or Fax for FREE CATALOG!



CLASSIFIEDS

Buying or Selling Whatever You Need

WWW.PROSOUNDWEB.COM

The Power of Connection for The Pro Audio Community

Universal Concept, Inc.
99 Church Street
Whitinsville, MA 01588

powered by **uci**

email info@prosoundweb.com
phone 508-234-8832
fax 508-234-8870

World Radio History

SOUNDELUX ELUX 251

MULTIPATTERN TUBE MICROPHONE

Most people would rank the multipatterned Telefunken ELA M251E/250E as one of the three most sought-after tube condenser microphones, alongside the Neumann U47 and the AKG C-12. Priced at \$5,000, the Soundelux ELUX 251 is the closest thing to an exact copy you'd ever want of the vintage Telefunken.

Not to denigrate the original 251, but, after all, it is a 50-plus-year-old mic using 60-year-old materials and manufacturing technologies. For this reason, I did not base this review A/B'ing the new ELUX 251 and any particular Tele M251. With antique mics, what I call the "vintage factor" becomes a significant issue. Vintage factor—the physical condition, upkeep, modification history, how and where they were used and how gracefully they have aged—makes finding two M251Es that perfectly match impossible. Without an established "baseline" performance for the average Tele 251, an A/B seems pointless and of little value.

NEW VS. OLD

The original Telefunken ELA M251E (always called the ELAM 251 because the letters all run together on the mic body) was designed and manufactured by AKG for Telefunken and used a CK 12 capsule and 6072A vacuum tube just like AKG's C-12. AKG also made a non-import version using a Telefunken AC701 subminiature tube called the M251 (no "E" suffix). Sister mics are the M250, an omni/cardioid model, and the M252, the exceedingly rare twin capsule stereo version. The Tele used the much smaller T14/1 audio-matching transformer rather than the larger Type V1248 used in the first few hundred C-12s. With a larger transformer, a mic should have a more linear response at higher SPLs, especially in the low frequencies. The ELUX 251 uses a special wide-bandwidth transformer with the same primary/sec-

ondary turns ratio as the Tele and provides a more uniform impedance vs. frequency than the original.

The same plated/loaded amplifier circuit as the original is used but with "tweaked" part values to obtain a quieter noise floor. Like the original, only half of the 6072A tube is used, running at a low 120-plate voltage and only six volts on the filament. Lower voltages mean longer tube life. The other half of the tube is not even lit up, so some enterprising person could invent a socket adapter to "rotate" the tube around and use the newer other half—if and when the other side wears out in about 10 years. Sovtek and new-old-stock GE tubes are carefully tested and selected by Soundelux for lowest noise, maximum SPL and minimum distortion.

Modern manufacturing techniques address many of the serious problems that arise in 50-year-old mics, such as oxidation that can occur even in re-conditioned vintage mics. AKG used polystyrene plastic for the terminal board in the M251E to avoid excessive moisture absorption—a problem that many old microphones suffer from, compromising sonic performance and noise floor. The ELUX 251 uses a Teflon terminal board with a very high dielectric constant (the ability to insulate high voltages) to take care of moisture. Mechanical components such as the tube socket and wire-wound resistors are all resonance-damped to disallow any mechanical noise. The point-to-point, internal handwiring on the ELUX is silver-plated copper with Teflon insulation for maximum conductivity and, over time, minimal oxidation and negligible temperature influence within the heated microphone body.

Although some early Soundelux U95 mics were Chinese-made, all of the company's mics—including the ELUX 251—are now manufactured in the USA. Designer David Bock select-

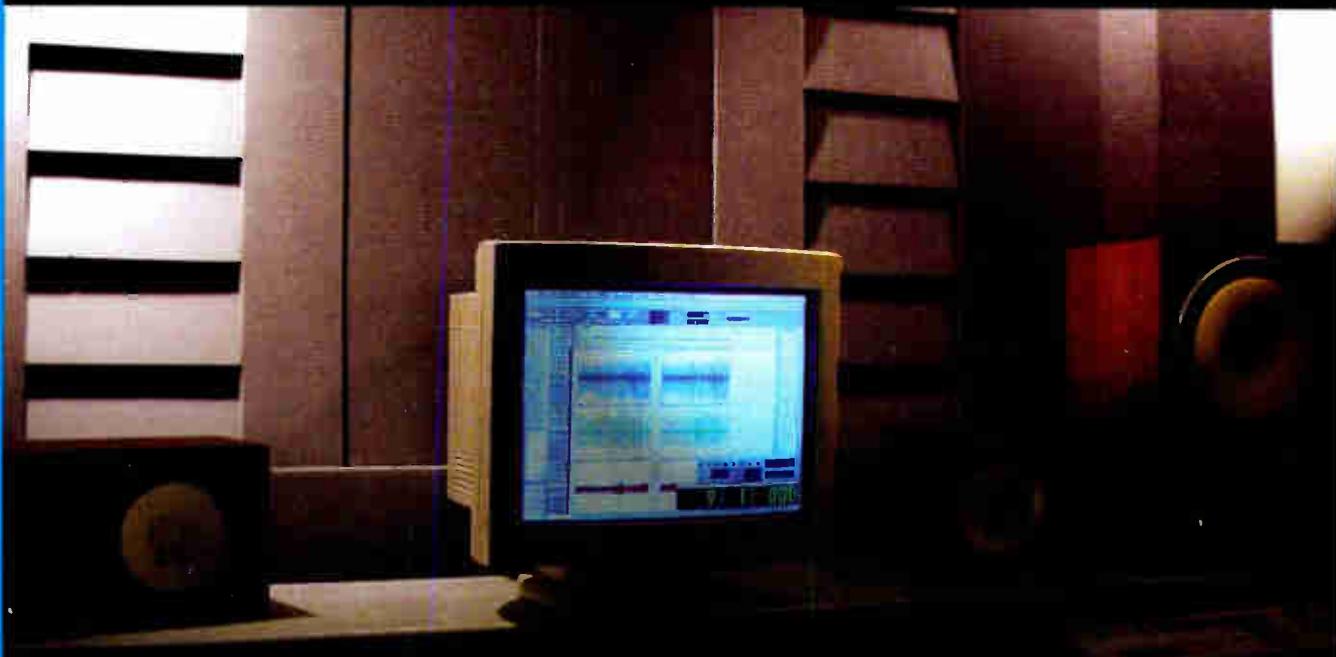
BY BARRY RUDOLPH



ed a German-made capsule with a 6mm Dupont Mylar diaphragm and the same close tolerances and asymmetrical design as the famed CK 12 capsule used. Like every part of the ELUX 251, the capsule is hand-built, tuned and strictly tested. The head grille's internal chamber resonance closely matches the Tele M251E in equivalent volume and "mesh count," which affects HF response.

IMPRESSIVE PACKAGE

The ELUX 251 comes in a large aluminum briefcase with the 110/220VAC P251 power supply, the mic itself, all cables, instructions and shockmount. The black-colored shockmount is a stout affair with upper and lower knurled thumb screws that tighten two constricting metal bands around the mic's body. The bands are covered in felt to avoid scratching the "Institution Green" painted microphone body—an exact color match to the M251E. You have to take care that the upper band does not compress over the pattern switch...bad news! Unlike a Neumann U47, there are no concerns about placing the ELUX 251 capsule



Take Control of Your Room!

London-14 Studio



- 1 Europa Flutter Wall
- 2 Scandia Scatter Blocks
- 3 Orientique Washboard
- 4 Australis Bass Trap

Face it. Most project studios and post-production rooms are built in typical rectangular rooms. You spend thousands of dollars on gear only to battle standing waves, flutter echo, and all the hash that makes it difficult to get a good mix. Battle no more.

Introducing Primacoustic. A new concept in broadband acoustical treatment that is easy to install, affordable, and has the look and performance of an architecturally designed studio.

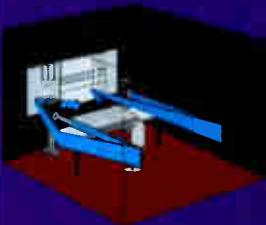
Primacoustic is based on a modular concept whereby precision-cut acoustical absorbers are combined to resolve the four main problems common to all square rooms: The Europa Flutter Wall controls 'front to back' flutter and works with the Scandia Scatter Blocks to reduce standing waves. The Orientique Washboards reduce side wash and powerful primary reflections. The Australis Bass Trap is a corner wedge that tightens up bass and brings balance back into your room.

Calling London for Under \$600*

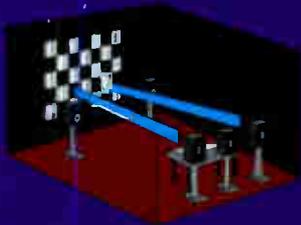
The London-14 is one of the more than dozen studio packages available. London combines all four acoustical systems into one affordable package. (London Studios start at \$450*) Other packages include the New York Voice Over Booths, Rio Video Suites and Montreal Studios. With complete rooms starting at \$200* - no other acoustical treatment is as affordable or so effective! We even include the glue.

For more information call Primacoustic and ask for a brochure, visit our web site or go to your local pro audio shop.

Tell 'em you want to Take Control



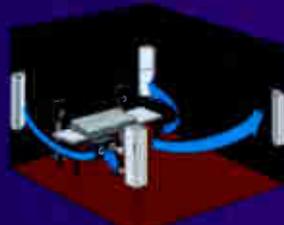
- 1 **Europa Flutter Wall**
Reduces 'front to back' echo, standing waves and monitor fold back. Over 28 creative patterns to choose from. Prices start at \$150*.



- 2 **Scandia Scatter Blocks**
Affordable alternative to diffusion. Keeps room live and reduces standing waves. Over 12 creative patterns to choose from. Prices start at \$100*.



- 3 **Orientique Washboard**
Absorbs primary reflections and side-to-side flutter. Six creative patterns to choose from. Prices start at \$80*.



- 4 **Australis Bass Trap**
Effective down to 45Hz, tightens up bass and reduces smear. Can be used in corners or on walls. Priced at \$100* each.

*Suggested US retail price.

FIELD TEST

up or down, because the mic generates very little radiating heat.

The P251 power supply is a significant improvement over the old M251E's unregulated power supply. The original supply emitted an acoustical noise and, as it was unregulated, "shocked" the capsule with an excessive momentary spike of polarizing voltage when the microphone was first turned on. The ELUX 251 uses a power transformer twice the size needed and a shunt regulator (zener diode) for the high voltage. This linear shunt design is preferred sonically over series regulators

and/or switching power supplies common in computerized gear. A constant-current source circuit provides regulated DC filament voltage. Soundelux could do a good business selling power supplies for old M251Es—instantly improving the sound of those mics.

The ELUX 251 connects to the P251 power supply with a double-shielded cable using 6-pin Tuchel connectors. The Tuchel threaded and locking connector was chosen over a multi-pin XLR connector for two reasons: less likelihood of disconnect and zero mechanical noise. An XLR can wiggle around in its socket and cause crackles or microphonic noise. Me-

chanical inertness of all components within a sensitive microphone is important so that loud sounds vibrating them don't contribute to the mic's sound.

IN THE STUDIO

My first trial for the mic was in a session with a loud, male rock vocalist. In the past with loud singers, the ELA M251E would not have been my first choice, because the Teles tended toward a brighter and edgier sound near or at clip a lot of the time. I also find more need to de-ess every time I use a typical-sounding Tele 251E. Comparing the frequency response curves of the ELUX and the original, the ELUX is smoother with a less boost in the upper midrange and high frequencies.

For my rocker, the ELUX was really good—better than any Tele I have ever tried for loud guys. I got a bigger sound with good low end, even though it was placed 10 inches back from his mouth. At that distance, older condensers do not typically have an overload problem, and there was certainly none here. I did use an industrial-strength pop filter and slightly tilted the mic out of the direct wind path. With a modicum of EQ (a bit of cut at 2.5 kHz) and compression (4:1 ratio, RMS compression of about 3 to 6 dB), my singer loved "working" the mic, as its cardioid response is even all around the front.

One problem I often have with old Teles is noise. After setting a good, hot mic gain level, using a little EQ and compression, there was usually a constant background noise. These days, with 24-bit digital, everything else is so quiet that mic noise is unacceptable. The ELUX 251 is quiet for a vintage design at about 27 dB "A" unweighted.

Female rock vocals fared equally well, but I had a chance to use the mic more dynamically on the song as the verses were quieter. My singer liked the fat sound of this mic, and I tried recording in omni pattern, with smooth results. In a friendly sounding room, the omni pattern adds a more transparent "openness." Soundelux points out that the main focus of the mic is the cardioid pattern, but besides the omni pattern, users will appreciate, I am sure, the mic's figure-8 versatility for distant coincident M/S orchestra miking or just about any other application. Two of them would "rule" for drum overheads!

Soundelux Microphones, 1147 N. Vine Street, Hollywood, CA 90038; 323/464-9601; www.soundelux.com/mics.

Barry Rudolph is an L.A.-based recording engineer. Visit his Website at www.barryrudolph.com.

SCOTT HULL mastering



Steely Dan

Garbage

Rage Against

The Machine

Loud Rocks

Shawn Mullins

Vitamin C

Wu-Tang Clan

Limp Bizkit

Nelly Furtado

David Garza

Elysian Fields

Evan Dando

John Stirratt

Indigo Girls

Amy Ray

Marah

Freedy Johnston

Marvin Pontiac

Those Bastard Souls

Spearhead

Binocular

Juliana Hatfield

Tonic

J. Mascis

Warren Zevon

Cyrus Chestnut

Patricia Barber

Ahmad Jamal

Nnenna Freelon

Ravi Shankar

Ani DiFranco

Steve Smith

Shuggie Otis

Wayman Tisdale

Os Mutantes

Romero Lumambo

Don Byron

Vital Information

Los de Abajo

Zap Mama

New York Voices

classic
sound
inc

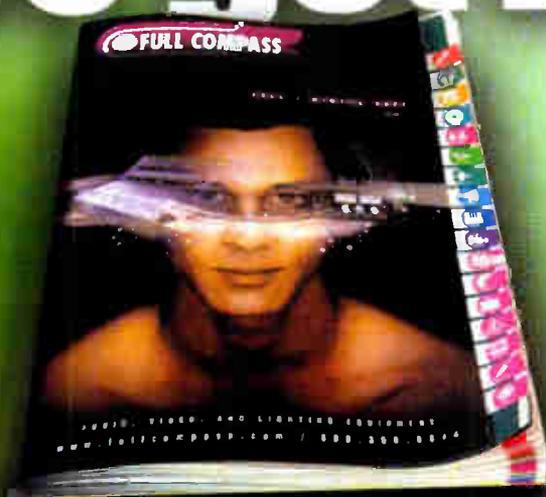
211 West 61st Street New York, NY 10023

For booking contact: Andrea Yankovsky (212) 262-3300

email: andrea@classicsound.com

You want it.

We got it.



Now get it.

Inspiring deals on professional audio, video and lighting equipment
from the people who know everything about it.



800.476.9886

Need it now? Extended hours.

8am to 10pm CST M-F.

10am to 6pm CST Sat.

Great deals. All the time.
Call 800.356.5844



9am to 5:30pm CST

8001 Terrace Avenue Middleton, WI 53562 USA www.fullcompass.com

World Radio History

HEY NINETEEN

NEW YORK STORIES FROM REAL LIFE

The AES show is about gear, baby, new and exciting products, blah, blah, blah...But exit polls after several recent tradeshow all yielded ho-hum comments. Perhaps we have become jaded, or addicted to rapid growth, or we haven't stopped long enough to realize that progress is still being made *fresh daily*.

There's nothing like a little reflection to help put things into perspective. So, for this month's column, I've reached back into my memory to identify a sonic mile-marker and/or professional growth spurt for each of my 19 years in Manhattan. The idea is that a lot has happened technically in the past almost-20 years, and a lot's still happening. Perhaps one of my tales will trigger a memory or two for you. So, sit back, enjoy the latté and have Sherman set the Way Back Machine to 1-9-8-0.

PRINCE VALIANT

I arrived in New York City 21 years ago with cassettes of my best work, a duffel bag of clothes, a small tool case and a 1963 Plymouth Valiant (Fig. 1). No matter how big my dreams were, New York City had a way of narrowing my focus to the essentials—like eating and paying the rent. Regardless of the number of audio career choices that may have been available then—certainly there are many more options now—my perspective was refined by the desire to engineer and produce the ever-elusive “hit record.”

1980: TAKE GOOD CARE OF YOUR FEET, PETE!

On “Easter Monday” of 1980, New York City was in the middle of a transit strike. To cover a mere 50 blocks took several hours by car, drastically reducing the potential number of job interviews per day—as well as a great many brain cells killed off by automobile fumes.

Lesson One: New York City was made for walking. Be flexible. Learn how to make the most of challenging situations. Ditch the car. Bring com-

fortable shoes and extra socks. Most of the time, it is not the resumé that gets the job, but being in the right place at the right time. Same with finding a cool restaurant away from the tourist traps. Eat well for less.

1981: DEPTH OF FIELD

Nothing puts pressure on a freelance engineer like a studio full of musicians and a ticking clock. However, when I found myself in an unfamiliar control room and focused more on balance than EQ, my rough mixes sounded better on more systems than they did when I had more time to tweak.

Before MIDI and samples, engineers were always made to feel responsible—if not guilty—especially for drum sounds. On one memorable date, session drummer Andy Newmark sat down in front of the same “house” kit I had tuned and used on countless sessions. Within 15 minutes, the tape was rolling. The drums were as consistent while I was tracking as they had been when I was getting sounds. My jaw was on the floor in amazement, and I stepped up to the glass to observe his technique—it looked as if the skins were barely being touched.

Lesson Two: Less is more. Better-sounding sources require less tweaking. I humbly acknowledge all the great musicians who make our jobs easier. Aim high!

1982 LATO-A: AUDIO ARMAGEDDON

On the flip side of that coin, recording a few power-metal pop bands led me down a dark and mysterious path. Each subsequent referral became heavier and heavier until I was asked to finish a Plasmatronics record and “do sound” for them on Tom Snyder's *Tomorrow* show.

Observations:

- An electric chainsaw with a contact



Figure 1: The stock 1963 Plymouth Valiant was equipped with a 220-cubic-inch slant-six engine, push-button automatic transmission and an AM radio with Class-A output amplifier. Fuel consumption was at least 20 mpg highway.

pickup sounds just like a vacuum cleaner that is similarly outfitted.

- A real “floating wall” moves when explosives on the other side blow off the hood of a car. This was not your average union TV gig.
- Contrary to her wild and ferocious stage persona, the late Wendy O. Williams was as gentle as a kitten in the studio. I once bumped into her at a health food store.

1982 LATO-B: DIGITAL FANTASY

My first digital experience was at Fantasy Studios in Berkeley, Calif. With only 10 days to complete an overdue project (with Snakefinger stepping in to produce The Mutants, a Bay Area band), the option to go digital via Mitsubishi X-80 became attractive, even compared to the opportunity to use an Ampex ATR-102—my favorite analog machine. Using minimal EQ to save time and avoid sonic sand traps, I found the X-80 to be brighter and punchier—typical for digital at that time—yet complementary in this instance; the X-80 won out over the ATR.

Had time allowed the tracks or the mix bus to be EQ'd as “competitively bright” as other music of that time period, I might have joined the “digi-phobe” bandwagon early. Digital audio

BY EDDIE CILETTI

Hungry For More?



Introducing the ComposerPro™ Optical Disc Duplicator

The new ComposerPro has dual 16x CD-R recorders to automatically produce **twice as many discs per hour** – hands free. The input bin has been super-sized as well and holds a whopping 100 discs. All this can be yours for just \$3995.*

Add an optional Primera® CD printer to produce bright, colorful and mouth-watering designs on your CDs. Print resolution is up to 2400 dpi – the best in the world.



ComposerPro™
OPTICAL DISC DUPLICATOR

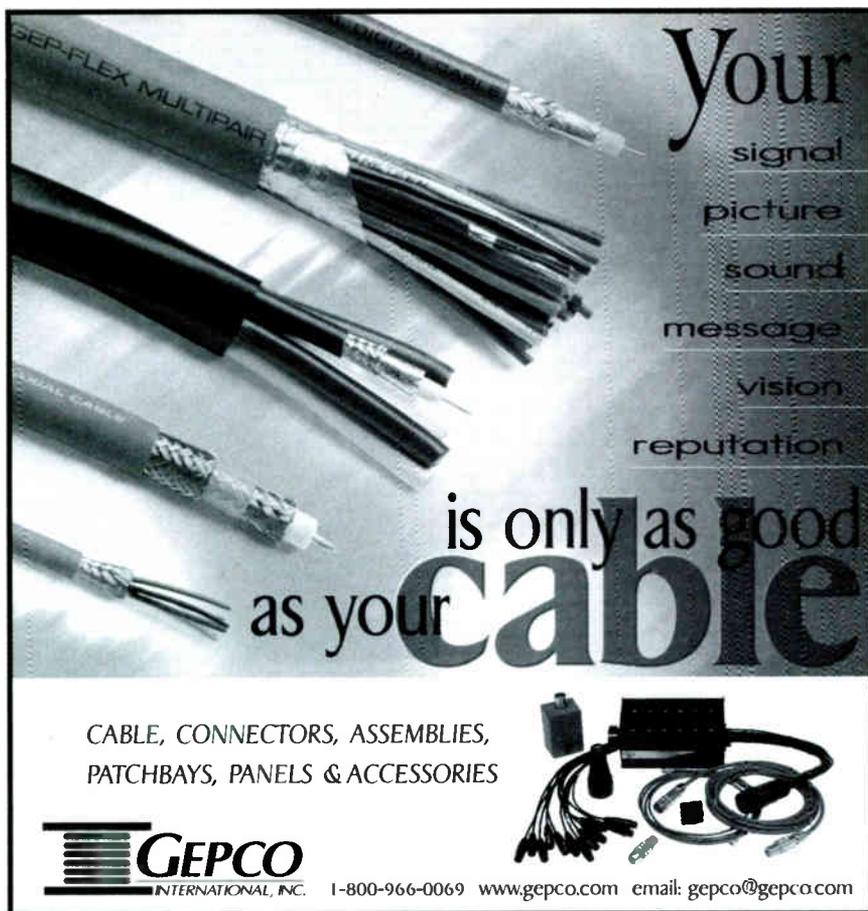
You can even order up a ComposerPro with Pioneer's® new DVR-A03 combo DVD-R/CD-R drives.

Check out ComposerPro for yourself. Once you get your hands around it, we think you'll agree that it's perfect for almost any CD or DVD disc duplication job.

PRIMERA
TECHNOLOGY, INC.

Two Carlson Parkway North
Plymouth, MN 55447-4446 U.S.A.
(800) 797-2772 (U.S.A. and Canada only)
(763) 475-6676 FAX: (763) 475-6677
Internet: www.primeratechnology.com
E-mail: sales@primeratechnology.com

*Manufacturer's Suggested Retail Price. DVD-R model is \$5995. Optional CD Color Printer sold separately. ComposerPro is a trademark and Primera is a registered trademark of Primera Technology, Inc. Photograph of hamburger courtesy of Good Time Restaurants, Inc. ©2001 Primera Technology, Inc.



Your
signal
picture
sound
message
vision
reputation

is only as good
as your **cable**

CABLE, CONNECTORS, ASSEMBLIES,
PATCHBAYS, PANELS & ACCESSORIES



INTERNATIONAL, INC. 1-800-966-0069 www.gepco.com email: gepco@gepco.com

technology has made incredible progress since then, but so have we all, learning to treat it differently from the way we use analog tape. When once we struggled to keep a mix bright, now the focus is at the opposite end of the spectrum. Bright is easy; "warm" is the goal.

1983: ACROSS THE UNIVERSE

My official transition back to geekdom began with a project for Atlantic Studios. CDs had just entered the mainstream, and the studio had just received a Sony PCM-1610 editing system. While interviewing veteran mastering engineer Sam Feldman about his specific requirements for a transfer console, I noticed initials on some documentation. The "sf" script seemed so familiar—almost musical—I soon realized it was Sam's initials that appeared between the lead-out grooves and the label of some of my favorite records (as shown in Fig. 2); right next to it is the "Bell Sound" stamp. (I was quite the record fanatic before joining the profession.) Imagine being recognized for your initials! I sure made a friend that day.

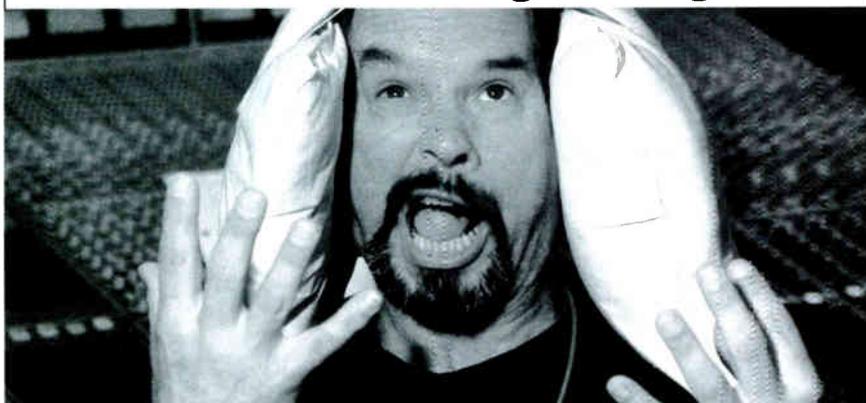
Bell Sound was a hot independent studio in the '60s, along with Fine and A&R studios. Just as we struggled with digital in the '90s, Sam Feldman and his peers had their own beasts to tame: For example, the transition from mono to stereo, and the quest to push levels on 45 rpm records to make them competitively louder on jukeboxes and at home. (Sound familiar?)

Atlantic was my night job. During the day, I did wiring at Photomag, a sound-for-film facility on the East Side. I had never seen magnetic film recorders, let alone racks of them—all interlocked with Selsyn motors, and each representing one or three tracks. One floor below, the sound of the electromechanical synchronizing equipment was frightening. We've come a long way, baby! The beginning of the MDM revolution was still seven or eight years away.

1984: WATERING THE PLANT

I joined Record Plant with more experience than discipline. Because mentoring is an important aspect of this business, I'll mention one of mine. Paul Prestopino was the spiritual leader of the maintenance department, and he taught me the value of patience, organization and humility (though it still took a decade or so to acquire these skills). Paul's multiple talents include woodworking, metal

"Where did the high hat go?!"



Ear fatigue. The phantom menace.

We've all heard our mixes start to sound like they're coming through pillows.

Late nights and endless hours at the console can chip away at your most precious tool, your hearing. The **Ear Q Reference Hearing Analyzer** gives you the knowledge and the power to protect your ears and keep your mixes crisp and sharp.

Ear Q is a complete hearing self-test system that includes Airphones™ high attenuation dynamic headphones, Calibrator, and Ear Q Software.

Swing by **www.earq.net** and find out how to help yourself stay on top of your game.

Ear Q Technologies

PO Box 6654, San Rafael, CA 94903
Tel 415-479-7339

THE WORLD'S LARGEST INTERNET AUDIO AND VIDEO EVENT HITS NEW YORK



DIGITAL MEDIA DOMINATION ... IT'S TIME

Platinum Sponsor



Platinum Sponsor



Gold Sponsors



**STREAMING
MEDIA
EAST 2001**

Third Annual Conference & Exhibition

Full Conference and FREE Exhibition Registration at
streamingmedia.com/east
or call (888) 301-8890 or +1 415 593 4800

DECEMBER 10-13, 2001
JACOB K. JAVITS
CONVENTION CENTER, NYC

www.markertek.com

World's
Largest
Audio/Video
Supply
Equipment &
Accessory
Super Store.

Order **16,000**
Items On-Line !

THE TECH'S FILES

work, engraving and tailoring. How can you argue with someone who is a master of all trades *and* a musician (currently on tour with Peter, Paul and Mary)? Be sure to thank your mentors, and be one when the opportunity presents itself.

Occasionally, when the studio was short-handed, I was called out of the shop to assist. Some of the engineers were surprised that a technician could actually do this job. Having scaled the walls rather than climbed the ladder, I knew what was expected. On a Miles Davis date, I "accidentally" stopped the multi-track after seeing his hands in the air, thinking it was a signal to stop. (Actually, that's all I ever saw of Miles during the entire overdub session.) The engineer turned and said, "Don't stop the tape even if he falls on the ground." Miles, always a bit more succinct, asked, "What the #@!\$ did you stop the tape for?" (See Fig. 3.)

1985: PHREE AT LAST

Before leaving Record Plant in Spring of '85, I told owner/engineer Roy Cicala about my plans to start a freelance maintenance biz and cater to the growing "demo" studio scene. (That's what project studios were called before digital sperm fertilized the analog egg.) I could see Roy was not comfortable with this topic, but I couldn't see how a 1-inch, 16-track "closet" studio might threaten the existence of a multiple-room facility with two remote trucks, a collection of vintage gear to die for and a formidable track record. Perhaps Roy saw the writing on the wall, or maybe it was just bad coffee...

Once I left, the freelance gigs doing tech support for Record Plant's remote trucks were cherry—Eric Clapton was particularly impressive at Live Aid. At Farm Aid, an overweight policeman *a la* Boss Hogg misinterpreted my response

3	4	5	6	7	8	9	10	11	12	1
CBS	Pos#	105	643					24	dolby	
Miles	Davis							2	12002	
Miles	Davis							2	DBX	1800
Ron	Eddie									
24/15	456	dolby	Rec	5	5/5					

Figure 3: A Record Plant schedule sheet with setup details for a Miles Davis session. The "S/S" refers to SelSync, as in "overdub."

for *attitude* and told me "This ain't no *Miami Vice!*" A mindless wiring job at a video facility was paying better than my gig at Record Plant. I saw the writing on the wall, *and* the coffee was better...

In Manhattan and other urban areas, the biggest challenge for most semi-pro gear was RF and TV interference. (Digital products are generally more noise-immune because they have to be!) My apartment was line-of-sight with the Empire State Building and the World Trade Center, a situation that made cassette deck alignment impossible. However, the location served as a good test site for problematic equipment, even after I set up a dedicated shop space.

Cassette decks were difficult enough to maintain—speed and azimuth being their Achilles' heels—and fighting interference only added sand to the Vaseline. Sure glad we don't have to deal with cassettes anymore. Hate digital all you want; I'll take a CD over a cassette any day!

1986: SEARCH AND DESTROY

Two great remote gigs followed: one at the Kennedy Center in D.C. (a Martin Luther King birthday celebration featuring Stevie Wonder), and the other at the Statue of Liberty Celebration in New York Harbor. Applying wireless technology to in-ear monitors reduces stage levels, protects hearing and ultimately improves the FOH sound. I used the Japanese version of the FM Walkman because it differed from the American FM spectrum, allowing more available "clear" channels. Stevie also gets cues so he can move around onstage.

Wireless can also be absolutely frightening technology, especially when the Secret Service used it to "sweep" Governor's Island for potential bombs. Every level meter on *every* tape machine and console was momentarily pegged. Had there been a bomb, the audio and video geeks must have been considered expendable, as opposed to saving a guy who thought ketchup was a vegetable.

I was especially taken aback when a gentleman showed up in



48 track analog
w/Dolby SR

48 track Digital

Concert Recording

Radio Broadcasts

Video & Film Shoots

Television Broadcasts

Festival Recording

- Red Hot Chili Peppers
- Charlie Daniels Band
- ABC Television
- Barenaked Ladies
- Sheryl Crow
- Fox Television
- Foo Fighters
- Tim McGraw
- Faith Hill
- Lou Rawls
- SFX Radio
- Live • BET
- NPR • Jewel
- Kenny G
- Tito Puente
- Marcia Ball
- Westwood One
- Dave Matthews




301.562.9360
fax: 301.608-0789
www.BigMoRecording.com



Figure 2: Vinyl maniac Here's the signature of the mastering engineer, something not found on CDs.

"If you are considering a career in the entertainment media industry, I think there's only one choice. With the way technology is moving and the speed at which it changes, Full Sail is the only school that I've ever seen or heard of that consistently remains so up-to-date. It's a place that approaches education right - by getting your hands on the world's most current technology."

-Steve Vai

GRAMMY®-award winner
Steve Vai at the
Neve Capricorn console
in Studio C - one of
Full Sail's
37 production
studios.

FULL SAIL

Real World Education

School of:
Audio • Show Production & Touring
Film/Video • Computer Animation
Digital Media • Game Design

800.226.7625

Tune into **webstationzero** SM at **www.fullsail.com**

3300 University Boulevard • Winter Park, FL 32792 • Financial aid available to those who qualify • Job placement assistance • Accredited by ACCSCT

© 2000 Full Sail Recorders, Inc. All rights reserved. The terms "Full Sail", "Full Sail Real World Education", and the Full Sail and WebStationZero logos are either registered service marks or service marks of Full Sail Recorders, Inc. Other product and company names mentioned herein may be the trademarks of their respective owners. The appearance of these marks does not necessarily indicate a formalized sponsorship or affiliation with other such companies.

World Radio History



Learn Audio Recording Like No Where Else.

The Conservatory of Recording Arts & Sciences 1.800.562.6383

All students train, hands-on, in cutting edge 48-track Analog/ Digital Recording Studios that feature:

- SSL -Studer -Otari -Neumann
- Neve -Neotek -Lexicon -Hafler

Plus...

- Mac G3/TASCAM Digital Lab
- Studio Master Mix Down Lab
- Individual Pro Tools Work Stations
- And Much, Much More!

No more than 12 students per class - taught by award winning professionals.

Every student completes an internship in the industry for graduation.

Only recording school authorized by Avid/Digidesign, T.C. Electronics, WAVES, and SIA to certify students in the use of their products.

t.c. electronic



2300 East Broadway Road Tempe, Arizona 85282 www.audiorecordingschool.com

our sound truck with a custom high-speed, multiple-cassette playback rig used to "augment" the audience response during President Reagan's speech. This was before someone thought to use a sampler for subversive mind control. A Sony 1630 editing system cost about \$80k.

1987-1991: INSTALL THIS!

Until the '90s, the typical project studio had eight to 24 analog tracks on either narrow format or second-hand 2-inch machines. Synchronizers were not uncommon, but not much fun either. Think about this: Three Otari ½-inch, 8-track decks and two synchronizers cost approximately \$20k, about \$5k more than three ADATs at their original list price. The MDM seeds were being planted...

Before the minds at Mackie ever thought about marketing a 32-input analog 8-bus mixer, a 32-input 4-bus Soundcraft Series 200 desk was \$8,000. (Now, digital consoles with Total Recall and signal processing are falling into that price category.) Installation with three patchbays was a similar amount. A Sonic Solutions editing system cost about \$100k in 1991, the NoNOISE option was about \$20k, and the CD burner was \$10k. Blanks were \$25, about the cost of DVD blanks now.

1992-1993: SKATING AWAY

Just after I paid off a small business loan, Alesis introduced the ADAT and everything changed, nearly overnight. The narrow-format analog machines that formerly were the primary source of income for both users and service facilities quickly disappeared.

The writing was on the wall, but it was graffiti this time. Cassette decks were fussy enough, but early DAT recorders required the patience of a Swiss watchmaker *after* all the layers were removed to reveal the transport. Few people come to New York City with this skill hoping to make it big. Affordable mixers put pressure on installers to streamline the wiring process. Who wants to pay three-times the console price for wiring and patchbays? Most budget project studios were being user-assembled with premade wiring harnesses.

1994-1996: THE SYSTEMS ANALYST

Large-scale integration assisted the digital transformation, changing the service business in the process. Equipment was becoming more powerful and more reliable—yet less serviceable. I freed my-

THE WORKSTATION COMPANY

EXPERIENCE

The Industry's Widest Selection

WHY waste time and money canvassing the country when one call to **EAR** will do it all?

If you need complete digital workstation systems or computers and peripherals,

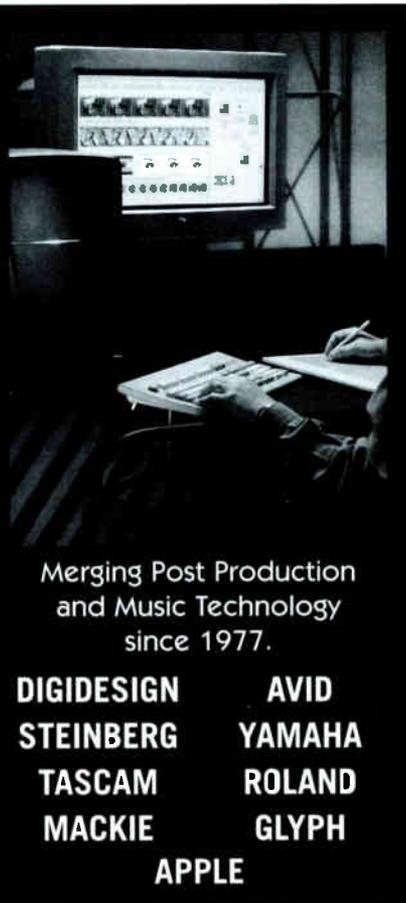
Call EAR for

- Most Extensive Selection in the U.S.
- Leasing, Buy/Sell/Trade
- New and Used, Buy/Sell/Trade

EARTM

PROFESSIONAL AUDIO/VIDEO

2641 E. McDowell, Phoenix, Arizona 85008
602.267.0600 • Fax: 602.275.3277
email: info@ear.net • www.ear.net



Merging Post Production and Music Technology since 1977.

DIGIDESIGN	AVID
STEINBERG	YAMAHA
TASCAM	ROLAND
MACKIE	GLYPH
APPLE	

self from the role of employer to pursue more "interesting and challenging jobs," such as providing vacation relief in a video facility. The audio project studio was in full swing then; affordable technology soon allowed video to make the equivalent transition. Interestingly, although it's more technically challenging than audio, video quickly embraced digital technologies, some of which did not operate in real time—even then.

Service of high-tech equipment at the hardware level primarily consists of board swapping, otherwise known as mail-order maintenance. Understanding signal flow via block diagrams is more important than parsing circuitry in "the black box." Microprocessors in each black box require the former hardware specialist to zoom out and take the "Systems" approach to maintenance.

To overcome the hazards of software and hardware collisions, it is necessary to interrogate the user, remain calm and show no emotion when pressing the Reset button or flipping the Power switch. Live remotes were good training for achieving this state of "nerve-ana."

THE TECO-INTERROGATION PROCESS (SOME SAMPLE QUESTIONS)

What were you doing when it failed? When was the last time you saved? Assuming a power cycle resolves the problem, do you understand that anything not saved will be lost? Okay. Let's power everything down and start again. Back online.

Sound familiar?

NETWORKING THE FUTURE

The same forces that made audio gear more affordable and more powerful have shaken the whole foundation of video. Then, the capital investment for video gear was staggering. Now, it's still more expensive than audio gear, but less so than the early Sonic Solutions workstation.

In order to create the many frames for any animation project (think *A Bug's Life* or *Toy Story*), several Silicon Graphics workstations were networked together. These cost tens of thousands of dollars plus extra \$\$\$ for a yearly support contract. Each "box" renders a single frame that is exported to an external hard disk recorder via network. Only then can it be transferred to tape in real time. The workstations could not display full resolution moving images in real time. Now, well-endowed, off-the-shelf dual-processor PCs can do the same job.

Until the video facility gig, I had never really considered networking but quickly applied the knowledge to my shop PCs.

BASF...Your first choice in Professional Audio media...



EMTEC Magnetics

BASF
EMTEC



Shipped From Stock • Priced Right • Immediate Delivery
Burlington A/V Recording Media, Inc.

106 Mott Street • Oceanside, New York 11572
NYC Area: 516-678-4414, Fax: 516-678-8959
USA & Canada: 800-331-3191

Visit Our Website: <http://www.burlington-av.com> • E-mail: sales@burlington-av.com

WENGER'S NEW PRE-ENGINEERED ACOUSTICAL DOOR



**ULTRA-QUIET
PERFORMANCE.
ULTRA-CLEAN
INSTALLATION.**

After extensive R&D, Wenger engineers and acoustical experts have created the perfect acoustical door. Our breakthrough design not only provides superior sound isolation – it also offers an easy, adjustable fit to any application.



Call your Wenger rep for more information!
1-800-326-8373

Wenger

www.wengercorp.com

©2001 Wenger Corporation

SIMPLY THE BEST!



Simon Systems four-channel RDB-400 Integrated Direct Box is simply the best direct box you can buy. This AC powered unit boasts a totally active (transformerless) audio path design with no insertion loss. With features like variable line level output, variable attenuation trim, unbelievable headroom, speaker-level input pad, active unbalanced/balanced outputs, front/rear inputs and output connectors, and much more, it's easy to see why so many professionals insist on it in the studio as well as on the road.



The portable single channel DB-1A Active Direct Box also features line-level output with no insertion loss. A three-way independent power scheme facilitates rechargeable battery capability and automatic system power check (optional PS-1 Power Supply is recommended).



For the ultimate in headphone distribution systems there is the CB-4 Headphone Cue Box. The CB-4 features four headphone outputs independently controlled by conductive plastic stereo power controls. The XLR input/output connectors allow numerous boxes and headphones to be connected to the same amplifier with headroom, clarity, and flexibility that cannot be achieved with active headphone cue amplifiers. A three-position switch selects left mono, right mono, or stereo mix, allowing for additional cue mixes. Whenever you think signal processing, think like the pros; Simon Systems - Simply the Best!



Manufactured by: Simon-Kaloi Engineering, Ltd.
2985 East Hillcrest Drive • Thousand Oaks, CA 91362
Phone: (805) 777-1084 Fax: (805) 777-1186
Website: www.skeng.com Email: sales@skeng.com

THE TECH'S FILES

Networking is easier now and more affordable than ever. Earlier this year, I added a four-port gateway (\$90) between the cable modem and the rest of the network. Now, all of our computers—Macs and PCs—can access the Net for software updates and registration.

1996-1998: THE STRAIGHT AND NARROW

Not real comfortable around advertising and marketing types, I bailed on the video gig and returned full-time to digital tape machine repair. Working alone is soothing. An ISDN connection was all I needed *then*, except for this Aeron chair and that frothy cappuccino...

The consumer DVD arrives. I'm mixing 5.1 surround on a workstation, and burning a reference DVD will be \$15k with programming. Blanks are \$50.

1999-2001: THE GREAT ESCAPE

I loved New York but got tired of paying rent. I'm completely virtual now and living in the Twin Cities.

Thanks to the Internet, I can:

- Write for this excellent magazine without licking a stamp.
- Advertise via my Website to anyone in the world.
- Accept all major credit cards.
- Relocate a business and have "work" waiting for me.
- E-mail customers about the progress of their repairs.
- Post rough mixes on my Website for clients to hear.
- Consult globally.

I never imagined owning a studio, but I always fantasized about having enough gear to overdub and mix. Before digital, the paradigm was miniaturized analog. After I reviewed two workstations, the future was clear.

At this year's AES show, my mission is to seek out workstations that support dual-processors and compatible file-exchange formats as well as affordable DVD authoring for non-feature film applications.

Enjoy the show and appreciate the progress we've made. As with any construction project, it takes 20% of the time to accomplish 80% of the work. The converse is true for the job of "finishing the details," aka, refining digital technology. ■

Eddie Ciletti became a father for the second time in the middle of writing this article. Visit tangible-technology.com for Web cam views of early snow.

Maximize Your Time at AES!

Introducing the

Mix AES

New Products Guide

The definitive resource to the show floor debuting at 111th AES Convention!

The *Mix* AES New Products Guide!
Hundreds of new products, exhibitor events, appearances, demo schedules and bonus show floor map.

Pick up your copy at AES, or with your October issue of *Mix*.
Also available online at www.mixonline.com

ADK Tribute to the Ladies of Nashville

In Million-Dollar Nashville Studios, In Microphone Shoot-Out after Shoot-Out, Over Classic European Tube Mics and Old RCA* Ribbons - They Chose ADK!

Kathy Mattea



- The Innocent Years
- www.mattea.com

Miss Patti Page



- Brand New Tennessee Waltz
- www.misspattipage.com

Victoria Shaw



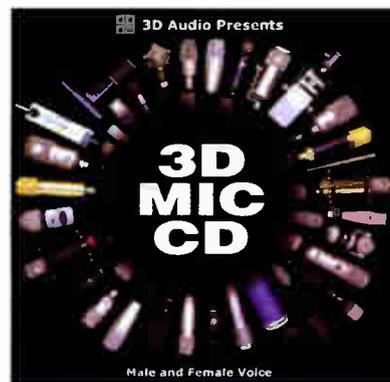
- Old Friends New Memories
- www.victoriashaw.com

ADK Microphones used to track Lead Vocals, Back-up Vocals, Guitars, Pianos, Saxophones, Harmonica, Flutes, Cellos, Violins, Upright Bass, Drums, Percussion, and Resophonic Guitars.

DO YOUR OWN MIC SHOOT-OUT!

Compare ADK Mics to 48 other Mics

3D Audio's CD: www.3daudioinc.com



• AES Booth #863

• www.adkmic.com

• Phone (360) 566-9400



ADK is our registered Trademark. RCA is the registered trademark of RCA and is in no way associated with ADK Microphones, Inc.

The Wireless Reality

Field Miking and Mixing for TV's Hottest Genre

Broadcasting's current soup du jour, otherwise known as reality television, offers a plethora of nightmares to torment audio crews. Take a recent challenge posed by NBC's *Fear Factor*. For some reason, contestants agreed to crawl through a rat-infested drainage tunnel while water flowed over them, in keeping with the show's format requiring players to participate in bizarre stunts. Those logistics, in turn, required the audio crew to transmit wireless signals from contestants' stunt mics inside the tunnel up to field mixing stations.

by Michael Goldman



Fear Factor



The audio control room at the Big Brother house on the CBS Radford lot in Studio City, where the show is recorded in a controlled environment, rather than out in the field like most genre shows.

In the spirit of the game, the crew cheated slightly on its standard wireless approach, according to Stacy Hill, *Fear Factor's* senior audio supervisor. Instead of relying on wireless mics, they planted a hard-wired mic in the tunnel that served as the equivalent of a boom.

"In the tunnel, even with high-powered wireless, our signal was extremely weak," says Hill. "Fortunately, the video team had rigged an infrared camera on a track to follow contestants through the tunnel. We planted a Sennheiser MKH40 mic under the infrared camera as it traveled on the track, and we hard-lined that mic out of the tunnel to a wireless transmitter. That transmitter then sent a signal to the field mixer just 20 to 30 feet away so he could dial in the signal and add it to the mix. The cable was over a 100-foot run, but in the end, it became a wireless signal. In the tunnel, the mic picked up the contestants like a normal booming situation, because it was right on top of them. Of course, we also had to waterproof the mic since they poured water through the tunnel."

Such challenges are now commonplace in the reality, or unscripted, universe. While the creative and social values of such reality-based shows can be debated endlessly, production innovations resulting from such programming are too numerous to mention. On the audio side specifically, reality-based shows have moved the art and science of wireless recording technology to a new level.

At least that's the view of Jeff Santoro, a longtime TV and film sound mixer and owner of Pacific Technical Group, Burbank, Calif., a company that now focuses exclusively on providing equipment, crews and consultations for reality shows, including *Real World*, *Road Rules*, *Fear Factor*, *The Mole*, *Murder in Small Town X* and others.

"Most of these shows require a wireless approach, usually in complicated environments," says Santoro. "When crews are following people in those environments, there are times when wireless cannot be duplicated, because, unlike other types of programming, these shows are too chaotic. Some manufacturers are now producing products specifically for this market, but crews are still innovating like crazy out in the field. That's because, until recently, no one had



Some of the Wendt X2 mixers recently used during production of CBS's upcoming *Amazing Race* reality show.

approached these shows with specialized equipment or techniques, since few people really believed the trend would last. But now, there clearly is a market for this kind of specialty, so manufacturers are starting to develop new tools, or modify existing ones, for these jobs."

MIXERS AND MICS

Production on the first season of *Fear Factor* earlier this year debuted one of those innovations: the Wendt X5 mobile field mixer, a tool that has since spread to

"Before, there was no 5-input mixer you could take on location like this one, let alone a mixer you could bus together with a second one to create 10 inputs and still be mobile, so we talked to Bob and he built one," says Santoro. "It only weighs about four pounds, with batteries, so it's light enough to easily move as contestants move. Plus, it has features like pre-fade listen, which is crucial when you are working with wireless, as people come and go during the shoot."

Mobile mixing boards, however, are only one part of the equation. Complicated mic choices, power issues, frequency problems, elemental hurdles and the unique requirements of individual shows also pose routine problems.

In the past year, Michael Alexander served as a principal field mixer on two new reality shows—*Combat Missions* and *Man Hunt*. He says elemental factors have "a huge impact" on audio capture for such shows in remote locations.

In *Combat Missions*, for instance, teams of former military and police personnel do battle using non-lethal ammunition

on a mile-square chunk of the Mojave desert in Southern California. Alexander says that miking contestants for clear signals was "complicated," mainly because of "howling wind in the desert, made worse by helicopters and other military equipment."

"We chose to lavalier contestants with



Pacific Technical recently put together an equipment package for the first season of Fox's *Murder in Small Town X*, including Sennheiser mics and wireless equipment, Lectrosonics wireless equipment and Wendt mixers, among other things.

several reality productions. Hill's crew used it on *Fear Factor*, and programs like *The Mole*, *Real World* and *Murder in Small Town X* are now following suit. According to Santoro, the X5 was designed by engineer Bob Wendt in consultation with Santoro about the specific needs of reality TV audio crews.

The Wireless Reality

Countryman EMW mics and Sennheiser quarter-watt transmitters, but we also had to find a way to deal with the wind," says Alexander. "We put Windjammer windcreens on them, but we needed more than that, so I asked the wardrobe guys to build burlap flap casings. They put Velcro on them, and that allowed us to enclose the microphone against the contestant. It was amazing in terms of wind reduction, and a cheap solution."

Alexander and his colleague, Pat Siesleski, received redundant signals from contestants on Lectrosonics 210 and Sennheiser EK-4015 receivers in two separate "audio chalets"—pup tents a half-mile apart. There, they created the mix—Alexander on a Mackie 1604 board and Siesleski on a Spirit 8 Folio mixer. (Because the location was a square mile, it was split into grids, with Alexander mixing half the coverage area until contestants passed into Siesleski's area, where she then took over.)

"Of course, being in a remote part of the Mojave desert, we first had to figure out

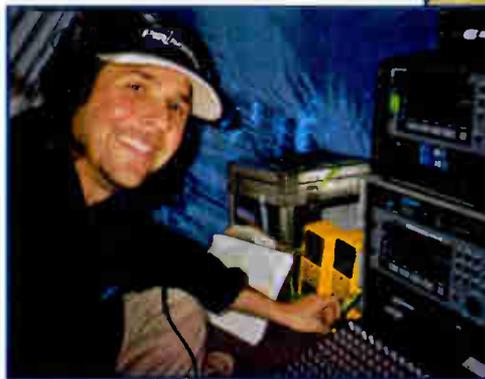
a noise-free way to provide DC power to the mixing boards," Alexander recalls. "Eventually, [Burbank equipment rental house] Plus 8 found us a couple of [Stat-power 1000 sine wave] power inverter units, and those units ran silent unless they overheated, allowing us to produce converted DC power out of deep cell, AC marine batteries, powering the boards."

A few months later, Alexander found himself in a similar setup on the island of Kauai in Hawaii while working UPN's *Man Hunt*, in which contestants navigate rugged terrain while trying to avoid "hunters" determined to take them out of the game. On that

program, contestants are given walkie-talkies to coordinate strategy with one another. That posed a problem in terms of seamlessly adding those conversations to the mix.



Above: the fear of dogs. Below: Michael Alexander, one of the principal field mixers on the cable show *Combat Missions* with his DA-78 recorder inside his "audio chalet" on location in the California desert.



GOT PRO TOOLS®? GET THIS.



The Rosendahl Nanosyncs delivers the most accurate low-jitter reference clock available for your DAW or digital mixer, significantly increasing the sonic performance from your current digital audio converters.

Precision engineered in Germany, this exceptionally accurate audio clock and video sync reference generator also gives you 6 individually configurable word clock outputs, AES/EBU, S/PDIF, and 4 blackburst video outputs, plus the facility to reference to external video syncs, word clock, free-running time code or the 1ppm accurate internal time base. 0.1% and 4% pull-up and pull-down rates are available for audio, video, and film transfers.

So add a Nanosyncs to your Pro Tools system and prepare to hear the difference.



FIRST WE LISTEN

Pro Tools® is a registered trademark of Avid Technology Inc.

ROSENDAHL

Exclusively distributed by: HHB Communications USA Inc. · T: 310 319 1111 · E: sales@hhbusa.com
 HHB Communications Ltd, UK · T: 020 8962 5000 · E: sales@hhb.co.uk

www.hhbusa.com

**MIX READER SERVICE HAS GONE
ONLINE!**

WWW.MIXONLINE.COM/RS

YOU CAN NOW REQUEST INFORMATION

directly from manufacturers and advertisers ONLINE

by turning to the AD INDEX of this issue

and following instructions directing you to

www.mixonline.com/rs

Simply log in, fill out the form, and your request will be

submitted directly to the advertiser.

While you're there, let us know what you thought of

this month's issue. It's easy!

Log on to www.mixonline.com/rs

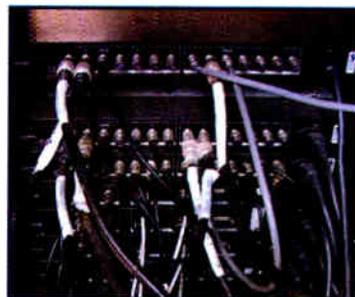
The Wireless Reality

"I had a receiving walkie-talkie in my tent," says Alexander. "I initially thought of just trying to record the signal by plugging into my headphones, but there was too much hum there. Instead, I gaffer-taped a Tram [TR-50] lavalier mic with a Windjammer on it to the speaker of my walkie-talkie, and ran that line directly into a Fostex PD-4 time-code DAT recorder. That gave us truer audio, the way a walkie-talkie really sounds."

THE FREQUENCY FACTOR

Shows like *Combat Missions*, *Fear Factor* and *Man Hunt* all depend heavily on being able to capture clean radio signals from contestants' transmitters. Finding the correct frequency is therefore a complicated issue. Most crews rely mainly on extensive research and tests during pre-production, but even then, complications can, and do, arise.

That's one reason why most reality shows still rely on the venerable sit-down interview with contestants—to provide supplemental coverage in case a particular event is missed by cameras, mics or both. In addition, some wireless pro-



Pictured are the front of the Sony WDA-20 antenna distribution system control unit used on the UK's *Scrapheap Challenge* (top), and the back of the system.

Break the SOUND BARRIER at the BROADWAY SOUND MASTER CLASSES

Entertainment Design magazine launches the Broadway Sound Master Classes (BSMC) -- the perfect partner to the Broadway Lighting Master Classes (BLMC) -- December 6-9, 2001 - New York City

Join legendary sound designer Abe Jacob and a roster of today's top audio professionals for an in-depth exploration of the current trends in Broadway sound design and reinforcement... from the artistic process to the hottest new technology.

The four-day schedule includes a ticket to a hit Broadway musical, complete with backstage tour and critique of the sound design... two days of panels and presentations by leading sound professionals... a closing brunch with your colleagues at the

BLMC... about the process of design collaboration... and an invitation to the annual EDDY Awards and holiday party on December 7th. Plus an up-close look at cutting-edge technology in the manufacturers showcase.

From the biggest musicals to the most intimate plays, the BSMC celebrates the art of sound design on Broadway!

For up-to-the-minute details and additional information about the BSMC: www.entertainmentdesignmag.com or 212-229-2965 x816



FAX OR MAIL THIS FORM AND CONFIRM YOUR BSMC 2001 RESERVATION TODAY!

Fax registration to 913-514-3630 or mail to: BSMC, attn: Kate Sheere, 32 West 18th Street, New York, NY 10011

YES, register me for the BSMC 2001 - \$775 includes 1 ticket to a Broadway show and the 2001 EDDY Awards

I am entitled to 15% discount rate:

ESTA/USITT/TEA/IATSE/PLASA/ATHE/other _____
 student discount

YES, I am interested in reserving a Product Table and becoming a Corporate sponsor (please note - product display space is limited)

Name/Title: _____

Company/School: _____

is company/school part of your mailing address? Y N

Address: _____

City/State/Zip: _____

Telephone: _____

Fax: _____

Email: _____

Please charge my: AMEX M/C Visa Discover

Cardholder name: _____

Account #: _____ Exp. Date: _____

Signature: _____ Date: _____

My US bank check is enclosed Send me info on paying by wire transfer

For more information: 212-229-2965, ext 816 fax 212-229-2084 Broadway Sound Master Classes, 32 West 18th Street, New York, NY 10011 • BSMC2001 program tuition - \$775 • Corporate Sponsorships available • Contact us about Special Program Discounts for ESTA, USITT, TEA, IATSE, & theatre education association members, school groups, and repeat attendees.

grams, like *Fear Factor*, do record some backup audio onto videotape during stunts where contestants physically carry clamshell recorders on their bodies, with tiny cameras and mics hard-wired to the recorder. Hill says those backup audio tracks were rarely needed during production of *Fear Factor*, however, mainly because of intense testing done with the show's stunt team to eliminate wireless problems for each setup.

Santoro explains that, in preparation for such shows, his company spends much of its time concentrating on solving signal problems before they arise.

"Frequency coordination is the most complex part of these jobs," Santoro says. "All the on-set frequencies alone, combined with local analog and digital TV and radio frequencies, make it difficult. Our company has developed proprietary software designed to monitor and coordinate the signals to work together as a group once we have chosen frequencies. Before that, of course, we need to use a variety of resources, such as the *World Radio Handbook*, and a couple Websites—particularly the FCC's—to determine what frequencies are currently licensed and transmitting in any particular city. We generate those lists and continually compare and update them."

Of course, not all reality shows are shot in the United States. In the original version of Discovery Channel's *Junkyard Wars*, contestants are given tools, materials and 10 hours to build different types of machines from scratch that are later judged in

firewire storage is here!

See M Project at the AES Convention:
Jacob Javits Center, New York City,
Sept. 21-24, at Glyph (booth #1330) or
MOTU (booth #550).



introducing...

GLYPH M Project FireWire Storage



M Project is the new FireWire hard drive for your MOTU hard disk recording system from Glyph Technologies.

M Project adds up to 75 GB of audio storage to your MOTU rig in seconds, backed by Glyph's legendary service and support.

M Project is the only MOTU-approved FireWire drive for the 828 and all MOTU PCI-324-based systems, including the 2408mkII, 1296, 1224 or 24i. M Project easily shares the FireWire bus with the 828, and even allows you to connect multiple 828s to your computer.

And M Project is the ideal alternative to SCSI drives because it frees up a PCI slot. So call Sweetwater today and ask about M Project, the ultimate storage solution for MOTU hard disk recording.



Now available
exclusively at
Sweetwater

Sweetwater
music technology direct.
Apple Authorized Reseller

Call today!
1-800-222-4700
www.sweetwater.com

The Wireless Reality

competition against each other. The show is now produced in the United States, but *Junkyard Wars* began life as *Scrapheap Challenge* for three seasons in the UK, where its audio template was established, only to later require revision in the U.S.

Richard Meredith, co-director of England's Total Audio Solutions, served as sound supervisor on the UK version, and as a consultant on the American version. Meredith points out that the show, like *Combat Missions*, has a large coverage area in both a four-acre junkyard and in different venues where the competing machines are tested. By UK law, transmitters are limited to lower power levels than in the United States. This caused Meredith to select an active antenna signal booster system from Sony to handle wireless signals in the show's wide coverage area.

"We used the Sony WDA-820 antenna distribution system, which lets you place four antennas on a single input, and also lets you cascade the units together, creating an actual antenna network, which is

more efficient for a large coverage area," says Meredith. "Contestants wear Sony 860 transmitters, and we also put [Beyerdynamic TGX-30] headsets on them rather than lavaliers, because the contestants use tools to build their machines, and mics could be damaged or drowned out, whereas we can keep headset mics near their mouths at all times, no matter the head movement."

The antenna network enabled Meredith's team to send the various signals to a specially configured mobile audio truck on-site, where the signals were captured by Sony WRR-850 AC power receivers, and then added to the mix on a Sony DMX-R100 48-input studio console, and recorded out to Tascam DA-88 recorders. In order to match picture and audio, however, Meredith's team had to create a system to transmit the signal back to the six video cameras taping the show as it was mixed.

"All the picture cutting is done in post, and the cameras are remote, so we needed to do three mixes—'A' and 'B' mixes of the contestants, and a 'C' mix of the judges—and re-transmit them to the relevant cameras in the field," he explains.



The fear factor of being in a submerged automobile.

"We configured the cameras with Sony WRR-855 receivers, and that captured the mixed signal and put it onto the tape with the picture, locking the two together with

"Every time I sit in front of this Console I just say to myself, God bless Paul Wolff and API."

*Dino Elafante
The Sound Kitchen*

80 Input API Legacy Plus
The Sound Kitchen
Big Boy Studio
Nashville, TN

410-381-7379
api 410-381-5025 fax
www.apiaudio.com

AES
Booth 1236

small Ambient Lockit signal sync units attached to each camera. The main sound in the final mix came off the DA-88 version we recorded in the truck, but this method let us match picture and sound."

When the show moved to the U.S., however, the crew faced the opposite signal problem—American transmitters can operate at higher power levels, but with fewer frequencies per band. That created bandwidth problems in coordinating the movement of the RF signal from the contestants, to the truck and back to the cameras without interference, according to Meredith.

"I felt the original American setup had not allocated the frequencies very well," he says. "The aim is to set up an intermodulation-free plan, whereby none of the transmit frequencies interfere with any others. The problem in the U.S. was, the bigger the 'side bands' become, the more they cause co-channel interference with other frequencies. In consultation with the American sound crew, we decided to swap things around so that the highest powered frequency was used for transmission back to the cameras, so most potential interference frequencies would be above everything else we were using."

WIRELESS-LESS

Not all reality shows, of course, take place outside. Meredith also serves as sound supervisor for the Fox Family Channel recurring special *The Scariest Places on Earth*. That show takes place inside ancient castles around the world, where selected families are required to spend a night in total darkness while performing odd tasks.

Because the program usually is shot in old buildings with thick walls, the RF approach was not an option. Instead, audio is acquired alongside video on mini-DV recorders worn by contestants in special vests. The issue Meredith's team faced with that approach, however, was the lack of any ability to field-mix the signal. And contestants often scream, per the format's design, which presented a problem maintaining proper levels.

"Contestants wear Sony ECM-77 lavalier mics attached to the same little arm that holds a mini-camera, both hard-wired into the DV recorder," says Meredith. "When the player screams, that obviously creates a high sound pressure level. We needed to keep the signal from being distorted in those situations, so we devised a little custom box specifically for this show that essentially amplifies the mic signal up, or limits it down, to the recorder's line input level. We gave the system an amplifier, but also inserted a limiter into

the box to protect against overload if voices get too loud."

Such solutions are commonplace in the unscripted world, and future programs will feature more innovations, including the use of multitrack hard disk recorders, among other things, according to Santoro.

"In the future, many people believe that the method of acquisition for these shows in the field will be with digital Betacam and HD cameras," says Santoro. "So many people are working right now to improve wireless technology so that the signal will interface better with Sony digital recorders, and work better around HD cameras. Right now, HD cameras bring

higher-frequency noise levels with them out in the field, so problems like that need to be attacked."

But as Santoro points out, there will never be "a correct way" to record such shows, particularly as they become more outrageous, if such a thing is possible.

"It's a break-the-rules, make-it-up-as-you-go-along industry," says Santoro. "That's the biggest evolution we're seeing—nothing ever stays the same. Every show is different and you just have to figure it out." ■

Michael Goldman is the senior editor of Mix's sister publication, Millimeter.

TUNE INTO ZERO'S SOUND SOLUTIONS

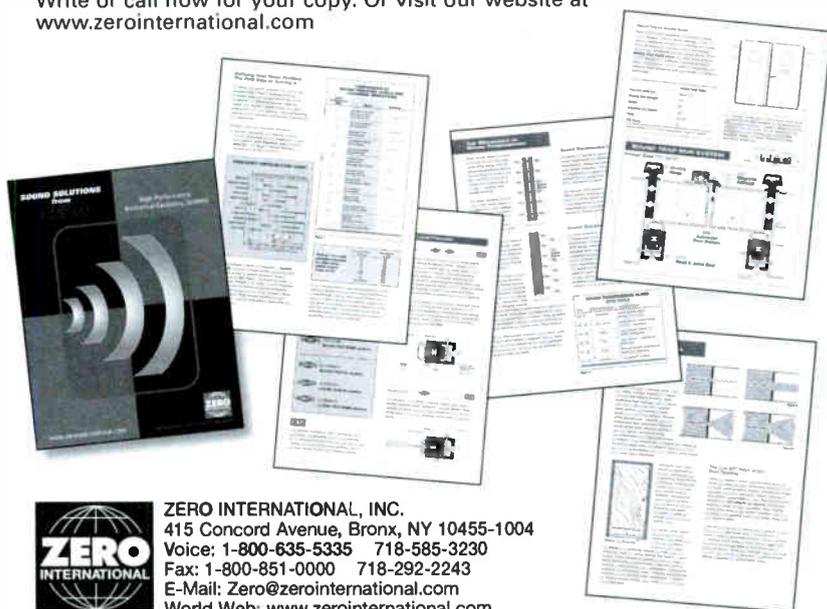
Our New Practical Guide To Acoustical Gasketing Tells You What You Need To Know

For years you have counted on ZERO for extraordinary sound control from our SOUND TRAP door sealing systems. Now, in response to popular demand, we are offering the definitive technical guide to understanding the science of sound and how it applies to door openings.

SOUND SOLUTIONS FROM ZERO: HIGH-PERFORMANCE ACOUSTICAL GASKETING SYSTEMS will help you analyze your noise problem and select the SOUND TRAP system you need to solve it.

Our 20-page brochure discusses the basic principles of acoustics as the foundation for defining and quantifying noise problems. Our explanation of how sound transmission through doors is measured and compared will give you a good working knowledge of STC – sound transmission class – ratings for acoustical door assemblies. As it explains the vital role of gasketing in those assemblies, the brochure also walks you through the necessary steps for practical applications.

We encourage you to use an acoustical consultant to ensure optimal results when designing new openings. At the same time, we highlight the many opportunities for upgrading the performance of existing doors using ZERO acoustical gasketing. **SOUND SOLUTIONS** features SOUND TRAP systems for single doors and pairs that cover the spectrum of typical sound-control needs. Let us help you close the door on noise. Write or call now for your copy. Or visit our website at www.zerointernational.com



ZERO INTERNATIONAL, INC.
415 Concord Avenue, Bronx, NY 10455-1004
Voice: 1-800-635-5335 718-585-3230
Fax: 1-800-851-0000 718-292-2243
E-Mail: Zero@zerointernational.com
World Web: www.zerointernational.com

©2001 ZERO™ Trademark of Zero International

THRESHOLDS · SADDLES · HINGES · LIGHT/SOUND SEALS · STAIR NOSING · ADA SURFACES · INTUMESCENT SEALS · WEATHERSTRIPPING · RAMPS

SURROUND ON LOCATION

Multi-Mic Technique Meets Phase-Based Matrix

by Larry the O

Surround recording is an area many are exploring nowadays, and each of those that do so have their own applications and reasons for doing it, but it is likely that Riccardo Mazza is alone in taking on this topic to justify elephant rides in Sri Lanka and river trips in Thailand. The wife of this high-spirited, 37-year-old, Turin, Italy-based musician and engineer likes to travel, and she's not so keen on anything as nearby as Venice or Florence.

As Mazza watched his travel bills mount, he realized he had to find a way to make this wanderlust earn money instead of hemorrhaging it. The answer lay in recording the sounds of the far-flung destinations. Mazza had already spent nearly a year devising software to let him experiment with surround motion techniques in the music he was writing. Now, recording in surround seemed the answer that would justify his perambulations and their costs, but there was a catch: Portable multitrack digital recorders were not as easy to come by in 1997 when he started the effort as was his trusty Sony portable DAT deck.

The challenge was plain: Find a way to record immersive surround recordings on two channels that could then be decoded in post-production to recapture the surround image.

The solution Mazza came up with was a family of multi-mic recording techniques and a phase-based matrix that encoded the microphone outputs into a 2-channel signal capable of being decoded by a standard Dolby Pro Logic unit. The development ignited in him a burst of technological and musical activity that produced a unique set of tools and techniques, as well as the world's first Dolby Surround-encoded sound effects library.



Peter Giola (standing) and Riccardo Mazza

NUENDO



Flexible by Design

If you work with today's audio production facilities you already understand that flexibility is what you really require from the gear you use. With Nuendo you are not bound to just one platform or forced to buy one brand of dedicated audio hardware. In fact, whether your setup is a Macintosh PowerBook, a PC laptop or even a high speed multi-processor desktop CPU; nothing stops you from working on any part of your project at different locations with the hardware at hand. A songwriter, for example, can work on pre-production using a laptop, the band can be recorded in the studio on a dual processor PC, vocals can be edited on your PowerBook, and everything combined for final mix-down on a G4. Working across platforms is no problem with Nuendo.

Nuendo -Flexibility by Design.



Nuendo Seminar Tour
July/August 2001
Log on to www.nuendo.com
for dates and locations.



www.nuendo.com

World Radio History

 **steinberg**
Creativity First

SURROUND ON LOCATION

DEEP BACKGROUND

Mazza began his musical career as a drummer, but that didn't last past his teens, because, as Mazza explains, "I was crazy, rolling all the time and giving fire to the cymbals. Nobody wanted to play with me at all!"

In his 20s, Mazza began studying technology. Although he continued composing and playing music, including an abortive madcap attempt at rock 'n' roll stardom in Los Angeles, he also began an intensive study in sound and audio technology. While immersing himself academically, Mazza kept close to "the street," engineering and sound designing for major Italian recording artists, and providing technical support for companies like KS Waves, Opcode Systems and Creamware. In 1995, Sony Italy released a solo album of Mazza's "progressive pop."

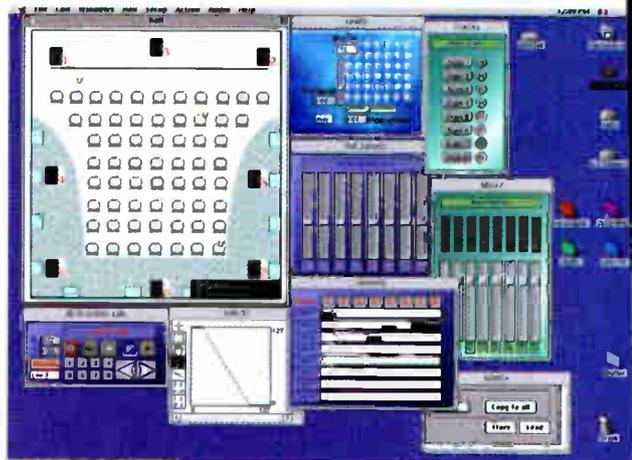
By 1996, Mazza began teaching at the Scuola di Alto Perfezionamento di Saluzzo, one of Italy's most highly regarded schools of music, an activity he continues today.

(He's also involved with conservatories in Bologna and Milan.) Then the surround bug bit, and within a year, Mazza had created his first surround software tool, 3D Total Surround (3DTS), for use in a performance at Milan's Magazzini Generali of a suite he composed and conducted. "It was a major step for me," says Mazza, "experimenting with dynamic motion and the reactions to various curves of different source and speaker positions."

3DTS is a stand-alone application that controls a DAW or digital mixer with MIDI control change commands to manipulate up to eight signals playing over up to eight virtual speakers placed within a defined space. The behavior of each speaker is specified and can be varied in real time. A built-in sequencer can record and play mouse gestures, and OMS compatibility allows MIDI controllers to be used and recorded.

In 3DTS, the user first defines the dimensions of the room in which the

sound will be played (a PICT of an actual space can be pasted into the display for convenience and realism) and then the placement of speakers within the space. Next, the user creates dynamic response characteristics for each speaker by specifying a maximum output level (which roughly correlates to its throw, or distance coverage) and a table containing a curve



Screenshot of the 3D Total Surround (3DTS) software. The venue and speaker placements are illustrated in the window called "hall," with the room's dimensions defined in the "space" window. The main determinants of how sound moves through the space are set by the virtual speaker levels in the "Out Levels" window and the curve (or "table") in the "tab:51" window.

ROSATI ACOUSTICS

lots of imagination....state-of-the methods

**FACILITY DESIGNERS
ACOUSTICS & ARCHITECTURE
TECHNICAL SYSTEMS INTEGRATION**

**PERFORMANCE & PRODUCTION
ENVIRONMENTS**

617 . 423 . 5546
BOSTON, MA USA
ROSATIACOUSTICS.COM

DECADES OF EXPERIENCE
HUNDREDS OF CLIENTS
THOUSANDS OF DRAWINGS
MILLIONS OF NOTES PLAYED

Realize Your DREAM

Introducing DREAM — Digital Recording Editing And Mixing — from Fairlight, a family of complementary systems comprising a stand-alone editor, an integrated editor/mixer with expandable fader bays, and a fully-fledged integrated mixer/editor presented as a large format mixing console. Powered by Fairlight's acclaimed QDC Technology delivering 24-bit 96kHz performance, DREAM heralds a new era in digital audio production and post production with a radically new suite of multi-channel, multi-format technologies delivering high performance with low cost of ownership.

DREAM Satellite

With 16, 32 or 48 tracks of pristine digital audio, DREAM Satellite delivers Fairlight's revolutionary new editing model — the Binnacle™. DREAM Satellite is a completely independent and fully featured editing workstation offering Fairlight power in an incredibly cost-effective package.

DREAM Station

A fully integrated 48-track, 56-channel, 16-bus editing and mixing system, every channel in the Station offers 6-band EQ and comprehensive dynamics as standard, all the time, and every bus has dynamics and EQ as well as insertion capabilities. With 3rd party plug-ins rounding out the effects processing capability, and all the bussing, sub-bussing and monitoring facilities required for a vast array of post production tasks, a Station and a set of speakers is all that is required to equip a complete medium-scale editing and mixing facility. DREAM Station is fully automated and the control surface can be expanded using Station Sidecar fader expansion bays.

DREAM Console

The DREAM Console represents the peak of performance for full scale recording, editing, production and mixing of the most complex multi-format audio projects. A fully configured DREAM Console offers 48 tracks of Binnacle™ editing seamlessly integrated to 96 audio channels with 6-band EQ and 2-stage dynamics, plus 48 returns and 48 auxiliary inputs simultaneously mixing a total of 192 inputs into multiple multi-format busses. The bussing structure of the DREAM Console has been expressly designed for multi-format projects, and allows simultaneous generation of multi-channel formats up to 7.1 with individual level trims for each independent mix. With the same EQ, dynamics and plug-ins capabilities as DREAM Station, but on a much larger scale, and with full compatibility, projects may be transferred between the platforms for iterative work. The DREAM Console delivers resources which have been hitherto unavailable on any system, at any price, and puts them within reach of any facility aiming at serious production and mixing work.

www.fairlight.net

1 800 4-FAIRLIGHT

World Radio History

FAIRLIGHT
TM

SURROUND ON LOCATION

onto which signal volume for the speaker will be mapped.

Both of these parameters are very flexible: The maximum volume can be varied in real time to effectively change the amount of leakage or separation between speakers, while the curves in the tables can be drawn in any shape. With the environment and its response created, the user then makes and records movement

gestures for the sound.

3DTS typifies a very important aspect of Mazza's work in surround: His viewpoint is musical, and so his primary concern in the tools he makes and their usage is creative rather than scientific. While his mic techniques often do not produce the most accurate representation of an acoustic event, 3DTS is not designed to be a true emulation of speaker response in a room, and many of the sounds on the CD library are not mono-compatible. Instead, his aim is to achieve the greatest dramatic impact that surround sound promises. (More information on 3DTS and the rest of Mazza's innovations can be found at www.renais

sancesfx.com. A 4-in/4-out version of 3DTS can be downloaded from www.riccardo.mazza.com.)

MIKING TECHNIQUES AND X-MAT

With 3DTS up and running, Mazza started developing his mic techniques, which he called "X-Technologies," as a research project that further exploited some of the curves and ideas he explored with 3DTS, and combined them with the surround effects produced by out-of-phase material. His experiments started with the distance formula:

$$d = \sqrt{(X2-X1)^2 + (Y2-Y1)^2}$$

Where d = distance; X1, Y1 = listener's position coordinates; and X2, Y2 = coordinates of a sound source moving through space.

The result of this was mapped onto a mathematical matrix that assumed 360° pickup (by any number of miking techniques) and combined a time-variant re-

"EMTEC has the only tape that gives me a true perspective of my mix."

Producer, engineer and mixer — Jack Joseph Puig on EMTEC tape. His credits include Hole, No Doubt, Green Day, Counting Crows, Shelby Lyn, Ronald, Robbie Williams, Stone X and Tricky.

EMTEC STUDIO MASTER 911
EMTEC STUDIO MASTER 900

www.emtec-usa.com



XMAT setup for the I configuration with a cardioid, a shotgun and a bidirectional mic. Bus 3 is phase-reversed.

sponse curve with a linear mapping of the space definition to yield a value representing angular distance from a directional microphone.

Using this system, a source moving past a mic array will produce an out-of-phase signal over a certain range of coverage angles and distance. When the mic outputs are properly summed, this produces a 2-channel, Dolby Surround-compatible signal without any of the lowpass filtering and other limitations of Dolby Surround encoding.

Mazza leveraged Dolby Surround steering by carefully combining microphone pickup patterns and placement, level and phase control. His research resulted in four X-techniques intended to allow acoustic events to be recorded with maximum impact.

"X-Techniques are a derivation of Mid-Side technology," Mazza points out. "You can use many different mic techniques; the key is the principle of sum and difference combination with a figure-8 or a cardioid microphone."

GET DEEP.

SONAR™

the revolutionary digital multitrack recording system for Windows



A DIRECT HIT.

"A killer, killer product. This is THE one . . . the best product upgrade I've ever seen. 10 out of 10 rating!"

—DANCETECH.COM

"A quantum leap for Cakewalk . . . very impressive"

—SOUND ON SOUND MAGAZINE

"PLATINUM AWARD. Upgrade heaven . . . the new features of audio loop handling and DXi instruments alone make it a must-have upgrade."

—FUTURE MUSIC MAGAZINE

"SONAR takes the recording process to levels previously unavailable. 5 out of 5 stars."

—AMP3.COM

"The most sweeping upgrade since the company first added digital-audio recording to its MIDI authoring tools. 5 out of 5 rating!"

—PC MAGAZINE

"SMART BUY AWARD. Cubase and Logic should keep one eye on the periscope; they've been locked onto by Cakewalk's SONAR!"

—COMPUTER MUSIC MAGAZINE

"If you like Sonic Foundry's ACID but need additional MIDI features, you should definitely take a look at SONAR."

—WINDOWWATCH.COM

"If you want the ultimate combination of audio looping, a full-blown MIDI sequencer with integrated software synths, and excellent mixing, nothing on the market today can touch SONAR."

—PROREC.COM

DXi

For a list of soft synth developers supporting the new DXi plug-in standard, visit www.cakewalk.com/dxi

For more information, visit www.cakewalk.com/sonar or call 888-CAKEWALK (617-423-9004 outside U.S.)

Cakewalk is a registered trademark, and SONAR and the Cakewalk logo are trademarks of Twelve Tone Systems, Inc. Other trademarks mentioned are held by their respective owners.

cakewalk

www.cakewalk.com

SEE US AT AES BOOTH #674

SURROUND ON LOCATION

"In order to use this technology, I need a double-encoding of phase. I have phase control on the first section of the channel and another phase switch on the destination, so summing and differencing both phases I get what I call 'double-sided' coding."

Putting these ideas into action required building a means of performing the careful, phase-correlated level and phase manipulations necessary to get the desired effect. Mazza programmed the necessary encoding matrix, which he calls "X-Mat," as a plug-in for Creamware's powerful Scope environment. (Scope consists of a PCI plug-in card containing 15 Analog Devices SHARC DSP chips and a software library of audio processing modules from which you can build virtually any custom circuit.)

X-Mat has five channels for microphone inputs, each with a level control and assignment to one or more of four buses, which are then summed down to a 2-channel signal. Phase reversal is possible at numerous points in the process: independently on each channel, on pairs of channels (1/2 and 3/4) and for each of the buses.

Mazza's "I" format is a good example of how his X-Techniques work. The I format puts an omnidirectional microphone, a shotgun and bidirectional (figure-8) mic in a near-coincident M/S-like array, where the figure-8 is at a 90° angle to the shotgun. In the X-Mat matrix, the omni and the figure-8 are assigned to buses 1 and 2, and the shotgun to buses 3 and 4. The buses are combined into Lt-Rt, but the phase of bus 3 is flipped before combining. The result is:

$$L_t = O+L-R+S=L+R+C+S+L-R-S=2L+C-S$$

$$R_t = O-L+R+S=L+R+C+S-L+R+S=2R+C+S$$

Which, once Dolby Surround-decoded, yields:

$$L=2L, R=2R, C=2C, S=2S$$

This configuration excels at capturing front-to-back motion, but yields a weak stereo image and suffers from proximity effect. Consequently, this format is optimal for recording large events, like ex-

plosions or gunshots, at a distance.

The X-O format, on the other hand, is intended to produce an accurate 360° image. It requires five microphones: four cardioids and an omni. The cardioids are placed with one facing each direction: One pair is placed at right angles to each other and captures the front L/R, while the other pair faces the rear and captures SL/SR. The two pairs are placed coincident to each other, while the omni is placed in the middle of the whole affair. In the X-Mat matrix, the cardioids, appearing on channels 1 through 4, are as-

signed to buses 1 and 2 (which then feed Lt/Rt outputs) in odd/even pairs (FL/FR and SL/SR to 1/2), but the phase on SL is flipped. The omni is assigned to both buses 1 and 2. Defining the pickup of the omni as (L+C+R+S), we get:



The Matrix. The Filter Mode buttons under the "Ch 1" and "Ch 2" legends in the main center section allow the HPF and LPF filters to be applied in flexible and unusual ways, while the parameters can be modulated by the LFO Matrix to their right.

signed to buses 1 and 2 (which then feed Lt/Rt outputs) in odd/even pairs (FL/FR and SL/SR to 1/2), but the phase on SL is flipped. The omni is assigned to both buses 1 and 2. Defining the pickup of the omni as (L+C+R+S), we get:

$$L_t = L-Ls+Omni = L-Ls+(L+R+C+S) = 2L+R+2C+(S-Ls)$$

$$R_t = R+Rs+Omni = R+Rs+(L+R+C+S) = 2R+L+2C+(S+Rs)$$

To make this work, the Ls signal must be normalized to compensate for the summing of Rs with the S component of the omni.

The Y-8 format uses two cardioid mics and a figure-8 to capture a 270° soundfield, best for capturing environments rather than motion. The Y-Hyper format substitutes a hypercardioid for the figure-8 and yields a 360° soundfield.

OUT IN THE FIELD

By 1998, Mazza felt it was time to take some of his ideas out in the field and put them to the test. To be practical for field recording in exotic locales, a number of

compromises were necessary. The biggest was that it was obviously not possible to take a Scope system with him, eliminating the use of his X-Mat software. In its place, Mazza constructed a very simple, passive electronic circuit that accepted four inputs, summing the transformer-coupled left and right channels with an out-of-phase surround and the center channel (which was attenuated by 3 dB through empirical determination). Thus, the left-channel output was:

$L+S+(C-3\text{ dB})$, while the right was $R-S+(C-3\text{ dB})$

Although today Mazza's circuit is nicely mounted in a project box, the original passive matrix was nothing more than loose circuitry: Just the thing to concern airport security in far corners of the globe. The hardware box's stripped-down nature limited the X-Techniques he could use with it, resulting on his relying most often on his Y-Hyper format.

For microphones, Mazza used various combinations of the AKG 300 Blue Line Series (for their robustness), a Shure VP88 MS mic, Earthworks SR77s, Schoeps boundary-layer (on less distant and dangerous outings), and Oktava MC 012s (mostly on gunshots because of their hardware level pad). ATI Nanoamp mic preamps fed a Sony SBM (SuperBitMapping) converter, and the output was recorded on a Sony DAT deck. Using a homemade carrying case and a mic mount, Mazza struck a deal with his wife (a photographer) that for every picture she shot, he would record a sound.

POST-PRODUCTION TOOLS

Between trips, Mazza, who considers himself to be primarily a composer, continued building tools for creative surround production. Eventually, these were brought to bear on the field recordings, as well as musical works and commercial jobs.

Mazza programmed two more applications, the Matrix and the LFE synthesizer, as plug-ins for the Scope environment. These surround tools were integrated into his production studio by connecting the Scope system to a Pro Tools Mix Plus system through an ADAT bridge.

"The Matrix creates a 5.1 environment from a stereo source, or even a mono source," describes Mazza. "The Matrix was originally designed for me as a key-

MEET THE NEW FAMILY

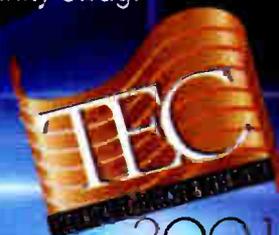
XLT 500 SERIES

**BOLD-BEAUTIFUL-POWERFUL
AND SELF PROTECTING**

Call 800-523-4934 or e-mail info@loudspeakers.net for a brochure on our new XLT500 Series.
Refer to code #210 for free Community swag.

Community

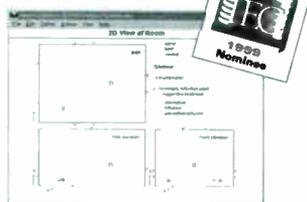
PROFESSIONAL LOUDSPEAKERS



**2001
NOMINEE**

www.loudspeakers.net

optimize



Room Optimizer™

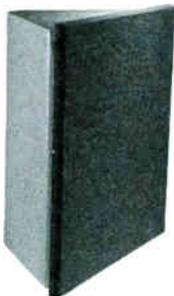
install



Skyline®



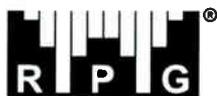
ProFoam™



Corner Bass Trap™

create

From concept to final master, RPG® provides the acoustic tools necessary to listen to the music, not the room.



RPG DIFFUSOR SYSTEMS, INC.

301.249.0044

www.rpgdiffusors.com

SEE US AT AES BOOTH #467

SURROUND ON LOCATION

board player. I normally use two keyboards to make one sound, so I created the Matrix because I needed it to do surround keyboards. Then I tried using the Matrix with stereo sounds, and I found that it worked very well, so I started using it for surround in normal production."

The Matrix is a multichannel morphing filter intended to produce interesting motion effects. It accepts four inputs configured as two stereo pairs (originally often a stereo synthesizer and a sampler) and produces 5.1 output.

There are six sections to the Matrix. The first is the Input section, which provides gain and phase control, metering and bypass (for in/out comparisons) for the two input pairs.

Next, the signals are fed to the Filter section. Each stereo signal is provided a lowpass filter, a highpass filter and a comb filter, all of which can be configured in a variety of ways. For instance, the LPF could be applied to the left channel, HPF to the right channel and the comb section (which is stereo) fed in parallel, with the outputs of the whole mess being combined at the end.

The LFO section contains four sine LFOs, which cause the motion in the signals. Each LFO is assignable to one or more parameters of the Filter section. The Vector section has two virtual "mod wheels" to which MIDI controllers are mapped in order to crossfade level and pan of the two stereo channels. The level wheel simply crossfades the two stereo channels, while the pan wheel exchanges pan positions between stereo channels (stereo channel 1 L/R moves to the pan positions previously occupied by channel 2 L/R, and vice versa) or within channels (channel 1 L moves to the location of channel 1 R, and vice versa, the same thing happening with channel 2 L and R). Because the wheels are controlled by MIDI controllers, the moves can be recorded and edited by a sequencer.

Another LFO is provided as an alternative to using MIDI to control the level wheel. This LFO is more sophisticated than those in the LFO section, with definable waveform, fade in and a Sync mode.

More MIDI control is available in the MIDI Modulation section, which lets key position, velocity or aftertouch be mapped to filter parameters. Response curves for the controllers can be drawn and edited.

Last, but far from least, is the Assign-

ment and Master section. In 5.1 mode, each of the four inputs you've by this point completely warped can be assigned to one or more of the five main outputs. The ability to assign an input to more than one output yields the ability to create complex interactions that will cause dramatic movement in the surround space. This mode also produces excellent Dolby Surround-compatible output. The Master section also has a Stereo mode.

The Master section contains two LFE processors, which use Tartini's third sound principle to produce very low-frequency signals. (Tartini was an Italian violinist who documented different tones in his mid-18th century harmony manual, one of the first discussions of what we now call the "missing fundamental effect.")

There are three versions of the Matrix: Matrix F (Full), M (Medium) and S (Small). The difference is simply the addition of a final delay section. Because delay can take up a lot of memory, the S version has no delay, while the F version provides the ability for each of L, R, SL and SR to be delayed and sent to any of the other three channels.

Taken as a whole, Mazza's Matrix provides a nearly overwhelming wealth of options for manipulation of two stereo signals to create a rich, moving surround soundfield.

BUILDING THE LIBRARY

Three years ago, Mazza met Turin businessman Pietro Giola, a former commercial composer now running a musical rights licensing concern, and the two decided to create and market a surround sound effects library with Mazza's tools and field recordings. A multi-CD set was planned, and Renaissance Sound Technologies was formed to produce it.

Mazza had always felt that the LFE channel played a crucial role in providing impact for surround sound, so it was decided that the CD library should contain an entire disc of LFE elements. To facilitate production of this disc, Mazza created the LFE Synthesizer (LFE-S), again using the Creamware Scope system as his development environment.

The LFE-S is a toolkit that exploits several psychoacoustic effects and synthesis techniques to generate very low-frequency materials. Five oscillators (one of which can be switched to accept an external input signal for processing) and two noise sources can be combined and assigned as modulators in an FM synthesis circuit with a sine wave carrier. The modulating oscillators can be defined by a number of parameters and further altered with wave-shaping sync circuits.

AVALON

PURE CLASS A MUSIC RECORDING SYSTEMS

Emily Lazar

Mastering Engineer
"The Lodge" Studios, New York.

"I love my Avalons!

I rely on the AD2077 Mastering Equalizer for its incredible depth and elegance. It is the most versatile EQ I've ever used. The integrity of the stereo image is both wide and true and the tonal range is extraordinary. I can achieve great control in the bass, while keeping the midrange smooth and precise... and the high end air seems to go on forever!

When I need color and super-fat compression, I turn to my VT-747SP. It gives me the flexibility of choosing whether I want to add the tube signal path or not... and that extra little EQ rocks!

Avalon truly sets the pace...
absolutely brilliant!"



VT-737SP Mono vacuum tube preamplifier, opto-compressor and discrete, Class A four-band equalizer. Unlimited rich sound loaded with sonic character, ideal for direct to tape, DAW and digital recording. \$2,295



VT-747SP Stereo vacuum tube opto-compressor with LF and HF spectral side-chain control, discrete Class A six-band program equalizer and tube bypass. Excellent for stereo buss compression, audio sweetening and mastering. \$2,495

AVALON  DESIGN

P.O. Box 5976 San Clemente, CA 92672 USA
Tel: 949-492-2000 • Fax: 949-492-4284

www.avalondesign.com



World Radio History

SURROUND ON LOCATION

From this point, the output of the FM synth and the modulating oscillators themselves are split into two signal paths. One path feeds a filtering section with 24dB/octave highpass and lowpass filters and the output of this section feeding a VCA. The other path goes to an LFE section, which is an adaptation of the LFE algorithm used in the Matrix, but tuned to lower frequencies.

A sophisticated modulation section with two full-featured LFOs, two envelopes and comprehensive MIDI mapping capabilities (the LFE-S is fully MIDI-controllable) provides more resources for complexity in the circuit.

Finally, the whole shebang: All of the various synth outputs (summed oscillators, waveshaping, FM, subtractive filtering) are combined with the outputs from the LFE section in the final output section.

With production of the CD library underway, RST began producing surround sound scores for conventions of Italian industrial giants ranging from Martini Bac-

ardi and Fila to Alfa Romeo. Surround sound in a live, commercial event was a revelation to many clients, as Giola recalls: "Renaissance Sound Technologies started to enter the market for original music production in surround for B2B [business-to-business] purposes, [which was] something very new for the market of

special events, conventions, multimedia events, exhibitions, etc.

"Marketing directors, creative managers—they know about surround production just on the cinema side; they usually don't think to use surround sound in special events or other similar applications. When we introduce them to what



An uncharacteristically serious portrait of the usually irrepressible Mazza in his studio. The window above the left corner of the Digidesign Pro Control unit looks into the recording room where he develops his X-Techniques.



VINTAGE WARMTH AND PURITY IN A COLD, DIGITAL WORLD

VTC Tube Console



Built by British pro-audio specialists TL Audio, the VTC console combines the vintage sound of vacuum tubes with a modern, in-line design that's perfect for music production. With tubes on every channel, plus the monitor, group and LR outputs, the VTC adds a degree of warmth and character so often missing from today's DAW or digital multitrack recordings. And it also adds a touch of class to any room.

So if you care about sound but still require modern facilities and reliability, talk to HHB about the VTC Tube Console.



NEW



8/2 M3 TubeTracker



Exclusively distributed by: HHB Communications USA Inc - T: 310 319 1111 - E: sales@hhbusa.com
 HHB Communications Canada Ltd - T: 416 867 9000 - E: sales@hhbcanada.com

www.hhbusa.com

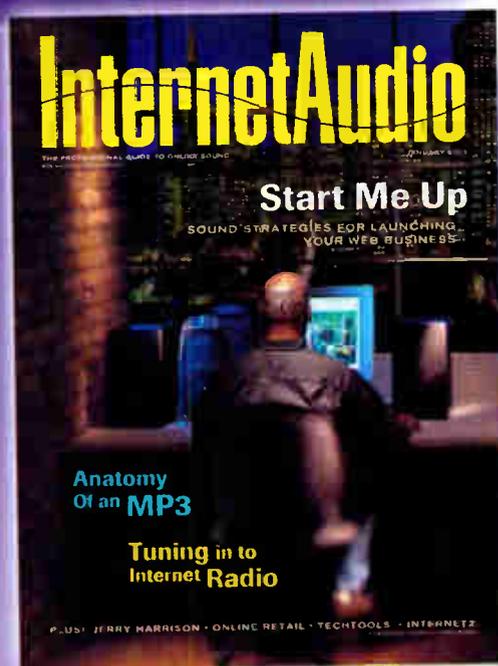
CONFUSED BY THE INTERNET?

Looking to expand your knowledge of audio for the Web?

Check out *Internet Audio* magazine for cutting-edge information on online audio technology and business issues, the hottest new products and coolest Web sites.

Subscribe today and stay informed about the latest in *Internet Audio* technology!
Call 1-800-441-0294
or visit www.mixonline.com
A DigitalMediaClick Community

For advertising opportunities please call 1-516-853-3307



from the editors of **MIX**

Internet Audio™

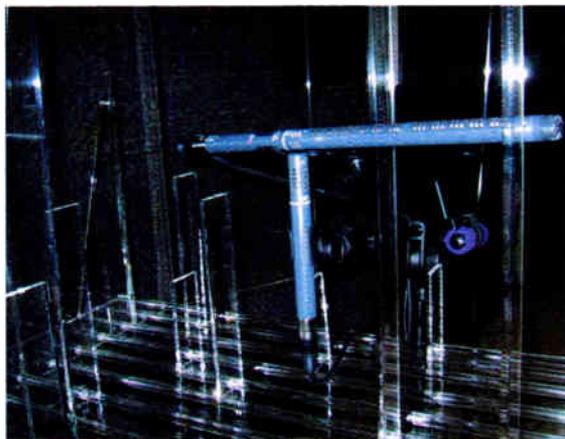
SURROUND ON LOCATION

surround sound is, they don't believe it is possible that audio can have so much impact on an audience [as we tell them it can have]. As soon as they sit in Riccardo's studio and listen to his surround-spatialized effects, all of them immediately change their point of view on audio and music and understand the real added value of surround sound production. For us, it is fundamental that they understand that surround audio is not just a better way of listening, but a new way of listening. It's a way to be 'in the sound,' and can be the key for developing new creative communication ideas and products. In this way, you can give your audience new 'sensations.' Every time we produce original surround sound, production clients feel there is something they didn't feel before.

"To illustrate the point, in the fall of 2000, we produced original surround sound installations for an in-

ternational art exhibition on the Etruscan people at the Palazzo Grassi in Venice. In the 'war room,' where old Etruscan arms were exhibited, we re-created a battle environment in surround sound to convey to visitors the sensation of being in the middle of an Etruscan battle.

"On opening day, the exhibition's official press release started with: 'Impactful battle sounds come from the war room of the Etruscan exhibition at Palazzo Grassi in Venice opening this Sunday. [You'll



Mazza's Reflection Chamber Emulator. Plexiglas "boards" of carefully calculated heights are placed to generate resonances at harmonically desirable frequencies.

hear] really involving and fascinating sound effects of roars, screams of wounded soldiers, clanging of swords, horses running and neighing; In this room, it's impossible to forget that Etruscan people were a warrior people as well."

RENAISSANCE SFX CD LIBRARY

By the end of 1999, the Renaissance SFX library was released and quickly garnered worldwide interest and distribution (with North American distribution through Sound Ideas). The Dolby Surround-encoded library, when originally released, contained seven discs (it now has 11), with a combination of natural field-recorded ambiences and effects and highly manipulated or synthetically generated ambiences and effects. The set is notable for its variety and out-of-the-ordinariness, with ambiences ranging from a monastery in the mountains of Thailand to a mall in Sao Paulo, a train in Prague and, of course, a pizza restaurant on the Italian Riviera. Alpine streams and horse pass-bys recorded in the Pampas of Uruguay illustrate the effectiveness of Mazza's miking

MODEL 101 microphone preamplifier



- *fully balanced, transformerless design *fast, musical transimpedance architecture
- *10-60dB gain with 10dB trim control *extended gain ribbon mic input available
- *high Z instrument input *75Hz high pass filter
- *48V phantom power *MSRP \$699.00

Presenting the model 101, a single serving of the critically acclaimed **Grace Design** microphone preamplifier circuit. This compact, affordable module is designed to transform plain project studio tracks into stellar, high-fidelity recordings.

We proudly used the same amplifier architecture of the venerable **model 801**, preserving its untouchable technical specs and purebred sonic performance. Then we packaged it to be priced within reach of any recording engineer or studio.

Regardless of budget, the Model 101 is an invaluable tool for any recording setup. With an integrated high impedance 1/4 inch input, the model 101 is the ultimate DAW input tool.

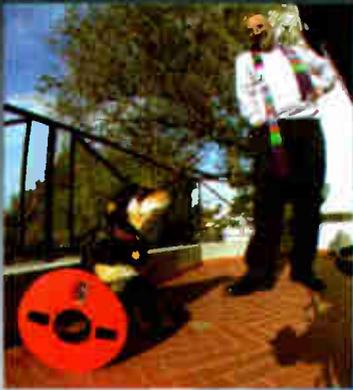
Whether using it on your favorite large diaphragm condenser mic or plugging in an acoustic guitar, the model 101 will help you achieve results previously available only to big budget studios and Grammy winning engineers.

high fidelity by

GRACE DESIGN

po box 204 boulder CO 80306 tel 303.443.7454 www.gracedesign.com

Hunting for that Classic Sound?



Carloquinto Talamona

Record producer (Spagna) and member of the World Class Super Group, on the legendary Island of the Dragonara, the Bay of Naples.

Think Quantegy

At Quantegy we set the standard with products like GP9 Grand Master™ Platinum. So it's no wonder that more music around the world goes gold and platinum on Quantegy media than on all the other brands combined. While opinion may vary on what it takes to make a hit, there's no argument on what it takes to master one.



QUANTEGY
The Hit Maker's Media

Tel: 800-752-0732

Fax: 800-628-0535

www.quantegy.com

SURROUND ON LOCATION

techniques, while science fiction sounds, ghost and goblin voices, and crazy and evil laughs demonstrate the usefulness of the post-production tools in studio work. An entire disc is also dedicated to surround musical elements: loops, pads and hits.

To differentiate effects intended to have a natural sound from those that are deliberately shaped, the sounds are identified in the library's catalog as belonging to one of three classes, which Mazza details: "We have 'natural' sounds, which are from the X-Techniques, that we used on city tracks and so forth. Then we have what we call 'motion' sounds, which are sounds that do not have an exact spot motion but they have a character or personality, like a ghost flying around you. Then we have sounds with exact motions, named 'panned,' which have a defined path, like 'gunshot LCRS,' which means from left through center to right and into the surrounds."

Mazza labored extensively in the authoring of the discs to ensure that the

sounds not only worked individually but also in combination. "Every sound has been treated independently so that any sound can be layered with any other sound without losing phase-based images," explains Mazza. "You can do many layers of the sounds in the library and still get the correct motion. If I have two versions of a sound, I treat one such that it will have a little phase difference from the other, so that you can always layer the sounds and build your own surround environment." Extensive testing layering combinations of sounds in the library was conducted to ensure that phase cancellation would be unlikely.

But the phase-based nature of Dolby Surround did force some difficult decisions. "We choose not to be completely mono-compatible," notes Mazza. "Natural sounds are mono-compatible, but the panned sounds are not mono-compatible. We do that so that you can get the maximum motion."

The choice of the Dolby Surround format, as opposed to 5.1, was largely a practical one. For starters, releasing 5.1 audio discs could only be done on DVD, as op-



Riccarda Mazza and his peregrine wife, Carola, shooting photos and recording sounds on Thailand's Mani River.

posed to standard CD-DA, which, in 1999 especially, was the more established format. Additionally, the library as released can be used in stereo without downmixing.

Long Distance Litepipe

Finally, Litepipe™ feeds can be longer than 30 feet. A LOT longer! Hosa's ingenious two-piece OGC-361 system makes possible Litepipe™ feeds of more than 300 feet (!) over glass-fiber cables.

All Cables Sold Separately.

www.hosatech.com

ADAT and Litepipe are trademarks of Alesis.

Hosa.
From Any Authorized Hosa Dealer.

COOL NEW SPECS FROM WAVEFRAME



WaveFrame proudly presents two new digital audio workstation systems designed to deliver unmatched fidelity and awesome performance at very attractive prices.

WaveFrame/7 Post Production



- ADR/Foley Mode
- TASCAM MMR-8 Ccompatible
- Auto-Assembly Option
- Network Options
- MADI I/O Option - 56 Channels
- Cue Sheet Printing

FrameWorks/DX Music Production



- CD-R Mastering
- DDP Output
- 5.1 Surround Panning
- Total Mix Automation
- Bars/Beats/Clocks
- SMPTE LTC & VITC
- AC-3 & DTS Encode Option

SEE US AT AES #1080

Systems for Post and Music

RECORD • EDIT • MIX • MASTER • SYNC • EFFECTS • SURROUND

World Radio History

WaveFrame

"WaveFrame is our basic platform at Soundelux, we use it for about 90 percent of all editorial work. It's a real workhorse..."

Per Hallberg, Oscar-winning sound supervisor
Soundelux, Hollywood

Quoted in Film & Video Magazine, June 2000

"I'm using FrameWorks/DX to create new 96kHz 24-bit surround mixes for DVD. The audio quality is exceptional and realistic—it's miles beyond the hard disc recording system we have been using. This is an incredible workstation!"

Joel Jaffe, Award-Winning Engineer
Producer, Composer
Studio D Recording, Sausalito, California

WaveFrame

Contact us today for more information or to arrange a demonstration

5818 Valjeo Street, Emeryville CA 94608
Tel (510) 594 9455 Fax (510) 654 8370

Email: info@waveframe.com
Web: http://www.waveframe.com

Systems start at just \$3995 for board set and software

SURROUND ON LOCATION

The release of the CD library was only the first volley, and production of more discs was ongoing. Since the original release, four more discs were added to the set, one being the LFE disc mentioned earlier. Mazza also wanted to release more musical elements on disc and continued developing tools toward that effort. The other new discs contain some of the results of this work.

His most recent invention is the Reflec-

tion Chamber Emulator, or RCE. Once again, Mazza took an unorthodox approach: Where recording engineers usually struggle to eliminate standing waves in recording spaces, the RCE was created to generate them. The RCE consists of a slotted Plexiglas sheet as a "floor" in the X plane and two sheets mounted at 90° to it as "walls," the two walls being at a 30° angle to each other. On the floor, Plexiglas "boards" of carefully chosen heights are arranged so that their placement results in standing waves of desired frequencies and amplitudes. The boards can be changed to accommodate the needs of the application. Generally, Mazza arranges the RCE to pro-

duce harmonically related standing waves calculated to complement the tonality of the musical piece he is recording, and he has written a program for his Psion PDA to calculate the height and placement of the boards for a given set of desired resonances.

The RCE is positioned in front of the musicians and then miked with either an inverse M/S arrangement or one of Mazza's X-Techniques, and recorded onto two tracks. In post-production, an M/S matrix or X-Mat is used to decode the material back into surround. Mazza's idea is to create a rich, harmonic surround environment for musical elements, and three new CDs have been created with the help of the RCE.

All of Mazza's tools and techniques have been built to serve his music, and even with the development time, travel and library production, he has kept up a continuous stream of performance and installation projects. In 1998, he created a system of sensors linked to works of art in Turin's Chiesa S. Filippo gallery. In 2000, RST created an interactive surround spatialization environment for the ARTISIMA Art Exhibition in Turin, a multisensor-controlled surround installation at an art exhibition in Milan, and the Palazzo Grassi installations described earlier, while 2001 brought yet more multisensor surround works with a performance at the Contemporary Art Museum in Turin and two installations at the Experimenta scientific exhibition, plus a surround soundtrack for the Giocathlon interactive exhibition on sports. Whew!

Mazza's work with sensors spurred the development of yet another tool: an interactive music language he calls CSXL (Coding Source Extended Language). "It's basically a squencer of ideas," explains Mazza, "where you can have placement of sound components algorithmically controlled by external factors like sensors."

Even with all of his tools, techniques and credits, Mazza still focuses on doing what it takes to get the job done, even when it calls for extraordinary measures to keep harmony in his household, as exemplified by a recent example of a recording done for the CD library: "In order to record breaking dishes [used in the library], I had to wait for my wife to go and see her mother, since I wanted to use all the marble surfaces in my house. The difficult part was cleaning everything up before she returned!" Oh, were we not supposed to print that part? ■

Larry the O is a musician and sound designer who has contributed to Mix since 1984.

Focus Yourself On Broadway!

Take your cue from the masters at the 9th annual Broadway Lighting Master Classes

A dual goal: to bring you in contact with diverse master lighting designers for an interplay of conceptual thinking and to allow you to come in contact with that inner creative force which seeks expression through all of us. *Jules Fisher February 2001*

December 5-9, 2001, in New York City.



Four days of seminars with Tony Award-winning LD Jules Fisher topping a roster of the brightest names in Broadway lighting. Plus a manufacturer's showcase with the latest advances in lighting technology. A simply illuminating experience for lighting designers, students, teachers, union electricians, scenic designers, and directors. This year's program will introduce the BSMC Broadway Sound Master Classes seminar as well, plus hands-on training courses presented in conjunction with ESTA's technical education committee, December 5, 2001, and the

annual *Entertainment Design* EDDY Awards, December 7, 2001.

BLMC 2000 Sponsors AC Lighting • Altman Stage Lighting • Apollo Design Technology Inc. • AWAB/transtech • City Theatrical • Electronic Theatre Controls • Field Template • Fourth Phase • GAM Products • High End Systems • Lee Filters • Le Maitre • Lycian Stage Lighting • MDG Fog Generators • New Century Lighting • Rosco/Entertainment Technology • SSP • Strand Lighting • TMB Associates • Vari-Lite, Inc. • Wybron

BLMC 2000 Faculty Jules Fisher • Peggy Eisenhauer • Jim Bornhorst • Dave Cunningham • Beverly Emmons • Wendall K. Harrington • Richard Hart • David Hays • Donald Holder • Vivien Leone • Chris Parry • Gordon Pearlman • Richard Pilbrow • Sonny Sonnenfeld • Marshall Spiller • Clifton Taylor • Nils Thurjussen • Keny Whitright



FAX OR MAIL THIS FORM AND CONFIRM YOUR BLMC 2001 RESERVATION TODAY!

Fax registration to 913-514-3630 or mail to: **BLMC, attn: Kate Sheere, 32 West 18th Street, New York, NY 10011**

- YES** register me for the BLMC 2001 - \$775 includes 1 ticket to a Broadway show and the 2001 EDDY Awards
I am entitled to a 15% discount:
 ESTA/USITT/TEA/IATSE/PLASA/ATHE/other _____
 student
- YES**, register me for BLMC 2001 Plus! - \$975 includes the above plus Automated Lighting Programming Hands-On
I am entitled to a 15% discount:
 ESTA/USITT/TEA/IATSE/PLASA/ATHE/other _____
 student
- YES**, I am interested in reserving a Product Table and becoming a Corporate sponsor (please note - product display space is limited)

Name/Title: _____

Company/School: _____

is company/school part of your mailing address? Y N

Address: _____

City/State/Zip: _____

Telephone: _____

Fax: _____

Email: _____

Please charge my: AMEX M/C Visa Discover

Cardholder name: _____

Account #: _____ Exp. Date: _____

Signature: _____ Date: _____

- My US bank check is enclosed Send me info on paying by wire transfer

For more information: 212-229-2965, ext 816 fax 212-229-2084 Broadway Lighting Master Classes, 32 West 18th Street, New York, NY 10011 • BLMC2001 program tuition - \$775 • BLMC2001 PLUS! - \$975 • Corporate Sponsorships available • Contact us about Special Program Discounts for ESTA, USITT, TEA, IATSE, & theatre education association members, school groups, and repeat attendees. Register today @ www.blmc.net

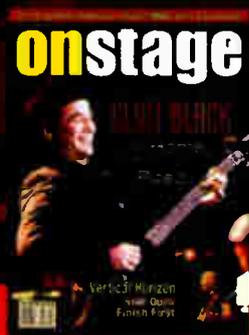
Get out of the dark and into the light with Remix, where DJs and turntablists go for product info and reviews, applications and techniques, dance music resources, and marketing/promotional ideas.



onstage

REMIX

UNDERGROUND MUSIC PRODUCTION • DJ PERFORMANCE



It's where performing musicians get out of the audience and into the act with the latest word in equipment reviews, music business techniques, and vital survival tips.

WE COVER IT ALL—

Now, every month, from the publishers of Electronic Musician, remixers read about current trends in electronic music, turntablist tips, the latest recording gear, and profiles of the top artists in today's club scene in Remix—and those who live to play live turn to Onstage for features of high-profile artists, technology spotlights, performance tools and columns by industry pros. Get into them!

www.remixmag.com

www.onstagemag.com

800.275.1989

©2001 Source Publishing. All rights reserved.

World Radio History

New York Post

Building Back Business After the Strike

by Gary Eskow

Setting up an audio post facility with the right people, technology and amenities is critical in the highly competitive New York market. Targeting your client base is also key. All bets are off the board, however, when an unforeseeable firestorm like last year's long and bitter Screen Actor's Guild strike hits town. Suddenly, work dries up, and even the most senior players in the field are left scrambling for billable hours.

Did the strike (now a fading memory) change the face of audio post in New York? Did major studios realize that they were vulnerable in ways they'd not considered before and look for additional



Bob Pomann of Pomann Sound

revenue streams? Did clients turn to non-union labor or talent outside the greater Metropolitan area? If so, did some of the audio post economy travel with them?

Understandably, not all of the post houses *Mix* contacted wanted to speak on the record about the long-term impact of the strike. However, we were able to gather a group of highly experienced—and visible—post personnel, including Howard Schwartz

of HSR/NY, Gail Nord of SoundHound, Ralph Kelsey of Broadway Sound and Bob Pomann of Pomann Sound. Their comments about the strike, and the current state of the industry, should be illuminating to anyone interested in the health of audio post.

So, let's begin with how the strike changed business, if at all, for your companies.

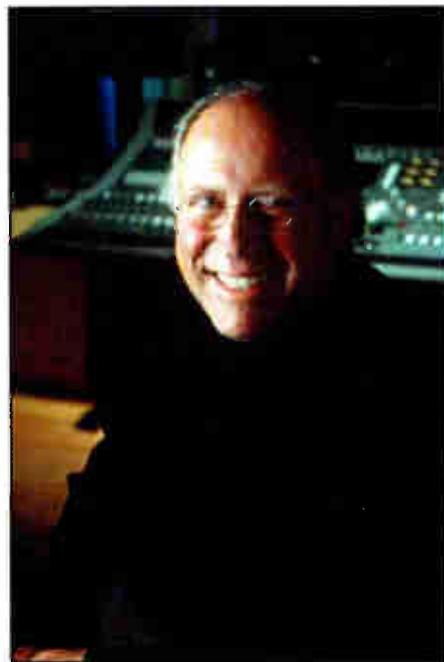
Howard Schwartz: It was a very interesting time, that's for sure! My clients all hired non-union talent, and, as a result, it took twice as long to record stuff. From a billable hours point of view, business was mostly okay.

The bad news is that while the actors and actresses were on strike, a lot of people found out that there were other places to work than New York, and even the United States. They also found out that some of these other areas were less expensive to work in than New York. That newfound awareness has definitely changed the landscape of the production and post-production businesses in this area on a long-term basis.

Gail Nord: SoundHound was lucky to have a strong on-air promo client base that remained extremely busy during the strike. We used it as an opportunity to solidify and add to that client base, as well as add in long-format program mixing for some of our cable clients.

Bob Pomann: There was less of a cash flow! We found ourselves putting more effort into getting promo work clients, which was an area we hadn't pursued vigorously prior to the strike. We were fortunate to have a steady cartoon series, *Sheep In the Big City*, on the Cartoon Network at the time. We hustled to get more series work, and that effort has paid off well.

Ralph Kelsey: The bulk of our business is cable promotion, so we didn't really get a direct hit from the strike. However, since there was less business out there, we felt an indirect hit as a result of ad facilities trying to fill their studios.



Howard Schwartz of HSR/NY

Did you find yourself recording more music dates or delving into new media?

Pomann: We've got a composer on staff, but we didn't go out looking to book our studio for music dates.

Kelsey: No, we didn't get an increase in music dates. We didn't actively pursue different business, although we did seem to get more long-form programming from our cable clients.

Nord: No increase in that area. We were fortunate in that the History Channel and A&E got more active in searching for this kind of business at the time of the strike. Having a strong client base was critical.

Schwartz: I didn't change my business plan at all. We don't do either of those two things—music sessions or new media work. Because of both the actors' strike against television shows and the writers' strike with Hollywood, both areas geared up and were pumping out a lot of work for a while, in anticipation of these stoppages. The consolidations of the post-production industry caused by Liberty Livewire created some new friends for us.

Things always are changing, and you have to be able to adjust. We have a great deal of capacity here, so when the advertising portion of our business went down, ADR went up. Last year's Super Bowl was

—CONTINUED ON PAGE 230

Composer Spotlight Carter Burwell

by Paul Verna

Ecology is a word you don't hear too often in the context of recording studios, but it suits film composer Carter Burwell's home-based facility in New York.

"One of the first things I said to my architect, John Storyk, is that I wanted the studio to be an ecology of technology," says Burwell. "I wanted all these different species of machine to live together in some symbiotic way. I've always loved the fact that my life is filled with machines and that they're all going to talk to each other, and new ones will be born and old ones will die. An ecology is a messy, complex thing, and we have to accept that that's what it's going to be."

Those who have followed Burwell's work will not be surprised to hear him liken his studio to a living, breathing being. After all, Burwell's scores are universally acknowledged as some of the most organic and original in the

film industry, enriching already brilliant films like Joel and Ethan Coen's *Blood Simple* and *Fargo*, David Mamet's *The Spanish Prisoner* and Spike Jonze's *Being John Malkovich*.

For most of his career, Burwell worked out of a self-built studio on West 37th Street. While that space served him well as a composition

—CONTINUED ON PAGE 234



Carter Burwell (left) and John Storyk

Facility Spotlight Sonicopia and Pulse 3-D

By Tom Kenny

Just when sound editors and mixers were getting a handle on drop-frame, nondrop and the idiosyncrasies of international video/film formats, along come

HTML coding, bandwidth optimization, JavaScript and cross-browser compatibility. Sound a bit intimidating? Sure. But it doesn't have to be.

Despite the gloom-and-doom press of the past year, the Internet is very much alive and well, and for anyone working in sound-for-picture, it seems a sure bet that Internet audio is going to be the Next Big Thing. While most applications thus far have focused on streaming and MP3, the notion of music and sound effects loading with the Web page, providing a backdrop similar to television spots, is ready today.

Many companies have developed custom sounds for particular sites, but Sonicopia, a San Francisco-based Web audio developer, has taken the idea one step further, providing a tool for any Web designer to add music, voice and effects in real time. No need to learn coding; the drag-and-drop interface in the newly released (available in

—CONTINUED ON PAGE 238



Sonicopia founder Stuart Dubey, left, with Pulse CEO Fred Angelopoulos

A Sound Designer by Any Other Name...



By Larry Blake

Last summer I was interviewed by a nice young man who is writing a doctoral dissertation on the evolution of modern film sound. Although he was in many ways guilty of classic, predictable mistakes of academia, his heart was clearly in the right place. I was frank with him regarding my contempt of assumptions of Grand Artistic Intent and Design propped up primarily by recycled errors present in papers written by other academics. In other words, opinions that pass the muster of post-graduate academia although they lack any resemblance to everyday working reality.

At one point in our conversation he asked me about the nature of the “sound design” credit. Try as he did to get me to create a clear distinction between “sound designer” and “supervising sound editor,” I couldn’t help him. Many people who had one credit could rightfully claim the other. Some people who have one are deserving of neither. I’ve never thought of this before, but unions and academics have this in common: They both have a deep, ingrained need to carefully pigeon-hole job descriptions.

This month’s column also won’t come up with any solutions to this “whodunnit” mystery. Instead, I hope readers will be satisfied with some background not only on the history of sound design, but also some of my feelings on the use—and misuse—of the credit.

To the best of my knowledge, “sound designer” first appeared on films in summer 1979 with Walter Murch’s credit on *Apocalypse Now* and Ben Burt’s on *More American Graffiti*. (The wording had been in use in live theater, where equal billing alongside the lighting, set, and costume designers is commonplace, though theater sound folks still aren’t considered for Tonys. What a crime.)

It makes sense that this newfangled credit would first be taken by Messrs. Murch and Burt, for they comprise two-thirds of my three-man All-Time Film Sound First Team, the third position being held by Murray Spivack. (See glossary for their credits.) The extent of their influence on the art of film sound is inestimable, and their work set standards for film sound’s use as an expressive medium.

The best tracks of the past few years—*Contact*, *Saving Private Ryan* and *Fight Club* come to mind first—clearly stand on their shoulders.

All of this begs the question: What is and is not sound design, or better yet, who is or is not a sound designer? While “sound design” is most easily recognized as special sound effects, the title “sound designer” can also apply to the person who is in charge of bringing sounds to the mix, regardless of the nature of those sounds. As long as they are the person the director calls, or who the director reams when things aren’t right, that person qualifies for the title. Sorta...

I consider that sound design, real sound design, is the pinnacle of the film sound art. It’s one thing to make an ADR line or a noisy production track fit into a film without getting in the way of the drama. It takes great skill to make music, either in the form of standard underscore or an onscreen performance, sound great in a big room. Although the creation of new “design” effects might not be needed in a car chase or a cops-and-robbers shootout, the differ-

TRUE STORY



Truly portable, studio-quality, USB audio

"When I got my **USBPre™**, I put it up against the mic preamps and converters in my studio – some of the best in the business. After it proved to be even better than advertised, I realized I had stumbled upon the perfect box. But the best part of it all was that, finally, I could take that studio quality anywhere. Just a couple of good mics, my laptop and DAW software, and my **USBPre™**. What a great time to be alive."

Michael Lapchick
*Independent Producer,
Chicago*



USBPre™

www.sounddevices.com

Features

- World-class 24-bit A/D converters
- Two studio-quality mic preamps
- USB-powered 48-volt phantom power
- ASIO drivers for Mac/Win
- ProTools Free compatible
- 106 dB dynamic range
- Zero-latency analog monitoring
- No batteries needed

The ins and outs

- XLR microphone inputs
- S/PDIF coaxial I/O
- High-impedance, low-noise DI
- Line/tape level inputs
- Mini and 1/4" headphone jacks



SOUND
DEVICES

ence between a good job and a pedestrian one is readily apparent.

But the act of creating a mood or a moment where there was none, is magical. At its best, it can not only interweave invisibly with film music, it can reach the same level of creative expression. More often than not it will involve bending or shaping some previously existing sound, most probably unrelated in species or design to the task at hand.

What about me, you might ask?

On most of the films that I work on I receive a dual "supervising sound editor/re-recording mixer" credit, because I genuinely do both jobs and feel that my work is best expressed in that manner. I'm not a supervisor who nurses a few faders and calls himself a mixer or a mixer who slips a few tracks at the mix and calls himself an editor. (I know, I should say what I really think.)

Although my level of involvement on the track of these films is far-reaching, and I am in charge over the, yes, design of the soundtrack, most of the films that I've worked on haven't had many moments in which to exercise (or flaunt) garden-variety sound design skills. Therefore, I relish those moments when they do occur. The one film that I did have many such opportunities, *Housebound*, I decided to take a "Sound Effects by" credit. The primary reason I like this wording is its Jack Webb, "just the facts, ma'am" nature of describing the work. (I'll also admit that a small part of me likes the homage to the credit taken

by Mr. Spivack for his work on what is generally considered the first great sound design job, the 1933 *King Kong*.) Along these lines, should I ever add production recording to my job description, I would then be able to go for the simplest, most inclusive possible credit: Sound. But I don't see this happening any time soon.

Another point about my credit: The

***It's all about the work,
and good work doesn't need
a fancy-sounding credit,
and bad work won't be
helped by one.***

order (sound editing first, re-recording second) is quite intentional, because I believe that the work that I do in prepping, recording, editing and generally supervising the dialog, music and sound effects that find their way to the mix is more important than the work that I do as a re-recording mixer behind the console. And I think if you ask others who also do both—and there are no more than 12 in the world of feature film sound—they would agree with that position.

The bottom line is, of course, that the credit doesn't matter—the work has to stand for itself. So it goes without saying that Murch and Burt and a handful of oth-

ers are deserving of any credit they chose to take. However, over the years the term has become misused, and has been co-opted by many whose job scope was not as inclusive as is usually thought appropriate for the credit.

The late '70s/early '80s was a fertile period in film sound. There were many who were familiar with processing gear and multitracks, often with music backgrounds, who would create special sound effects for films. Some of them are better-known (read: infamous) in film sound circles for their superior skills at self-promotion than they are for their admittedly sometimes solid work. Nonetheless, it gave many old-timers pause that sound design was being equated with electronic processing, when such work had been done for decades with good old 1/2-inch and 35mm manipulation and a great imagination.

The other, usually unspoken problem that many of us have with the "sound design" credit is that it is a bit guilty of the "P" word. You know: pretentious. Not quite like a garbage collector calling himself a "Sanitation Engineer," but something like that. Another one of the undisputed great talents in film sound, the late Alan Splet (*Eraserhead*, *The Elephant Man*, *The Black Stallion*) sometimes was credited for Sound Design, although he was indeed leery of the Pretentious Factor, equating it with "hair design."

It's all about the work, and good work doesn't need (or isn't hurt by) a fancy-sounding credit, and bad work won't be helped by one. In addition, I feel equally strong that regardless of what the Person in Charge of the Creative Aspects of the Sound Job calls himself or herself, they remain the Person in Charge...Pretty simple and fair, huh? Not to many in the Hollywood sound community.

The dissatisfaction with the SD credit perhaps peaked in the early '90s, when there were attempts within the Sound Branch of the Academy of Motion Picture Arts and Sciences to preclude people bearing that title from being nominated for Best Sound Effects Editing. This blew over soon, no doubt in part to the essentially unenforceable, Draconian nature of such a rule, and its (il)logical potential scenarios. What if someone outside of the U.S. (with no way of knowing arcane Academy rules) was completely responsible for the sound of a film that everyone in the Academy Sound Branch agreed was the best sound-edited film of the year. If

GLOSSARY

BEN BURTT Revolutionized film sound in 1977 with the sound effects and creature voices that he created for *Star Wars*, and later went on to do the sound for the other three *Star Wars* episodes and the three *Indiana Jones* films and for *E.T. The Extra-Terrestrial*. He is currently editing the picture and, soon, the sound on *Star Wars Episode Two*, to be released in May 2002.

WALTER MURCH Responsible for the sound of *American Graffiti*, *The Conversation*, *Apocalypse Now*, and the first two *Godfather* films. Won Oscars for both Best Sound and Best Film Editing for *The English Patient* and is generally credited with being the first to simultaneously mix and supervise the sound of feature films.

MURRAY SPIVACK In his 43-year career he went from founding the RKO Pictures sound editing department to recording the music and supervising the re-recording of 12 films that won the Best Sound Oscar, including *West Side Story*, *The Sound of Music*, *My Fair Lady* and *Oklahoma!* Oh, yes, he was also a top percussion teacher from 1927 until 1994.

JACK WEBB Star and producer of the television show *Dragnet*, in which he and his partner would approach each case and its suspects with decidedly unfunny deadpan sarcasm. Webb's famous tag line, when a witness was wandering off the subject, was "Just the facts, ma'am." In film sound-ese, this is translated to: See a dog, hear a dog.

POWER HOUSE

"The System 6000 not only changes the way I work but speeds the process up!"



SYSTEM 6000

Ultimate Multichannel Processing Platform



Only the System 6000 platform offers a full range of essential tools for your Multi-channel and Stereo applications. From stunningly real Room Simulations with multiple sources and expressively dense Reverbs to Pitch Shifting, the System 6000 delivers unparalleled power, control and integration to your studio.

Only the System 6000 and its touch screen remote offer specialized software options. These include true benchmark standards like Multi-channel MD5.1™, Stereo MD-3™ Multi-band Compression and Brickwall Limiting, Backdrop™ Psycho-acoustic Noise Reduction, Engage™ Binaural Processing, Stereo to 5.1 Conversion, the 5.1 Monitor Matrix with Bass Management, Multi-channel EQ and much more...

Only the System 6000 is fully networkable via Ethernet. Talk about expansion... a single TC ICON remote can control up to 256 channels of digital audio, all using industry standard Ethernet cabling and routing hardware supported by continuous free software updates on the Internet.



"I've been using the System 6000 as a four engine device connected to my console at BackStage studio in Nashville. Configuring the unit for each application could not be easier allowing me to use it for stereo as well as 5.1 mixes.

I must say, at this point, I do not think I could get along without it!"

SEE US AT AES BOOTH #1136

www.SYSTEM6000.com

FILM

POST

MUSIC

MASTERING

BROADCAST

MULTIMEDIA



NEW VERSION 2.0

- New VSS-4 True Stereo Reverb included
- Four-engine Overview in one page
- Extended Preset management features
- Even more VSS-5.1 & VSS-3 Reverbs functionality
- NEW PLUG-IN LAUNCH
- UNWRAP - Stereo to 5.1 conversion algorithm
- Visit System 6000.com for further information



sound for picture

their credit read "Sound Designer," would "No One" be the name of the person whom the Oscar would go to?

Give me your opinion about sound design—the art, the credit, the job—at PO Box 24609, New Orleans LA 70184, or via the Internet: swelltone@aol.com. ■

Larry Blake is a sound editor/re-recording mixer who lives in New Orleans for reasons too numerous to mention, although one of them would have to be that people there are as confused by "supervising sound editor" or "re-recording mixer" as they are by "sound designer." Therefore he simply says that he works "in film," which makes it easier for them to imagine that he's constantly hounded by starlets.

—FROM PAGE 224, NEW YORK POST

probably 75 percent filled with dotcom spots. This year, there was one. The industry created capacity to fill that need. Now it's gone.

Did you have any construction plans that were put on hold as a result of the strike?

Nord: We were able to complete all our

construction plans as scheduled, which included a complete remodeling of the common areas of the facility—including the lobby, client lounge, conference room, hallways and bathrooms.

Pomann: Yes. I was about to build a lounge when the strike hit, but I canceled

plans. I'm now building a new studio, which should be completed by October of this year. We have five editors now, and we're very impressed with an Australian company called DSP. They make a workstation, the DSP Poststation, that's comparable to a Fairlight. It's made specifically



Howard Schwartz Recording Studio 13



Visit SONY
AES Booth # 142

every
SONY

should have it
so good

ARGOSY

specialized furnishings for music, film, & television studios

800.315.0878 / 573.348.3333

www.argosyconsole.com

Need a great vocal sound? Work with a great producer.

Introducing the Antares Vocal Producer.™

Killer vocal sounds.

Auto-Tune™ pitch correction.

\$495.00

(ESTIMATED STREET PRICE)

AVP FEATURES

- >> Auto-Tune Real-time Pitch Correction
- >> Antares Microphone Modeling
- >> Analog Tube Modeling
- >> Variable Knee Compressor
- >> Downward Expanding Gate
- >> Variable Frequency De-Esser
- >> Flexible Parametric EQ
- >> Automatic Mono or Stereo Double Tracking
- >> Fully Programmable
- >> MIDI Automation
- >> Factory Presets for a Wide Variety of Vocal Styles
- >> Really Easy To Use

THE HEART OF ANY GREAT SONG is a great vocal sound. With Antares's new Vocal Producer, we've combined our world-renowned Auto-Tune Pitch Correction and TEC-Award-winning Microphone Modeler technologies with state-of-the-art vocal processing modules to give you everything you need to create stunning vocal tracks in any musical style.

FREEDOM OF CHOICE

Live or in the studio, the AVP lets you instantly select from a large library of sounds. From gorgeously mellow to seriously twisted, we've included factory presets for a wide variety of vocal styles as well as an interface that makes it easy to create your own signature sounds. (And given the power and flexibility of the AVP's processing modules, we've even included a selection of presets for instrumental and percussion tracks.)

NOW HEAR THIS

Check out the Vocal Producer at your local Antares dealer or surf on over to our web site for some illuminating audio examples. With an estimated street price of \$495, this is one great producer you can afford to work with.

Can you hear
the love?



ANTARES

WHERE THE FUTURE'S
STILL WHAT IT USED TO BE

ANTARES AUDIO TECHNOLOGIES 231 Technology Circle, Scotts Valley, CA 95066 USA
voice: 831 461 7800 | info@antarestech.com | www.antarestech.com



Ralph Kelsey of Broadway Sound

ed all of our business here at the Graybar Building, we instituted a philosophy of constantly re-evaluating and upgrading equipment throughout the 25,000 square feet of space that we occupy.

Let's face it, though: The days when equipment drove the industry are gone. We now have a creative democracy, with tools available to everyone. The differentiations are based on talent and how people feel when they're at your place. Do you have a restaurant that they want to come back to?

Has the strike had a long-term impact on the way your business is conducted?

Schwartz: No.

Kelsey: Our commitment still remains to our core clients, but because of our increased capacity, we're now able to avail ourselves to other markets.

Pomann: Not really. We just thought positive throughout the whole process. We did believe that the strike would end more quickly than it did. I feel sorry for the people who struck, because they got

very little out of it.

Nord: The strike really helped confirm our business philosophy of developing a diverse client base.

Has the commercial work come back to the level it was at in the pre-strike days?

Nord: Our commercial work has not returned to its pre-strike levels, although it seems to be picking up again in the last month or so.

Schwartz: No, and I don't think that it ever will. With the consolidation of the advertising business, every agency laid off 24 percent of their staff. How many people lost money in the LBO craze? Or the dot-com madness? That money went into thin air, and some of it was used to support the advertising industry that drives a large piece of the production business.

As far as New York goes, two of the big shows done here ended their runs. *Cosby* went off the air, and *Spin City* went to California. We're doing some new reality show work, plus lots of sports programming. We're also doing more cable work than we used to do, and that's okay. Our promo business is up for all of the networks. In general, things are okay, and okay is better than it could be.

OPTIMUM QUIK LOK
THE ESSENCE OF DESIGN AND FUNCTIONALITY

Contact Music Industries Corp. for available models and purchasing information. Music Industries Corporation 1•800•431•6699

a match made in heaven



&



Now you can find Glyph
inside every Guitar Center store



800 • 335 • 0345
www.glyphtech.com

800 • 572 • 2050
www.guitarcenter.com



Pomann: Yes, pretty much. We're experiencing the usual summer slowdown, but that's normal. The slowing of the economy also has an impact, but that's also cyclical. We do a lot of high-end radio work, and the economy slowing down hasn't affected that part of the industry as much as it has television. We do casting, music and basically everything you can do for a radio spot. Clients come here from as far away as Boston to put a package together. Smaller agencies working without a producer will often have us act as producer as well.

Kelsey: Advertising is such a small percentage of our business that it's hard to say. It is actually one of the markets in which we plan to expand into.

Have you had to lay off any staff due to the impact of the strike?

Nord: Fortunately, we have not had to contemplate any staff layoffs, as our volume of work has remained consistently high.

Schwartz: Yes, we've done some house cleaning. Things were fat; now, it's "may the best man win." There have been a number of closures already, both audio and editorial companies.

Pomann: No, we kept the entire staff going. ■

—FROM PAGE 225. CARTER BURWELL

room, it did not stand up as a professional mixing environment. So, when Burwell moved to a 3,000-square-foot loft in TriBeCa in 1999, he seized the opportunity to build a world-class studio that would encompass all of his musical activities, from writing and programming to recording and 5.1 channel mixing.

"When I decided to build a studio here, I felt I wanted a good listening envi-

ronment and also a room where I could do my 5.1 film mixes," explains Burwell. "I really thought this was an opportunity to build a room I could mix in myself and have so much more control over that part of the process."

Before the room went up, Burwell had spec'd a Euphonix CS3000 digitally controlled analog console. However, when he saw the Euphonix System 5—a 24-bit, 96kHz-capable digital console—at the



The Euphonix System 5 Studio at Carter Burwell's TriBeCa home studio.

PHOTO: HOWARD SHERMAN

Deep blue.



S·com 4 Four Channel Compressor/Gate

It has incredible adaptability — with more useful control in a single rack space than anything like it.

The S·com 4 has four discrete channels, each featuring a dedicated Compressor/Limiter and a variable Expander/Gate. Its versatile design allows it to be linked as two stereo pairs. Each channel also includes an Enhancer to restore frequencies often sacrificed when signals must be heavily compressed.

Perfect for applications where many individual channels of dynamics control are required, the S·com 4 represents a new perspective on audio processing tools that can be relied upon for their common sense design and sonic integrity.

AEG

Auto Envelope
GENERATOR

SKD

Smart Knee
DETECTOR

EFR

Enhanced
Frequency
RECOVERY

Audio Engineering Society convention in New York in October 1999, he quickly switched gears.

"Clearly, in the future the signal path is going to be all digital, and I felt that while we're building the studio, we might as well acknowledge that fact," says Burwell. "If I put in some other type of board, I'd be replacing it in a few years; if I put in a digital board that's 24 bits and capable of 96k, then that's probably a piece of equipment I'd be able to live with for a decade."

The 24-fader System 5 is complemented by a Doremi VI video disc recorder; Macintosh G3 and G4 computers running Pro Tools and Digital Performer systems; two Tascam MX-2424 high-resolution hard disk recorders; and racks upon racks of synthesizers and samplers, including various Roland models (notably the XV-5080, VP-9000, S-760 and JV-1080), a Korg Wavestation and two NemeSys GigaSamplers.

Processing equipment includes the TC Electronic System 6000 and Finalizer; Lexicon PCM 70, 80 and 90 Series reverbs; Empirical Labs Distressors; and an Eventide H3000 Harmonizer.

Burwell's front left, center and right



PHOTO: HOWARD SHERMAN

Burwell insisted that natural light be incorporated into the design of his TriBeCa loft.

monitors are Genelec 1038s, with a Genelec subwoofer. Fully aware that the rear speakers should match the front in a professional surround room, Burwell intended to use the same monitors for the back, but had to make alternate plans because the 1038s physically wouldn't fit along the back wall of the control room.

The solution? Storyk enlisted audio specialist Ted Rothstein to custom-design rear speakers, using Dynaudio drivers, to match the front L/C/R array.

Although Burwell had never met Storyk, he hired him based on the architect's reputation as the builder of more than 1,000 state-of-the-art facilities all over

Clear blue.



S-3-way Stereo Crossover

It's one of the most versatile and functional crossovers available. Yet what makes it totally unique is how simple it is to operate where it counts – in a live venue.

S-3-way can be used as a stereo two-way, three-way or *mono 4-way* crossover. The unique mode switch, combined with brilliant LEDs, let's you quickly see what gain and frequency parameters are under control at all times.

There's also a delay section to time-align the low frequency outputs, a variable threshold multi-band Limiter, a CD horn EQ and Mute and Phase switches for precise control of your loudspeaker system.

Like all S Class products, S-3-way offers the assurance of superlative performance for all of your demanding audio applications.

SAMSON

S Class. Burning Audio Technology. Cool Processing Tools.
To learn more about S Class products visit our website at www.samsontech.com.

© Samson 2001

the world, starting with Jimi Hendrix's Electric Lady in New York. "I knew I needed a professional to achieve my goal, so I went to John Storyk because he's so well-known," says Burwell.

As is often the case with building a studio in an existing space that must also function as a residence, there were limitations to what Storyk could do. Burwell says, "One of the biggest challenges was the question of windows and light. I was insistent on keeping all the windows I have here, which doesn't help the acoustics, especially when you're doing 5.1. But John managed, by covering everything else with soft surfaces, to make the acoustical space still work."

Storyk worked in tandem with architect Kathy Chia, who designed the residential space and consulted on the studio, and Burwell's wife, lighting designer Christine Sciulli.

The attention to detail and the investment have paid off for Burwell, who says he takes pride in knowing that all of his film scores are mixed in his own apartment.

"My mixing engineer, Mike Farrow, who lives in L.A., flies out here to mix all my projects," says Burwell. "Mike says this is his number one room to mix in. It's his preference, as opposed to any other room in the world. On any of these projects, we have a choice of rooms, and if Mike wanted to mix somewhere else, we

would."

Besides its state-of-the-art mixing capabilities, Burwell's studio offers amenities and flexibility that rival those of multi-room, multimillion-dollar facilities.

"One of the essential parts of the design is that the whole place, including the residential end, is fully wired so that everything talks to everything else," explains Burwell. "So we have eight tieline panels throughout the residence, each with a couple of video lines, coaxial lines, Ethernet, telephone, and analog audio and digital audio."

The studio's flexibility was tested to its fullest capacity recently, when Burwell, Farrow and Burwell's assistant, Dean Parker, were mixing the score to the upcoming film *Simone*, written and directed by Andrew Niccol (of *Gattaca* and *The Truman Show* fame) and starring Al Pacino. The problem was that Burwell—who admits that he is at the mercy of producers and directors when it comes to scheduling—had to start composing music for another film, *The Bourne Identity*, directed by Doug Liman, based on a Robert Ludlum novel and starring Matt Damon.

"We took the GigaSampler and the Roland XV-5080 out to the living room, along with a keyboard and the VI, and I basically had a little composing situation out there," says Burwell. "But both the GigaSampler and the XV-5080 had sounds that were required for the *Simone* mix, so they had to be playing back the mix that was happening in the control room, even as I was using them to write out there. Well, it turns out GigaSampler has four MIDI ins and eight outs, and the Roland has two MIDI ins and eight outs, so we sent the MIDI from the Digital Performer file running the *Simone* mix into our network.

Then, from the panel in the living room, I was able to plug those MIDI connections into the two synths, took a couple of digital audio outputs from those machines and put them into the panels, and they came up back in the control room. So all day long, I was out there listening to certain outputs and using certain MIDI inputs and hearing the score I was working on, while in the control room, those guys were using the same machines but hearing totally different sounds and working on a totally different film.

"It was wonderful," Burwell adds. "It represented the best use of the flexibility that those machines have, and the flexibility of this place, meaning the residence

DVD Picks

SANTANA: SUPERNATURAL LIVE

(Arista)

The consummate entertainer, Carlos Santana has been pumping out steaming live shows for nearly 35 years. Any Santana show is magic, but for this occasion, he ups the ante, getting a little help from his hot band and guest performers Cee-Lo, Everlast, Lauryn Hill, Dave Matthews, Sarah McLachlan, The Product G&B, Wayne Shorter and Rob Thomas—all of whom turn the thermostat even higher. Shot at the Pasadena Civic Auditorium, this 87-minute (plus another 55 minutes of interviews, bonus clips, music videos, etc.) concert DVD features tight direction by Joel Gallen and a spectacular DTS 5.1 soundtrack that captures the fury and fire happening onstage. Smokin'!

Recorded by the Design FX remote truck. Recording engineer: Paul Sandweiss. Music mixers: Jim Gaines and John Harris. Mixed at Effanel. Audio post: POP Sound. Post-production mixer: Ted Hall.



THE RUTLES: ALL YOU NEED IS CASH

(Rhino Home Video)

The granddaddy of all "mockumentaries," the 1978 *All You Need Is Cash* began as a short Beatles parody clip that aired on Saturday Night Live and ended up as a feature-length TV special created by Monty Python's Eric Idle and SNL producer Lorne Michaels. The superstar cast—including Idle (in many roles), Bill Murray, Dan Aykroyd, George Harrison, Ron Wood, John Belushi, Gilda Radner, and notables Mick Jagger and Paul Simon (both of whom play themselves, "interviewed" about how The Rutles influenced their lives)—are nothing short of brilliant. The script is both hard-hitting and hilarious; the intercutting of new and stock footage to re-create the past is amazing; but perhaps best of all is the band's music (written by ex-Gonzo Dog Band member Neil Innes), which makes one wish that Rutlemania was real. As a low-budget TV production, the film's audio production is less than stellar, and the 5.1 "remastering" didn't help much (somebody should have done a Yellow Submarine on this one!), yet through it all, this is a classic to be watched over and over.

Directed by Gary Weis and Eric Idle. Executive producer: Lorne Michaels. Music and lyrics: Neil Innes. Original production sound: Tony Jackson and Bruce White. Re-release 5.1 mixer and/or mastering engineer: uncredited.

—George Petersen
—CONTINUED ON PAGE 242

How does it feel to hold the future in your hand?

Audix proudly announces the SCX-25, a compact, brass condenser microphone with a revolutionary suspension-mounting system. Featuring a low-noise, high-output preamp and 25 mm gold-sputtered diaphragm, this innovative mic delivers a pure, open-air sound that places it amongst the finest microphones, regardless of size or cost.

The unique suspension-mounting system isolates the capsule from the housing and electronics, which minimizes diffractions and reflections that cause phase distortion. This phenomenal feat of engineering distinguishes the SCX-25 from all competitors - it's the closest thing to hanging the capsule in mid-air! Costly shock-mount clips are unnecessary and, with the mic's compact size, setup time is significantly reduced.

The SCX-25 employs a uniform cardioid pattern and has a stunning frequency response (20Hz - 20kHz). Ideal for recording a wide variety of acoustic instruments, vocals, and piano, the SCX-25 also thrives as an ambient room and field recording mic. With the SCX-25, you will feel that the microphone of the future has arrived.

With a suggested retail price of only \$799, what are you waiting for?

FOR A DEALER NEAR YOU CALL: 800-966-8261
TEL: 503-682-6933 FAX: 503-682-7114 www.audixusa.com

Audix Corporation PO Box 4010, Wilsonville, OR 97070
In Canada, Cabletek Electronics LTD, 604-942-1001 fax 604-942 1010

AUDIX
PERFORMANCE IS EVERYTHING

© Audix Corporation 2001. All rights reserved. Audix and the Audix logo are trademarks of Audix Corporation.

World Radio History



as well as the studio."

As if those two projects haven't kept Burwell busy enough, he has also recently completed music for a low-budget, independent film called *Searching for Paradise*, and is scheduled to start working on the next feature by Jonze, the video director who made his film debut with the acclaimed *Being John Malkovich*. The Jonze picture, *Adaptations*, stars Nicholas Cage and Meryl Streep.

Juggling multiple—and completely different—projects is nothing new for Burwell, a lifelong musician whose career got off to an auspicious start in 1984, when an obscure pair of brothers named Joel and Ethan Coen asked him to score their debut film, *Blood Simple*. That movie's critical and commercial success laid the foundation for a career-long association between the Coens and Burwell that has yielded such other highlights as *Raising Arizona*, *Barton Fink*, *Fargo*, *The Big Lebowski*, and *O Brother: Where Art Thou?*

Burwell's relationship with the Coens continues. He has scored their latest film, *The Man Who Wasn't There*—which is scheduled for release later this year—and is about to begin a new Coen feature

titled *The White Sea*, based on a James Dickie novel and starring Brad Pitt as a World War II U.S. pilot who is shot down over Japan.

If Burwell shares the Coens' eyes and ears for the ironic, then his offbeat sensibilities have also attracted the attention of such other film auteurs as Mamet, Michael Caton Jones and Richard Donner, who hired him to score, respectively, *The Spanish Prisoner*, *Rob Roy* and *Conspiracy Theory*.

Whether working on a big-budget Hollywood extravaganza or an indie film, Burwell stays true to his artistry by approaching each as a method actor would tackle a role.

"I feel that working on big Hollywood films is really useful for me," says Burwell, "not only in that it financially subsidizes this studio, but it allows me to work with players and in places and with schedules that wouldn't be possible on independent films. The fertilization goes the other way as well. Working on independent films, you're constantly challenged by budgets and working with ensembles that are maybe 10 or 12 players instead of a symphony orchestra. It's a much more interesting challenge as

composer and orchestrator to be faced with 10 players and try to figure out how to get a variety of colors and sounds from them, and it's a bigger challenge for the players as well."

With a studio that can handle any project and a musical sensibility that attracts all types, Burwell is poised to continue enlivening his films with some of the most memorable scores in modern times.

"It really helps me to go back and forth between different kinds of projects," concludes Burwell. "If I were just doing low-budget films or just doing big-budget films, it would be a significantly less interesting and a less enlightening life for me." ■

Paul Verna is Mix's N.Y. editor.

—FROM PAGE 225, SONICOPIA

(November) Pulse Sonifier writes it into the page.

Stuart Dubey, an Emmy- and Clio-winning composer/producer and the owner of audio post house Dubeytunes Studios, launched Sonicopia as an interactive audio division about two years ago. He hired application programmers and a business development team, then began

Hear What The Hype Is All About

"The C-3 is THE HIP new guitar mic. It gives your Marshalls that phat-gut-punch we all crave. I'll never cut another record without one."

Scott Rouse - Producer, Grammy Nominee, Nashville, Tennessee

I have a microphone "wish list". You have allowed me to check off both the U87 with the C1 and the C12 with the T3.

Ted Perlman - Producer/Arranger/Composer

Bob Dylan, Chicago, Kaci, 2gether, Young MC

One of the best vocal mics in the world is the \$300 Studio Projects C1. You can spend way more for "one of those" mics from Germany if your ego demands it, but the C1 is certainly the sonic equivalent.

Pete Leoni - Producer/Engineer, Tech writer and reviewer



C1	C3	T3
Single-pattern Cardioid	Multi-pattern Cardioid, Pad, Filter	Variable-pattern Tube
List \$299	List \$599	List \$1099

All models include shockmount and case

StudioProjects™



P M I
AUDIO GROUP

PMI Audio Group
23773 Madison St., Torrance, CA 90505 USA
toll-free 877 563 6335 fax 310 373 4714
Visit Us Online at www.studioprojectsusa.com
World Radio History



VT-1

Tube Mic Pre, Discreet Class A/B switching,
with variable Tube Drive. List \$299

A Pre-Owned SSL Console

**Hundreds Of Hits Already Produced.
Thousands More Still To Come.**



As the great studios of the world refit with new SL 9000 SuperAnalogue™ and Axiom-MT digital consoles, it's never been easier to buy a classic, pre-owned SL 4000.

Professional Audio Design is North America's exclusive factory-authorized supplier of pre-owned SSL consoles, each sold with a full warranty and on-site commissioning by our SSL-trained technicians.

Every console is prepared for sale in strict accordance with factory procedures and we can also undertake custom upgrades, expansions and reconfigurations to customers' requirements.

Professional Audio Design always has a wide choice of pre-owned SSL consoles in stock and favourable financing is available. Call today or visit our web site for a full list.

www.usedssl.com

Professional Audio Design, 357 Liberty Street, Rockland, MA 02370 Tel: 781-982-2600 Fax: 781-982-2610 info@preaudiodesign.com

SEE US AT AES BOOTH #1036

batch processing more than 20,000 bandwidth-optimized effects and music cues, many of them original to Dubeytunes, while others came from available libraries they had deals with.

"People have no idea yet how much impact good sound design and audio

implementation can deliver on the Web, because most people haven't really experienced interactive sound," Dubey says. "Studies have shown that compelling audio creates a more engaging experience and increases the time that people stay on a particular site. Audio brands that were pro-

duced for traditional media can be carried over onto Web-based media, creating consistency among broadcast advertising and Web-based advertising. Audio can provide the bridge between the two.

"The trick is, how do you make interactive audio as transparent and seamless as possible so that it doesn't affect the page performance?" he asks. "Up until now, because of the technology and bandwidth constraints, visuals have been given priority and creative use of sound was absent from the Web. But the way we code the audio, it allows graphics the priority so that if you're on a high-speed connection, it plays together. But it senses if you're on a low-speed connection and allows the page to load first along with short bursts of audio data for user interface sounds before the music comes in."

In May of this year, Sonicopia was acquired by Pulse Inc., a leading technology innovator for interactive 3-D animation on the Web. In Webworld, it's the equivalent of Avid buying Digidesign, but with greater synergies. "The goal of the combined companies is to provide the next generation of rich media on the Web—the combination of visuals and audio," Dubey says. "The other big thrust



The Tahiti travel site, with search engine and Sound Bin "floating" over the site. Audition buttons and Highlight buttons are to the left of each sound.

ATTENTION MANUFACTURERS!

We are pleased to announce that Reprint Management Services will be managing the **REPRINT PROGRAM** for all Intertec publications.



RMS is the reprint industry leader, from proactive marketing to the final product delivery.

Please direct reprint and e-print inquiries to:



**REPRINT
MANAGEMENT
SERVICES**

866/268-1219, ext. 100

717/399-1900

Fax: 717/399-8900

www.reprintbuyer.com

1811 Olde Homestead Lane
Lancaster, PA 17601

Introducing the

Pro Tools CONFERENCE

at



October 7-10, 2001
New Yorker Hotel, NYC

The education and networking mecca for sound designers

Geared to inspire and enhance your creativity by improving technical proficiency. We will show you how to unleash the full potential of Digidesign's Pro Tools.

Conference Sessions Include:

- Mastering with Pro Tools
- Using the Pro Control & Controll24 mixing control surfaces for your TDM based system
- OMFI import & export using Digi-Translator and matching back to film
- Mixing in Surround Sound Formats Including 5.1, 7.1, and 4:2:4 Dolby Encoding
- MP3 encoding for the web and the new Digi Pro-Net services
- Scoring and composing for film & TV using Pro Tools, Soft-Samplecell II and other third party software synthesizers and samplers
- Using Post Conform and VocAlign to re-conform to film
- Pro Tools technical troubleshooting and set-up for music and post surround
- Music and MIDI production with Soft-Samplecell II, Unity, Retro, and Virus
- Working with plug-ins for post production and music production
- The Art of the Re-mix and MIDI

Speakers include:

- Kevin "She'kspere" Briggs, double Grammy winning *No Scrubs* by TLC and Grammy nominee for *Bills, Bills, Bills* by Destiny's Child.
- Mark Goldblatt, Academy Award nominee for *T2: Judgment Day*, *Pearl Harbor*, *Armageddon*.
- Tony Mark, *Scary Movie II*, *Once Upon a Time in Mexico*, *Desperado*
- David Krall, President/CEO, Avid Technology
- Michael Berenbaum and Wendy Stanzler, Editors, *Sex and the City*

Avid, Digidesign and Pro Tools are registered trademarks of Avid Technology, Inc.

For more info and to register - www.avidworldeast.com

Limited sponsorships available - call Guy Epstein at 212.645.8140 x24.

Produced by:



Future Media Concepts



In co-operation with:



Primary Media Sponsors:



Media Sponsors:



is personalization, or creating the technology that serves as the layer between the information and its delivery. That means everything from having custom sites with audio updated daily, to having a virtual person read e-mails to you." (Don't laugh, it's coming: At SIGGRAPH, Pulse showed a tool for creating a 3-D image out of any 2-D photo, with full lip sync and next-generation text-to-speech capabilities.)

"We are doing the same thing with audio that Pulse is doing with animation," Dubey says. "We're basically building a multilayer, 'multitrack' soundtrack that can be triggered by the user's actions or navigation decisions. It's similar to games,

in that the composition and sound design follow different pathways that all transition and segue into each other. No matter where someone is on a page or what they trigger, it should create a harmonic, very linear experience."

Personalization is the key to the Pulse Sonifier, and the extent to which a Web designer, or any savvy audio engineer, can customize a site is nearly limitless. And it's simple. During *Mix's* visit to the Sonicopia facilities, Dubey put together a simple audio presentation for a Tahiti travel site in about five minutes.

Because all the work takes place within the browser, the user simply types in the

URL of a site, and the Sonifier instantly makes a copy for sonifying. After that, it is a simple three-step, click-and-drag process:

Find Sounds. An audio library search window pops up over the site, with more than 10,000 effects and 10,000 music cues available by keyword, type or theme (Science and Technology, Places and Travel, etc.). Theme sets include music and "pitched effects" in the same key, so that mouse roll-overs and user-interface sounds, for example, play harmonically with the background music. Effects and music are auditioned and then, with one mouse click, loaded into a Sound Bin for placement on particular objects. The catalog management system was developed in conjunction with mSoft, though Sonicopia makes use of a proprietary database.

Sonify. Here's where you drag and drop the sounds you've collected from the Sound Bin onto any objects or images on the page. In our example, Dubey clicked on "parrot" and dragged it to the parrot image so that every time the mouse rolls over, you get a squawk. Background music and effects can be easily added to play on page load. After you've placed all your sounds, you simply click Preview and the site plays. If you like it, then you...

Publish. A final designed site can be FTP'd to your server, e-mailed or downloaded to a hard drive for client preview. It's really that simple.

The initial release of the Pulse Sonifier is technology-agnostic, Dubey says, supporting a range of file formats, including .SWF and Pulse's .PWC and .PWS formats. "The audio engine in the Pulse Player is extremely robust," Dubey says, "and the most recent release is starting to incorporate enhanced audio capabilities. At the same time, we recognize that Flash is everywhere, which is why we are converting our MP3s to .SWF files."

All audio resides on the back end of the Sonicopia server, so files are secure and simply cached in the user's browser as he or she visits a sonified site. That's one attraction for record companies, and it's no surprise that Sonicopia is currently in discussion with the major labels.

But the possibilities are infinite, whether in retail, e-learning, advertising, corporate Intranets or plain ol' individual promotional sites. The Pulse Sonifier will be available on an affordable subscription basis of \$10 to \$20 a month.

For more, visit www.pulse3d.com or www.sonicopia.com. ■

Tom Kenny is the editor of Mix.

—FROM PAGE 236, DVD PICKS

THE CONVERSATION

(Paramount Home Video)

In the "Mix Interview" a few years back, Walter Murch, when asked why he thought people took such notice of the sound on *The Conversation*, said that first, it's the singular point of view of the main character being a soundman; and second, dialog essentially disappears about halfway through the film, so the brain fills in the holes by looking for sound effects. "It's like having the full moon at night," he said. "You know the stars are there, but you don't really think about them... On moonless nights, these smaller lights begin to acquire a fascination and an interest."

Director Francis Ford Coppola sandwiched *The Conversation* between *Godfather I* and *II*, and it's the first film that Murch edited both picture and sound. Listen for the realistic, urban environmental sounds, designed to match the documentary style of the picture. The sound montages surrounding the conversation itself, built on distortion, are brilliant. And what a lonely solo piano score by David Shiner. Commentary by Murch and Coppola.

Supervising editor, sound montage and re-recording: Walter Murch. DVD produced by Kim Aubry. Designed and mastered by the American Zoetrope DVD Lab. 5.1 surround mix team: Walter Murch, Kim Aubry, Pete Horner, Michael Kirchberger. Dolby Digital.

—Tom Kenny



THEREMIN: AN ELECTRONIC ODYSSEY

(MGM Home Entertainment)

Much of the world of pop music wouldn't exist as we know it if it weren't for developments by pioneers such as inventor Leon Theremin. His most notable creation was the Theremin, an electronic instrument that was played without being touched. Volume and pitch could be controlled by the proximity of the player's hands to the instrument. The movie *Theremin* is an engaging overview of his life, his creations, and those who played it and were greatly influenced by it. Bob Moog and a barely comprehensible Brian Wilson talk about the impact of Theremin on their lives. There are many wonderful, haunting performances by masters like Clara Rockmore and Samuel Hoffman that illustrate the Theremin's capacity for emotional nuance; certainly more so than the standard '50s sci-fi motifs that often showcased the instrument.

Written, directed and produced by: Steven M. Martin. Music by: Hal Willner. Sound mix: Andy Green. Additional Sound: Hui Cox, Dave Zieff. Stereo Sound mixed by Kim Aubry at Zeotrope Studios, San Francisco.

—Rick Clark



SONY

SUMMER 2001
ISSUE #12

SoundByte

THE SONY PRO AUDIO NEWSM

www.sony.com/proaudio

Also Inside:

Michael Wagener

Peter Moshay

Sandy Palmer-Grassi

Michael Omartian

R100 Goes to School

Raul Esparza stage center as Riff Raff in the Broadway version of *The Rocky Horror Show*.

Wireless Broadway

Rocky Horror Show Uses Sony Wireless Mic Systems
Plus: On Stage & On The Road With Sony

ADVERTISEMENT

243

SONY

"Awesome. You totally forget you're using a digital unit."

- FRANK FILIPETTI, Grammy Award Winning Engineer/Producer

"The cleanest reverb I've ever heard."

- BOB LUDWIG, President of Gateway Mastering and DVD, Les Paul Award Recipient, and 9-time TEC Award Winner

"The sonic quality was astounding."

- DAVID HALL, Independent Recording Engineer, as quoted in the December 2000 issue of Pro Sound News

THE BEST REVERB? A MATTER OF OPINION. MANY OPINIONS.

"...the best sounding reverb, 'out of the box,' I have ever heard...incredible sounding."

- DAVE WILKERSON, Owner, Right Coast Recording, Inc.

"Never have I heard this kind of resolution in any type of reverberation device."

- TOM JUNG, as quoted in the December 1999 issue of Pro Audio Review

"Will sell itself to you and your clients within the first 15 seconds."

- BOBBY OWSINSKI, as quoted in the October 2000 issue of Surround Professional Magazine



The Sony DRE-S777 digital reverb astounds everyone who hears it. Why? Because each effect incorporates the actual timing, amplitude and frequency response of natural reflections in a real acoustic space. The DRE-S777 gets its power from a massive parallel array of Sony 32-bit DSP chips, delivering 1,000 times the processing power of ordinary reverbs. Reverberant spaces are stored on CD-ROMs that bring you studios, churches, concert halls and natural spaces from around the world. And with Sony's new optional sampling function software, you can even capture acoustic spaces of your own choosing! Form your own opinion of this important development. Call to order your Free Demonstration CD and VHS tape.

DRE-S777



1-800-472-SONY ext. S777

www.sony.com/proaudio

©2001 Sony Electronics Inc. Reproduction in whole or in part without written permission is prohibited. All rights reserved. Sony is a trademark of Sony.

World Radio History

Producer Michael Wagener And His Twin R100 Consoles

Producer/engineer Michael Wagener of Double Trouble Productions, Inc. recently installed two Sony R100 digital consoles

mixing the debut album from rock band Olive Carpet. The CD is scheduled for a fall 2001 release.

"I wanted a full-fledged 5.1 studio," comments Wagener. "So, I needed a digital board. In-depth research led me to the Sony R100s. In addition to its 5.1 capability, the console has really clean converters, great mic pres, extremely flexible input/output routing, and incredible sonic clarity. I was also impressed by its total recall capability. Sometimes, after finishing the mixes for an album project, I go back and do some remixes. The ability to recall a complete setup within seconds is critical to the studio's workflow."

Wagener began working on Olive Carpet's album immediately after installing the R100s. "I have engineered on digital boards before so there was only a short learning curve," he says. "The console is really intuitive. We recorded the album with surround sound in mind. In fact, we just wrapped up the stereo mix, and in a couple of months, we plan to mix the whole project in surround."

With a number of projects on the horizon, including the latest release by Brazilian artist Badi Assad, Wagener is totally pumped by the performance of the new Sony boards: "I received a lot of support from Sony. The first project went smoothly - the sound just blows me away."



Producer/engineer Michael Wagener with his twin DMX-R100 digital consoles.

in his Nashville based WireWorld Studios to ready the facility for multichannel surround sound projects. Renowned for his work with such artists as Ozzy Osbourne, Metallica, and Janet Jackson, Wagener just completed his first project on the R100s-recording and

Sony Supports All Star Guitar Night

Sony Professional Audio once again lent its support to guitarist Muriel Anderson's All Star Guitar Night (ASGN), held Friday, July 20, 2001 at 8PM at the Wildhorse Saloon during Summer NAMM. The ASGN benefits the Music for Life Alliance, a charity founded by Anderson to provide musical instruments and music education to underprivileged children via grassroots organizations.

The show's lineup was highlighted by the appearance of legendary guitarist Steve Cropper, co-writer of soul standards "(Sittin' On) The Dock Of The Bay" and "In The Midnight Hour." Also performing were five-string banjo trailblazer Eric Weissberg, composer of "Dueling Banjos" and a member of Art Garfunkel's band; prolific, Grammy-nominated guitarist, Phil Keaggy; Thom Bresh, the charismatic son of Merle Travis; Australian guitar phenomenon Tommy Emmanuel; blues guitarist and leading pickup manufacturer, Seymour Duncan; Nokie Edwards of the seminal surf band, The Ventures; Jim Hurst, known for his session guitar work with Sara Evans and Claire Lynch; and Nashville multi-instrumentalist Wanda Vick and Sentimental Journey; as well as the inimitable Anderson and special guests.



All Star Guitar Night
Founder, Muriel Anderson

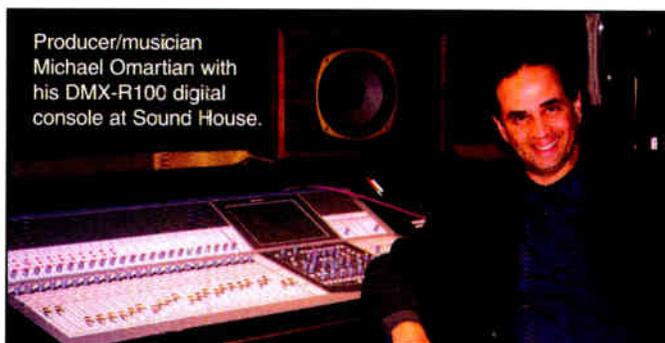
Producer Michael Omartian Gets Instrumental With Sony R100

Producer/musician Michael Omartian recently installed a Sony R100 digital mixing console in his Nashville-based private studio Sound House. Using the board for both commercial and personal projects, Omartian's first completed effort on the R100 is his own instrumental album titled *Animator*, which features both original material and variations of hit songs that he produced in the 80s such as "Glory of Love," sung by Peter Cetera and "Sailing," sung by Christopher Cross. The album is scheduled for release on RCA/Victor this summer.

"My long-time engineer Terry Christian was asked to write a review of the R100 for a trade publication so we experimented with it here, and it immediately became our central tool," reports Omartian. "The delivery of the R100 coincided perfectly with the final stage of *Animator*. We decided to do the mix on the console, and were really impressed. I've worked on the Oxford, and after using the R100 it was evident that the same high-quality technology and engineering were put into this desk as well. Sonically, the board is wonderful. It's compact, easy to navigate, and offers tremendous power and capability."

"The R100's full automation saves me critical studio time because I rarely work on one production at a time, and I need to go

back and forth between projects seamlessly," adds Omartian. The studio is also equipped with Pro Tools and a Sony digital 3324 recorder. "The R100 was the final piece in the puzzle," he says. "In



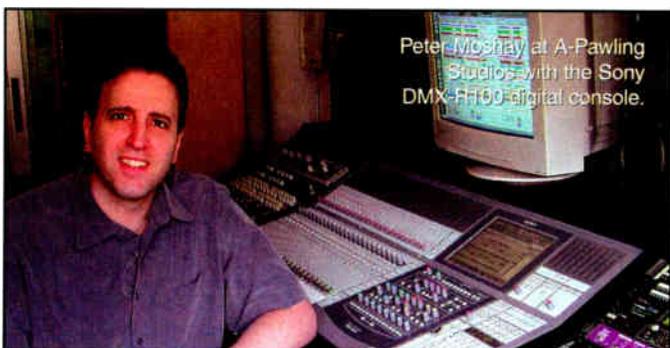
Producer/musician Michael Omartian with his DMX-R100 digital console at Sound House.

the past with digital, you had to go through some type of conversion process somewhere in the chain, and, sonically, the recording would sound thin. Now, we are able to stay in the digital domain, and the sound is genuine and rich."

Omartian is scheduled to use the R100 on upcoming projects for R&B group Sons of Soul and traditional country singer Barry Smith.

A-Pawling Turns To Sony DMX-R100

Peter Moshay of A-Pawling Studios in Pawling, NY, is one of a growing legion of audio professionals switching to the powerful Sony DMX-R100 digital mixing console. Having used virtually every



Peter Moshay at A-Pawling Studios with the Sony DMX-R100 digital console.

console on the market, and after researching all the latest available models, he selected a Sony DMX-R100.

"It's the sound of this board that impressed me," says Moshay. "This is the only console at this level that sounded like I could make a serious record with it, and be 100 percent satisfied with the results." With the level of projects that Moshay undertakes, one can understand why the sonic qualities of a console are so important.

Nestled in the rolling hills of New York State, A-Pawling Studios' rooms are filled with racks of the latest analog and digital gear. Moshay has recently moved his large-format analog console out of the control room, to make way for the new R100. This "changing of the guard" is a major step for any audio professional, but Moshay is particularly excited about the transition. "I feel no remorse at all in switching from the analog console to the R100," he states. "In addition to its terrific sound, I love the instant recall capabilities, the input re-routing functions, and the dynamic automation. Unless you consider six figure boards, no other console has these features."

Moshay is equally impressed with the board's flexibility, and notes that having every function at his 'fingertips' with the touch sensitive screen puts the R100 in a class by itself. "The first projects I did on the R100 sounded phenomenal," he comments. "For example we did a very organic acoustic record with just a Hammond B-3, a drum kit with brushes, acoustic guitars, and vocals. I had done a previous mix a few days before on my old board. I quickly put up a mix on my R100, took the same 24 tracks and finished in about an hour, just learning the console as I went along."

"The R100 has become my main console," Moshay concludes. "People who work with me realize how hyper-critical I am about every piece of gear in my studio. I do my research, and everything must be the best. Sonically the R100 is as good as it gets."

University Selects R100 As Digital In-Class Teaching Tool

Webster University Professor Gives Console High Grades

By Barry Hufker
Associate Professor, Audio Production Degree Program
Webster University School of Communication

When it came time to purchase new gear for the Audio Production program here at Webster University, I went through a lot of trouble to have the school administration ready, and to have a dealer lined up so that we would be among the first to own a DMX-R100. I saw it as "breakthrough product." In the Audio Production program, we try to offer our students professional experiences and professional equipment. We also try to get good value for the money we spend. I was confident the DMX-R100 would be a great choice.

The DMX-R100's possibilities for audio education are obvious. If the day's topic is "signal flow," then the students can use the DMX-R100 to "build a console." We'll assign inputs to channels and channels to busses and busses to monitors and outputs. If the class needs to study signal processing, there is a very flexible EQ, with gating, compression, limiting, expansion on every channel. Automation and synchronization are also well demonstrated by the console.

The console is a great tool for class work, but an even better tool for production. The DMX-R100 enables each student to arrange the console to suit his style. If a student prefers a certain arrangement of inputs or monitoring, it can all be had. Further, the students don't have to worry they are "missing a switch" that hasn't been "normalized" by the previous student. The new student can insert the floppy disk with his or her setup on it, recall the desired parameters, and begin work. And, because production time can be limited, each student doesn't have to feel frustrated at having gotten everything "just setup" as the allotted studio time has come to an end for the day. A quick "save" to the floppy and all is ready for the next time.

While all of that is important, what I like best about the console is its sound. I enjoy the sound of the EQ as well as its flexibility. Because the faders have such high precision, it is easy to get and recall an accurate mix. The students are also able to experiment. They can save what they like. They can undo what they don't like. They aren't limited because they've run out of

compressor or gates. And maybe best of all, they can actually learn something of aesthetics. The students can hear their progress when they compare their new mixes and setups to old ones. They can grow in sophistication as "critical listeners." And, because the students aren't limited by the console's sound or features, they are free to turn out their best work.

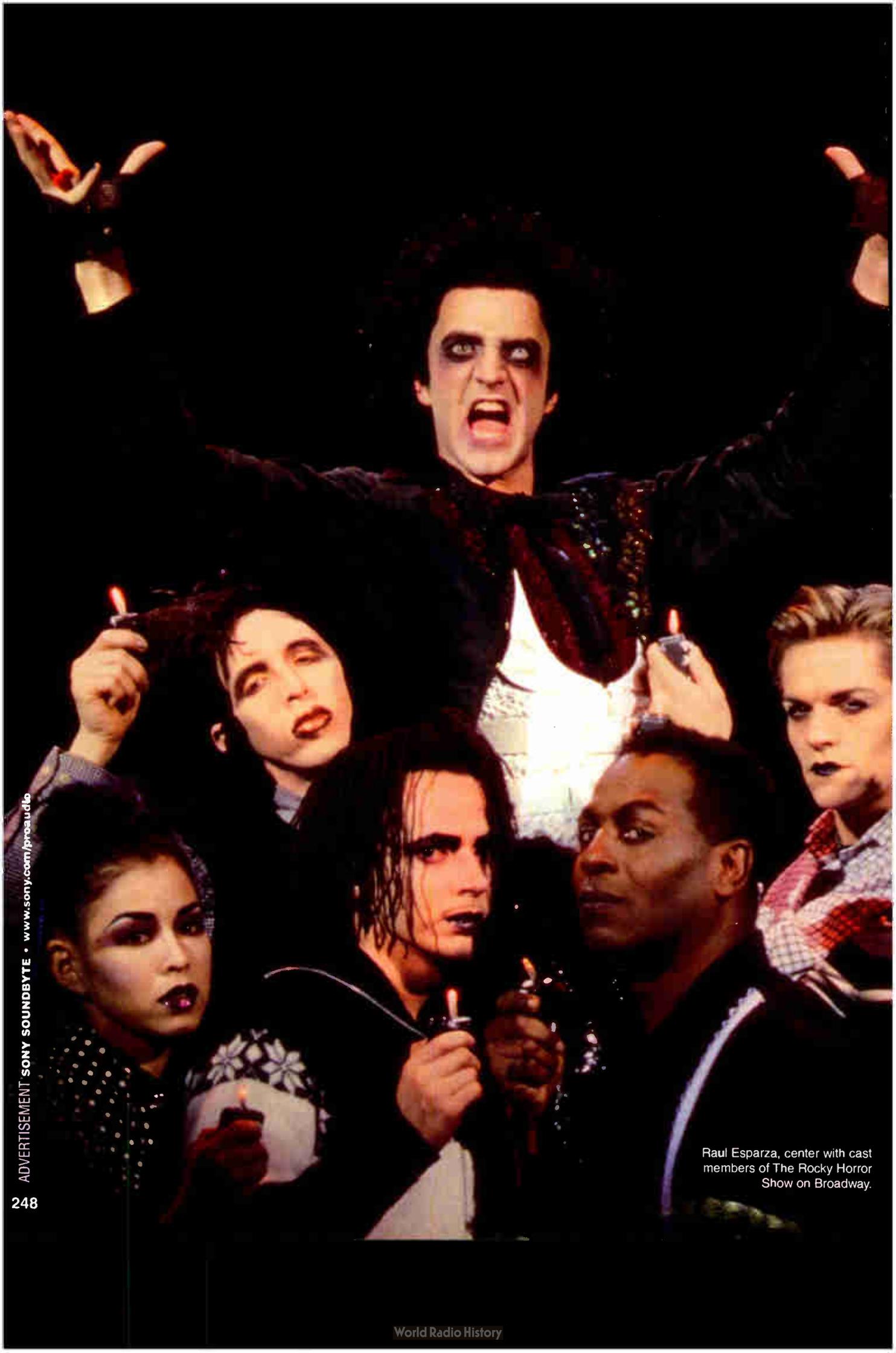
All of the Audio Production faculty are audio professionals as well as teachers. In the time we've had the console, I've mixed two compact discs on it and an opera, Scott Joplin's "Treemonisha," recorded live in performance. One of the discs was a collection of



Left to right, Associate Professor Barry Hufker, with students Joni Gibson, Vince Sievers and Peter Schmalfeldt.

acapella music sung by a local dectet. The music ranged from madrigals, to folk, to pop, to rock. The console was clean enough and versatile enough to give me those styles quite easily.

When it came to "Treemonisha," I was able to employ some lesser known features in the DMX-R100. The first is the console's "M/S" facility. The main microphone pair for recording the orchestra consisted of an M/S arrangement. The console and its polarity inversion feature on each channel made that a quick setup. The "time delay" on each channel also proved to be very important. There were a number of spot mics in the orchestra pit. Using time delay, I was able to delay the audio from the spot mics so that it coincided with the sound directly reaching the main pair. This greatly reduced phase problems and cleaned up the stereo imaging immensely.



ADVERTISEMENT SONY SOUNDBYTE • www.sony.com/proaudio

Raul Esparza, center with cast members of The Rocky Horror Show on Broadway.

Wireless Broadway

By Dan Daley

Sony 800 Series Wireless Stays Steady And Reliable While "The Rocky Horror Show" Gets Wild

The Rocky Horror Show is one of those rare anomalies of pop culture: it has managed to maintain its charming weirdness even in the face of mass-market success. Over a quarter of a century old now, the seminal gender-bending rock musical — which has served as a visual and philosophical inspiration for everything from Goth metal music to the off-off-Broadway hit *Hedwig and the Angry Inch* — is now a full-fledged Broadway hit. Yet

it remains as interactively chaotic as ever, with the audience anticipating the dialog and adding their own, often scatological, observations. But, they never overpower the show, thanks in large part to the performance of Sony's 800 Series wireless microphone system, which has managed to keep up with perhaps the wildest show ever to hit Broadway.

Before it opened — around last Halloween, appropriately enough — at the intimate Circle In The Square Theater near Times Square, the staging of the show presented a true challenge to sound system designers Domonic Sack and Richard Fitzgerald, of New York's Sound Associates, which specializes in live-theater sound.

"The biggest issue was the fact that this is a small theater in which the

action takes place almost in the round," explains Sack, noting that the stage has a huge thrust, on which 90 percent of the show's action takes place, allowing it to be surrounded on three sides by the audience. "This is not a traditional proscenium-type stage," he says. "In fact, the part of the stage you'd consider traditional is where the band is set up, not in an orchestra pit. Making the sound work on this was interesting, to say the least."

Sack and Fitzgerald responded with a dual-sound system

design approach. A stereo system, using Meyer CQ-1 and 650-P speakers, was the main music system, projecting the band, which was playing from the rear of the stage area. The second system was designed specifically for vocals and dialog, utilizing three rings of Meyer and EAW speakers in a concentric distribution system flown from above and which amply covers each of the theater's 700 seats.

"The key to making these two systems work together was time alignment," explains Sack. "Each speaker, or pair of stereo



Alice Ripley as Janet in *The Rocky Horror Show*

speakers, has a separate channel with adjustable time delay and EQ. But, the amazing thing about it is that, even though it's two systems, and even though the performers are all over the place — even in the audience at times — the perception of the viewer is that all of the sound is still coming from the stage. And, we can give each seat upwards of 107 to 110 dB of great sound, all perfectly time aligned between the music and the vocals."

At the heart of the vocal sound system is the Sony 800 series wireless system. It was, says Sack, the wireless system of choice to keep up with the frenetic pace of the show, in which cast members climb ladders, enter the audience, and generally break every

Wireless Broadway



rule of theatrical production, just as the original film broke the rules of the relationship between music and the movies. "We needed a compact and stable wireless system that would be frequency-agile and work reliably under any of these conditions," he says. "Sony's 800 series [the WRT-860A transmitter, the MB-806A multi-channel receiver, and WRU-806A module] gave us exactly what we were looking for."

A dozen Sony WRT-860A transmitters are coupled with DPA 4065 microphones and deftly hidden in the performers' often-scanty costumes. These send a full-bandwidth audio signal to the Sony WRU-806A modules in the Sony 806A multi-channel receiver. And, this wireless system, says Sack, has performed flawlessly since the first night of the show.

"The 800 series is frequency-agile, so we can adapt it to the environment it has to work in," says Sack. "We have to be able to work around the enormous amount of RF that is generated in a location like Manhattan, such as emergency broadcasting frequencies, local television stations and other Broadway shows. In a two-block radius, you may have as many as five Broadway shows running simultaneously, all using between 24 and 40 channels of wireless on stage, plus walkie-talkies and wireless intercoms. The Sony 800 series gives us the flexibility to maintain signal intensity and integrity night after night in the most dense RF environment you can imagine."

Sack also cites the 800 series' range performance, critical for a show like *Rocky Horror* since the performers use almost every inch of the theater, let alone the stage. "You need good performance out of the RF side of the system," he notes. "You can't have any dropped signals."

Wally Flores, production sound engineer and FOH mixer for *The Rocky Horror Show*, concurs, noting that the

Rocky Horror Show cast member Aiko Nakasone applies the Sony 800 Series WRT 860 transmitter back stage before the evening performance.

advent of digital television broadcasting in New York has added a new dimension to potential problems for live theater sound – and one the Sony 800 Series is particularly well-suited to dealing with. "The 800 Series makes it easy to dial around frequency problems like that," he says. "DTV is beginning to crush the margins [between frequencies] we have in New York. I've actually had the situation change literally between sound check and show time due to that. You don't get any warning when they're going to turn the DTV transmitter on. And when that happens, you simply lose audio on that frequency. The 800 lets me get around that problem faster than any other wireless system I've ever used."

Equally important was the Sony WRT-860A transmitter's slim profile, which made it much easier to integrate into the performers' costumes. "We were able to fit them into wigs, lingerie, even a dog collar," says Sack. "And they have held up performance after performance – the Sony systems have taken a lot of abuse since the show's opening, but they continue to perform extraordinarily well."

Sony 800 Series Takes Broadway On The Road

Sound Associates is one of the foremost sound companies working in the theatrical business today. It was also one of the first companies to embrace the Sony 800 series wireless system, and the first to bring it to Broadway.

Says sound system designer Domonic Sack, "We used the Sony 800 series system on the initial version of *Beauty And The Beast*, the very first use of the system on Broadway, and on *42nd Street*," he recalls. "In addition, we have it out on a number of touring shows, including *The Civil War*, *Cinderella*, *Snow Boat* and *Funny Girl*."

Sack says that one of the main advantages that the Sony 800 Series components confers is adaptability. "You go into so many theaters and every theater is different, as is every production," he explains. "You face a lot of challenges as productions become more and more complex and elaborate. So, the Sony also gives you a sense of confidence, that you have a secure RF system that's not going to let you down no matter how complex the RF environment is."

Two other advantages Sack cites of the Sony 800 Series wireless system are less immediately noticeable but every bit as critical. "With more and more productions going on, you'll see a lot of ongoing personnel changes on the technical side of the production," he explains. "The 800 Series is extremely simple to use, so engineers can master it almost immediately, and has engineer-friendly features on the transmitter such as long battery life, signal strength and audio level. Secondly, there's a cost-effectiveness that the 800 Series brings to the production's bottom line. I can say that I have personally seen the 800 Series reduce the wireless audio costs of a show by as much as twenty-five percent. So, all I can say is, if you haven't tried this system out yet, you really need to." – DAN DALEY

Palmer-Grassi On The Oxford

Jazz At Lincoln Center's Educational Curriculum Taps Sony Digital Technology

Over the past several months, independent recording engineer Sandy Palmer-Grassi has mixed hundreds of music elements by legendary trumpet player Wynton Marsalis and the Lincoln Center Jazz Orchestra. Working on a state-of-the-art Sony Oxford digital recording console in NY's Sony Music Studios, Palmer-Grassi is incorporating the material into a comprehensive interactive music curriculum (30 lessons-available on CD) funded by the Louis Armstrong Educational Foundation. Produced by Jazz at Lincoln Center in collaboration with Sandy Feldstein of PlayinTime Productions, the Louis Armstrong Jazz Curriculum, which is based on the Jazz for Young People concert series, is designed to educate elementary and middle school students about jazz. Multi Grammy 'Classical Producer of the Year' Award-winner Steve Epstein is producing.

According to Palmer-Grassi, each lesson focuses on a different topic ranging from What is Bebop? to What is New Orleans Jazz? The package includes a teacher guide, student books, and a series of CDs featuring over 10 hours of music with informative narration by Wynton Marsalis, the Artistic Director of Jazz at Lincoln Center. "It's a huge project with many music elements, many with different versions," Palmer-Grassi explains. "We just finished Program #19, What is Big Band-Part I, which incorporates both complete songs and segments from Happy Go Lucky Local, Limbo Jazz, and Twinkle Twinkle Little Star. The series teaches kids everything about the music-from the instruments to what it means to swing.

Jazz at Lincoln Center is the world's largest not-for-profit arts organization dedicated to jazz. With the world-renowned Lincoln Center Jazz Orchestra and a comprehensive array of guest artists, Jazz at Lincoln Center advances a unique vision for the continued development of the art of jazz by producing a year-round schedule of education, performance, and broadcast events for audi-

ences of all ages. These productions include concerts, national and international tours, residencies, a weekly national radio program, television broadcasts, recordings, publications, an annual high school jazz band competition and festival, a band director academy, a jazz appreciation curriculum for children, advanced training through the Juilliard Institute for Jazz Studies, music publishing, children's concerts, lectures, film programs, and student and educator workshops. Under the leadership of Artistic Director Wynton Marsalis, Jazz at Lincoln Center will produce

more than 400 events during its 2001-02 season. Currently, Jazz at Lincoln Center is building its new home - Frederick P. Rose Hall - the first-ever education, performance, and broadcast facility devoted to jazz, slated to open during the 2003-04 season.

"The flexibility and reliability of the Oxford has been vital to the success of this project," continues Palmer-Grassi. "The Instant Recall is particularly helpful. We have more than 200 titles so far, and with all the different takes and topics, we frequently do adjustments and reprints. I don't have a script in front of me during the mix. Without always knowing what Wynton is saying or the intent of the element, sometimes my mix doesn't demonstrate the example as well as it could. When I'm finished mixing a

section, Wynton reviews it, and then I incorporate his revisions. With the Oxford, I have had no problems recalling anything."

This is the first project Palmer-Grassi has completed on the Oxford, and she is looking forward to future assignments. "I was given a brief tutorial and within a couple of hours, I was mixing on the board," she says. "The learning curve is small. The console sounds great too, and it interfaces well with every piece of equipment in the studio."

Murray Street Enterprises handled audio production for the Louis Armstrong Jazz Curriculum with Steve Rathe as senior producer. The series is slated for release in the fall.



Steve Epstein, left, and Sandy Palmer-Grassi at the Sony Oxford console.

Going Mobile in NY for Gathering of the Vibes Festival

Chris Andersen, engineer-in-charge and owner of Neveva Production Woodstock, reports that two Sony DMX-R100 digital consoles were used to record over a dozen bands at the recent Terrapin Presents'



L-R, with the DMX-R100, producer Warner Swain, engineer Dominick Campana and Neveva Production Woodstock owner Chris Andersen.

Gathering of the Vibes festival in Red Hook, NY. The three-day event featured such artists as Bruce Hornsby, the Dickey Betts Band, Buddy Miles, and Medeski Martin & Wood. The R100s were installed in Andersen's Unit 2 mobile recording truck. Neveva provided complete

audio and video services for Vibes.

"Terrapin's Festivals are famous for having two adjacent stages where bands play back-to-back," states Andersen. "Quick transitions are mandatory. The R100s sound great and are very reliable. I've never experienced a crash or a lock-up." Audio engineer Dominick Campana piloted the two R100s—processing 48 inputs from the stage and feeding 48 DTRS tracks. Neveva's new Unit 3 truck was used in conjunction with the Unit 2 to provide four-camera video coverage and allow for flawless transitions and simultaneous recording of both stages for Terrapin's archives.

Neveva also provided on-site encoding services in multiple bit-rates and formats for streaming Internet distribution and feeds to WDST-FM to simulcast portions of the festival.

"Featuring the best artists of the jamband genre, the sixth annual Gathering of the Vibes pulled out all the stops topped off by a huge three-hour-long jam session that showcased various musicians," states Andersen. "We flexed the technology muscle all weekend. The R100 set-up worked flawlessly."

Sony R100 Jazzin' It Up At NJ Radio Station WBGO

WBGO, the NY/NJ market's only 24-hour classic jazz station (88.3 on the FM dial) and the only station to regularly broadcast live from the area's jazz clubs, has installed a Sony DMX-R100 digital console.

The R100 complements a major \$1.9 million renovation of WBGO's downtown Newark headquarters. To celebrate the facility's grand re-opening, WBGO recently hosted an on-air Jazz Radio Festival featuring the Joshua Redman Quartet, the New Jersey City University Jazz Ensemble, and the William Paterson University Jazz Ensemble.

WBGO manager of operations and production Steve Brown reports that the R100 was installed one day before the festival: "I've worked on digital boards before so the learning curve was short. The console sounds great – it's a real thrill to hear a live performance and have it sound like a record. The board's headroom and dynamic range allow me to get the sound I want without having to rely on compressors and limiters.

"Nowadays, a lot of jazz engineers have come to expect poor digital sound from low-cost digital boards," continues Brown. "Sony changed that stereotype by introducing the R100 – a cost-effective digital console with superior sonic clarity. We're trying



WBGO manager of operations and production Steve Brown at the Sony DMX-R100 digital console.

to push the envelope here at WBGO. My goal is to surpass CD-quality sound and dynamics with our live performances, as opposed to presenting heavily compressed and limited FM sound. Sony has been very active with NPR headquarters and member stations like us to make this technology affordable. We really appreciate their support."

BEFORE YOU BUY A CD RECORDER



CHECK ITS PROFESSIONAL CREDENTIALS

CDR-W33
CDR-W66



PC keyboard input
for text entry

DSP
SBM, EQ and Limiter



Even among professional CD recorders, the Sony CDR-W33 and CDR-W66 stand apart. Three DSP functions fine-tune your sources.* There's a limiter with adjustable ratio. A 3-band EQ. And Super Bit Mapping® circuitry that captures near 20-bit quality on industry-standard 16-bit compact discs. Conveniences include wired or wireless remote operation and even a PC keyboard input for CD TEXT™ entry. Sony's 24-bit A/D and D/A converters help maintain resolution.

The CDR-W33 uses standard unbalanced analog audio, SPDIF and optical digital I/O.

The CDR-W66 (not shown) adds balanced XLR analog and AES/EBU digital I/O plus 2X speed duplication with a second CDR-W66.

The Sony CDR-W33 and CDR-W66 deliver the design and operational capabilities that professional applications require. And you get every last bit of performance without spending your every last dime. To find out more, call 1-800-472-SONY, ext. CDR.

*Analog sources only on CDR-W33.

SONY

1-800-472-SONY ext. CDR
www.sony.com/proaudio

©2001 Sony Electronics Inc. All rights reserved. Reproduction in whole or in part without written permission is prohibited. Features and specifications are subject to change without notice. Sony, Super Bit Mapping and CD TEXT are trademarks of Sony.

SONY

"What a great machine!"

- ROGER NICHOLS, Grammy Award Winning Engineer/Producer, www.eqmag.com

"The R100 packs more creative power per sample than most full size digital consoles." - BRUCE BOTNICK

HOW DO YOU EVALUATE A DIGITAL MIXER? LISTEN.

"Sony clearly broke the mold with the DMX-R100. A dramatic improvement over other small digital consoles."

- JOHN NEWTON, Grammy-nominated engineer and owner of Soundmirror, Inc.

"We loved it... sonically beautiful and clean...the best small-format console ever... outstanding performance, execution and design."

- ROBERT MARGOULEFF and BRANT S. BILES, Proprietors of Mi Casa Multimedia Inc.

"This is the first digital console of this size that sounds this good. What goes in comes out. The R100 is right on the money."

- TOM LAZARUS, Engineer and owner of Classic Sound, NYC

"...pretty fantastic...rave reviews...incredible sonic integrity...and incredibly easy to learn and operate...a new generation of digital console."

- DENNY PURCELL, Award-winning mastering engineer, President - Georgetown Masters

"Sounds great, reliable and easy-to-use." - ALLEN SMITH, Chief Engineer, Soundtrack Boston



The DMX-R100 is changing even the experts' opinion of what to expect from a compact, affordable digital console. A full input module with a knob for every key function; selectable high sample rate operation; 5.1 surround mixing and

monitoring; and a high resolution touch screen that becomes an extension of your hands. The next thing to do is go out and hear one for yourself. In the meantime call today and we'll send you a brochure and tutorial CD-ROM.

DMX-R100



1-800-472-SONY ext. DMX

www.sony.com/proaudio

©2001 Sony Electronics Inc. Reproduction in whole or in part without written permission is prohibited. All rights reserved. Sony is a trademark of S.

World Radio History

STREAMING VIDEO

ANY TIME...

ANYWHERE!

See online product demonstrations for the hottest new gear.

www.mixonline.com



FEATURING



Sony DRE-S777

See an exciting video on how Sony captured the sound of some of the most perfect acoustic spaces in the world for the DRE-S777 Digital Sampling reverb.



Digidesign Controll24

An analog front-end/ergonomic surface for Pro Tools, Controll24 features 24 moving faders, 16 Focusrite preamps, 5.1 monitoring control and dedicated transport/editing/DSP controls.



QSC RAVE/s-24

This digital audio transport system provides 24-bit/48kHz ADCs, and reconfigures CobraNet networks to transmit seven channels of 24-bit audio instead of eight channels of 20-bit audio.

Attention Manufacturers!

Now you can show professional engineers and producers your hottest products—available 24 hours a day, 7 days a week. Every advertisement and new product announcement featuring the Demo Room logo has a streamed demonstration online. Users can also view Archived Demos of previous Demo Room Stars from our entire Entertainment Division. Don't miss out on this exciting opportunity to connect directly with the industry through www.mixonline.com.

Please contact your Mix sales representative for details!

Contact Information:

Associate Publisher

Carrie Anderson, (510) 985-3228,
carrieanderson@intertec.com

Eastern & Special Projects Advertising Director

Michele Kanatous, (718) 832-0707,
mkanatous@intertec.com

Midwestern Advertising Manager

Greg Sutton, (847) 968-2390,
gsutton@intertec.com

Northwestern Advertising Director

Dan Hernandez, (510) 985-3266,
dhernandez@intertec.com

Southwestern Advertising Manager

Albert Margolis, (949) 582-2753,
amargolis@intertec.com

Facilities/Eastern Advertising Manager

Shawn Langwell, (510) 985-3275,
slangwell@intertec.com

RADIOHEAD

THE MESSY BUSINESS OF BRINGING MEANINGFUL ART TO THE MASSES

by Robert Hanson

The band who could do no wrong: There is no question that the summer of 2001 simply belonged to Radiohead. For a few perfect moments, the band seemed to erase the shameful stain left by years of faux-angst rap/metal and vapid teen pop, reminding the world that music doesn't have to be written for the lowest common denominator to be successful.

Returning after a two-year break, the band released not one, but two follow-up albums to their now-classic '97 release, *OK Computer*. Recorded during the same studio sessions, *Kid A* (released in the fall of 2000) and *Amnesiac* (released last spring) were greeted with both critical acclaim and a bit of confusion on the part of their fans, who were perplexed and excited about the group's new direction. The two albums artfully eschewed the normal conventions of pop music, presenting the kind of bleak, electronic-based, cathartic study of the human condition that *OK Computer* only hinted at. And, despite the band's ardent resistance to releasing singles, making videos or promoting their new albums (except by touring), both albums have fared well commercially.

Created through a layering of sampled percussion, synths, and found pieces of audio and live instruments, this new batch of songs presented the band and their live sound crew with an interesting set of challenges, including the requirement that everything be played live without any prerecorded playback.

Mix followed the band for two of their California dates, stopping in at the Shoreline Amphitheater in Mountain View and the Santa Barbara Bowl. Though set lists varied a fair amount between shows, more than half of the songs

were from the band's last three albums, with a few favorites from *The Bends* thrown in as well. The new material held up live, especially songs like "Idioteque" and "Pyramid Song," and at Santa Barbara, the audience was treated to an excellent cover of Neil Young's "Cinnamon Girl."

Radiohead consists of Thom Yorke (vocals, guitar, piano), Ed O'Brien (guitar, vocals), Jonny Greenwood (guitar, synths), Colin Greenwood (bass) and Phil Selway (drums). For the U.S. leg of the tour, underground darlings and crowd favorites the Beta Band were tapped to open; the band was promoting their latest Astralwerks release *Hot Shots II*.

PACKT LIKE SARDINES

Monitor engineer David "Tree" Tordoff has been with the band since the last leg of the promotional tour for *The Bends* in the mid-'90s. For the U.S. leg of this tour, he began mixing on a Midas Heritage console, which was chosen for its automation features. Tordoff is responsible for 47 inputs and 22 different onstage mixes. Although there are only five members in the band, bandmembers use two additional fixed keyboard positions at different times. Thus, each bandmember requires a custom mix at different stage positions, at different times.

Singer/guitarist Yorke and drummer Selway are the only two members of band using in-ear monitor setups, dual-driver Firehouse 6500 ear molds and Shure PSM 700 belt packs. The rest of the band listens to standard wedges from Firehouse, which also supplied all subwoofers. "Thom has ears and wedges," Tordoff explains. "The wedges are used purely for the electronic drums and instruments that Jonny Greenwood plays. He doesn't like those sort

ALL PHOTOS BY STEVE JENNINGS

of threatening noises in his ears. And Phil, the drummer, has 'ears' and a stool shaker and takes everything in his mix. The bass player has normal wedges and a sub as well, because he also plays upright bass, and you get a bigger sound out of that. Everyone else is on standard wedges."

For effects, Tordoff uses PCM 70s for vocal reverb on Yorke's in-ear mix. And dbx 1000 compressors are used on all of Greenwood's instruments, including guitar, an elaborate patchable synth array and various other items.

"One big change for this tour is that we have an acoustic piano onstage," Tordoff continues. "And if you put an acoustic piano in the middle of the stage, it changes everything! And we have the upright bass as well. It's more interesting with challenging instruments. And more things move. We're wheeling keyboards around all the time. So everything has to have a long umbilical cord running to it. It is a huge input list, but only half of it is being used at any one time."

For sidefills, two Turbo Floodlight cabinets were placed on towers at either the side of the stage, approximately 12 feet off the ground and angled downward. To make these particular speakers fit in with the rest of the stage, which reflects the bleak, neo-futurist themes of the band's music, the cabinets were stripped of their blue, composite-wood housing, exposing the internal components. To the untrained eye, the unfinished metal drivers more closely resembled a work of contemporary sculpture



FOH engineer Jim Warren's elaborate array of outboard processors were indispensable in helping the band to re-create their sound live.

than a speaker. "At these open air shows, it is sometimes hard to fly things, and this was an easy way to get them in the air," notes Tordoff.

"Radiohead is always interested in hearing," he continues. "The guys that don't use in-ears wear in-ears with filters, because it's all about keeping the stage volume down. When they first got signed and realized that they might have a career in music, they all anticipated that it would be for 30 or 40 years. It was a decision from the beginning to be very careful with their hearing. A lot of my job is keeping things quiet, as opposed to being very loud. Many monitor jobs are about making it very loud and exciting. For them, it's very much about getting the mix exactly right, which you really can't do at top volume. To make the show more exciting, they have to play better and not rely on just volume and noise."

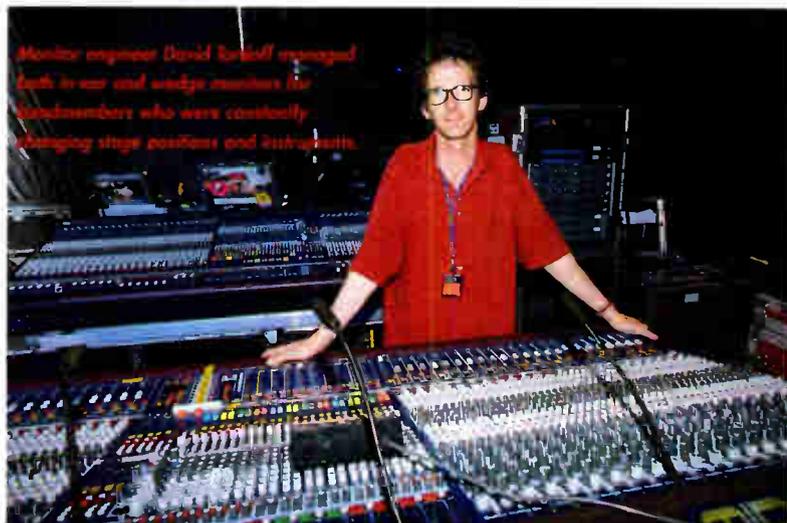
ELECTROENGINEERING

At the FOH position, engineer Jim Warren picked a Soundcraft Series FIVE as the main board and a Spirit 324 for effects returns. The Series FIVE is set up for 48 inputs, with 12 effects sends, and all of the input returns on the Spirit are in stereo pairs. Most of the effects are used on the vocals, and include an Eventide H3000, M-1 and D-2 units from TC Electronic, Lexicon PCM 70, Roland SD-3000 and 330 models, and a Line 6 POD. Warren also patches several Yamaha SPX900s across the drums. [FOH engineer Jim Warren was unfortunately not available to be interviewed for this story due to other commitments.—Eds.]

All of the vocal mics are Shure Beta 87As. The miking scheme for the drums break down as follows: M-88 on kick, SM 57 on snares, Sennheiser 504 on toms, Ramsa S-1 for ambience and KSM 32s as overheads. All of the guitar and bass cabinets are miked with Sennheiser 509, and the instruments are also taken direct. The various keyboard/synth/sampler rigs are also taken as stereo DIs.

CLIMBING UP THE WALLS

Firehouse Productions was tapped to outfit the U.S. leg of the tour. The New York-based production company set the band up with a V-DOSC system that could be scaled to work with a variety of large and medium-sized outdoor venues. Additionally, Firehouse provided both consoles and the custom-outfitted monitor array.



Monitor engineer David Kordoff managed both in-ear and wedge monitors for the band members who were constantly changing stage positions and instrument setups.



Radiohead's Thom Yorke sings through a Shure Beta 58A.

"We also use dV-DOSC for underhung and lipfill," Firehouse system tech John Drane explains. "We have a total of 32 V-DOSC cabinets and 12 of the dV-DOSC. We also carry 12 LAcoustic Arc speakers out with us, because some of the shows that we've been doing have been larger venues. In some of the smaller stadiums, we've needed some extra coverage on the sides. We're also carrying 24 of the ADK proprietary double-18 subs. Amplification is all QSC and Crown, but mostly QSC. We use the Crown on the dV-DOSC and the Arcs. But the QSC is specifically for the V-DOSC."

The Santa Barbara show presented some unique challenges. The Santa Barbara Bowl is actually located in a dense, upscale, residential neighborhood, and a city ordinance places a strict 100dB limit on overall volume, plus a 10 p.m. curfew. The facility itself is also unusual—to the right of the stage, where the P.A. would nor-

mally be flown, there is a large pine tree that would obviously muffle the sound. To work around this, the V-DOSC arrays were flown directly above the stage, which meant that the cabinets were physically behind the mic positions. To compensate for this, the arrays were imaged so that they would overshoot the stage mics.

"Overall, it's been a great tour to be on," Drane concludes. "The audience is just fantastic. It's one of the few shows that I've been to where the audience is just riveted the whole time. At a lot of these shows, you'll go out in the concourse and everyone is hanging out and drinking beer. At these shows, they're not. Everybody is in their seats for the whole show. And they're just a great group of guys to work with." ■

Robert Hanson, Mix's editorial assistant, couldn't have thought of a better reason to revisit his old hometown of Santa Barbara, Calif.

THE MEDUSA SERIES. 25 YEARS STRONG.

When we invented the Medusa in 1976, we deliberately overbuilt it. We wanted it to stand up to anything. Now, after 25 years, we're proud to say we did the right thing. And we're still doing it. Today's Medusa combines a heavy gauge steel box with genuine Whirlwind connectors and multipair cables designed to our stringent specifications. Plus strength enhancements not found on cheaper units like industrial gauge shrink at all critical points, a true Kellems strain relief/grip, and a steel mesh hanger at the fanout end. The Medusa Series. It's no wonder sound contractors depend on Whirlwind.

whirlwind®

www.whirlwindusa.com

888.733.4396

SEE US AT AES BOOTH #872

Legendary Venue.



Crest X VCA front-of-house console, The Fillmore Auditorium, San Francisco, CA

Legendary Performance.

Crest Century LMx monitor console & Pro Series Amplifiers, The Fillmore



Crest makes a full range of compact high-performance FOH and stage monitor consoles – as well as their legendary bulletproof amplifiers. Amaze your ears, blow the crowd away, see your accountant smile – all at the same time.

'Jimi' really played this place in the 60's? You know, I can tell the sound here rocks – even before you flip the switch. Wow! *Is this a new Crest X-VCA Console for the FOH?* And up on the stage, that LMx Monitor Console, another Crest? I'm impressed.

O.k - let me guess: all the amps here are Crest too, right? And you're telling me all their stuff has cranked in this famous club for a decade, night-after-night? You're right, this place *is* full of legendary performances. Thanks for the pass and the heads-up on the gear. :-)



Groovy Gear.

**CREST
AUDIO**



"THE PRODUCERS" ON BROADWAY

Oh, delicious irony. *The Producers*, Broadway's biggest hit in years, is the stage version of a 1968 cult film about a pair of sleazebags who have an unexpected Broadway hit. Played on film by Zero Mostel and Gene Wilder, the two scoundrels scheme to create a show so awful it must certainly fail, at which point the plotters intend to abscond with their investors' money. But, despite the deliberately offensive title and a storyline that brings new meaning to the term "box office poison," *Springtime for Hitler* is a smash.

In a bizarre, if deserved, example of history repeating itself, *The Producers* on Broadway was also an immediate smash: When the box office opened on April 19, first-day sales were over \$3 million. Even with tickets priced at a Broadway record high of \$100, the box office lines were so long that, in an unprecedented move, rival theaters across the street opened *Producers* ticket windows in their *Phantom* and *Fosse* box offices. And, crowning commercial success with critical acclaim, *The Producers* won all 12 Tony awards for which it was nominated, shattering the previous record of 10, set by *Hello Dolly!* in 1964. (There is no Tony for sound, an oversight that continues to baffle and irritate sound designers everywhere.)

Mel Brooks, who wrote and directed the original movie (and was awarded an Oscar for his screenplay), also wrote the book and lyrics for the musical. Two songs from the movie, "Springtime for Hitler" and "Prisoners of Love," were held over, and Brooks wrote 15 new songs, of which "We Can Do It" and

"Keep It Gay" stand out as instant classics. Frantic physical comedy, vaudeville moments, theatrical references, musical parody and literary homage abound, and the cast includes *bona fide* stars Nathan Lane as washed-up producer Max Bialystock and Matthew Broderick as nebbish accountant Leo Bloom.

The night before the Tony awards at Radio City Music Hall, I was fortunate to have a night off between Microsoft's Office XP unveiling and Blu Cantrell's New York premiere. I caught the show, met the audio crew and toured the 1,623-seat St. James Theater, which was beautifully renovated two years ago and formerly home to *Oklahoma*, *The King and I* and *Hello Dolly!*

Sound design for *The Producers* is by Steve Kennedy, whose designs include *Aida*, *Titanic*, *How To Succeed in Business*, *Carousel* and The Who's *Tommy*. He is assisted by associate designer John Shivers, and equipment is provided by ProMix of Mt Vernon, N.Y.

The show is mixed by David Gotwald, whom we last caught mixing *Fosse* two years ago, and whose credits include *Crazy for You* and Stephen Sondheim's *Passion*, as well as runs with *Phantom of the Opera* and *Chicago*. The mix position at the St. James is in what Gotwald calls an "unfortunate" location, in the far corner of the orchestra level. Nevertheless, Gotwald calls *The Producers* "probably the best show I've ever mixed" and describes Mel Brooks as "the nicest guy I've ever met."

Gotwald mixes the show's 70-odd inputs on a Cadac J-Type Live Production Console equipped with moving faders.

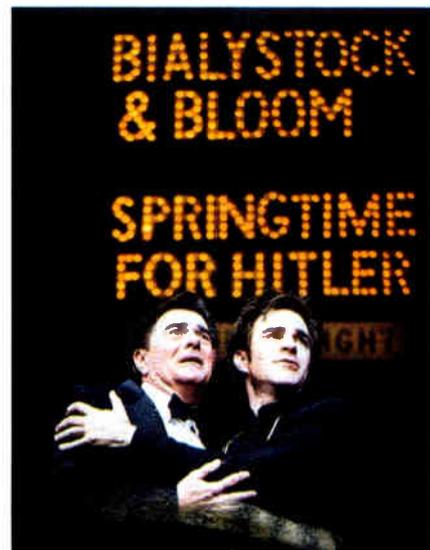


PRODUCTION PHOTOS BY PAUL KOUNICK

by Mark Frink

The console is split between a 46-slot main console for the actors' radio mics and sound effects, and a 36-slot sidecar for the orchestra. Some economy is achieved by using stereo inputs for reverbs, keyboards and rack toms.

Outboard effects include Lexicon PCM 91 digital reverbs, which Gotwald uses for minimal vocal and orchestra treatments. Kick, snare drum and electric bass channels have Valvotronics Gain Ryder 3 compressors inserted, and Drawmer DS404 gates are used on the trap kit's toms. Gotwald has also inserted XTA GQ-600 graphics and DP-200 parametrics on the principal vocals, chorus and orchestra subgroups. "The ensemble subgroups get a little more low end cut, because, generally, when they're onstage there are more open microphones," Gotwald explains. There's also a subgroup for the Shure SM91s used as foot mics for two dance numbers: Lane's "Little Old Lady Land" and Broderick's "I Wanna Be a Producer."



Classic Analog

DPR 402

Outstanding dual channel compression done the special BSS way. Subtractive gain reduction means lower noise and distortion. Add a de-esser and peak limiter and you have a dynamic processing powerhouse. No wonder it is the choice of tour sound and recording professionals!

DPR 404

Take the heart of the classic DPR 402, clone it a few times and voila! Still the only four channel compressor/de-esser. No one dares to take us on! Found in more FOH racks than any other comp/de-esser. Try it on your favorite instrument or vocal and see if you don't agree!

DPR 504

The mother of all noise gates, the DPR 504 tenses the channels so you can pay attention to the mix. Four channels of frequency conscious gating in 1U. The smooth envelope makes the 504 perfect for drums and even vocals. BSS Audio's unique subtractive gain reduction technique ensures the lowest noise and distortion.

DPR 901ii

Consider it the pocketknife for audio. This beauty is alone in its class. Imagine a device that can bring out the warmth yet control the harshness over a wide dynamic range. Compress or expand frequencies dynamically to adjust for tonal variation or to control offending frequencies. The center bands feature a filter bypass mode allowing conventional, wide band compression/expansion. Split mode and filter listen functions add greater flexibility and easier set-up. Many top recording engineers' best kept secret.

FCS 960

The new world standard in graphic EQ. The FCS 960 features constant "Q" filters for smooth tonal adjustment. Selectable, dual mode filters allow either tight bandwidth, for "surgical precision", or wider filter for gentle room augmentation. Also features electronically balanced inputs and outputs. Transformers can be ordered as an option.

Opal Series (not pictured)

Takes the legacy of the great processing listed above and delivers it in a performance package that every studio or tour rig can afford. Call your pro audio dealer today!



DPR 402



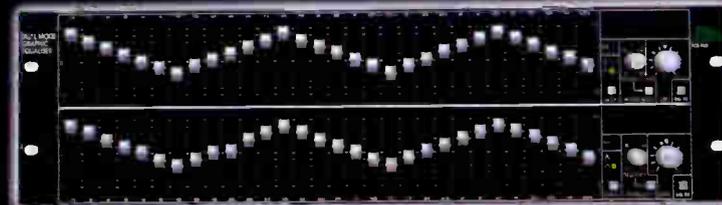
DPR 404



DPR 504



DPR 901ii



FCS 960

BSS Audio USA
Harman Pro North America
1449 Donelson Pike, Nashville, TN, 37217
Tel: 615.360.0277
Fax: 615.360.0480 E-mail: BSSAudioUSA@harman.com

www.bss.co.uk



World Radio History

A Harman International Company

Look Into Your Future...



Or Just Listen.

Introducing our next generation
MG4 Driver
with increased dynamics,
response and performance!

From the people that invented
in-ear type custom monitors &
personal monitor systems
and...*make them better!*

- Used By More Major Artists & Tours
- Worldwide Audiologist Network
- Complete Sales, Rentals & Systems
- Upgrade Any Existing System

**EAR MONITORS® Full Range,
EM2™ Dual Driver
and much more!**

FUTURE SONICS

INCORPORATED

Toll Free (877) FSI-EARS
info@futuresonics.com
www.futuresonics.com

*The First, The Finest, The Future...
Hear what you've been missing!*

Ear Monitors®, Ear Monitors brand, "Ear Monitors" and the associated logos
and images are registered trademarks of Future Sonics Incorporated.
©2000 Future Sonics, Inc. All rights reserved worldwide.

Live mix

Sampler-based sound effects are triggered via MIDI, either from the console or, for one song, by conductor Patrick Brady via a remote start box. Redundant Akai S6000 samplers play back prerecorded sounds that include a telephone, toilet, gunshots, Mel Brook's voice as a cat's screech (just like in *Young Frankenstein*) and the lines "Don't be stupid/Be a smarty/Come and join the Nazi Party" that Brooks also dubbed for the original film. Conductor Brady, plus the drummer, bass player and keyboardist get a click track in their Sennheiser headphones.

REDUNDANT A/B SPEAKER DESIGN

The A/B redundant theatrical reinforcement approach, pioneered by Martin Levan, reduces the comb filtering that can result when actors are close together and "leaking" into each other's mics. In an A/B design, the principals' mics are each routed to a different speaker system, so their voices interact acoustically in the air, rather than electronically in the console. For *The Producers*, the dozen lead mics are automatically switched to either the A or B system from one scene to the next.

An A/B pair of EAW KF300 speakers are used at each side of the proscenium opening, along with a tandem-drive 10-inch Sunfire subwoofer. (Meyer USW subwoofers were originally used for the pre-Broadway try-out at Chicago's larger Cadillac Palace Theater, but could not be used in the St. James due to space limitations.) EAW JF80 speakers are used in A/B pairs for front-fill speakers. EAW's new SC52 under-balcony cabinets are used to fill in the back of the orchestra and mezzanine levels. The center cluster consists of three more A/B pairs of KF-

300's aimed at the mezzanine, with a fourth pair focused down to cover the center of the orchestra level. JF80 speakers are used in A/B pairs for balcony coverage, and the stage monitors in the wings are JF 200s.

Thirty Crest 7001 amplifiers in a half-dozen racks are situated beneath the stage and behind the orchestra pit. Each speaker zone has an XTA DP-200 processor controlled by AudioCore software over an RS-485 network. The processors can also be accessed over a wireless LAN via a touch-screen laptop, dubbed a "black-ops pad," furnished by ProMix's John Weston. This allows the sound designer to adjust delay time or frequency response from any seat in the house without bothering the mixer.

Next to the amp racks, A2 Paul Delcillo monitors 30 channels of Sennheiser 3532-U receivers via a computer running Mikroport software. Delcillo monitors the 11 principal radio mics via a Leitech 32 XIP switcher, an E-V ELX-1A mixer and an Anchor AN-1000 monitor. Assisting with wireless is Joe Lenihan, who monitors the rest of the ensemble's 18 mics on a redundant computer display. A third wireless signal monitor is at Gotwald's mix position.

The Sennheiser SK-50 body packs are equipped with the new sweat-resistant MKE-2 Gold capsules. "We've discovered that the capillary action of the windscreen wicks moisture, so we're using [the mics] without them," Gotwald comments. "Up in the hairline, they get sweat but don't get any popping." In an early scene, Lane throws a glass of water in Broderick's face and, even if his mic goes out, it eventually comes back. Because Lane and Broderick hardly ever come offstage, both of them are double-



David Gotwald and Paul Delcillo

PHOTO BY MARK FRINK



Yorkville and the Bluebird - It's All About the Music

Meet Amy Kurland, owner of the legendary Bluebird Café.

Located deep in the heart of Nashville's music scene, the Bluebird Café has become one of the world's most influential live music venues - a springboard for many aspiring songwriters and performers on their way to successful musical careers.

When it was time to upgrade the club's sound system, Amy's decision to use exclusively Yorkville gear was an easy one. After all, for years the Bluebird had been happily using Yorkville's elite speakers and Audlopro amplifiers.

Amy knew from experience that Yorkville PA would deliver on key factors:

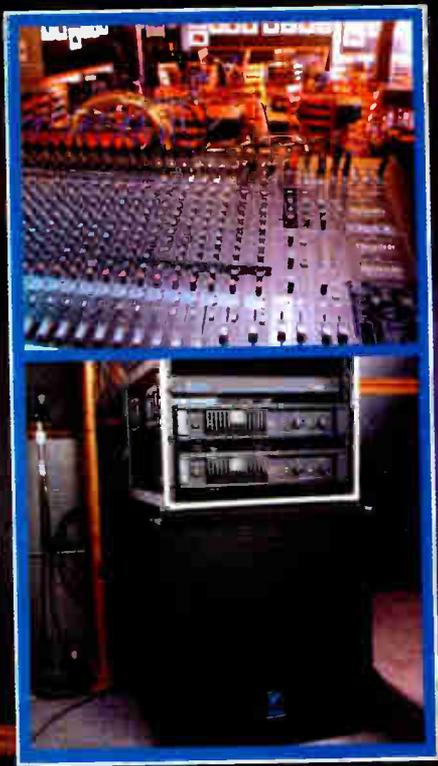
- Excellent sound - for more than a decade Yorkville has been part of the Bluebird's legendary performances.
- Versatility - the Bluebird accommodates numerous styles from acoustic to R&B.
- Solid reliability - equipment built to take it night in and night out with a worry-free warranty just in case.
- Ease of operation - to focus on the music instead of the equipment.
- Value - hey, even a famous club watches the bottom line

The Bluebird showcases the industry's most successful songwriters. Amy Kurland says, "It's all about the music and great sound is a critical part of it. Our Yorkville system helps them bring out their best". How? Visit the Bluebird Café and hear for yourself.

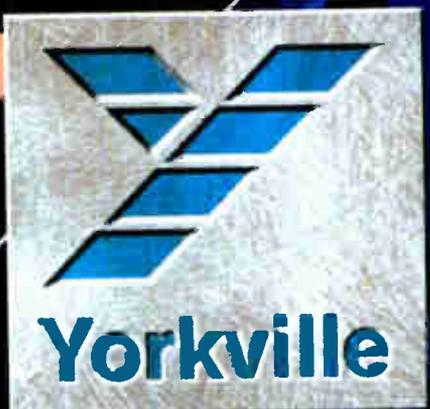
The Bluebird Café's Yorkville system:
élite speakers, PowerMax mixer, Audlopro amps, Backline includes Traynor, BassMaster, Acoustic Master & Yorkville Keyboard amps

United States
Yorkville Sound Inc.
4625 Witmer Industrial Estate,
Niagara Falls, NY 14305
Phone: 716.297.2920 Fax: 716.297.3689

Canada
Yorkville Sound
550 Granite Court, Pickering, Ontario L1W 3Y8
Phone: 905.837.8481 Fax: 905.839.5776



The Bluebird is the room where the most successful songwriters in the business gather together and perform the now famous 'In the Round' sessions and try new material for audience and peers, to meet, to collaborate with and to inspire each other. For more info on Amy Kurland and the Bluebird Café, go to www.yorkville.com and follow the 'real people' link, or go to www.bluebirdcafe.com



Real Gear. Real People.

w w w . y o r k v i l l e . c o m



CARRY-ON CASES

when size does matter.



If you don't want to check your case, this is the one for you. Our new airline carry-on cases meet the recently imposed restrictive size requirements for all carry-on luggage. Our cases, made from black HDPE, are extremely durable and can be ordered with or without built-in telescoping handle and recessed in-line skate wheels.

The non-cart case shown here fits the new restrictive size requirements. A custom foam insert protects at least 21 microphones. It was designed to meet the needs of sound engineers who depend on carrying their mic kit with them.



VISIT US ONLINE AT:
WWW.CHICAGOCASE.COM



CHICAGO CASE COMPANY

www.chicagocase.com voice: 800.927.2602 fax: 800.333.8172

Live mix

miked with both signals appearing on two dual-input channel strips; this way, Gotwald can switch between mics on-the-fly without changing EQ or faders.

One thing Gotwald has lots of experience with is hats. "Nathan is constantly putting his hat on and off, so I'm continually making EQ adjustments," he explains. The ensemble is generally EQ'd for hats, because they wear them most of the evening. The running gag in the show is that Broderick can't put on his hat until he's a real Broadway producer. "He doesn't wear a hat until the very end, which is great for me," notes Gotwald.

A novel technique that sound designer Kennedy has used before has the five violinists each wearing a DPA 4065 omnidirectional headset mic. This provides a consistent mic-to-instrument distance and eliminates mic stand clutter in the cramped confines of the St. James orchestra pit. Each violin chair has a mic on/off footswitch that allows the musicians to mute themselves. Custom-manufactured by Weston from a simple guitar amp footswitch, the units include red and green LEDs to indicate status.

The five woodwinds, harp and cello are miked with AKG C-414s, while the trombones, trumpets and French horn are picked up with Sennheiser MD-609s. The trap kit in the middle of the pit is enclosed in Plexiglas, which also helps isolate the brass from the strings and woodwinds on opposite sides of the pit. Kit mikes include an RE-20 on kick, KM-84 overheads, a KM-100 on snare and SM98s on rack and floor toms. The pick-up on the string bass goes through a Valvotronics Tube Amplified DI.

In what is becoming a common Broadway solution to the need for isolation and a cramped orchestra pit, the percussionist and harpist are located up on the seventh floor. The room, dubbed the "sky pit," is divided with Plexiglas and treated with pleated velour. Percussion mics are an E-V RE-20 and four Neuman KM184s. Both musicians share a foldback mix on headphones.

Good orchestra seats for *The Producers* are sold out through spring 2002, but most seats are comfortably close to the stage, and the mezzanine holds nearly as many patrons as the floor with little balcony overhang. If you're looking for tickets, "good luck, good luck, good luck!" ■

Mark Frink is Mix's sound reinforcement editor.

ISOMAX

E6 EARSET™
MICROPHONE

You need extreme audio quality without the headset look?

You need the E6 EarSet.



(800) 669-1422 www.countryman.com

ABSOLUTE POWER

4000 WATTS RMS



- **4 channels**
- **1000 watts per channel**
- **Dual 2000 watt bridged outputs**

DCM4000 - 4000w List \$2395 **\$1199.99**

This is not just another power amp! Think of it as two 2000 watt amps in a 3 space chassis. 'Cause that's what it is! In the 4 channel mode, you can use a single DCM4000 to run both monitors and mains. For concert applications, the bridged mode gives you dual 2000 watts into 4 ohms or dual 1400w into 8 ohms! You're guaranteed transparent, crystal clear power from these continuous duty RMS amps.



DCM2000 - 2000w List \$1195 **\$599.99**
 DCM1500 - 1500w List \$695 **\$499.99**

DCM1000 - 1000w List \$795 **\$399.99**
 DCM600 - 600w List \$695 **\$349.99**
 DCM150 - 150w List \$395 **\$229.99**



DCM4000 REAR

BUY FACTORY DIRECT AND SAVE

DCM4000 FEATURES

- 4000 Watts RMS from 3 rack spaces
- Configure as four independent 1000W or two 2000w amps
- OUTPUT x 4: 8Ω 425w, 4Ω 700w, 2Ω 1000w
- BRIDGED x 2: 8Ω 1400w, 4Ω 2000w
- Freq. Resp. 20 - 20K Hz. THD less than .1%
- Continuous RMS not pulse or peak
- 2Ω stable for multiple speaker loads
- Two independent toroid power supplies - one for each 2000w amp
- XLR bal. input & parallel through connectors
- Speaker Twist-Loks & banana/binding posts

- Speaker Twist-Lok bridge connectors
- Indicators for bridged mode, signal & clipping
- Limiters for clipping and speaker protection
- Sub-sonic filters and ground lifts
- Thermal, short-circuit, over-current, voltage spikes & DC output protection
- Soft-start power-up, "Wind-tunnel" cooling
- Includes rear support bracket (13" to 19" deep)
- Performance guaranteed or your money back
- Wt. 70 lbs. Size: 19" W x 5 1/4" H x 16" D
- Made in USA! 3 Year Warranty

"These amps are so tough, you could arc weld with them" - Beyond the Limit Productions

"We use Carvin power amps exclusively for our installations. We have found that these amps are the only choice for the power and reliability we require" - The Guitammer Company

DCM amp users:

- Steve Vai • Steve Morse • Allan Holdsworth
- Craig Chaquico • Reeves Gabrels (David Bowie)
- Pete Anderson (Dwight Yoakam) • Chris Squire
- Philip Bynoe (Steve Vai) • Larry Carlton • Will Lee
- Don Weiss (Beach Boys Engineer)...

For specs and to order, visit carvin.com/power-amps

carvin.com 800.854.2235

Factory Direct Sales • Guitars • Amps • Pro Sound

Wireless

COMES OF AGE

THREE EXPERTS SPEAK OUT

by Chris Michie

In the '80s, sound designers for Broadway musicals were among the first to use large numbers of wireless microphone systems in live performance. Today, the technology has been widely adopted for industrial, concert and TV applications. These days, it's rare to find a touring band who does not carry at least one handheld wireless mic system, while large-scale broadcast events like the Super Bowl may require as many as 1,200 separate wireless systems.

Keeping multiple wireless systems up and running under modern show conditions requires an unusual combination of technical expertise and operational experience. As a result, many musicals (and other complex productions that use dozens of wireless systems) now include a wireless specialist on the crew—the job is too specialized and time-consuming for the regular audio crew to handle unaided. Despite the great leaps that wireless manufacturers have made in terms of usability, pros who can pull quality signals from out of the ether are in high demand.

Mix spoke to three such "RF guys": Kevin Sanford, president of Wireless First (New York City); Gary Stocker, director of R&D for Masque Sound (Moonachie, N.J.); and James Stoffo, president of Professional Wireless Systems (Orlando, Fla.). The interviews cover a range of wireless topics, from the history of wireless on Broadway, to the loss of wireless bandwidth due to the digital TV rollout, to new approaches to diversity antennae.

GARY STOCKER

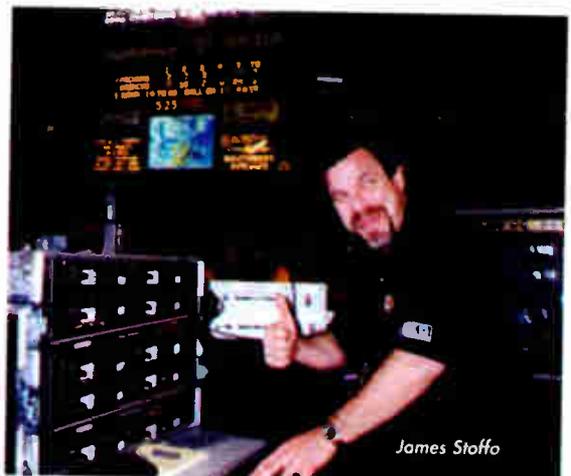
Gary Stocker has "done it all" on and around Broadway. He occasionally mixes *Phantom of the Opera*, has designed shows for both Broadway and

Off-Broadway, and has toured extensively. Asked to pinpoint the dawn of the "wireless era," Stocker recalls the old days when two to four wireless mics on a show was considered plenty.

What was the quality like in those days?

Highly variable. We had what we called the "golden mics," certain transmitter/receiver combos that just sounded way better than others. Typically, if you had a selection of eight or nine mics, two of them would be excellent; the others would be so-so. And that would be direct from the manufacturer.

At that time, and until very recently, everything was on fixed frequencies. Back then, everything was VHF, the bandwidth of the upper TV stations of the old days—7, 8, 9, 10, 11, 12 and 13. The FCC would only allocate every other channel, in any city. So if they had the odd channels allocated, you might see a channel 7 and a 9, an 11 and a 13. That meant that 8,



James Stoffo



10 and 12 were always going to be clear in that city. If you were traveling, you were in big trouble, because as you went from city to city, some of your radios would work and some of them wouldn't.

So how did you cope with that?

You'd try to convince the producers to have a few spare mics, so at least you'd have a couple to pull out if they were really unusable. But back in those days—the late '70s, and early '80s—only the stars got the mics. So a typical show would have two or four stars. Everybody else was on a foot mic or an area mic. By 1985, we started seeing shows asking for 9, 10, 11, 12 wireless mics, and it just slowly increased. They're now putting a microphone, if not two, on every single person in the show. And the number of mics also went up as more frequencies became available. Eventually, the manufacturers moved into the UHF bandwidth.

Was that due to the FCC, or the technology?

Mostly the technology allowed them to. There's a great shift moving from the 170 to 212MHz band, which was the high VHF, then going up into a band that started at 470 and goes to 800. It's a whole new technology to handle those higher frequencies and make it clean and meet FCC regulations. But it also opened up a huge spectrum. So, suddenly, you could put six mics on a channel—six was typically the maximum you could cram into a TV channel—and using multiple channels, you could put 24 or 30 mics in a show.

When you say you put six mics on a channel, they're not all on the same frequency, are they?

No. They're all on individual frequencies within the 6MHz TV channel. Back in the early '80s and in through the '90s, most of the UHF channels that didn't have a TV station or some sort of low-

power transmitter were truly empty. There was nothing there. So you could easily fit six frequencies on a channel that was clear; there'd be no problem. So it wasn't a big deal to have that many. Some of the earlier shows that had a fair number of radios, like *Phantom of the Opera*, *Les Misérables* and *Cats*, had up to 20 radios once you counted spares. So that's when it started mushrooming. In the mid-'90s, you had 48 radio mics on *Showboat*, and the cast was so large you still had changes. There were 60 people onstage, so you still had to move microphones, even though you had 48.

What's your advice for minimizing or eliminating interference problems?

Convince the producers to rent enough mics to give you a decent number of spares. And when touring, check them out in each city to see which ones are the solid ones. Then, without telling the cast, prioritize the parts and shift things around so that the mics go where they are needed most. The less-useful mics might end up on a chorus person, so if you have a little interference, don't bring it up—bring up the foot mic and sneak by.

KEVIN SANFORD

Kevin Sanford, owner and founder of Wireless First, started his rental and sales company five years ago in Boston and opened a second office in New York in June 2001. Wireless First specializes in wireless microphone and communication application for television and live events. His current roster of clients includes MTV, VH1, NBC and Buena Vista Pictures, among others.

You've been independent for seven years. What developments have you seen in that time?

In the past five years, the frequency-agile units have really changed our end of the industry. With frequency-agile systems,

there are 16 to 32 channels in one unit to choose from, allowing you to change channels on-site. Between our Shure and Sennheiser wireless systems, we carry about six different frequency ranges to choose from. We didn't have this flexibility in the days of the single-frequency, crystal-based stuff.

There's a lot more homework involved now, I think. I'm doing a show next week in Lincoln Center, and it's heavy coordination because it's in Lincoln Center, which is typically kind of a rough area anyway for wireless. In New York, you are susceptible to hundreds of outside interferences. Not only are there 20 other venues within a five-block radius, but with taxis and DTV, it's just not that easy anymore. You must do your homework and plan accordingly.

Do you get any help from the people who are in the same bandwidth, or is it up to you to find out who and what is where?

While at a particular show site, you can check with other vendors in the area, but that doesn't necessarily guarantee a problem-free environment. There's an FCC Web page, which allows you to go and actually view licensed frequencies and television stations, radio stations and such in any given area. Which is good basic groundwork, but that's not necessarily going to tell you what's in the theater that's doing a huge musical next door to you. When you get there with the frequency-agile stuff, you've got options.

Why rent all the time, rather than buying their own?

Maintenance and on-site support. You still have the "act of God" clause in wireless—even the best RF engineer is going to have a bad RF day, and that's grief that nobody wants. Plus, they're not without maintenance. It's a lot of electronics in a small device, and they need care. Broadcast-quality wireless microphones can be quite expensive, as well. In entertainment and television, it just makes good business sense to outsource to a company specializing in wireless. A specialist from a niche company will be able to troubleshoot problems and offer maintenance support a lot faster than the average production engineer. The days of the P.A. company that comes in and does everything is somewhat in the past.

You mentioned earlier that you were bringing in in-ear monitor systems as well.



plus they bring on unique complications, and without an analyzer or an experienced technician, the average person will not know what to do.

JAMES STOFFO

James Stoffo, president of Professional Wireless Systems, describes his business as "a group of RF technicians and engineers who focus all their energy on making wireless work in the field."

How did you get into this business?

I was an electronic radio surveillance technician in the submarine service, back during the Cold War. When I got out of the sub service, I went to work for Vega Wireless. I was thrown out in the field to help Broadway shows and Disney World theme parks and to help coordinate large wireless users. In 1992, I moved to Orlando and started this business in my house. We do frequency sweeps, we



Gary Stocker

coordinate frequencies for digital TV, public safety, any other high-power broadcast RF that's floating around the show site. We design antenna systems, we come in and man the show as A-2s. Once we're done with the RF engineering aspect and frequency coordination, then we assume the role of an A-2, miking the artists and the talent and the

In-ears still have a long way to go. They're very temperamental. They still have issues with range. I think we're still a couple of years away from really perfecting that science. Shure and Sennheiser are probably the strongest players in the in-ear market right now. Their units put away old systems like Garwood and Radio Station, because those were single-channel units, whereas the Shures and Sennheisers are agile units. Still, they are limited in their frequency ranges, so there are some areas where heavy frequency coordination is needed to make things work. And, Shure's currently available two frequency banks are right in the middle of a major Sennheiser bank. That makes it difficult to use some Sennheiser equipment along with the Shure in-ears.

Could you do the job that you're doing if you didn't know as much about the actual technology?

These days, it's getting a lot easier for anybody to pick up a unit and be able to program it and make it work. Again, the agile technology is geared toward people who don't know. It depends on numbers—when using two, three or four units in a club or corporate meeting, it's usually no problem, but when you've got more frequencies involved, or if you're in a susceptible area, you need someone who understands the technology.

I always have a spectrum analyzer with me on my shows, which can tell you what's going on. It's an RF guy's best friend. An experienced technician will be able to locate and fix a problem, whereas an average person is at a disadvantage. The knowledge comes from years of experience dealing with RF problems on-site. In a larger show, your mic signals are being split out to several locations, like the TV truck, music truck and FOH. A hum problem might be easily solved simply by putting a ground lift in-line. But to recognize that two microphones not close in frequency are getting into each other because of harmonics, or that somebody left the lav transmitter on and then turned on the handheld transmitter on the same frequency, that takes experience. There are distinct sounds to those problems,

THE ABCs OF WIRELESS

A majority of RF problems stem from a few factors, and you can avoid most RF headaches if you understand three or four general rules. Here's what I call the ABCs of wireless: Antenna, Battery and Coordination. And if you want to throw a "D" in there, it'd be Diversity. We've talked about antenna problems earlier in detail, so we'll begin with "B," battery and power issues.

We've tested just about every battery you can buy, and found that certain manufacturers are consistent, and others are very inconsistent. With rechargeables, some develop memory, others don't, and certain ones hold the charge longer. So the "B" for battery means making sure that you have the proper batteries and changing them at the appropriate time, so the transmitter doesn't die while the talent is onstage. Fluctuating AC power can have a significant effect on receivers, which become much less sensitive as the line voltage drops. Luckily, on the shows that I do, the audio company provides some type of a voltage regulator. Most *Mix* readers won't have that luxury, but should at least know that receiver sensitivity is proportional to the AC voltage.

"C" is for frequency coordination. All types of devices radiate RF, not only TV broadcasters. Coordination basically revolves around ensuring that your receiver is on a frequency that's absolutely clear and is not interfered with by anything else. Find out what RF exists in your area, from television stations, radio stations, police fire and rescue, DTV, other wireless mics—even your own equipment. Many audio processing devices absolutely spew RF, and simply positioning an RF receiver too close to a mixing console or outboard rack can create interference to the point of making that system unusable. I once drove for four hours across the state to fix an interference problem on an RF system. Arriving there, I moved the receiver one foot to the left. The problems disappeared, and they haven't been back since.

"D" is for diversity—the proper use of diversity. Everybody seems to believe that having a diversity receiver means you won't have dropouts, but that's not true. On a 75-foot-wide stage, where both receiver antennae are located next to the RF rack, the stage will have a dropout point. For proper use of diversity, I generally have one antenna stage left, one antenna stage right. So there's one short cable run, one long run. On the longer one, I generally insert an RF line amplifier, to make up for the cable loss. Most systems use conventional polarized antennae: In this case, make sure that they're on different polarities—one vertical/one horizontal, or both at 45°—or something of that nature.

—James Stoffo



Artist: Katrina Carlson
Genre: Pop

Song: I Know You By Heart

LO-FI MP3

HI-FI MP3

REAL AUDIO



Artist: Kodac Harrison
Genre: Blues

Song: Love Turned On The Light

LO-FI MP3

HI-FI MP3

REAL AUDIO



Artist: Faye
Genre: Alternative

Song: What's Right

LO-FI MP3

HI-FI MP3

REAL AUDIO



Artist: Bill Epps
Genre: R & B

Song: Sign On In

LO-FI MP3

HI-FI MP3

REAL AUDIO



Artist: Derrick Proce
Genre: Country

Song: Same Plan

LO-FI MP3

HI-FI MP3

REAL AUDIO

View the B
by genre

View

View

Spons

→→ TOP

The Broadja
is a compilat

unleash your songs

● Get it up

Don't want to deal with the hassle of encoding and uploading your music? Send it to Broadjam, and we'll do it.

● Get it out

We'll get it up on our site and then get it out to all the best internet music sites.

● Get it back

Oh, you'll get feedback all right. From fans, peers, industry pros, professional guest reviewers and even a moron or two.

● Get a home page

A well-designed world-class page that you'll be proud to call home.

● Get it on

Whatever you do, get it online and give your music a chance. And give us a chance to do it for you. If you want to talk to a human and ask questions, call us toll free at 877-527-3651. If you prefer email, we can deal with that as well.

CustomerService@Broadjam.com



www.broadjam.com



broadcasters or whoever. And while I'm doing that, the rest of the company in Orlando is busy performing warranty repairs for Clear-Com, Vega Wireless and Sennheiser.

Much of what's needed to make wireless work in the field is not provided by the manufacturer. We feel our custom antennae are the best you can possibly use for wireless mics. Sennheiser builds a great RF system, but people want the Shure Beta 87, so we modify Beta 87 heads to work on Sennheiser wireless. I've gotten more into the technical support business. People bring us in to do frequency coordination, antenna design and to maybe help design a larger wireless system that we may not even sell. We simply provide services for the sale.

In the early days, I would assume that the audio engineer for the tour or production would have been more or less responsible for the wireless systems.

Absolutely true. Responsible, but unwillingly. Everybody had to do it, but no one really wanted to. And what made it worse was if you had a problem. It was very difficult to troubleshoot the problem, because without a spectrum analyzer and a computer and some other little toys, frequency counters and scanners, there was no way to even know what the problem was. Even I, with about 20-plus years in the RF business, wouldn't attempt to go out and troubleshoot a problem without these tools. Plus, don't forget, it just doesn't apply to mics. Now everybody's got in-ear monitors, wireless intercoms and broadcasters use wireless IFBs [Interruptive Fold Backs]. When you see a broadcast talent onscreen, and he's got the little coiled cord that goes into his ear, he's listening to a foldback of the audio programming from whatever show he's on. And it can be interrupted by a director or a producer, and the presenter will hear the director's voice saying, "Okay, you're on in five seconds. Straighten out your tie." Or whatever.

It's actually comparable to an in-ear monitor system.

It's a very low audio quality in-ear monitor. It sounds pretty bad. It's communications-grade, but the exact same principle. So on a typical show now that I do, there are 75-plus wireless frequencies. Back in the old days, when you might have had a half a dozen RF microphones and a couple of guitars or something, that was one challenge, and it was difficult enough. But you certainly didn't need an RF specialist. Now, the average show approaches 100 frequencies. For the Super Bowl, there were over 1,200 frequencies on the field that day. So we had to coordinate with 1,100 other wireless users so the halftime show would be flawless. That's an awful lot of RF. And I get hired on shows where the audio person doesn't want anything to do with the wireless. The mixer just wants to know that it is as reliable as a wired microphone, so when you pull up the fader, the audio's going to be there.

When the UHF band opened up, people really started promoting in-ear monitor systems. The problem with an in-ear monitor is that the person wears a receiver that's right next to a transmitter—the wireless mic. So now you have to be able to coordinate a transmitter that's about a foot away from a very sensitive receiver. And on broadcast events, there might be someone with an IFB, plus they have a handheld mic and a body-pack mic. For

broadcasting, sometimes we'll have backups like that. So now they're wearing three devices for every person. So shows went from maybe 12 wireless mics to 75 wireless mics for a *Latin American Billboard* awards show, for example. And there are maybe 20 channels of stage manager intercom, anywhere from half a dozen to a dozen in-ear monitors, and there are usually a half a dozen or more IFBs, and of course about a dozen or more microphones.

And that doesn't include whatever else is already out there in terms of TV and radio and taxicabs or whatever.

Absolutely, which brings up a major challenge. Over the next three years, the RF band, where wireless mics currently operate, will become more congested than it ever has in any three-year period since the invention of radio some 100 years ago. In other words, if you look at the band that wireless mics currently occupy, and in the UHF band that was 470 to 806 MHz, the FCC has just auctioned off over 100 MHz of that spectrum. So we've lost close to 150 MHz. I'd have to do the math to tell you exactly, but we lost 470 to 512 and 698 to 806 Meg. Those bands, really, in the near future, will become unusable because of high-power carriers that were not there in previous years. So my whole inventory is now squeezed into from 512 to 698 Meg.

LAVALIER MICS: PLACEMENT TIPS

Originally, lavalier mics were buried in the chest area and painted to match the costumes, where possible. Now, lavaliers are mostly mounted on the head, above the hairline underneath the wigs, if the actors are wearing wigs—or on mounts over the ear if they're balding or have thin hair.

The best audio placement for a lavalier is probably the last place the director wants it: Dead-center and as far down the forehead as possible is the preferred spot. The center of the forehead just sounds fabulous—it's really a good place to put a mic. It's very visible, but as you move farther away from the center of the forehead, you have to make more EQ adjustments to make up for it.

Avoiding perspiration is important. A drop of sweat has the same effect as putting your thumb over the microphone. It's just like switching it off.

Hats are another problem, because they create a reflection from the brim. You see a strong reflection in a small set of frequencies, almost like a shelf. If need be, you can mount the mic on the hat and switch back to the head mic when the hat is taken off.

So with 24 mics in a show, you might need 30 or more microphones mounted on various hats and actors' heads and things like that. It's not uncommon now to have at least one, if not two or more, people backstage chasing microphones, checking that they're really in the right place, that they're working before they go onstage.

—Gary Stocker

whereas before you had an extra hundred MHz worth of frequency allocation.

What's left is where digital TV has been lighting off. So in a city like L.A., out of that couple of hundred MHz band, you may only have 36 MHz to work with because now there's regular TV and digital TV. And the fact is, I don't have a DTV yet. Do you? I don't know anyone who's got a DTV tuner and is watching. And if 85 percent of the U.S. population does not own a digital television tuner by the year 2006, they are not going to de-energize the NTSC carriers. So you're going to have these parallel programming carriers, digital and analog TV, which leaves very little room for wireless. And what room is left, everybody—all your ENG crews, all your other wireless mics, anybody who has a current wireless system—is going to try using it.

I hate to make it sound like doom and gloom, because I'm actually a pretty positive guy, but the fact of the matter is, it's getting more difficult to make wireless microphones work successfully, and the situation will be worse in three years, when all of the DTV stuff goes up.

Once the FCC's designated a frequency for a DTV channel, does that mean it's illegal for you to use it, whether or not the DTV channel is up and running?

The law is that you cannot transmit within an active television carrier. I'm a Society of Broadcast Engineers frequency coordinator for central Florida. Every major metropolitan area has an SBE frequency coordinator, and it's our job to make sure that when someone comes in, like a news crew, or some other wireless operators, they know what the active stations are, and they don't transmit on any of those. When there's a major event like last week's Daytona Pepsi 400 or a big launch, like John Glenn's shuttle at Cape Canaveral, I get phone calls, and I spend a couple of hours coordinating frequencies to make sure that no one's stepping on or causing interference on anybody else. So I'm the frequency keeper for central Florida. When CBS or ABC or NBC comes down to Orlando or Daytona or Ocala—my territory—they need to call me first. And they do. They're good about it. They run into this all the time, this isn't anything new to these guys in television or radio. They call me, I get my list out, and I say, "Okay, you can use this frequency and that frequency and this frequency and that frequency." The problem

is that with the wireless microphones, no one coordinates.

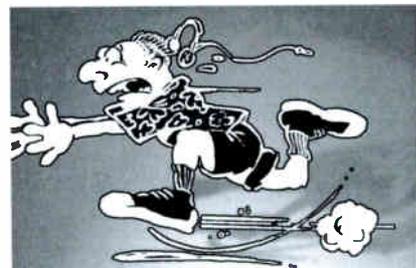
Beyond frequency coordination, what wireless problems do you encounter?

Other than low-loss cable, possibly a line amp and a splitter, there's very little to a wireless mic system. The antennae themselves are the most important part of the whole system. We use helically polarized antennae, because they just don't drop out. Most antennae you see are log periodic paddles. Those are polarized, so either you can put them on a vertical or a horizontal polarization. If an artist has a handheld mic, and holds it down in front of him, and then leans back and the mic goes up sideways, then a helically polarized antenna picks up the exact amount of RF no matter what polarity the transmitter is. So you simply don't have a dropout with these things. I've been using them for three or four years now. For the Super Bowl halftime show, we were at the 50-yard line on the field, and I could pick up wireless transmitters halfway outside the stadium, through a concrete tunnel on the other side of the field. With a 50-milliwatt transmitter! That's phenomenal.

The helical antennae are our own design. There's only one other guy that I've ever seen use them, and it's in NBC studios in Rockefeller Center in New York. We've installed them, but they don't ship very well, they're not good for road tours. We're trying to think of a better way to make these things. But we really only use them for our own shows right now.

We commonly see incorrect cable used for RF signals—typically unacceptably long runs of very lossy RG-58 or sometimes RG-59, which is really bad because that's video cable. But people use it. When we get racks in for repair, the first thing we do is yank out all that cable and put short runs of low-loss cable between the RF splitter and the receivers, which only needs to be a foot or two long. We replace it with the proper 50-ohm RG-58 cable. On the long runs between the antenna and the splitter, we put in RG-8, which is a very low-loss cable. The cable we use loses only 2 dB per hundred feet, at 700 MHz. Most systems that arrive here have cable that loses 17 dB per hundred feet. So right off the bat, you're up 15 dB simply by swapping the cable. ■

Chris Michie is a Mix technical editor.



An
independent
professional
music store.

grandma's
music & sound

800-444-5252
grandmas.com

albuquerque, new mexico

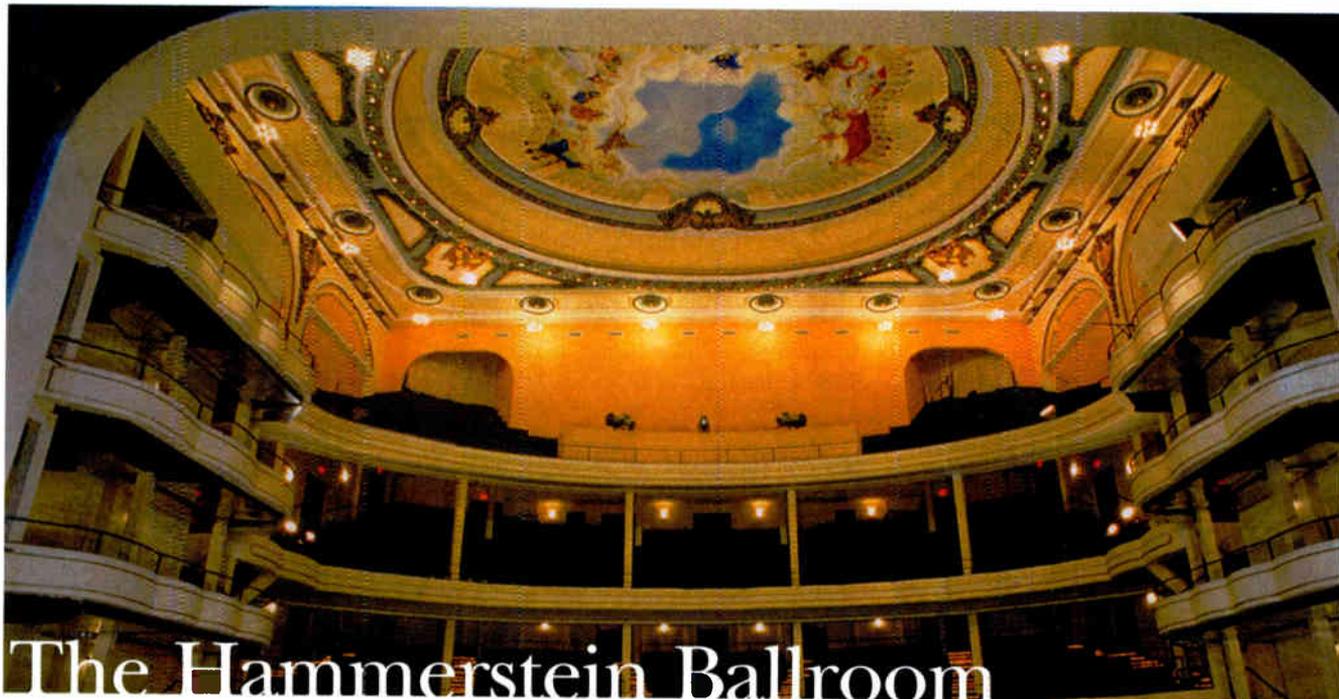
800-532-8190

SUBSCRIBE

**TO
MIX
TODAY**

www.mixonline.com

PO Box 1939,
Marion, OH
43306-8039



The Hammerstein Ballroom

**FROM ROCK 'N' ROLL TO CORPORATE ONE-OFFS,
NEW YORK'S PREMIER VENUE HAS SEEN—AND HEARD—IT ALL**

On a weekday afternoon in July, rows of chairs line the main floor of the Hammerstein Ballroom, a giant projection screen hovers in the stage house and a multicolored display of Macintosh computers command the stage, all in preparation for a technology convention. It's a far cry from the way the hall looks when it's invaded by thousands of music fans rocking out to Godsmack or grooving to Moby.

"The face of this room can change on a dime," declares Victor Moore, VP of audio sales and production at Manhattan Center Studios. "You can walk in here [for different events] and go, 'Is this the same place?' Pratt Institute [recently] held a big display of their art. If you had come during that time, you wouldn't have recognized it. The room was subdivided into 30 sections."

From sweaty, gritty rock shows to chic corporate events and lavish holiday parties, the Hammerstein Ballroom hosts a wide range of events. And its history is every bit as diverse.

FOLLOWING THE LINEAGE

Opera impresario and theater builder Oscar Hammerstein constructed the Ballroom, originally christened the Manhattan Opera House, in 1906 to compete with the Metropolitan Opera

and create a venue where everyday people could enjoy that musical art form. He was successful during the four years that the concert hall was in business, luring patrons away from the Met and affecting that institution's income for the first time. Then in 1910, the Met offered Hammerstein \$1.2 million to stop putting on operas for a decade. He accepted.

The Opera House then changed hands several times—serving as a vaudeville hall and later a "talkie" movie theater—until the 1920s, when it was purchased by the Scottish Rites of Free Masonry, who made major renovations and built the 1,200-person-capacity Grand Ballroom on the seventh floor, or what was once the roof. During the mid-1930s, Abraham Ellis, the former concessionaire at the Opera House, purchased it. He changed the name to the Manhattan Center, reduced the size of the main stage downstairs and sealed off the third balcony from the public.

"When they turned this into a ballroom, they actually lost this ceiling," points out Robert Carvell, director of production services. "They hung a ceiling below that proscenium, all the way across, and cut off the third balcony and cut off all that empty, open space up there near the ceiling."

The refurbished venue became popular for big band performances, union

meetings and trade shows. During the following decades, management gradually let the facility slip into a state of disrepair. The venue eventually closed in the mid-1970s, but then Manhattan Center Studios Inc., a subsidiary of One-Up Enterprises, took it over.

"We've been here for 25 years," reports Randy Davis, president of Manhattan Center Studios, "and since then started building audio rooms, video rooms and post-production suites, with these two big ballrooms as the core of our facilities." His company has transformed the Hammerstein Ballroom into one of the premier live music venues in New York City.

The current capacity of the Hammerstein is 3,700 when the audience is standing. The floor holds 2,500, and each of the two open balconies holds 600 seated patrons. When there are seats on the main floor, 1,200 people can sit there, reducing the overall capacity to 2,500. The third balcony is closed to the public, but the lower ceiling was removed, once again revealing beaux-arts angels flying on ceiling frescos high overhead.

The Hammerstein hosts many seated shows, from award ceremonies (the Tamika Reggae Awards and the Rhythm & Blues Foundation Pioneer Awards) to

by **Bryan Reesman**

LET'S GET THIS SHOW ON THE ROAD



Hannay Reels
The reel leader.

When it comes to handling mobile audio/visual equipment for live events and concerts, speed is everything. You have to set up in no time, and tear down even faster. With Hannay AV and AVX Series cable reels, you won't waste time trying to gather up or untangle miles of unmanageable cable. These rugged steel reels are specially designed for your sound and lighting cables. For maximum transport and storage efficiency, all of our audio/visual reels are stackable. So you can save valuable time and space, and extend the life of your cable at the same time. Call today for a Hannay dealer near you: 518-797-3791.



1-877-GO-REELS • www.hannay.com

Hannay audio/video reels are available from these distributors:

CABLETEK ELECTRONICS, LTD.
114 1585 Broadway
Port Coquitlam, BC V3C 2M7
Canada
Phone: (604) 942-1001
Fax: (604) 942-1010

CLARK WIRE & CABLE COMPANY, INC.
1355 Armour Blvd.
Mundelein, IL 60060-4401
Phone: (847) 949-9944
Fax: (847) 949-9595

PHOTOMART CINE/VIDEO
6327 South Orange Ave.
Orlando, FL 32809
Phone: (407) 851-2780
Fax: (407) 851-2553

RAPCO INTERNATIONAL, INC.
3581 Larch Lane
Jackson, MO 63755
Phone: (573) 243-1433
Fax: (573) 243-1384

**TOWER PRODUCTS, INC./
MARKERTEK VIDEO SUPPLY**
812 Kings Hwy.
P.O. Box 397
Saugerties, NY 12477
Phone: (845) 246-1324
Fax: (845) 246-1757

**WHIRLWIND MUSIC
DISTRIBUTORS, INC.**
99 Ling Road
Rochester, NY 14612
Phone: (716) 663-8820
Fax: (716) 865-8930

ZACK ELECTRONICS
1070 Hamilton Rd.
Duarte, CA 91010
Phone: (626) 303-0655
Fax: (626) 303-8694

JOSEPH ELECTRONICS
8830 N. Milwaukee Ave.
Niles, IL 60714
Phone: (847) 297-4200
Fax: (847) 297-6923

**NEMAL ELECTRONICS
INT'L INC.**
12240 NE 14th Ave.
N. Miami, FL 33161
Phone: (305) 899-0900
Fax: (305) 895-8178

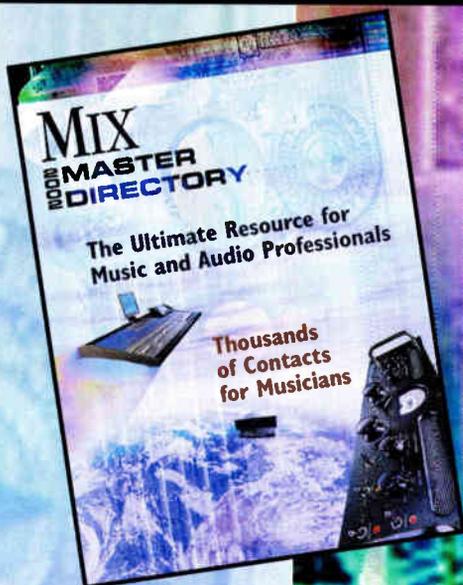
If you're in the industry, you need to get
the Mix Master Directory

**Coming
Soon!**

To order MMD
call 1-877-296-3125

It's the Mix Master Directory
you've depended on for 15 years
—only bigger and better.

**MIX
2001
MASTER
2002
DIRECTORY**



Live mix

launch parties (Microsoft and Lexus). But music is still what the public comes to hear. "When you see concerts here, you're not far away from the show," observes Moore. "[Even in] the balcony, you're close to the show." Both open balconies are low and at shallow angles, so fans can avoid the unpleasant "nosebleed" feeling common to other concert venues.

Carvell reports that the Hammerstein's plaster ceiling is 75 feet high, and the grid height in the stage house is 85 feet. The building itself is solid brick on the outside, plaster inside, and the structure is steel.

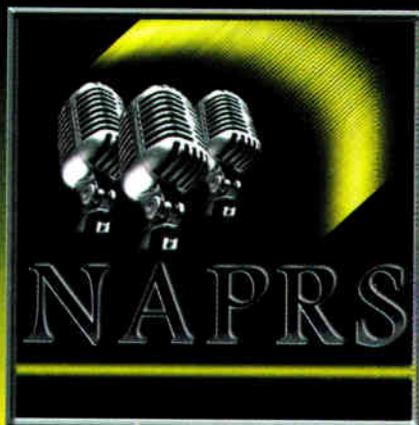
"It's kind of a unique room, because the actual room itself traverses both the front of house and stage house," Carvell explains. "We have a small, hard stage now in the stage house, which is 24 feet deep by 54 feet wide. We have additional staging to build that out up to 40 feet deep, and, if necessary, we can bring in an extra stage to fill the whole stage house. It's an enormous stage if you do that. The proscenium is almost in the middle of the room. It was built for opera—major fly space, big stage."

Soundwise, the Hammerstein is well-stocked with some powerful equipment. Mixers have the option of a 40-channel Crest VX or a Yamaha 01V digital unit. The venue offers a wide range of Turbo-sound cabinets, including 20 TSW-721s (bass), 18 TFL-760 Floodlights (mid/high) and eight THL-2s (full-range), all powered by QSC Powerlight amplifiers. It also has 12 EAW KF300 cabinets, seven Apogee cabinets (four AE-2 subs and three AE-5 full-range) and 14 Meyer cabinets (10 UPA full-range and four subs).

"We have found that the Turbo-sounds are very good for concerts," says Carvell. "It's really full, good-quality sound. For a lot of the more corporate events or talking-head things, we've found that the EAWs work very nicely to distribute the sound. As you see, we've got sound all the way around the sides. We've got a couple of speakers up front as well. You have very good coverage all around."

Carvell points out that because the Hammerstein was originally designed as an opera house, it has very good acoustics. "It's been changed, and a flat floor has been put in, so that did make a little bit of impact," he says. "But the acoustics have been sampled for one of the [E-mu] reverb units."

We make it
easy to record
in Nashville.



The Nashville Association of
Professional Recording Services

Visit our web site at: www.naprs.org

Established in 1995 to promote Nashville's
finest recording studios and services worldwide.

P.O. Box 128511
Nashville, TN 37212
(615) 321-6277



BACK IN THE CONTROL ROOM

Those acoustics are put to good use in a live forum, and the Hammerstein is well equipped to record shows in multiple formats, from CD to DVD. "All of our facilities have tielines to this room, so we can record in the various formats," explains Moore, referring to Manhattan Center Studios' three audio recording studios, two video control rooms and two digital online video editing suites (with D2 and DigiBeta formats).

"It's kind of like Noah's Ark," he quips. "Two of everything basically, just in case." Studio 7 has a Neve VR 96 console with 120 inputs, and it is the main room used for live recordings in the Hammerstein. Studio 4 has a Neve VR 72, and Studio 8 has a 72-channel Mackie console that is often used for Pro Tools work and tracking. Studios 1 and 6 are the video control rooms with adjacent stage areas.

Because the Ballroom is literally plugged into Manhattan Center Studios' recording facilities, artists and labels are able to record a show in multiple formats. Such a multiform event transpired recently when reggae legend Beres Hammond performed and recorded a Pay-Per-View special.

A multicamera shoot was done for a forthcoming album, home video and DVD. "We did the stereo mix for the album, we did the 5.1 surround mix in [Studio 7], which is set up for 5.1 recording and mixing since we do so much film stuff," Moore says. "The thing about our rooms is, we've been doing film work for 10 years, so we're ahead of the game with mixing 5.1, because we know and understand how to set up and mix in that format."

The video shoot was coordinated from the sixth-story video control room, which is an analog room with a Grass Valley 250 switcher and Sony Betacam machines. "For the music stuff, we'll almost always take a feed from Studio 7 direct to the Beta machines," Davis explains. "So we'll do two or three different audio record-

ings. We'll do it on DAT, often we'll do a digital recording as well on our 3348 machines, and record it directly to the Beta machines. Having the different formats and capabilities makes it that much easier for our clients, being that we can do *all* of that in one facility."

Video shoots at the Hammerstein can expand to as large as eight to 10 cameras. "We've done everything from the *Oprah Winfrey Show*—when her guests were Janet Jackson and Paul McCartney on two different days—to HBO Boxing in the Hammerstein," remarks Davis. "Even just smaller, single-camera product shoots and music videos and the *Top of the Pops* for Germany. We have fiber lines throughout the building, as well as fiber lines connecting us to satellite transmissions." One of their clients worked with Aaliyah and wanted a live performance transmitted to the German *Top of the Pops*. "They did it live here and sent the signal live to Germany, so they did a downlink there to be able to show that live in prime time."

From audio to video, one of Hammerstein's most distinguishing factors is its diversity. The venue has held everything from "very high-end rock 'n' roll concerts to high-end parties," says Moore. "Our location is unique. We've got access from subway stations to the Jersey tunnel. We're between 8th and 9th Avenues on 34th Street in Manhattan. Penn Station's there. We're in a great setting."

One wonders whether Oscar Hammerstein had any inkling of how his opera house would be transformed into an all-encompassing entertainment venue. The divas performing here today may be different from those at the turn of the century, but, ultimately, the ballroom still fulfills its purpose of bringing music to the masses in a lavish setting with superior acoustics.

For more information, log onto www.mcstudios.com.

Bryan Reesman is a freelance writer in the New York metro area.

Linking Musicians with Technology



SEK'D

www.sekd.com
1-800-330-7753

Digital Audio Software,
Sound Cards and
Converters.



swissonic

Digital converters and USB Studio used by top engineers e.g. Elliot Scheiner and Mike Rutherford.



www.swissonic.com
1-800-613-2187

FRIEND-CHIP, STUDIO ELECTRONICS

The Specialists for digital audio patch bays and format converters.



www.friend-chip.de
1-800-317-8743

MAM MUSIC AND MORE

Affordable analog Filters, Synths, MIDI gear and Mixers made in Germany.



www.mam-america.com
1-800-732-6982

SOMMER CABLE



Finest German Audio and Video cables.

www.sommercable.com
1-800-799-1073

Ucik, Inc., 407 Stony Point Road,
Santa Rosa, CA 95401
Tel: 707-360-3309 Fax: 707-360-3307
www.ucik.com info@ucik.com

Sugar Ray

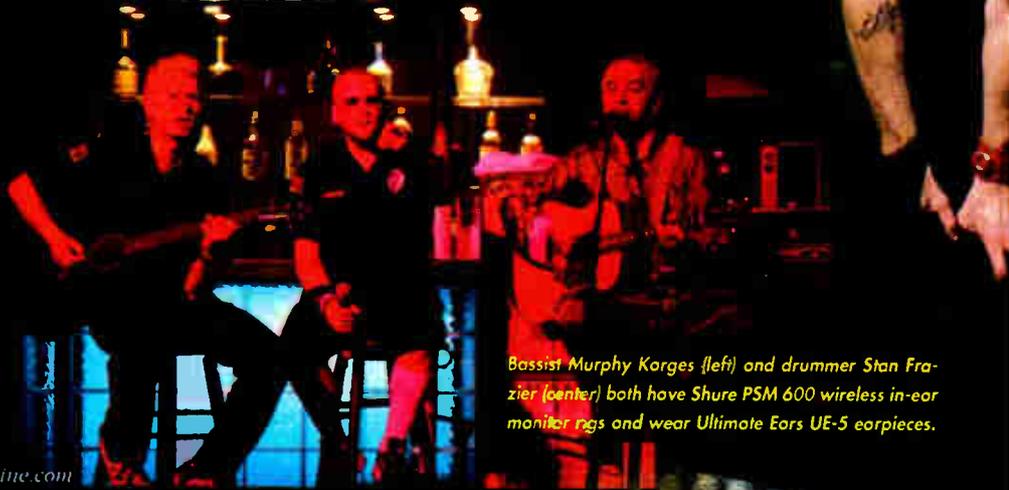
PHOTOS BY STEVE JENNINGS
TEXT BY CHRIS MICHIE

With two multi-Platinum albums and a Gold-certified single behind them, Sugar Ray have enough of a following to sell out most of the venues on their current U.S. tour of theaters, smaller arenas and sheds. Playing to a predominantly female audience at San Francisco's Warfield Theater, Orange County, Calif., natives Mark McGrath (vocals), Rodney Sheppard (guitar), Murphy Karges (bass), Stan Frazier (drums/guitar) and Craig "DJ Homicide" Bullock delivered an energetic and entertaining set drawn from their recently released fourth album, *Sugar Ray*, plus the hits "Fly," "Someday" and "Every Morning" from the *Floored* and *14:59* albums.

Sugar Ray's infectious mix of alternative rock, punk, reggae and metal guitar ruckus, combined with sampled beats and DJ Homicide's turntable pyrotechnics, rang loud and clear from a JBL VerTec line array P.A., purchased for the tour by L.A.-based sound system contractor Schubert Systems.



Ray's & Bar



Bassist Murphy Karges (left) and drummer Stan Frazier (center) both have Shure PSM 600 wireless in-ear monitor rigs and wear Ultimate Ears UE-5 earpieces.

Production manager and FOH engineer Bryan Clements (below) has been with the band for four years. Because drummer Stan Frazier also plays guitar and sings, an Akai DR16 sampler runs prerecorded drum tracks for about half the set. The Akai takes up about 12 inputs, leaving Clements with about 36 remaining for band and effects inputs.

At the top of the FOH outboard rack is a Summit TLA-100 compressor for singer Mark McGrath's vocal. "It's pretty transparent," says Clements. "I use it on almost every show." New in the effects rack for this tour is a TC Electronic D2, which Clements uses for long delays; a Harmonizer H3000 takes care of chorus and vocal effects. Unruly band dynamics are handled with dbx 160A compressors and Aphex gates, while overall system EQs are BSS $\frac{1}{2}$ -octave graphics. Assisting Bryan Clements at FOH is systems tech Neal Shelton; Arthur Porter rounds out the Schubert Systems sound crew.



The Sugar Ray road crew, L to R: DJ tech Peter Butsicaris, drum/bass tech Derek Gordon, stage manager Frank Fuccille and guitar tech Matthew Baratto.



FOH engineer Bryan Clements at the Yamaha PM4000.



Independent monitor engineer Scott Boculac is on his first tour with Sugar Ray—he has been mixing monitors for Creed since 1998 and was most recently out mixing in-ears for Peter Dinklage. For this tour, Boculac specified a Midas Heritage 3000 mixing console, on which he creates both in-ear and wedge mixes. For singer Mark McGrath, Boculac creates stereo wedge mixes supplemented with proprietary Schubert Steridian full-range sidefills (all wedges are Clair Bros. 12AM models).

"The most challenging part of the gig for me is that Mark likes to hear a lot of effects onstage," says Boculac. "He likes to hear Harmonizer as well as reverb, which is why his center monitor wedges are run in stereo. Getting it loud enough for him while still keeping tonal quality—that's the challenge." In addition to a Harmonizer H3000, Boculac is using Yamaha SPX 990s for monitor mix reverbs.

Singer Mark McGrath uses a Shure U4D wireless system for his vocal mic, a Shure Beta 58. FOH mixer Bryan Clements, who is a member of the TV sound mixers' union, also spec'd an all-Shure mic selection onstage (except for a Sennheiser 421 on the bass cabinet).



PHOTO AND TEXT BY STEVE JENNINGS



SADE LIVE

With her *Lover's Rock* CD already RIAA-certified Platinum, Sade set out on her first U.S. tour in almost eight years. *Mix* caught the Shoreline Amphitheater show in Mountain View, Calif., in mid-July.

Mixing FOH for the tour is Howard Page, who, as VP at Showco, was largely responsible for the design of the Showconsole, the digitally controlled analog console that Showco developed jointly with Harrison/GLW.

"I don't do full tours much anymore," notes Page, who started touring in his native Australia in the '70s. "So this is a rare opportunity to use some of the things I've designed and built. I have a different stored preset for every song on the show. Sade and I have structured every song [in terms of the mix], and each song

is very different from the next. With the Showconsole, I just hit one button and the whole mix resets for that song's feeling, grooves and sounds, all in the blink of an eye."

Though the P.A. is a familiar one for Page—a Showco Prism system—the choice of lead vocal mic was less straightforward, because Sade wanted to use a wireless handheld. "We ended up with a Shure SM87 head on a Shure wireless system," notes Page. "A female vocal is tricky at the best of times, and generic vocal mic choices don't always work—you have to tailor the choice to the artist's intonation and the way the artist sings." Perhaps not surprisingly for an artist who has a sophisticated ear, Sade is using Future Sonics in-ear monitors.

NEWSFLASHES

JBL's new VerTec line array system got a workout at "Wango Tango," a multi-act show sponsored by Los Angeles radio station KIIS, which featured appearances by Aerosmith, the Bee Gees, Ricky Martin and others. To cover the capacity audience of 60,000 at L.A.'s Dodger Stadium, ATK/Audiotek provided a VerTec system consisting of six separate columns, each 12 speakers deep...Classic soul-funk band Tower of Power is on tour with 14 McCauley Sound SM950-2 stage monitors powered with a dozen QSC PowerLight 236 amplifiers fitted with DSP-3s. "The DSP-3s allow us to change crossover points, EQ settings and limiter settings simply by plugging a laptop into the DSP-3 and doing a quick reconfigure," said tour and production manager Bryan Cross...To cover the capacity crowd of 12,000 worshippers in the Los Angeles Forum for a recent extravaganza for the L.A. Church of Christ, producer Chris Wall called for a massive EAW sound system. Designed, installed and operated by Burbank-based Nelson Sound, the system included 20 EAW K850 loudspeakers and 12 EAW

SB850 subwoofers. A distributed delay system included 34 EAW 850s and 21 Apogee Sound AE5s...Steve Wood of Trutone Electronics in Bellingham, Wash., provided a Tsunami Technologies-powered sound system for Joan Osborne's appearance at the 1,500-seat Mount Baker Theatre, a 1927 art deco gem that is now a historical landmark. Almost 30,000 watts of power was provided by nine HQ-2002S, six HQ-1302S and six HQ-702S Tsunami Technologies power amplifiers.

PURCHASES AND INSTALLATIONS

Delicate Productions of Camarillo, Calif., has purchased an Innova-Son Compact Digital Console. Freelance audio engineer Lyle Dick has been using the Compact at corporate shows, including the Disney Millennium New Year 2000 in Pasadena...The Indianapolis Symphony Orchestra (ISO) has purchased a 56-channel Soundcraft Series FIVE mixing console. The ISO, which performs 200 concerts a year to a total audience of over 500,000, uses the board for its 30-date outdoor summer series and also at its 1,800-seat home in Indianapolis, the

WERCHTER FESTIVAL

Sting, Roxy Music, Beck, and the Black Crowes were among the artists who performed at the Werchter Festival, the largest European festival of the summer. The three-day event, which attracted 70,000 to Leuven, Belgium, featured Adamson Y-Axis line array systems (provided by EML) for both the main and secondary stages.



NEXO AT OFF-FEST

ThunderAudio provided a Nexo Alpha system for OFF-FEST, a spin-off from Ozzy Osbourne's OZZFEST that featured Slipknot, Papa Roach, Linkin Park, Mudvayne and Disturbed. In addition to 48 stacks of Nexo Alpha components, Thunder Audio also supplied Nexo Alpha E sidefills and a full complement of Midas mixing consoles.

DIDO GETS IN-LINE

Electronic pop chanteuse Dido, on tour to promote her *No Angels* album, is using a Meyer Sound M3D line array system. Jason Sound/Westsun of Ontario is providing 10 self-powered M3Ds per side with additional MSL-4s as mid-fills and outfill speakers. Jason Sound/Westsun is also providing a Meyer Sound M3D system for Canadian pop sensations Bare-naked Ladies.

Hilbert Circle Theater. Other ISO purchases include an EAW KF750 rig with subwoofers, 22 Crown MA-2400 amplifiers, BSS FCS-926 Varicurve EQs with an FPC-900 remote controller, and microphones from AKG, Neumann, Schoeps and Shure...Advanced Audio Visual (West Chester, Pa.) has taken delivery of the first Resolution 2 system in the U.S. Manufactured by Funktion-One in the UK, the Resolution 2 is a compact full-range system and comes with integral flying hardware...QSC has supplied 10 4-channel CX404 Series amplifiers to Portland General Electric Park, home of Portland's AAA baseball team, the Beavers. The system was designed by Dave Stearns of Dallas-based Pelton Marsh Kinsella (PMK) and installed by local contractors Delta AV. ■

Burns through SCMS.

And smokes everything that can't.

Introducing the DN-C550R. The professional dual drive CD + CD-R/RW recorder that's heating up the industry. Designed with 90 years of Denon engineering know-how and progressive thinking, the DN-C550R is the luminary of CD technology. This innovative combi-deck incinerates recording obstacles like SCMS and accepts both CD-R/CD-RW data and audio blank media. Leaving you with a huge range of recording and playback options for independent use or in combination. Plus, we stoked it with every feature a professional would expect. The DN-C550R. The hottest CD recorder in the industry.

SEE US AT AES BOOTH #460



MIKE MANGINI

HE LET THE DOGS OUT

Last year it was inescapable: You couldn't go to a sporting event or a dance party without hearing that unmistakable, a cappella opening booming out of the speakers: "WHO LET THE DOGS OUT? *Woof, woof, woof, woof!*" And then what followed was a delectable dollop of Caribbean sunshine mixed with a little rap, some hot percussion and some more surreal canine lyrics. In the video for "Who Let the Dogs Out," the Baha Men, who really are from The Bahamas, were the sleek, smiling party boys on the prowl for some good times—simply irresistible! It was a perfect anthem for summertime, though professional football teams also adopted it in the fall of 2000. The song went on to win the Grammy Award for Best Dance Record, and the album it came from went triple-Platinum in the U.S and has sold millions more around the globe; quite a world music phenomenon.

There's a lot more to the Baha Men than "Who Let the Dogs Out." In fact, the album, also called *Who Let the Dogs Out* (it's the group's seventh—so much for being overnight sensations), is rich with great uptempo material that deftly mixes tropical flavors with some killer dance grooves. "You All Dat," "Get Ya Party On" and "Getting Hotter" all demonstrate their depth and versatility. And their first follow-up since the success of that album, the song "Best Years of Our Lives" from the top-selling *Shrek* soundtrack, shows that last year's successes were not flukes.

At least part of the Baha Men's success is due to the imaginative work of New York-based producer/songwriter Mike Mangini—he co-produced the album's best tracks and co-wrote two of the songs (though not "Who Let the Dogs Out"—that was a Trinidadian tune). Not surprisingly, this has been the highwater mark for Mangini's career, but he has a number of other interesting productions under his belt, too, includ-



ing work for jazz/rap pioneers Digable Planets, O-Town, Bruce Hornsby, Imani Coopola and David Byrne (his latest, *Look Into the Eyeball*)—all those following a successful stint as an engineer, programmer and session drummer. We caught up with Mangini at the Manhattan offices of S-Curve Records, which released *Who Let the Dogs Out*, and where Mangini is currently building his own studio.

How did you get into doing engineering and programming originally?

I was a musician originally, and I'm still a musician. But in 1989, I came to New York [he grew up in Baltimore] and got a job at Chung King just as the whole hip hop explosion in New York happened. I was an assistant for about *a week*. [Laughs.] The guy I was supposed to be an assistant for on Run-DMC just stopped showing up all of a sudden. The great thing about hip hop is they'll give anybody a shot, so they're asking me, "Hey, can you run this stuff?" "Sure, no problem." Of course, I couldn't really, but somehow I managed, and then we started working,

and I started doing engineering and programming for all kinds of hip hop groups.

You must have had some experience.

I had a little home studio, and there would be local bands who would come in and pay to record there, and also I'd try to find artists who were interesting, spec them, and try to make demos and records with those kind of people. I was even doing some hip hop before I came to New York, but I didn't know the first thing about making it any real sort of way. Then I came to Chung King, and it was like the biggest education in the whole wide world. Within a couple of weeks, I understood how hip hop records were made. But the one thing I always thought was that hip hop records are cool and the vibe is great, but they don't sound very good.

Well, there were certain "accepted" machines and there was an almost consciously low-tech thing going on...

Sure, that's part of it—everyone using an SP1200 or 12-bit samplers. What I realized is that nobody making these records had much of an idea of what the hell they were doing. As long as the bottom end was

BY BLAIR JACKSON

really loud, everybody was happy. So from the beginning for me it was important to try to make better-sounding hip hop records. And, certainly, I wasn't the only one doing that. There were other people around who were also starting to try to make the records sound better.

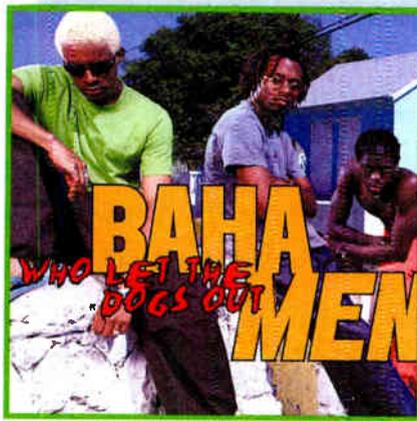
Was there a racial component to working in hip hop?

Absolutely. If you look at what the traditional notion of what a producer does—in other words, they're editing other people's ideas and shaping records—I was already doing that back in those days [early '90s], but there was no way I was ever going to get to "produce" hip hop records back then, basically because I was white.

By about 1993, I'd had a lot of success as a programmer and a mixer of all kinds of records—I worked on Jo De Ci; I did a lot of stuff for Puffy [Sean Combs] when he was an A&R guy at Uptown; I did a little work on Mary J. Blige and for Def Jam. I was having a lot of success in that world, but there was no crossing over into a pop thing, so to make a long story short, I decided that I wasn't going to make those kinds of records anymore. So I sort of sat on the sidelines for a minute to regroup and come up with another plan, when this woman called up and said, "I have this artist and I'd really like you to work with them." "What kind of music are they?" "Well, they're rappers, but..." And I said, "You can stop right there. I'm not interested..." But she really stayed on me and called and called, and eventually I met with them and it was this group called Dignable Planets. So I made that record in my house, and they let me co-produce.

What did you have in your house?

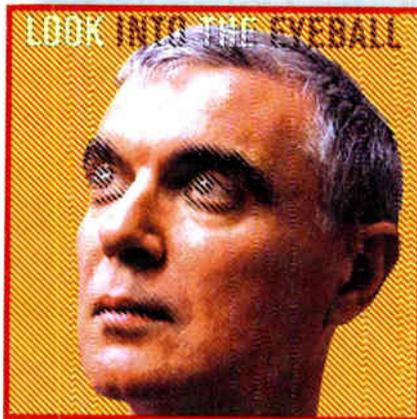
It was the most rudimentary studio you can imagine. I had a place in New Jersey, right near New York City. I recorded that album [*Reachin' (A New Refutation of Time and Space)*] on a Tascam 16-track half-inch and a Tascam console, and an MPC-60 and a S-950. It was pretty raw stuff. But their ideas were really good and the record became very successful—it went Gold, and the single, "Cool Like That," also won a Grammy for Best Rap Record that year, beating out people like Dr. Dre and Naughty By Nature. So that was pretty exciting. And that was really my favorite era in hip hop—when there were groups like Dignable Planets and A Tribe Called Quest and Arrested Development doing those interesting combinations of styles. So I made that record there, and then many years later I ended up doing the Baha Men record in my apartment in New York, doing tracks there, mixing it there and having a huge record. So



there's a certain beauty in working at home, I guess!

So did doing Dignable Planets lead to other work?

Yes, and it also allowed me to move into pop a bit, and I started doing some remixing of pop acts, where I'd put beats on. It would be a conventional record with a lot of live instrumentation, and I'd take away the live drums or loop up live drums. It was that whole movement around '95, '96, '97, where people did a lot of that. I did a couple of things for the Beastie Boys around then.



I've talked to a lot of engineers through the years who aren't happy about what remixers have done to music they've recorded.

I can see that, but I think you have to look at it for what it is, which is a different medium entirely. When somebody does a remix, it doesn't take the place of the original mix; it's just looking at a song from another perspective and, hopefully, redoining it in creative and interesting ways.

I've been on both sides of it, too. I made David Byrne's most recent solo record [*Look Into the Eyeball*]. I produced the entire album. Subsequently, David has gone out and gotten some remixes done because he's a very forward-thinking guy—that's one of the things I love about him—and I think it's great, because some-

one can take it and go a whole 'nother place with it than we did. Now, he brought me the songs and I tried to, in a rhythmic way, stay true to what the song was supposed to be about. But someone can come around and do something completely different that could give the song another life, introducing it to a whole bunch of other people who might not hear the song otherwise. I think it's only positive. Unfortunately, not everyone doing remixes is great at it, so that's a down side. But if you get a great remix, it's amazing. I think it's a really creative genre.

Didn't you spend some time in England?

Yes, in the mid-'90s I went to England for about a year, which was a really good experience. I worked a lot at Metropolis, which is this huge warehouse with a zillion studios in it; there's a lot going on there. And I also worked at Konk Studio, which is The Kinks' place. I was doing producing, which means I do the track and then get the artist to hopefully deliver a compelling vocal. Or I was reworking other people's tracks, or in some cases engineering and mixing.

Then I came back to New York, and in '97 I met this girl named Imani Coppola, who was like 17 years old and didn't have a deal, and we went into the studio and cut a couple of tracks with her, which led to this huge bidding war over her. That was a different kind of thing musically—it was hip hop, but it had a psychedelic thing going on with it. For me, it was influenced by what the Dust Brothers were doing. She ended up doing a record for Columbia [CBS], and she had a Top 30 single with a song called "Legend of a Cowgirl," and that seemed to crank my career up a couple of notches; it got a lot of people calling me. Even though the record only did about 150,000 [sold], it was considered kind of a "hip" record, and a lot of people wrote about it.

After that I did a bunch of different records. I worked with Joan Osborne for a bit on the her second record [*Righteous Love*]...

That must've been on the early, pre-Mitchell Froom version...

There were many early versions. There were at least six producers who worked with her and I was one of those people. I co-wrote one song that ended up on the album ["Hurricane"]. During that period, I also produced half of Bruce Hornsby's record, *The Spirit Trail*. That was a very interesting experience. Bruce was great. We worked at his studio down in Virginia, which is a very cool place, and we also worked here in New York. He's an amaz-

ing person and an incredible musician.

What do you bring to the table for someone like that, who's such a forceful songwriter and a commanding presence?

A lot, I hope. I'm a songwriter as well—in fact, I'd say that's a predominant part of who I am. I think he wanted to make his sound a little bit hipper without losing who he is or selling out. When he was making records when he was his most successful, he was using a LinnDrum. So I think he wanted to get back into some grooves like he had on those records, but hopefully update the sound a bit. I think that record turned out really well.

I also did some work with Dido, but the tracks didn't make it onto the record. *How did you book up with David Byrne?* David came to me and said, "I'd like you to produce my record," which I found very surprising. I mean, growing up, Talking Heads were huge for me; he was almost like a hero of mine. So to have a guy who's a hero to you call you up and say he wants you to produce his record, it's a very cool thing. And I said, "Why?" And he said, "There are two records of yours that I've heard in the past five years that I think are really great—Imani Coppola and Digable Planets. They were quirky yet commercial, and I want to make a quirky, rhythmic, commercial record." So we got together and he played me all his demos.

There are some complicated arrangements on that album; all those strings. What were the demos like?

Six or seven songs on the record have some sort of string arrangement. He wrote predominantly on guitar. There were a couple of songs where he had a loop and maybe some sort of string idea. He has a guitar synth and he sometimes would play a suggestion of some texture that could be there, or some suggestion of what the drums might be about. It was hinted what they might be like, but there was also a lot of room for imagination.

What was influencing him in that direction? Is it the influence of the Cuban orchestras and bands who are getting so much exposure now?

I think it goes further back than that. I think it's more a Gershwin thing. I think David wanted to tax himself and see if he could write real, classic-style songs, but have them still be *him*. I think he wanted to go as far as he could go melodically this time, both as a singer and a writer. As a lyricist, he's always amazing, of course, but I think he was pushing himself melodically. The amazing thing about working

with David Byrne, I found, is that unlike a lot of first-time artists, he was wide open to being critiqued and to working on things. He might bring in a song and I'd say, "Well, this is really good, but I think maybe what you think is the chorus is more the setup for the chorus and you should work on evolving that idea." And he would go the next day and work on it and come back and re-present something that would be great. He worked *really* hard. I've seen kids making their first or second record who wouldn't begin to work that hard or be as conscientious about doing their craft.

Where did you work mostly on that record?

We did the pre-production in my home studio, and then we did the bulk of the live recording at the Cutting Room.

What's in your studio these days?

I'm in the process of building a real room at the moment. I have the new Sony DMX board and tons of outboard stuff—a Neve Prism rack and a bunch of Avalon gear, which I'm very fond of. I have four 737s, two 2055s. So lots of outboard gear and MIDI gear.

And Pro Tools, I presume?

Actually, no. I use Logic. Honestly, I don't even know how to open Pro Tools. [Laughs.] Everything I do is 24-bit, 64 tracks in Logic, and I find it really, really flexible.

How has programming changed for you in the past 10 years?

Phenomenally. When I look back at when I started, it was like the Stone Age. When you could program something in, say, an MPC-60 or an SP-1200, and manage to get the damn thing to lock to tape without it slipping and sliding all over the place, the day was a major success. Now you take all this stuff for granted. I remember back in '97, I was trying to make this very sophisticated record with a group called Swirl 360, which was a really cool record that wasn't a big commercial success or anything but was really good. I was taking live drummers and then making drum loops and locking it all up. It was like 48 tracks of analog and another 16 tracks running virtual. And it was really, really hard to do that kind of stuff even then.

Now, when everything went 24-bit and you have lots and lots of audio tracks, that's made a huge difference. It used to be that doing something relatively cool took a lot of work and a little luck for it to go down right. Now, you have more time to be creative and more time to do almost anything your imagination can come up with, because now the tools are right in front of you.

Now, any kid with a little money can buy a system where he can compete. He can make records that can be really interesting and creative and clever. And I think that's great. It makes it so it's not who has the most skill as an engineer. It's who has the best ideas. I mean, the reason I got into doing what I'm doing is that I was the biggest Beatles fan in the world, and I listened to those records and I wanted to be the guy who made records and who experimented with equipment and did interesting things with it.

How did you get involved with the Baba Men?

I was working with David on his record, and then he had to go to Europe to do something for his label [Luaka Bop]. We were going to have a couple of weeks off, and my friend Steve Greenberg picked up the phone and said, "Remember these guys I've signed, like four times—the Baba Men?" "Yeah, I know those guys." And he says, "I've got this amazing idea for a song and I want you to do it for me." I said, "Come over to my house and play it for me." And he comes over and plays me this Trinidadian version of this song, "Who Let the Dogs Out." I'm listening to it and looking at him like, "What are you talking about? [Laughs.] What do you want me to do with this?" And he says, "This is really easy. You do a track like 'Whoops, There it Is,' [by 95 South] except for the year 2000. Big bass, interesting rhythmic stuff happening." So I worked on the track at my studio, and then he sent me down to Miami and I recorded the vocals. Believe it or not, it's cheaper for them to record in Miami than it is in the Bahamas, because the good studios there are so expensive. I took them [the vocals] back and Steve thought they were pretty good but they needed to be better. So we went back and forth a couple of times, and then during that process they ultimately decided their singer wasn't good enough and they hired some new guys, Rick Carey and Omerit [Hield], who were both really good—they could really deliver the song vocally. We did that at Circle House [in Miami]. Then we came back and recorded a little percussion and some guitar. We sent it over to a mixer, but we felt there was something missing from what he did, so I volunteered to mix it myself. Even though I've had people like Tom Lord-Alge and Chris Lord-Alge mix my stuff, for some reason I thought I should do that one—keep it real vibe-y and real raw.

So I mixed it and Steve thought it was pretty damn close. He came over, we tweaked it for about an hour and that was

it. It got mastered and then he started taking it around to people and got just the most amazing response.

After that, Steve called me up and he said, "Listen, you and I are close friends. Let me make a recommendation to you. I'm telling you—this is going to be a *huge* hit. You're going to be really hummed if you only have one song on this record. So if you can find another couple of weeks to go down there and work on some songs with them, I think it'd be great for you and them." So I did get another break from David [Byrne] and I ran down there [to Miami] for four or five days. I had some tracks that I brought with me. We wrote to them on the spot, came back and worked on that.

Was the song on the Shrek soundtrack done at the same time, or after?

No, that's more recent. It's really great to be part of that movie.

What have you learned about the group, now that you've worked with them for a while?

Actually, these days I'm working on songs for the next Baha Men record, so it's an ongoing thing. We have a nice way that we work together. I start a track, we bring it down, they contribute however they can—play on it, write on it—and that

seems to work very well. The band at this point have a sense of what they've become and they're psyched about it. At the same time, they're concerned about keeping a certain amount of real instrumentation in the records and they don't want to become too much of a pop thing—they want to keep the world music elements in there, and I do, too. That's a lot of what makes them special. I will tell you, no joke, these people are up there with anybody I've worked with. They are amazing musicians.

What else have you done recently?

I did a track on the O-Town record. I'm in the process of making a record for S-Curve with these four sisters from Florida who are really cool—the youngest is 13 and the oldest is 23 [The Beu Sister]. It's pop, but it's different than what's going on out there. The tracks have a sort of European influence; kind of like a Fatboy Slim or William Orbit direction. And they have an almost country sound in their vocals. I like the idea of making a lot of different kinds of records and not get caught up making the same one over and over again.

I also did this record for David's label, a group called Si-Se—amazing, man! I saw them last night at the record release

party and I'd never seen them play live before. I was blown away. The girl [Carol C.] is like a Latin Sade. It's got a world music thing but also a trip hop thing. It's the kind of record that could come out of nowhere and really be a big thing if people get to hear it. I produced half the record. It's very cool and cutting edge.

And you're setting up a studio?

Steve and the guys at S-Curve have been nice enough to give me some space in their building, so I'm in the process of building a room there. Gear-wise, I'm going to pretty much go with what I've already got, because I'm really comfortable with it.

I really love making records in unorthodox situations. For me, it always seems to work out better than if, say, I go to some really big commercial studio every day. When you book a room for \$2,500 a day, you tend to sit behind the console and jam all day long, because you've got to get it done in a certain period of time. The flip side is that when I work in my own room, I can work for a bit, take a break, clean my ears out, keep things fresh. So this will be ideal for me. I'm really looking forward to this. ■

Blair Jackson is senior editor of Mix.

"All The Sound You've Never Heard"™



BBE®

INTERACTIVE
DEMO
ON LINE NOW!!

"The BBE can be a real life saver when dealing with poor quality source material, whether it be in film/video or broadcast production, mastering or tape duplication chains."

George Petersen
MIX MAGAZINE



Tel: 714. 897. 6766 Fax: 714. 896. 0736 Web: www.bbesound.com
In Canada Please Contact Kief Music LTD (604) 590-3344

RECORDING NOTES

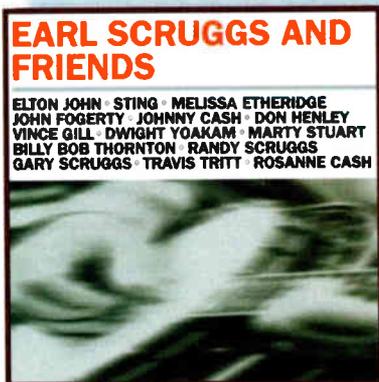
EARL SCRUGGS

A LITTLE HELP FROM HIS FRIENDS

by **Elianne Halbersberg**

Remember those old family driving vacations—mom and dad in the front seat, you and your brother or sister in the back, stopping every few hours along the scenic byways to see the sights? Now, imagine recording an album that way; the making of *Earl Scruggs and Friends* was a lot like that. Granted, the players traveled at 30,000 feet and not in a wood-paneled station wagon, but the premise was the same: Earl Scruggs; his wife and manager, Louise; son Randy Scruggs—an award-winning guitarist, songwriter and producer; and Ron “Snake” Reynolds, who recorded and mixed the album, packed up and traveled from city to city, studio to studio, to record the CD’s 12 tracks, which feature a variety of guests performing with the legendary banjo player.

With a career spanning



more than 50 years, Scruggs has received 11 Grammy nominations, recorded countless albums and is credited with bringing bluegrass music to international notoriety. Born in North Carolina, he began play-



PHOTO: PAMELA SPRINGSTEEN

ing banjo at age 4 and, as a 10-year-old, developed the three-finger style known as “Scruggs-style picking.” With Lester Flatt, his musical partner for more than two decades (beginning when they were members of Bill Monroe’s Bluegrass Boys), Scruggs had the first Number One bluegrass single, 1962’s “The Ballad of Jed Clampett,” also known as the theme song to *The Beverly Hillbillies*. In 1969, the duo parted ways, and Flatt died in 1979.

Scruggs’ sound diversified as his solo career gathered steam; today, at 77, he continues to record, perform and awe generations of music fans in every genre. Not only is Scruggs a musical legend, but so is his banjo: a Gibson Granada model manufactured in 1934 that he acquired in 1949. The banjo—and the extraordinary talent of the man playing it—is the tie that binds *Earl Scruggs and Friends*, the defining thread running through the album’s collection of styles. And, quips Ron Reynolds of the

rare instrument, “If he makes enough money off of this album, he might be able to buy a new one!”

Joining Scruggs on this unique project are Elton John, Sting, Melissa Etheridge, John Fogerty, Johnny Cash, Don Henley, Vince Gill, Dwight Yoakam, Marty Stuart, Billy Bob Thornton, Randy and Gary Scruggs, Travis Tritt and Rosanne Cash. They make *Earl Scruggs and Friends* a musical gumbo, from the all-out pickin’ fest of the instrumental all-star “Foggy Mountain Breakdown” to Yoakam’s hip, haunting sound on “Borrowed Love.” “Fill Her Up” is pure Sting—rhythmic and soulful—though banjo-enhanced. Surprisingly, it’s the Randy Scruggs original, “Somethin’ Just Ain’t Right,” that leans most toward a rock feel—further testament to Earl Scruggs’ broad musical tastes.

Reynolds calls the guest lineup, “The best of the best of artists and musicians. They didn’t participate in this album for money; they did it for love

—CONTINUED ON PAGE 290

DAFT PUNK

A JOURNEY OF
"DISCOVERY"

by Bryan Reesman

Daft Punk steadfastly refuses to obey conventional rules of dance music. Unlike so much of the homogenized club fodder today, their music is carefully thought out and sculpted. They prefer to sample themselves rather than routinely sample the music of others, and they take time recording their albums, as evidenced by the four-year gap between their debut *Homework* and their sophomore effort, *Discovery*, a CD that took more than two years to create. And while the lads could be considered gearheads, they are not consumed by the techni-



cal process of constructing their music; rather, they mesh the worlds of analog and digital sounds into an eclectic, tongue-in-cheek blend.

Listening to *Discovery*, it is obvious that this French group appreciates '70s funk and dis-

co, but by the production techniques they employ, and the interweaving of other genres, such as rock and '80s pop, the end product could only come from the current decade. The CD is a kind of retro-futurist manifesto. "A mix between the

past and the future, maybe the present," offers Guy-Manuel de Homem-Christo, on the phone from the Paris studio he shares with bandmate Thomas Bangalter. One tune exemplifying such an aural amalgamation is

—CONTINUED ON PAGE 291

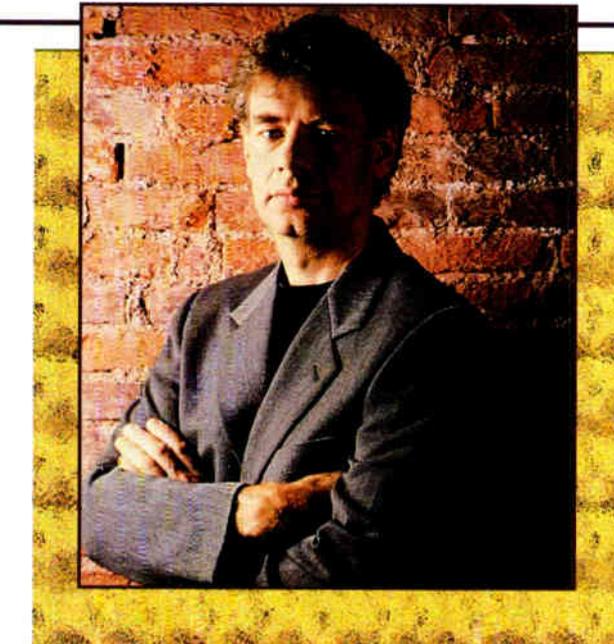
BILL BRUFORD

THE DRUMMER'S JAZZ
ODYSSEY CONTINUES

by Chris J. Walker

The British are different. Tea instead of coffee, soccer over football, cricket instead of baseball, not to mention driving on the "wrong" side of the road. So it should come as no surprise that the English approach to playing and recording jazz is a bit different, too. "We bring a particular Britishness to the classic sound of acoustic jazz," says drummer/producer Bill Bruford, speaking from his home outside of London regarding his latest project *The Sound of Surprise*.

The recording is essentially neo-mainstream jazz, but with some interesting compositional and rhythmic quirks that could only come from England. Bru-



ford characterizes it as falling somewhere between the current CDs of American saxophonist Joshua Redman and British bassist Dave Holland. It was recorded last fall with Bruford's longstanding group,

Earthworks, now in its unamplified "second edition" format since 1998. "It's in my background," Bruford continues. Referring to the titles of the tunes, such as "Revel Without a Pause," "Come to Dust,"

"Cloud Cuckoo Land" and "Never the Same Way Once," he says, "These are *not* American titles. Even the artwork is different; it's just not an American CD. Great American CDs there are, but we also feel now that jazz is an international sport. And there are plenty of guys in Europe eager to contribute."

Elaborating further, he notes, "From an Englishman, you'd expect economy, understatement, elegance and effortlessness. If I'm not any of those things, then shoot me. But if you listen to the recording, you'll find all those things all over it. I think American jazz is based more on the blues, or probably is closer to the blues. Usually, it's not long before some American jazzologist is going to play something pretty much approaching the blues. Not necessarily

—CONTINUED ON PAGE 292

OASIS ON DVD

CREATING THE SURROUND MIX FROM LIVE TAPES

By Phil Ward

Despite their relative lack of success in the United States, Oasis are still one of the biggest live acts in the world, and every UK concert is still a special—and often record-breaking—occasion.

The DVD release, *Familiar to Millions*, captures the latest lineup of the band in full flight. A sell-out gig at Wembley Stadium in London, it was recorded by the former Manor Mobile onto a Studer 48-track DASH machine and transferred to Sony 3348 DASH at West London's Townhouse Studios, owned by Virgin Records.

There, renowned engineer Andy Rose set about creating both stereo and 5.1 mixes for the DVD, using an SSL 8000 G Plus console with a customized 5.1 monitoring section. He mixed down to 5-channel surround and 2-track on a SADiE system, with digital metering and PORTiA video monitoring. The .1 sub channel was left, and later filtered off at the mastering stage. Rose worked closely with songwriter and guitarist Noel Gallagher, who also produced the release. "They performed 17 songs, and all 17 songs are on the DVD," says Rose. "Nothing was overdubbed; it was amazing." Mark "Spike" Stent did the stereo mix for the CD release.

Rose had completed about 30 surround audio mixes prior to tackling Oasis, most of them live music performances. He is a veteran of the mobile recording scene in the UK, with particular experience in live TV shows. He started his career in the music business with Mobile One at the age of 22, and just six years later in 1983, he co-founded Fleetwood Mobiles, which is still going strong as part of the Sanctuary Group of recording services in West London, although the unit is now known as one of the Sanctuary Mobiles.

"I had the multitrack tapes to myself for a couple of days before Noel came," he says, "so I listened to them from top to tail. The only things we left out were bits of chat they didn't want, changing guitars, the usual things.

"Noel has the final say on everything," he continues, "although he's not a 'Let's try 2 dB at 5 kHz' kind of guy. He's just totally into recapturing the vibe of the gig."

Everything was recorded straight from the amps and mics to tape, with no EQ or gating. "There's no need if you are doing a live gig," explains Rose. "Record the band flat, and when you rewind and press Play, electronically and technically, it's a



Andy Rose at The Town House, London

if the band was playing again because you've got exactly the same parameters. Your faders, from which you are creating your mix, may be off tape, but it's the same thing as the live performance."

The Oasis camp very much liked the mix from the TV and radio broadcast of the concert. This was courtesy of mobile engineer Jon Lemon, an old friend of Rose's and the guy who provided the flat, multitrack recording. "So we aimed in that direction, but with surround," Rose says.

Each microphone was split away completely from the P.A. Once into the main active splitter, the signal to the mobile could not affect the P.A. sound, and the P.A. could not change the mobile sound. Isolated electronically, neither got in the other's way.

For 5.1, the guitars and bass were immediately spread wider than the front stereo mix, with the main bass right in the middle giving a strong focus. Both Rose and Gallagher were keen that the whole thing be like an "extended" stereo mix. "and if we put a bit of fairy dust behind it, then that was fine," adds Rose. To that

end, Rose decided to do both mixes together so that one didn't drift away from the other.

"The main difference is the rear audience, which I obviously didn't have on the stereo mix. I also had a delayed reverb—like a quadraphonic reverb—to give a sense of space. I changed the time of the rear audience as well, bringing it forward to avoid the slap-back of the drums, which aren't in time because of the delay towers. So there is time adjustment, but you still get this feeling of a big open sound at the back.

"Although the feel of the stereo mix was the main thing, you still have to respect the DVD format," he continues. "If someone has gone out and tripled their expenditure on a surround room, they'll want to get something out of it. DVD has got to do something to give you a real sense of something being around you, and a live gig is the perfect way. It gives you the opportunity to put this rear ambience behind you."

Because the tape was recorded flat, a lot of EQ was added at the mix stage, from both Massenburg and Avalon units. The only things gated were the tom-toms, "because they just sit there humming away," says Rose. However, the drums are laid out three

times: the straight drum track, one heavily gated, and another heavily EQ'd. "I just fade in the effect, rather than have a gated snare," Rose explains. "So you have an open snare, to add just the right amount of cut. It's the same with the bass drum: I take a feed of it and seriously gate it, and seriously EQ it, and just add the taste. It's not all gated, or all EQ'd. You've got a bit of the air there, but not so much that it becomes intrusive. We also spent quite a bit of time working on an overall compression of the stereo drum group, just to give it a nice fat feel. We used the Chiswick Reach stereo model."

The only ingredients mixed with the bass in the center channel are heavily compressed drums and lead vocal—with no reverb. "You can hear the audience all the time, which creates the air," says Rose. "If you've only got a stereo track of audience, you can't create a good surround mix. It's no good trying to create a stereo sound out of a mono source—it will always sound poor. It's the same with trying to make quad, or 5.1, out of stereo.

—CONTINUED ON PAGE 294

MOUNTAIN'S "MISSISSIPPI QUEEN"

By Gary Eskow

In the late 1960s, it seemed as though every corner of the pop music playing field was covered. On any given day, an AM station might send out a bit of confection like The Archies' "Sugar, Sugar," follow it with the Fifth Dimension's version of "The Age of Aquarius" from the Broadway show *Hair*, pop in The Beatles' "Hey Jude" and end the set with some greasy funk, maybe James Brown's "Say It Loud (I'm Black and I'm Proud)."

During this period, the guitar gods, led by Eric Clapton and Jimi Hendrix, were attempting to deconstruct the very nature of popular music as it had been written, recorded and performed up to that point. For starters, the notion that song structure (principally the 32-bar form) must be worshipped was trashed. Although the material of Cream, the Jimi Hendrix Experience and countless other bands they influenced was built on traditional forms, the emphasis on extended solos often blurred them. (Although it may be argued that



L to R: Steve Knight, Corky Laing, Leslie West and Felix Pappalardi

huge East Coast following with his group The Vagrants. Although they never broke nationally, The Vagrants attracted some serious attention from the industry. When West left the group to record a solo album, Felix Pappalardi signed on to produce. Although most historians know that Pappalardi also produced Cream, the quintessential "power trio," his musical roots were far-reaching. "Felix was Dinah Shore's arranger at one time," notes West. "I didn't know anything about music when I met him. I still don't! Felix explained music in ways that I could understand."

After completing the solo album, West and Pappalardi decided to put together a band, and in 1969 Mountain was formed. Drummer N.D. Smart and keyboardist Steve Knight rounded out the group, who recorded their first album, *Mountain Climbing*, in 1970. This album, recorded and mixed at The Record Plant in New York City, featured a new drummer, Corky Laing. It yielded the memorable hit single, "Mississippi Queen."

At its heart, the song was just a simple variation on the standard I/IV/V blues form that every basement band was hacking away at. So what made "Mississippi Queen" so special that it's sometimes listed among the Top 50 rock songs of all time? One clue may be found in West's approach to music making.

"I don't play over words or through lines," he says. "It's like an orchestra. The

first-chair violin stands up. Then the trombone has a solo. Everything has its place. Small little bursts you can sing back to yourself. I see guys playing all over the neck—long, drawn-out solos. I thought of a solo as a song within a song; it has to help the song. My whole theory is not to play anything you wouldn't say."

That philosophy is clearly at work throughout the 24 bars that make up "Mississippi Queen's" structure. Consisting of 12 two-bar phrases, the first 10 of these are memorable, one-bar guitar licks answered by a bar of vocals. The last two reverse the pattern. That's it! No wasted notes or verbiage, and no solo, although West, who has a distinct sound, was more than capable of spraying out his thoughts, paragraphs at a time, in concert. The brevity of these intensely musical licks helped lodge them in the minds of a generation of rock music fans.

It was Corky Laing who actually came up with the idea for "Mississippi Queen." Recently he recalled, "I had a band called Energy back in '69. Felix was supposed to produce us, but then Cream came along. Back in August of '69, we were playing at a funky beach club called 30 Acres. It was the hottest summer ever in Nantucket, and one night the power blew [out] across the entire island! I was in the middle of playing some dance tune when the bass and organ went down. I found myself rapping this song on the spot!

"You see, a buddy of mine had a girlfriend with him at the club who was visiting from Mississippi. She had on a see-through dress—I can still remember this; she was amazing! Look, there were also



the lasting gems from these groups are songs such as "Purple Haze" and "Sunshine of Your Love," which feature condensed solos that highlight, rather than obliterate, form.)

While the legends were experimenting, a legion of up-and-coming talent was taking it all in and preparing to make contributions of their own. One of them, guitar player Leslie West, was racking up a

Dexedrine's in my system, and I was on overdrive. I looked at this beautiful girl and began screaming this song, 'cause there was no power.

"Fast forward to the fall of that year. We were recording *Mountain Climbing* in New York City, and Felix kept saying that we needed one more good rocker. Leslie

had just moved to Park Avenue. He was having a lot of virgins just show up at his house at this time. It was great! On the day we decided to work on the song, Leslie blew off the chicks who were hanging around and we got down to business. He came out with a lick—you know the one. I was madly in love with The Band, and

I decided to put a 'Cripple Creek' feel behind it. Later on, I told Levon Helm that I felt bad about ripping him off, but he said that he didn't hear any similarity between the two songs, and that we didn't owe them any money!"

Being a producer, especially when you're also a member of the band, as bassist Felix Pappalardi was, can be tricky, especially when you have to criticize the artists you're working with. "We cut the track a number of times," Laing says. "I thought many of the takes were great, but Felix kept throwing them out, demanding that we polish the phrasing. Finally, we played it exactly right—or so I thought. Felix maintained that the time was strange, and asked that I give him some time he could hear. I was totally pissed; it was like the fourteenth take, and I thought we had it! So I started smashing the cow bell, very angrily. Felix said, 'Keep it right there!' That cow bell intro became a hook for the record. By the way, I've always used Latin equipment. I'm not a Latin drummer, but I'm very fond of the sound. Right from the beginning, I'd often use timbales instead of tom toms. I grew up in Montreal, and my mother turned me on to a lot of Cuban music. We didn't have a cold war with Cuba, so I guess it was easier from a cultural point of view to get into that music in Canada."

West has similar memories of how he and Laing wrote their most famous song. "When Corky brought me the idea, it was a one-chord dance song. We got real high, took out a napkin, and I came up with the main riff and the chords. Then we fit the words over the sound."

Mountain recorded basic tracks together at the Record Plant, with veteran engineer Bob D'Orleans at the board. "It really wasn't that involved technically," says Laing. "I was fond of the big boom directional mics. I used two different bass drums for tonal purposes. I do remember that the Record Plant had a standard mic cabinet back then."

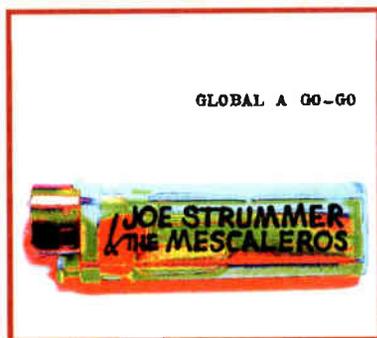
"Jimi Hendrix had just finished mixing his *Band of Gypsies* record, and I remember him walking in while we were mixing 'Mississippi Queen.' He put his head down and listened to the entire album and was very positive. Back then, the vocals and guitar solos were the only parts that were overdubbed. The energy of the music was in part dictated by the fact that guitar and bass players had huge amplifiers, but drummers had nothing—just their physical strength. I'd be out there with these monster players who had a wall of sound, sitting there bashing my head out! Come to think of it, that's how

Cool Spins

The Mix Staff Members Pick Their Current Favorites

Joe Strummer & The Mescaleros: *Global a Go-Go* (Hellcat)

When you think of The Clash, you probably conjure punky, bone-crunching rock, but in fact the band was always fairly eclectic—beyond the obvious reggae, ska and dub in-



fluences; have you checked out *Sandinista* lately? So it's no surprise that the post-Clash careers of Mick Jones (in various incarnations of Big Audio Dynamite) and Joe Strummer have been dedicated to fusing different styles, while still retaining the drive and political bent of The Clash. Strummer's wonderful second disc with The Mescaleros, *Global a Go-Go*, is rooted firmly in that tradition—it's a diverse polyglot of genres, all infused with that unmistakable, slightly reckless, but always endearing approach of his. "Late news breaking...this just in...", he says at the beginning of one song; "Extra, extra read all about it!" in another; and, indeed, the whole album has that Clash-like sense of urgency—it's the musical News of the Day. Strummer's provocative lyrics really do criss-cross the planet, touching on social issues, politics and globalization; there's lots to chew on...but it never loses the beat for a second. There are loads of acoustic textures and highly varied instrumentation (flutes and fiddles?), but also a dose of crashing power chords, anthemic vocal blends and modern sonic touches (loops, etc.). All in all, an extremely powerful state-

ment from one of rock's great provocateurs.

Producers: Scott Shields, Martin Slatery, Joe Strummer and Richard Flack. Studios: Battery (London). Mastering: Chris Parmenidis. —Blair Jackson

The Blind Boys of Alabama: *Spirit of the Century* (Realworld)

The Blind Boys of Alabama, who have been performing soulful gospel music since 1939, are wonderful enough on their own; the words "national treasure" don't even do them justice. But *Spirit of the Century* takes this old-time vocal group to a surprising new place. The Boys are supported by haunting, electric music from an exceptional collection of players with varied aesthetics: John Hammond (electric guitar and dobro), David Lindley (slide guitars and electric guitar), Charlie Musselwhite (harmonica), Michael Jerome (drums) and Danny Thompson (double bass). And the tracks on the release range from the most familiar traditionals arranged in new ways (e.g., "Amazing Grace" to the tune of "House of the Rising Sun") to moody spirituals from Tom Waits, Ben Harper and the Rolling Stones. This album should bring the beauty and depth of gospel music to a whole new audience.



Producer: John Chelew. Recording engineer: Larry Hirsch. Mixing engineers: Jimmy Joyson and Larry Hirsch (2 tracks). Studio: Capitol Studio B (L.A.). Mastering: Stephen Marcussen/Marcussen Mastering (Hollywood).

—Barbara Schultz

—CONTINUED ON PAGE 295

I play today! Felix let me put everything I wanted into 'Mississippi Queen.' Every part of my body was going full out. I was completely indulgent with the two-bass drum beat."

"Felix was a great producer," adds West. "When I'd go into the studio to overdub guitar parts, as I did on 'Mississippi Queen,' I'd start to think. Felix would say, 'Don't think; I'll think.' I remember that I filled up the little holes in that song with four or five different passes of fills. We patched together a solo, and then I had to learn the one we'd made, and go back in the studio to record it all over again. That's how I learned to answer myself! Eric Clapton does the same thing.

"Felix gave me choices on the guitar takes, but he made all the decisions on which vocals were keepers. I'd say the guitar and vocal sessions took about 40 minutes each. As I remember, I sang the verses down, and then came back and sang all of the 'Mississippi Queen' lines. The mix took care of itself."

The name of the group Mountain played on the girth (long gone) of its celebrated guitarist. Underneath it all, though, there was more than a touch of Vienna in West's musicianship. Listening to him warm up before an outdoor concert in Crystal Lake, England, in 1970, on a bill that also featured the Small Faces and Pink Floyd, I remember the delicacy that showed through even in West's most furious impulses. He had an uncanny ability to create harmonics of subtly differing nuances. "I discovered that eight different harmonics can be gotten out of any one note," West says. "It's all in the angle of the right hand. I designed some guitar picks recently that should be coming to market soon. One of them is made to help even the novice discover how to get those harmonics." West also used the pinky on his right hand to subtly modulate the volume controls on his Les Paul to soften the attack of pick on string.

Tragically, Felix Pappalardi was the victim of a shooting incident in 1983, but Leslie West and Corky Laing have remained active. West is currently producing an Atlantic Records band called Clutch with his partner, engineer Jason Corsaro. He recently completed an instructional video, *Leslie West Big Phat Ass Guitar*, that will be in stores in the near future. More information on him can be found at his Website, www.lesliewest.cjb.net. Corky Laing has his own band, Cork, which features Eric Schenkman, the Spin Doctors' lead guitarist. Their second CD, *Under the Radar*, will be released on King Biscuit Records in the fall.



The Southeast's finest mastering facility
109 Brewer Lane, Carrboro, NC 27510 919 929-4494 www.kitchenmastering.com



LEARN the ART of RECORDING®

You can get the practical, real-world skills needed to successfully start your career as a recording engineer or producer. For 27 years, thousands of students from the US and around the world have started their career at the Recording Workshop.

- The Original since 1971
- Hands-On Training
- On-Campus Housing
- 8 Studio Facility / Latest Gear
- 3 - 6 Students per Class
- Job / Internship Assistance
- Affordable Tuition
- 2 Month, 300+ hrs Training
- Financial Assistance



RECORDING WORKSHOP®

Contact us for a Free Brochure:

800-848-9900 or 740-663-2544

www.recordingworkshop.com

email: info@recordingworkshop.com fax: 740-663-2427

455-X Massieville Road, Chillicothe OH 45601

Ohio State Board of Proprietary School Registration #80-07-0696T

—FROM PAGE 284, EARL SCRUGGS

of music and because they respect and idolize Earl." A perfect example is Elton John, whose "Country Comfort," from his country-flavored *Tumbleweed Connection* album, was the first track recorded and opens the CD. Notes Randy Scruggs, "Elton is such a fan of dad's—he came in to the studio with a boxed set and asked dad to autograph it. The caliber of Elton's artistry is so professional; he is the true essence of an artist. What better way to kick off the project?"

The planning stages of the album took just over two years, with a year passing from the first note recorded to the mas-

its, let alone imagine all the packing and unpacking and logging of miles, Earl Scruggs denies any wear and tear, noting that, thanks to the ease of studio work today, "It was all so much fun to do. Every artist was exciting to work with and really fueled the flame. In the early days, we only used one mic stand and we would all stand around that one mic, then mix it ourselves. Now we have Snake behind the board to do all that work for us. And when Randy and Snake say it's right, it suits me. It's amazing how closely they listen. I never listen that close, and what's easy for me is not having to worry about technical situations or corrections. They

"For vocal mics, Melissa was an AKG C-12. Elton: a bunch of different vocal mics, because he has such a powerful voice. We had a Neumann U67 padded down. Don Henley was an Audio-Technica 4060, which he requested.

"Every studio had a different board," Reynolds continues. "Randy has a Neve 8232. At Tree, it was an SSL 4064 with G Plus. Conway, a VR 72 series. Ocean Way, a Neve 8078. TM, a Euphonix console, just for Don's voice. We mixed Sting at Sound Kitchen in their Neve room with a VR 60. Sear has a custom console that they built themselves. In Jamaica, we took over a Tascam DA-78 machine with a Mackie mixer and dbx 160 compressor for Johnny Cash's vocal narration, to monitor the tracks, and we used an Audio-Technica 4033 mic on his vocal.

"Machine-wise, almost everything was recorded on a Mitsubishi X850 32-track. We used a Sony 3348 at Conway for Melissa and Dwight. Sting's original track was cut on an X850 32-track at Randy's studio and transferred to 48-track for him to record in his studio and do what he needed to do. Then he sent it back on 48-track, and we stayed on the 3348 and mixed it at Sound Kitchen on that format."

"We used analog on Rosanne's vocals," Randy adds. "They were done at Sear and transferred to 24-track analog. And 'Foggy Mountain Breakdown' is on the Otari RADAR 2, a hard disk system, for editing and transfers."

Says Reynolds, "Anything that exists, we used it." With one exception: Pro Tools is *de rigueur* for most of today's recordings, but on this project, we chose not to use Pro Tools tricks, so we could keep everything as live and real as possible," Reynolds says. "We were looking to capture sounds, not create them, so most of what is on this album is first, second or third takes. The performances are live with very little overdubbing. I'm an old-school guy. I started in 1969 as a recording engineer in Nashville, and, fortunately, I grew up in the business and got in it at a time when the 'Nashville Sound' was a happening thing. I try not to let technology get in the way of music. Music is the most important thing, because without it, you've got nothing."

Foremost in Randy's mind was that the album not be merely a compilation or something spliced together where singing partners cut their tracks and send them in. "I wanted continuity," he says, hence the need for travel. "It didn't matter where we were," says Earl Scruggs. "It felt the same in each location, because the main people were always there. We'd just go in, I'd



PHOTO: PAMELA SPRINGSTEEN

Steve Martin and Earl Scruggs taking time out of their busy banjo-playing day.

tering. Mixing was mostly done at Scruggs' Sound Studio in Nashville, except for Sting's track, which was mixed at The Sound Kitchen in Nashville. Recording, however, was a different story. Yoakam's song was recorded at Conway Studio, Track Record and Dog Bone Studio in Los Angeles; Elton John's at Tree Sound Studio in Norcross, Ga.; Thornton's at Ocean Way in Nashville; Gary Scruggs' with Travis Tritt's, John Fogerty's and Marty Stuart's at Scruggs Sound; Etheridge's at Conway; Sting's at Scruggs Sound and at Steerpike Studio in Wiltshire, England, where he finished his vocal; "Foggy Mountain Breakdown" at Scruggs Sound, Leon Russell Studio in Nashville, Conway in L.A., and Sear Sound in New York City; Gill and Rosanne Cash's at Scruggs Sound and Sear; and Henley and Johnny Cash's at Scruggs Sound, TM Century in Dallas (Henley), and Cinnamon Hill Recording in Montego Bay, Jamaica (Cash).

Exhausting as it is just to read the cred-

catch it."

"The very first thing we did [in each studio] was, we wanted to make sure we had the best sound possible on dad's banjo," says Randy. "That's the thread throughout this project, so it was a shootout thing with several mics and configurations and distances."

"Earl has a banjo sound and style that is uniquely his," says Reynolds, "and that's what we tried to capture on this record. Earl and Louise and I would listen and compare notes. The consistent mic I used on each track was the Audio-Technica 4033 on Earl—it's real warm-sounding. On Randy's acoustic guitar, where available, I used two 4033s—one left-hand upper and one body; everything else floats with the studio, depending on what they have. On the fiddle, I used a tube mic for Glen Duncan; he's on all the songs. I used a Neumann M-249 when available, or a Neumann Tube 47 or 67. The rest of the mics flowed around.



Family photo: Scruggs and wife Louise are flanked by their two sons, Gary (left) and Randy.

play what I feel, and it seemed to work. Randy did the same thing, and it helped to stabilize the sessions a lot. It was a fun trip for me."

"My role and duties as producer and artist—and a lot of times in production, I participate in playing on certain tracks and as a songwriter—were to create a special album for dad, who does not have musical boundaries," explains Randy. "He does not fence himself in. He has a history of collaboration with players like Bob Dylan. At home, he'd have jam sessions with people like Linda Ronstadt and Neil Young. With a project like this, you set the stage but you don't overplan. My experience with this type of project is that it creates a life of its own." [Randy Scruggs also produced the Nitty Gritty Dirt Band's second volume of *Will the Circle Be Unbroken* and the *Red, Hot & Country* benefit compilation for AIDS research.]

There's a certain irony in the fact that artists such as Elton John, Etheridge, Fogerty and Henley turned in performances that are far more "country" than most of what is coming out of Music Row these days. This isn't lost on the album's creators, although making a country record was never the goal. "You can't deny there's a country feel to this," says Randy Scruggs, "but neither the performers nor any of us approached the project as being any format. It's *music*, bottom line. Melissa Etheridge—we literally gave her a standing ovation in the control room. She could have had 40 Les Pauls overdubbed at the same time or just a mandolin—it wouldn't have mattered. She gave the performance that the song needed, a musical performance from her heart."

With a wealth of recording experience to his name and a discography that is pages long, Earl Scruggs finds himself partial to this gem of a CD. "I listen to this album more than any other album I've participated in," he says, "and it never seems to grow old, which is great. I've listened to it practically every evening since we recorded it. It's fresh each time because of all the excitement I remember in the studio, starting off with Elton in Atlanta. Every track has some of that same excitement. Recording with all of these different people, each track hit a high peak every time we went into the studio." ■

—FROM PAGE 285, DAFT PUNK

the instrumental "Aerodynamic," a track that builds off a funky groove, breaks for some metallic, two-hand tapping on electric guitar, then fuses both approaches together before segueing into a spacier electronic ending. Somehow, it all works.

Discovery is an evolutionary leap forward from *Homework*. Whereas Daft Punk's debut worked off of minimal elements, repeating certain loops and musical phrases over 10-minute cycles, the duo's new album takes myriad ideas and crams them into three- and four-minute nuggets—except the closing track, a 10-minute piece called "Too Long" that serves as an in-joke for ardent fans.

"Every track has been worked really precisely, every track is a mixture of many different experiments and tricks," remarks de Homem-Christo. "It was much more complicated making this than *Homework*. It was really like jewelry

work, working precisely; so many different production techniques even in one track."

The individual moods of the songs vary as well. "One More Time" is a perky party tune featuring Vocoded male vocals from Romanthony. "Superheroes" sounds like a house variation on classic "Tangerine Dream," featuring a dreamy montage of looped vocals. On the mellower side, "Something About Us" explores a languid jazz/R&B vibe, while the interlude "Nightvision" offers a tranquil ambient experience enhanced by the gentle heart-beat rhythm of a muted kick drum. Ultimately, each composition is a world of its own.

A surprising and refreshing revelation about Daft Punk is that they play and sample their own instruments; there are live keyboards, guitar and bass involved. Many of those parts are then sampled and resampled, but de Homem-Christo estimates that half of the sampled material on *Discovery* was actually played live originally. "I play more guitar usually," he says, "and Thomas plays more keyboards and bass." But they both play all three instruments. "There's no ego involved. We don't argue about who's playing what. You can get the sound of a guitar with a keyboard, or the opposite. We don't really care about who's doing what as long as it's well-done. At the same time, when you use samples, you don't have this problem. When you use a sampler, nobody plays on it, so the problem of the ego of the musician is not really there. For everything that we do, no matter how you get to the results, the important thing is the result."

Discovery includes only four outside samples—not much for a contemporary dance record. "Around this, we play all the instruments, which are mainly vintage keyboards and guitars, so it's a mixture of a few samples and us playing around it. We don't always use the original sounds of the keyboards or the guitars, because we put on so many effects or distortions so that sometimes you think it's a guitar but maybe it's not."

The duo uses many different samplers, preferring warm-sounding analog gear, including a Roland S-760, an Ensoniq ASR X, a Roland MPC and an E-mu SP-1200 drum machine. They use individual pieces of gear, depending upon what they can lend to a track. "To get homogeneity, we put a sample on a sample, or we play guitar and keyboard parts and try to sample and resample to get a homogenic sound," explains de Homem-Christo. "It's really easy to sam-

ple something but really hard to find a good sample."

The French twosome also like to alter their original source material to create something new, whether it's a synth or a guitar. "We don't use too much of the original sound of the instruments; it's really more about how we put effects on it after that," he explains. "It's not like we're making a track and saying, 'Oh yes, I need a Flying V on this one.' We take a guitar we have [usually a Fender Stratocaster] and then try to make it sound different with the effects."

The key principle that de Homem-Christo repeatedly invokes in discussing Daft Punk's compositional approach is *bricolage*, a French term referring to the art of taking found materials (in this case, found sounds) and incorporating them into something new. "Sometimes we use an instrument in a way that it was never created for," he explains. "Some people might say, 'You're doing something wrong using this effect like that,' but we always try to do different tricks and techniques that are maybe a little bit wild for usual sound engineers. But by experimenting with some crazy ideas, you find some crazy sounds."

To get those sounds, the pair uses many vintage keyboards, including Korg, Roland and Moog gear from the '70s. "We use the big ones that were used in the '70s, like the Juno. It depends on how you use it—if you put a distortion effect on a Juno, you can't tell it's a Juno." Their main synths include a TR-909, TR-808, Juno-106, ARP Odyssey, E-mu 3 and AMS Phasers.

By experimenting with some crazy ideas, you find some crazy sounds.

—Guy-Manuel de Homem-Christo

In at least one instance on *Discovery*, Daft Punk used a vintage keyboard to evoke a specific artist from another era. "On 'Digital Love,' you get this Supertramp vibe on the bridge," remarks de Homem-Christo. "We didn't sample Supertramp, but we had the original Wurlitzer piano they used, so we thought it would be more fun to have the original instrument and mess around with it. We use mainly vintage synthesizers, like older electric pianos like the Rhodes, Wurlitzer, Clavinet. We didn't use the Clavinet on *Discovery*, but I usually use it in my studio." Effects units the duo used include a

DP-4 and an Eventide Ultra-Harmonizer.

An important influence on Daft Punk's music is FM radio compression. The sound of compressed music over the airwaves has beguiled the duo since their early years, particularly the sonic attack in a powerful car stereo system, that "big



sound and enormous voice." De Homem-Christo observes that "on some other projects, we noticed that what we liked the best was the compression, so we began to learn how to use the compression and got into compressors and how to use them. Some people like the really good sound of a guitar, and we really like the

sound of compression in general. That's one of the biggest loves we have in music-making, especially the U.S. FM radio sounds where the compression is making everything. Sometimes you like it so much that you're really disappointed when you buy the CD."

In their own music, Daft Punk uses a number of different compressors. "We have a really small compressor, the Alesis 3630, which is \$300. That's the main one we used on *Homework* and *Discovery*. The one we used the most is one of the cheapest ones on the market. It's really funny; it's the *bricolage* thing. Sometimes

you don't have to have the most expensive equipment to make good music." To further his point, de Homem-Christo reveals that an early Daft Punk single (a pre-*Homework* release) was created simply using an Akai S01 sampler, an Alesis MicroVerb 3 sound processor, an Alesis MMT-8 sequencer and a Mini-Moog synth. "It sounded great to us," he says.

Given the complexity of their music in terms of sonic construction, does the Daft duo keep logs of everything that they do? "We remember most of the parts, but sometimes we don't remember exactly what effects were on it," admits de Homem-Christo. "Knowing that each track you get so much different stuff in it, it's hard to remember. Sometimes you get real nice stuff by random or mistake. It's a combination of mistakes and things done on purpose." Ironically, this emphasis on the sonic "bottom line" almost makes de Homem-Christo and his partner sound like businessmen, but the warmth of their music says otherwise.

When it comes to recording and mixing their music, Daft Punk utilizes a modest setup. "We never have gone to a big studio to do anything," says de Homem-Christo. "We have a small Mackie 12-channel mixer, and everything is done there by *bricolage*." They use Logic Audio on an iMac DV, and they record to a Sony DAT, direct into the iMac or Revox A77/B77 analog recorder, depending upon the sound they want. But even de Homem-Christo admits that he does not like to explain the band's technical process too in-depth. He does not want to give away too much. A good magician never reveals his secrets. ■

—FROM PAGE 285, BILL BRUFORD

true here. Here, the improvisational quality comes more from contemporary classical or art music."

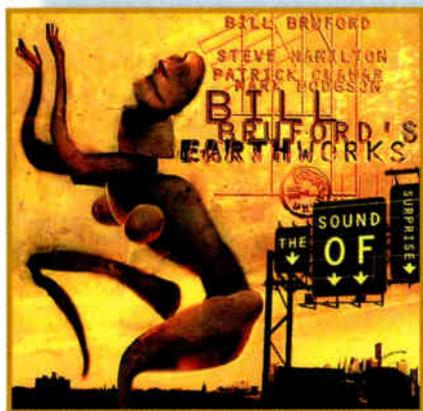
Bruford's latest contribution to jazz picks up where he left off with Earthworks in 1999, with *A Part, and Yet Apart*. Most important to the bandleader—a progressive rock icon highly regarded for his work with King Crimson, Genesis and Yes—was that the recordings sound like they came from the same band. "I'm thrilled with this band," he says, referring to pianist Steve Hamilton, reeds player Patrick Clahar and bassist Mark Hodgson. "We're a strong working outfit. Everybody is beginning to pull together so that the band has an energy and organic feel all its own. Whereby if you replaced anybody, it wouldn't be quite the same. And I like

that, especially coming from a rock background. I like that steady working band vibe."

That vibe is also the basis of his recording style. After painstakingly taking three months to create the compositions, Bruford and the group "road tested" them on a 22-city tour around the UK tweaking the new material. About eight months after Bruford originally conceived the project, the band went into the studio to record.

"It's a great way to record jazz," Bruford emphasizes, "because everybody gets familiar with the mechanics of the music during the tour. And the fun can start quicker as soon as you get the difficult bit about learning the music and so forth. Once you get that, it makes the recording of the album relatively easy. I heartily recommend that—it keeps your studio costs down, people know what they're doing and they know what they're going to get out of a solo on a given composition. Some of my favorite solos, for example, are Patrick's on 'Count to Dusk,' a very slow tenor solo. And I particularly like the polyrhythmic stuff on 'Triplicity,' which is a rather strange seven-note rhythm in 6/8."

Bruford adds that by playing the material live first, his compositions get to breathe and develop further, if necessary. After playing a selection several times, it often becomes obvious that an alteration of some type might be needed. When in a studio putting it down for posterity, it's often too late or too costly for creative changes. He explains further, "Sometimes you need the composition to tell you what it wants you to do. A month's worth of steady road work will help you do that."



Needless to say, the tracking and mixing of the CD, done at Livingston Studios in London last November, was a brisk affair. The previous Earthworks disc was also recorded at Livingston, which Bruford favors because of its spaciousness, great



mic selection and good-sounding booths. Sessions were completed in just three days and required very little out of the ordinary in terms of engineering expertise. "I try to forget projects once they're finished," remarks Mark Chamberlain, engineer for the recording. "Especially something you've worked on intensely. It was done in quite a small space of time; we recorded and mixed pretty close together. I personally like a gap between the two. Because of the time, that wasn't ideal."

"It's very much just four guys playing in a room with a lot of concentration. Really, it was about performances; that was the thing. You're trying to get as natural a sound as possible, without a lot of sequencers and all that other stuff. However, we did use a Sony reverb system, the 777, where actual samples from concert halls are used instead of algorithmic echoes. We chose some American hall in Chicago as a general ambience around everything."

Bruford's drum set, a 20-year-old Toma Star Classic, provided some miking challenges for Chamberlain. "His kick is set up differently from other people's," he says. "He plays it with a snare extensile, the hi-hat and remote pedal, and two tom-toms are on either side of the snare. They're tuned differently, so it is a bit weird. It's similar to a timpani setup and his cymbals are very low. So that's a bit of a challenge with the cymbal ring being very near the tom-tom mic and stuff like that. You have to address those items with very careful miking."

Recalling other aspects of the recording, Chamberlain continues, "I recorded the bass on two tracks, one with the compressor on and one without. So I'm never committed to either, and I can use the

original signal if there aren't any problems. The important things were careful mic techniques and getting it right to start with on tape. Also, with four people, the crucial thing was all of them being very comfortable in the studio with headphone balances. The simpler the sessions get, the more complex things like that become, because you've got four guys who want to hear their own mixes. And what they hear is crucial to how they perform. A lot of that was set up prior to the sessions and worked quite well. We used some clever wiring with the SSL and managed to split some of the channels. The board used for the sessions was an SSL with Massenburg mic amps. Sound quality is somewhat unique and differs greatly from what is usually expected from the well-known manufacturer. "It's quite old," Chamberlain points out, "and Jerry [Boys], the guy who runs the studio, has heavily customized the EQ and mic amps. It sounds unlike any SSL I've ever worked on. It's much, much warmer and the headroom seems better, so you crack it a bit more than you can normally."

Mixing was done efficiently on an Amek Rembrandt system in a much smaller room. Chamberlain had nothing but praise for the equipment, especially because he finished ahead of schedule. "The signal path is very simple. For the type of mixing we were doing, it was perfect, because it didn't over-complicate things. The computer does very simple automation such as muting and tightening things up. Normally, you record in a smaller room and mix on an SSL, but we didn't do it that way. We did it this way for the previous CD, and it worked really well."

Bruford typically would come in after everything was set up and go over mix-

ing details with Chamberlain. From there, it was solely in the engineer's hands, with Bruford having ultimate approval. Chamberlain sums up his working relationship with Bruford: "He knows what he wants to hear basically, and he'll let you know whether he's happy or not."

Of the mixing he notes, "We were doing three tracks a day and although there were only four people in the band, it actually was quite complicated. There were a lot of changes going on and a lot of housekeeping involved because of all the takes. Naturally, everyone had their favorite, so a lot of listening went on before I did the mixing. The challenge really was just trying to get the best that you can out of it. And it was different than most jazz, because it sounds quite big. There's a rock element to it, especially on the drums. So it's caught between two stones with the jazz thing and aggression on some of the tracks, which is quite nice. Getting that out is good, but getting it to sit with the quiet tracks is important, too. As we started putting tracks down, Bill starting worrying about the drums sounding too 'live,' so we started shutting the room down a little. So there's a bit of fiddling around from track to track, moving screens just to get more room on the overheads."

Bruford's many fans will, of course, be checking out his performance on the CD, and they might be surprised to hear that the immense, thundering electronic drum sound of early Earthworks albums has been exchanged for a natural, refined and spacious type of playing. He affirms his acoustic direction. "Certainly, as far as Earthworks is concerned, I think there was a golden age of electronic drums. In the '80s and mid-'90s, they were full of promise. And, frankly, my work with King Crimson and Earthworks took an electronic drum set about as far as it possibly could go in terms of live performance."

Still, he notes, "I feel that my role in this [second-edition Earthworks] is pretty prominent. It's not what you'd call a drummer's CD, where the drummer plays a solo every two minutes. There are two or three solos on the album; I think that's probably sufficient from me. I prefer to be deceiving—the guy in the back not doing much—but if you took away my contribution, you might find that the thing would collapse. If you're a young kid looking for blazing drums, you may have to look somewhere else. The real pleasure for me is sitting back with guys who played the music, listening to it and saying, 'Yeab!'" ■

—FROM PAGE 286, OASIS

"Sure, a lot of people do that. You can stick it into a Lexicon and take the two stereo channels out and make one a bit duller, one a bit longer, one a bit later and so on. You develop a spectrum, so that it's not the same reverb or signal at the front as at the back. It can make it appear that there is something going on. But there's this whole thing with desk manufacturers, where they assume that when you pan hard left you only want the signal in the left-hand speaker. When you pan in the center, therefore, it is just in the middle speaker, which sounds crap. One speaker doesn't sound nearly as good as monitoring from two.

"You can only get a blend using the divergence knob," Rose continues. "You can decide how much hard left is actually in which speaker, which is fine. But what you can't do is take the snare drum and have it coming out of the left and right, like I'm used to. This seems to be the case with all the desks I've tried, including SSL and Soundtracs. I've not tried Euphonix, though.

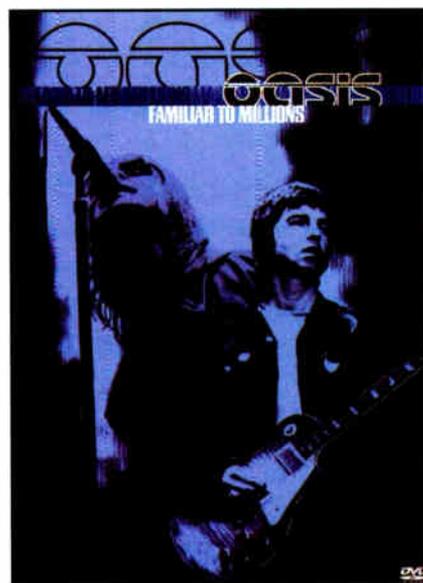
"We like that thing of sound—like a bass drum—coming from two speakers

**Oasis are a
rock 'n' roll band,
and it has to come
across as such.
No cleaning up,
no re-performances
or any of that nonsense.
Get the balance and
keep it exciting.**

—Spike Stent

but actually it appears to come from the middle. So what I have to do is get a series of stereo fields, and a quad group if I want it, and then send an aux to the center speaker. If you listen to the Oasis stuff, you'll hear that it's just bass, drums and voice in the center."

Rose also exploited the band's habit of using several amps on each guitar to gather a wide variety of sources from each signal. "Because they were always using more than one amp, there was a chance



to split each guitar, just to get a bigger source. When I do recordings myself, I always double-mic guitars, which is always an endless pain to all the P.A. guys who know me. I like to put up something that is completely different from whatever they use, to capture a different division of sound. So if they're using, say, a big fat Audio-Technica condenser mic, I like to show up with a dynamic. If they're using an SM57, I will stick in an U87, or something completely different."

Rose worked to a master DigiBeta of the finished pictures, offloaded into the PORTiA module of his SADiE system. Sync and time adjustments were therefore easy, and five tracks from the original 48 were forwarded to the mastering stage.

"I don't do it on six, I always use five. I don't do the .1. If you do a full-frequency mix, with all the bottom end you want for the full-range speakers, you don't need to. The .1 is made up in the process. All you have to do is filter off all the bottom end at the manufacturing stage and feed it into the spare channel."

Meanwhile, working at his own dedicated mix room at The Townhouse's sister facility Olympic in southwest London, Mark Stent was commissioned to prepare the traditional stereo mix for CD release. Accordingly, he concentrated on a few basic values.

"Oasis are a rock 'n' roll band, and it has to come across as such," he states. "No cleaning up, no re-performances or any of that nonsense. Get the balance and keep it exciting. Sure, I compress the shit out of it! Lots of different compression, loads of EQ. Sometimes, sonically, you have to bring it up to a certain level; try to make it sound as powerful as possible. It's not one single in-

redient: Take any element out and it would fall apart.

"I use the crowd quite a lot, pushing it for certain sections. I wasn't doing it to picture, but you get a sense in your head of what it was really like. Say, if the crowd is singing along in a chorus, I'll push that up. Seventy thousand people singing along is exciting.

"The only problem is the delay from all around the stadium, so you have to bring that back into time. Audience mics at the back of Wembley have a big delay from the stage—there was a big slap on the drums. You just have to bring it forward in time. Sometimes a slight delay can be nice, like on vocals. But it can be annoying."

Stent has clear views on the role, and perhaps the restrictions, of 5.1 surround in the current entertainment marketplace.

"I think 5.1 is great. The last one I did was *Dancing in the Dark*, the film soundtrack with Björk. I did it in 5.1, then stereo, then I had to bring the 5.1 mix down to Nicam stereo. I did it three times.

"It really depends on what type of music it is. There are gimmicks to be avoided, like panning things around a lot. For things like live gigs and movie soundtracks, 5.1 is perfect—the atmospheric stuff. Standard pop records don't lend themselves to 5.1, but you can create an atmosphere and make people feel like they were at the gig.

"You can do that in stereo as well—just ride the crowd and make it really exciting. In the past, people have cleaned things up too much—replacing tracks and so on. Then you lose the spirit."

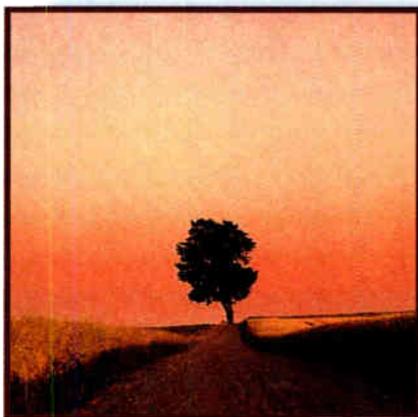
"The whole DVD thing is still a learning curve," concludes Andy Rose modestly. "It's not acceptable to give people just a stereo mix; they may feel ripped off—even though I'm sure that most people with DVD have not got the 5.1 system. But that will change, because it is a great experience." ■

—FROM PAGE 288, COOL SPINS

Various: *Windham Hill: 25 Years of Guitar* (Windham Hill)

When I reviewed the first couple of releases on a new label called Windham Hill a quarter century ago (!), founder/guitarist Will Ackerman was living above the garage of mansion in Palo Alto, Calif., and guitarist Alex de Grassi delivered his first album personally to my house in Berkeley; that's how funky the operation was. Ackerman's label subsequently revolutionized the business of selling acoustic-based instrumental music, influencing scores of oth-

er independent labels, and created a number of "stars" in the acoustic music universe. This lovely Silver anniversary compilation brings together tracks from the label's finest acoustic guitarists, including Ackerman, de Grassi, the late Michael Hedges, Steve Erquiaga, Snuffy Walden and others. Tracks range from highly emotional pieces (such as Ackerman's gorgeous but heartbreaking "The Impending Death of the Virgin Spirit") to more light-hearted romps ("Larry World" by Russ Freeman) and the jaw-dropping pyrotechnics of Hedges' "Aerial Boundaries." Somehow it all flows together coherently—credit to executive producer Dawn Atkinson, who chose the tracks—making this an always engaging and moving listening experience. A fine introduction to this unique strain of Americana. (A companion



volume compiles some of the best Windham Hill pianists, including George Winston and Liz Story.)

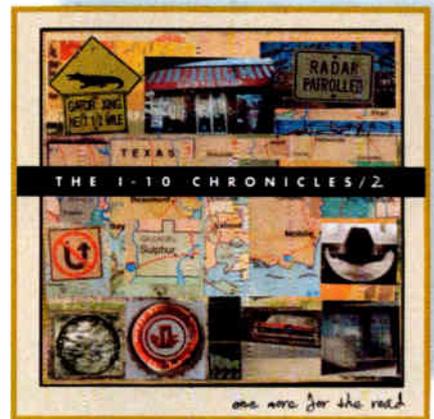
Executive producer: Dawn Atkinson. No individual recording credits listed. Mastering: Chris Bellman/Bernie Grundman Mastering.

—Blair Jackson

Various: *The I-10 Chronicles/2 One More for the Road* (Back Porch/Virgin)

This is Vol. 2 in a series of new recordings of great roots road songs. Of course, there's no shortage of material for this type of collection. The trick is in matching artists and songs in a way that's fresh and compelling, and this CD manages to be affectionate and vibrant. Here are some highlights: Dave Alvin layers acoustic and electric guitars with his deep, understated vocal to create an almost anthemic version of Merle Haggard's "I'm a Lonesome Fugitive." Raul Malo of The Mavericks leads a '50s doo-wop rendition of Haggard's "Tonight the Bottle Let Me Down." And Adam Duritz and Dave Immergluck (of Counting Crows, but billed here as "the Devil and Bunny Show") play a rollicking acoustic version of John Hiatt's ballad "She's Crossing Muddy Waters."

Producers: John Wooler, Randy Jacobs and Sally Browder. Engineer: Sally Browder. Record-



ing studios: Ocean Way (Hollywood) and RecordOne (L.A.) Mixing studios: RecordOne Studios and Steakhouse (L.A.). Mastering: Bernie Grundman and Narada Mastering.

—Barbara Schultz

Odetta: *Lookin' For a Home* (M.C.)

This one's a natural: The veteran folk singer Odetta has been singing the songs of Leadbelly (Huddie Ledbetter, 1889-1949) since the early '50s, so who better to do an entire disc of tunes popularized by him? Odetta is in full command on these 15 tracks, her sure vocals soaring over the relaxed backdrop of various acoustic instruments (and toe occasional orhan and electric guitar). The expected classics are here—"Godnight Irene," "In the Pines," "Bourgeois Blues," "Rock Island



Line," "Midnight Special," etc.—but the arrangements are not always what you'd expect—this isn't merely a folk recitation; there's been some real thought and care put into these interpretations. Gatemouth Brown helps out on a track, and harmonica ace Kim Wilson and pianist Henry Butler appear on two each. A fine collection of great story-songs and deep blues.

Producers: Mark Carpentieri and Seth Farber. Engineer: Fred Guarino. Studios: Tiki Studios (Glen Cove, NY), Unique Recording (NYC), Westrak (NYC).

—Blair Jackson ■

COAST TO



PHOTO: MAUREEN DRONEY

SPARS boardmember Bill Dooley taking a break inside Extasy North.

NY METRO REPORT

by Paul Verna

A booming metropolis: When Metropolis DVD was formed in 1999 as a joint venture between London's Metropolis Studios, New York mastering powerhouse Sterling Sound and new-media pioneer David Anthony, the goal of the enterprise was to offer clients a full spectrum of DVD-related services, from conceptualization to authoring to audio mastering. Two years later, Anthony—who serves as president of Metropolis DVD—can point to a string of successful, high-profile projects that illustrate the clarity of the original vision. Among them are DVD releases by Moby, the Beastie Boys, Super Furry Animals, Sugar Ray, Def Leppard, Jay-Z,

Hanson, Hootie & The Blowfish, The Corrs, Brandy and Insane Clown Posse.

At the same time, Anthony has been surprised by some trends in DVD authoring, particularly the artists' involvement in the process and their preference for DVD-Video over DVD-Audio. "The focus on DVD-Video is interesting to us," he says. "There's DVD-Audio, which is meant to be a much higher-resolution audio format, but there's no putting the genie back in the bottle when it comes to visuals. That's why we're seeing artists like the Beastie Boys, Moby and Super Furry Animals take full advantage of DVD-Video."

On those projects, the artists chose the DVD-Video format because it allowed them to make powerful visual statements. The Moby project, for instance, is a visually enhanced, surround sound pres-

—CONTINUED ON PAGE 300

L.A. GRAPEVINE

by Maureen Droney

The Society of Professional Audio Recording Services has been making new waves in the Los Angeles studio community, thanks largely to the efforts of Extasy Recording's director of recording Bill Dooley, who is also a member of SPARS's board of directors. Two recent luncheon meetings attracted capacity crowds of industry movers and shakers from studios, labels, manufacturers and rental companies. The focus of the meetings, aside from some high-quality networking, was hot-button topics: a forum on equipment leasing hosted by All Media Capital, and one on hard drive issues such as archiving and ownership, hosted by Glyph Technologies and Recorded Media Supply.

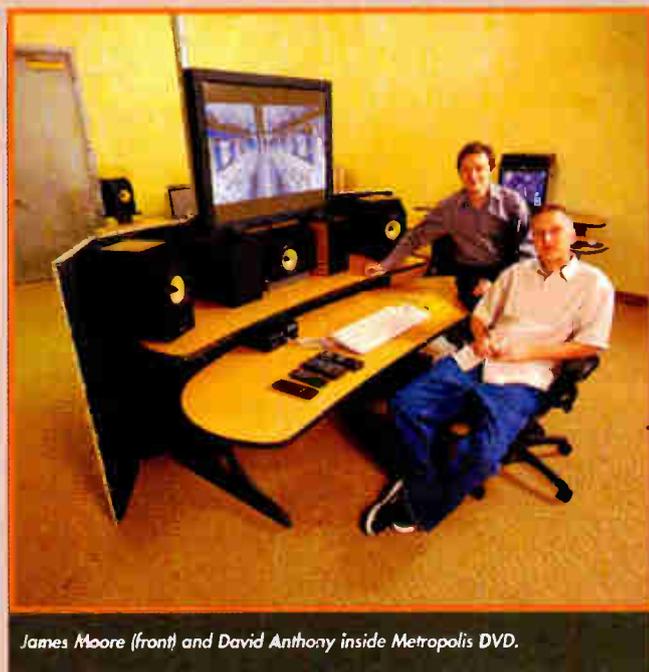
At both meetings, Dooley made a strong case for the re-

juvenation of SPARS into a vital organization and a strong force to deal with issues and problems of our industry.

"This is not about a bunch of stodgy guys smoking cigars and making decisions for everybody else," he comments. "During its history, SPARS has been instrumental in lobbying for a number of things, including sales tax code changes. The organization is dedicated to improving the business environment for audio production services, and there are levels of membership for everyone, from individual to corporate. There are many benefits, not the least being that members share practical, hands-on business information.

"As a commercial facility, you're up against a lot," Dooley continues. "We all have common problems, whether you're in New York, L.A., Florida, Chicago or Nashville. We all have to keep our places

—CONTINUED ON PAGE 298



James Moore (front) and David Anthony inside Metropolis DVD.

COAST

NASHVILLE SKYLINE

by Dan Daley

I swear, I don't make this stuff up: Treasure Isle Recorders, one of those still standing of the longer-toothed generation of significant Nashville music studios, came up with an inventive way to generate new capital. Studio owner and co-founder Fred Vail put a 20% stake in the 21-year-old studio facility up for bids on the Internet auction site eBay in April. He re-listed the facility twice again, in June and July. Directly and indirectly as a result, Vail now has four new partners, and the studio, as of July, had \$90,000 worth of new investment capital already spent on microphones, outboard gear, a RADAR recorder, and a 50% down payment on a new Trident 80 5.1 console.

Reaction to Vail's move around Nashville's studio community was a mixture of astonishment and head-shaking. "So it's come to this," said one studio owner. Pro audio Internet chat rooms were a national Peanut Gallery for the online show, garnering comments like, "I wonder, is this going to be like Jimi's guitar?"

However, in light of the Chapter 11 bankruptcy filing of Emerald Recording in June, Vail's move seems more inspired than desperate. "There were three ways I could have raised the cash I needed to upgrade the studio and stay competitive," Vail told me. "I could go with a loan and be leveraged and in debt; I could take it out of cash flow, which would take years the way the market is now; or I could look

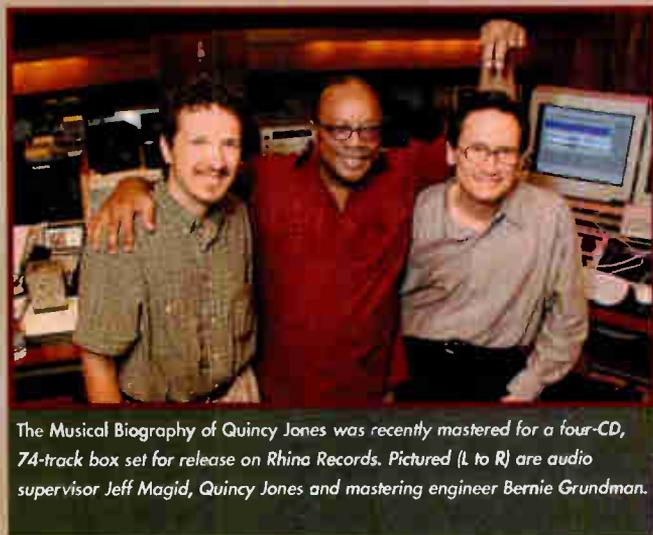
for new investors. Decent classified ads in national publications like *Billboard* or the *Wall Street Journal* would have cost thousands of dollars. On eBay, it costs \$22 for 10 days. It's kind of a no-brainer."

While the studio had been a successful enterprise for much of its life, and the site of work by artists including Dolly Parton, Johnny Cash, Isaac Hayes, Linda Ronstadt, Sheryl Crow and Rodney Crowell, Treasure Isle had experienced severe domestic turbulence. The facility was founded by Fred Vail with his brother Morgan, each of whom controlled 40% of the studio's shares, and partner Dave Shipley, who owned the other 20%, according to Fred Vail. Friction between them led to Fred Vail's departure from the studio in 1994, though he retained his share of ownership. After lengthy legal wrangling, Fred Vail bought his brother's share from the estate last year after Morgan passed away in 1997. Shipley sold his share to Vail last year.

After a half-decade away from the business, Vail says he returned to the studio to find that the entire economic landscape of Nashville's music industry had radically changed from 1994, the year country music achieved its highest market share ever. It has lost half that since then, and a once-thriving studio market was now consuming itself. "I felt like Rip Van Winkle, waking up and seeing how the world had changed," Vail says.

Vail assessed the situation, decided he wanted to come back to the studio business, and figured he needed to up-

—CONTINUED ON PAGE 301



The Musical Biography of Quincy Jones was recently mastered for a four-CD, 74-track box set for release on Rhino Records. Pictured (l to r) are audio supervisor Jeff Magid, Quincy Jones and mastering engineer Bernie Grundman.

SESSIONS & STUDIO NEWS

NORTHEAST

Victims In Pain: Seminal '80s NYC punk outfit Agnostic Front spent the summer at Big Blue Meenie Recording Studio (Jersey City, NJ). The band tracked and mixed their latest album for Epitaph Records, the follow-up to 1999's *Riot, Riot, Up-*

start. The new album, *Dead Yuppies*, is out now. The engineer on the session was studio owner Tim Gilles, who was assisted by Erin Farley and Coady Brown. Tracking took place in Studio B, which is equipped with an Amek Mozart, and the album was mixed in Studio A, which houses an Amek 9098i. All of the production was handled by Agnostic Front frontman Roger Miret...Engineers Erik Steinert and Axel Niehaus

—CONTINUED ON PAGE 302



Engineers Axel Niehaus (left) and Erik Steinert taking a break at Avatar Studios, where they mixed the new album from Foxy Brown.

—FROM PAGE 296, L.A. GRAPEVINE

booked and our equipment current, we have to keep a good staff and we have to keep clients happy. People in the industry come from all different backgrounds—business, technical, marketing, promotion or artist management. Through SPARS, it's sometimes like you are meeting people who are thinking outside the box—or at least your box! It can give you insights on how to make your business better—something we all need. Because, as we all know, there isn't much profit margin in the recording business, and you really need to maximize yours to survive."

In the Larchmont Village area of Hollywood, Skip Saylor Recording continues to expand. In July, an SSL 9080 J Series console was installed in Studio A, and Studio B is now home to a refurbished version of the popular SSL 4080 G Plus that was previously in Studio A. Meanwhile, owner Skip Saylor has taken possession of the adjacent property and started construction on a Vincent Van Haaff-designed 5.1 mix room that will house the SSL Axiom-MT console that was, for the past two years, garnering a loyal clientele in Studio B. Whew! No wonder Saylor and studio manager Rollin Moon were looking a little weary on the day I visited; that's a lot of console-moving in a very short time.

Why add the 9k? "It's the console of the day," says Saylor. "The highest number of clients use it, know it, understand it and request it. But I also have a number of clients who still prefer the G Plus. And I have other clients who really want the MT. Now we'll have something for everybody."

Upgrades, both technical and cosmetic, have been going on pretty much constantly over the past two years at Saylor. Custom outboard racks were constructed for both rooms to hold the vast array of gear the studio is known for. Studio A's lounge was upgraded, and two new lounges were added to Studio B. Now, Studio B has been acoustically revamped to sound more like Studio A with the help of Van Haaff, its original designer.

"When I first built Studio B, I didn't own the property," Saylor notes, "so we couldn't build it exactly as I wanted. With what we've just done, we have evened out the sound of the entire room. Now, you can go just about anywhere in the room and hear the same mix. Studio B has always been a good room for the engineer, but now it's a good room for the people sitting in the back as well."

The 80-in G Plus, which was installed in 1991 and is fitted with Ultimotion, was recapped and reconditioned by Mad Labs



Pat (left) and owner Buddy King hanging out next to the recently installed "Raven" SSL G-Plus Classic at Soundcastle.

PHOTO: MAUREEN DRONEY

before its installation into B. The main monitor amps in B were also changed to a lot more power, going from 800 watts a side to 1,300. "The board is like brand new," says Saylor, "and the extra power allows the bottom end to develop much better. Now it's much more defined and in your chest."

Saylor's engineer management company, HitMixers, has also continued to expand. Its roster now numbers 13, and includes new additions Jon Gass, Keith Cohen, Booker T. Jones III, Tomny D, and Brazil's leading mix engineer, Enrico De Paoli, as well as longtime clients Chris Pura, Danny Romero, Keston Wright, Taavi Mote and Claudio Cueni, among others. One of Saylor's stated goals is, as he puts it, "to put the luster back on the recording industry," and he sees the symbiotic relationship of his studios and management company as integral to that goal.

"I think that everybody who makes records for a living right now would agree that we—engineers and studio owners—are currently seen as relatively insignificant to the process. With accountants at major corporations making musical decisions, often that basic marriage of engineer and studio is not seen as the key part of the business that it truly is. You know, The Beatles had their room at Abbey Road, and Brian Wilson had his at United Western, where their labels let them create. The studio and the engineer always have been, and continue to be, important. And the overall sound is important. One of the things that seems to have been forgotten is that all the great records that maintain good catalog sales to this day—The Beatles, the Beach Boys, the Motown hits—were very well-recorded. They still

stand up, while the bad-sounding records of those days are gone.

"What people need to realize is that when labels weren't quite so concerned with this minute's bottom line, they actually did a better job of selling music. Extra time, care and effort will get a better product now, and better catalog sales later."

An SSL 9080 J Series has become the first Solid State Logic installation ever in the historic 6000 Sunset Boulevard complex that is home to Cello Studios. The desk, fitted with multiple custom options requested by chief engineer Gary Myerberg and studio manager Candace Stewart, is housed in Cello Mix, a suite that was previously the longtime home of producer/engineer Scott Litt. Cello Mix went online July 23, with its inaugural date hosting a 5.1 live mix of Red Hot Chili Peppers with engineer Ed Thacker. On the day I stopped in, setup was under way for some Rusted Root sessions with engineer/producer Bill Bottrell.

"We knew that people, from R.E.M. to the Chili Peppers, loved the comfortable, open aspect of the room," comments Myerberg. "It's always been a great creative space. When it opened up, we looked at our client base and saw that if they went somewhere else to mix, at least 75 percent of the time it was to a 9k. But Candace and I firmly believe that we can't have a room that is application-specific. We needed a room where people could mix, overdub and also do multiformat work. The 9k was our choice, but doing 5.1 work on a stock board can be problematic. Fortunately, we had the advantage that other people, especially at film studios such as Todd-AO and Fox, had

developed modifications. Working with SSL L.A.'s Brian Baer and Patrick MacDougall, and with Steve Drummond and others in England, we combined those mods with our own into a package to make a true 5.1 console."

Those modifications included making both large and small faders on each channel available to the subgroup buses at the same time, selectable LCR panning per channel, and a 12-channel center section with de-select to the sidechain, in effect making the SSL "quad" compressor a 12-channel compressor.

"The mods are based around a re-route," Myerberg elaborates. "Buses 41 to 48 can now be sent through the center section to the ABCD subgroup stereo buses. On the regular J, you can't get both the large and small fader on the same channel to the subgroup buses at the same time, but with this inject we can. Also, SSL has a brilliant software quad panner, but it was limited in how and where it could pan. We now have the flexibility of panning into any quadrant, and that dovetails into the center-section compressor. Each stereo subgroup bus is independently selected to track the master fader, so now we can have up to a 12-channel compressor. In addition, we've dealt with the problem of LFE subwoofer material taking over the sidechain by adding buttons that can de-select those subgroup buses from the sidechain—whatever you select to be your subwoofer can blow by and not drive the sidechain."

West Coast Studio Services' Scott Hasson, who has worked with Myerberg on projects for Bob Clearmountain, Bruce Springsteen and A&M Studios, consulted on the room's infrastructure design and also wired it. Although the basic structure of the control room was unchanged, to add a bit more liveness the wood floor under the console was enlarged and modifications were made to the perimeter trapping. The main Ocean Way-style monitors have been fitted with new components and new amps: Krell home theater standard with 800 watts a side for the woofers, Classe's 150s for the midrange horns and a McIntosh 2300 for the high-frequency drivers. Near-field monitors are now powered by a 5-channel Class-A Aragod X5 with 200 watts per channel.

The J Series complements the other three highly customized consoles in the Cello complex: Studio 1's 80-input Neve 8078, Studio 2's 40-input 80 Series and Studio 3's 40-in 8078. "We don't want our clients to ever have to look outside Cello for anything they may need," concludes studio manager Stewart. "Whether it's

tracking, mixing or 5.1, we want them here, and we will embrace anything, technically or otherwise, that will help make that happen."

Meanwhile, over in the always-happening Silver Lake area of the Hollywood Hills, Soundcastle Studios is now home to a "Raven" SSL 4080 G Plus "Classic" console, the first of its kind. Housed in Studio II since January, the console has been used since then on projects for Eric Benet, Debra Cox, Brian McKnight and Busta Rhymes, among others.

Soundcastle owner Buddy King, who two years ago installed a 9080 J Series in his tracking and mix room, Studio I, worked with Solid State Logic to develop the G Plus "Classic" custom features. Those include: LCR surround panning with two programmable joysticks, 5.1/7.1 compression and master fader, stereo AFL, patchable VCAs that track the master fader, and a custom Martinsound MultiMax 5.1/7.1 monitor panel. In addition, the console has been configured with eight extra effects sends per channel for a total of 12. According to King, these features, along with the smoothness of the J Series-style faders, "make for a real nice package." While Studio II received new cosmetic treatments at the time of the console's install, in deference to clients who are content with its sonics, no major changes were made to the control room.

The unique look of the quite stunning console was achieved by resurrecting the "Raven" black color scheme of early SSL consoles and fitting the small faders with silver knobs. About the aesthetics of the desk, King says, "We wanted VU meters and, when we were talking about the look of the desk, SSL senior VP Phil Wagner suggested the black Raven color that they haven't done in years. It was a great idea, and when it was finally done, we found that it looked very contemporary.

"To me, this is the equivalent of having an older Neve and an SSL," he continues. "Our music clients really love analog consoles; they feel that there are some sonic characteristics that the digital consoles just won't obtain. Our J has been very successful, but some of our clients are really loyal to the G Plus. So, for a new console, we wanted the character of a G Plus, but with some of the features of the J Series. People said I was crazy, and maybe I am, but we did a lot of research in the market, and we decided that this hybrid was right for us. It's been a long time since we've heard a new 4000, and boy does it sound good! It still gets that crunch that the rock 'n' rollers and the R&B people like. Now what a lot of our clients are doing is track-

The best place on the internet for pro music gear and the latest information on music technology.

- Great Prices
- Largest Selection
- Amazing Service

Visit today and see for yourself!

Sweetwater.com





Jurassic 5 producer DJ Nu-Mark was recently in the refurbished Studio B of Skip Saylor Recording mixing tracks for the group's forthcoming album on Interscope. Pictured are Nu-Mark, flanked by assistant engineer Ian Blanch (left) and engineer Anton Pukshansky (right).

ing on the J in Studio I and mixing on the G Plus Classic.

"Our industry is a bit screwy right now," King observes, speaking with the perspective of over 30 years in the business. "Look how everyone couldn't wait to go digital so that everything could be archived digitally, until we found out that when digital goes wrong, there's nothing to be done. Now we're back to archiving to analog. Digital is quick, but quick isn't necessarily better. I suspect that digital will happen with recorders, and that project studios and smaller studios will go all-digital because analog costs more. But people on the higher end are going to continue to want some of that analog sound. We find that from jazz and rock to hip hop and R&B, our clients like either the J or the G Plus. So for now, we've got the best of both worlds!"

Other new console news: Atlantis Studios in Hollywood has replaced its Neve VR with an SSL 9080 J Series, fitted with a 959 center section modified for 5.1 surround. Studio manager Michelle Moore reports that the main speakers in the studio built on-top of Studio A have also been upgraded and now sport TAD components. Acts in since the console install include Warner/Reprise artist Bobby Ross Avila with engineer Neal Pogue and producers Shavoni and Buster Brown, producer/engineer Tom Rothrock working on projects for BongLoad Records, and engineer Brad Gilderman mixing the soundtrack to 'N Sync's upcoming feature film.

In the Fairfax District, Cherokee Studios has taken delivery of the largest API Legacy ever assembled. The fully automated 80-in desk, which will be housed in Studio One, has full dynamics on every channel, and replaces the Trident A-Range console that has lived in Studio One for the past 17 years. "We've had three Tridents in that room over the past

25 years," says Cherokee co-owner Dee Robb. "And this is the first console that we've heard that fills the bill of replacing the A-Range. It's hand-built in the traditional manner, with discrete amplifiers, and it fits the sonic philosophy that we've always had here at Cherokee."

In other changes at Cherokee, a 96-channel SSL 4000 G Plus with automation is now online in Studio 2. The studio itself is being refurbished by George Augspurger as a 5.1 room with all-JBL monitoring.

North Hollywood's Track Record has also purchased a new SSL 9080 J Series desk that will be housed in its tracking and mixing North Studio, replacing a 60-channel Neve V3. The very busy Vincent Van Haaff of Waterland Design Group is consulting on design and acoustical enhancements for North's control room. Track, as the two-room Lankershim Boulevard facility is often referred to, has had a busy 2001, playing host to projects for Dishwalla with producer Greg Wattenburg and engineer Brian Scheubel, Crash Radio with multi-Platinum producer Matt Serletic and engineer Noel Golden, and Warren G with engineer Booker T. Jones, among others. ■

Keep those cards and letters coming folks; e-mail L.A. news to MsMDK@aol.com.

—FROM PAGE 296, NEW YORK METRO REPORT
entation of his popular album *Play* (V2 Records). Titled *Play—The DVD*, it features multichannel remixes of album tracks with club-like visuals based on footage Moby shot on a digital video camera. There are also mock-documentary segments in which the artist interviews himself in various guises. "It's fundamentally different from a collection of videos," says Anthony.

The Beastie Boys took a filmmaker's approach toward their new DVD, *Beastie Boys Anthology*. They collected images from various sources—including a film library—and collated them into an interactive, audio/visual montage that can be customized by the viewer. They also commissioned DJs to remix material on the album; those remixes are also presented interactively.

The UK alternative rock band Super Furry Animals went a step further than Moby and the Beastie Boys in that they conceived, recorded, mixed, authored and mastered their DVD as a surround sound product from the ground up. (They also released a Red Book Audio version on CD.)

The extent to which all three of those artists participated in the authoring process

behind their DVD offerings suggests to Anthony that the digital revolution that began with computer-based audio workstations has now migrated to the visual side. Also, the fact that those three high-profile titles—as well as several other prominent releases from top-name artists—were done in the DVD-Video format raises questions about how important sound quality is to artists and consumers. "We're living in a time of real extremes," says Anthony. "On the one hand, kids are happy as can be to have 5 gigabytes of MP3s; on the other hand, there are audiophiles who would really love to hear master-quality audio on DVD-Audio discs. So the record industry is asking itself, 'What format suits the music?'"

While the industry continues to wrestle with that question, Metropolis DVD is keeping busy delivering state-of-the-art products to its clients and exploiting synergies between its affiliated companies. For example, the Moby, Beastie Boys and Super Furry Animals titles all underwent 5.1 channel audio mastering in-house: The Moby and Beastie Boys DVDs were mastered in surround by Sterling principal Ted Jensen, while the Super Furry Animals project was done by Metropolis' Mike Gillespie in London. Furthermore, the stereo version of the Beastie Boys album—which preceded the DVD—was mastered by Tom Coyne, another of Sterling's engineers/co-owners.

"One of the reasons we set up Metropolis DVD as a separate company from Metropolis and Sterling is that DVD posed so many non-audio issues," says Anthony. "But there's a real honest synergy between audio mastering and DVD authoring, especially as it relates to these music projects. A lot of our music clients have realized that having the ability to get both addressed at the same time in a very respectful way has its advantages."

A switch at Quad: If anyone can be self-effacing and bold at the same time, it's Quad Studios owner Lou Gonzalez. On the one hand, he is as down-to-earth as they come—a simple, no-nonsense guy who learned almost everything he needed to know while growing up on a farm. On the other hand, Gonzalez got his first big break in the industry by bluffing his way into a top-notch studio, wears a rhinestone-studded denim jacket to trade shows, and was one of the first studio owners in the world to install a large-format digital console in a big room. Go figure.

Now, after much soul-searching and numbers-crunching, Gonzalez has made a decision that reflects both his bold streak and his down-to-earth wisdom: He re-

placed that digital board—a Solid State Logic Axiom-MT—with an SSL 9000 J, which he calls “the best-sounding console ever built.” Asked why he switched back to a 9000 J after trying the Axiom, Gonzalez says, “I always like to try new stuff, because you gotta try new stuff if it’s a good thing to offer your customers. But the board didn’t lend itself to the way our engineers like to work. It’s not that there’s anything wrong with that particular board; it’s a fantastic piece of technology. But the digital offerings from the other manufacturers haven’t made it either on a mass level.”

Quad’s newest 9000 J—modified with a feature that allows multichannel mixers to control up to four submixes from the master fader—will join three other 9000 Js throughout the Quad complex, which encompasses five studios in New York and four in Nashville. In New York, Quad is an all-SSL facility, with 9000 Js in Studios A, B and 3; a G Plus with Ultimation in the Penthouse Studio; and a small E Series board in Studio C. (Don’t ask Gonzalez to explain the logic behind Quad’s studio nomenclature; he says it “just evolved that way.”) In Nashville, the rooms carry the comparatively simpler names of A-D, and their console offerings are as follows: an SSL 9000 J, a Neve 8068, an “off-brand” board that Gonzalez says will probably be replaced, and a Pro Tools workstation that, at press time, was in the process of being installed.

As he continues to tune and fine-tune his small empire of studios, Gonzalez maintains an optimistic outlook for the future, despite a current flatness in the recording market that he says is the result of a soft economy. “The softness started in July 2000,” he observes. “However, 2000 was only bad if you compare it to 1999, which was our best year ever. If you take 1999 out of the equation, 2000 was just as good as 1998. So it’s not like we’re in death land. We’re doing fine, and we’ll be doing even better when the economy picks up a little.” ■

Send N.Y. news to pverna@vernacularmusic.com.

—FROM PAGE 297, NASHVILLE SKYLINE
grade the two-room studio to remain competitive. There are not a lot of takers in the studio business in Nashville at the moment. Hence, the decision to take a flyer on eBay.

The results have been mixed, and not unlike a dating service: Vail had his share

of inquiries from the merely curious, to those he suspected wanted to use a small ownership in a Nashville recording studio as an entree into the music business. This didn’t discourage Vail. In fact, his spin on the experience is quite the opposite. “It’s like selling anything,” he says. “You go door to door selling Fuller brushes and you don’t make a sale on the first 30 doors you knock on, but the more you knock on, the better your chances of finding a sale.”

After re-listing the studio a second time, Vail ultimately got an investor from Wisconsin who was willing to acquire 42% of the business, but was unable to meet all the initial payments and took a much lower equity position in the studio based on the amount he did apply. And a friend of Vail’s and two of that person’s friends also took small shares. To date, he has sold 14.5% of the studio’s shares, bringing in \$90,000, which would extrapolate the overall value to about \$600,000. In a third listing round, Vail is offering blocks of the studio at various minimum bids: 6% for \$42,000, 9% for \$60,000, 16% for \$100,000, and 20% for \$127,500.

Vail’s assessment of the music business is generously optimistic. In the description of the studio in the eBay listing, Vail tells prospective bidders that they can expect a return on investment of between 16.5% and 20% in the first year, rising to between 24% and 26% by the fourth year after investment. Despite the huge erosion in profitability in the studio business in general in the last decade, and particularly in Nashville, which has lost several major facilities to bankruptcies, Vail maintains that the projections are realistic. “My [monthly] nut is under \$6,000,” he says. “I don’t need 19 days a month of bookings to break even.”

And Vail should not have been surprised if many of the inquiries he received from the eBay listing were specious or starry-eyed; his description of the studio and music industries is unabashedly rosy: “Current worldwide revenues from within the music industry are approximately \$40 [billion],” and that “U.S. album sales were close to 40 million units during the final week of Christmas. Additionally, approximately 1,000,000 albums were sold on the Internet during this same one-week period.”

The description fails to mention the numerous record label closings in Nashville, including Asylum, Virgin and Arista Records, or the thousands of pink slips the record industry distributed in the wake of massive consolidations, or the fact that the

100,000 samples & sound FX. Searchable in seconds.

Hmm, now what to do with all those CDs?



Instant Access to the Sounds You Need™

Starting at only \$29.99 per month!

Finding the right sound has never been easier. Go to sonomic.com. Discover the planet’s largest online library of samples and sound FX.



some of our partners:



©2001 Sonomic. All rights reserved. 1-877-SONOMIC

SEE US AT AES BOOTH #972

entire music industry's 2000 was saved during the holiday selling season by The Beatles *One* compilation, distorting the actual sales picture, which is reportedly down 4% at mid-year. Or that those Internet sales were paltry compared to the tens of millions of rips from Napster-like sites. It also fails to mention how changes in digital audio technology have rendered the studio business vulnerable to any talented and ambitious kid with a Pro Tools rig and a spare bedroom.

As a prospectus, Vail's eBay listing would not have passed SEC inspection. But on the auction block, caveat emptor is the main regulation to be observed. And if Vail is putting a rosy spin on the music business, well, isn't that what the music business has always been about, anyway? A capacity for self-delusion has always been a condition of entry. The chances of becoming wealthy and famous in the music industry are less than winning the Powerball lottery, yet every day thousands of people decide to spend their lives pursuing just that. And Fred Vail's approach is innovative; whether or not he sells his studio shares at the price he'd like, he will have projected the studio's name far beyond what a brochure could do for the same money. ■

Check it out on eBay: Item #1618264475. I can't wait to see what comes next.

—FROM PAGE 297, *SESSIONS & STUDIO NEWS*
finished up the latest Foxy Brown album, *Broken Silence*, on dueling SSLs at Avatar Studios (NYC); the effort is set for release on Def Jam. . . Out at Music Factory Mix Studio N.Y.C., Paswell (Fugees) put on the production cap and handled sessions with new artist Heather Liverpool, C&C Music Factory and worked on the soundtrack for the forthcoming film *Hoop Soldiers*. . . Recent happenings at Bias Recording (Springfield, VA): Engineer Jim Robeson recorded the song "Swept Away" for Mary Chapin Carpenter—set for release on Columbia/Sony. Robeson is also working with recording artist Scott Reiss, and he has just finished producing and engineering for singer Colleen Shanley.

SOUTHERN CALIFORNIA

A busy summer at Marcussen Mastering: Studio owner/engineer Stephen Marcussen finished albums by The Cult with producer Bob Rock and the Black Crowes with producer Don Was. Marcussen Mastering also opened their new Studio B with mastering engineer Dave Colins. Colins' recent

credits include Fu Manchu, Adema with producer and new Virgin recording artists Moth. Colins also mastered the *Jay & Silent Bob Strike Back* soundtrack for Universal Music. . . In Image Recording's (Los Angeles) Studio A, engineer Chris Lord-Alge is in mixing the new LP for Chris Isaak with producer John Shanks. Steve Kaplan is the second engineer working on the session. Lord-Alge also finished mixing the upcoming CD from the Butthole Surfers for Hollywood Records. Rob Cavallo was in to produce with second engineer Matt Silva. . . Sage and Sound Recording (Hollywood) recently hosted artist Michael Gurely, who was in tracking and mixing for an upcoming Vanguard release. Co-producer Scott Gordon also engineered and mixed the project. The Flying Tigers were tracking some new material for an upcoming Atlantic release. Phil Kaffel and Basil Rathbones were tapped to produce. Kaffel also picked up an engineering credit; second engineer Dave Ashton was in to assist. Steffan Fantini also stopped in at Sage and Sound to work on the score for the upcoming feature film *Mercy Streets*. . . Producer Greg Wattenburg brought Dishwalla to Track Record (North Hollywood) for an extended stay. Engineer Brian Scheubel and assistant engineers Ai Fujisaki and Bryan Cook overdubbed guitars, drums and vocals for the Santa Barbara-based band's third release. Warren G also returned to track his new release for Universal

Records. Engineer Booker T III and assistant engineer Zach Will fed Warren's sound through Track Record's SSL 6000 E. Producer Matt Serletic (Santana, Aerosmith, Matchbox 20) tracked Crash Radio in Track Record's North Studio. Serletic, engineer Noel Golden and assistant engineer Fujisaki tracked 12 new songs with the band.

SOUTHEAST

Reflection Sound Studios (Charlotte, NC) hosted Al Kooper, who mixed some previously unreleased material with producer Bill Szymczyk (Eagles) in Studio A. Engineer Dave Puryear assisted on the sessions. Material mixed included some unreleased Kooper/Mike Bloomfield '68 concert recordings from the Fillmore East. An album is scheduled for release early next year. Kooper also worked on some unreleased original and cover tunes, which are set for release on an upcoming boxed set this fall. Also at Reflection Sound, producer Steven Haigler mixed the new Skid Row album with engineer Tracey Schroeder. The album, due out later this year, was recorded at Jon Bon Jovi's studio in New Jersey as well as at Reflection. . . Bluegrass songbird Alison Krauss was camped in the Neve room at Seventeen Grand Recording (Nashville) working on a children's album. Gary Paczosa and Jason Lehning shared engineering duties, with Thomas Johnson assisting. Dolly Parton spent some time in the Neve room as well with



Linkin Park stopped in to have a little fun with Baywatch's David Hasselhoff inside Studio A at NRG. Pictured here are (bottom row, l to r) Rob Bourdon, Chester Bennington, Mike Shinoda, Brad Delson, Joseph Hahn, (top row, l to r) producer Don Gilmore, Hasselhoff, John Ewing Jr. and Dan Certa.



Sound on Sound's Studio E with a Mackie 1604-VLZ and Pro Tools

her producer Steve Buckingham and engineer Neal Cappelino. Producer Scott Rouse worked on a Charlie Daniels' project with Paczosa and assistant engineer Johnson. Producer Jeff Teague and engineer George Tutko worked with singer Andi James; they returned to put the final touches on a project for talented country newcomer Kyle Long. Singer/songwriter Shana Morrison, daughter of Van Morrison, was laying down tracks for her upcoming album on Vanguard. Steve Buckingham produced the project with Paczosa and Johnson in to assist.

NORTHWEST

Me'Shell N'degeocello, who was recently nominated for three California Music Awards, has dug in for the long haul at Hyde Street Studios (San Francisco). She is with producer Allen Cato and engineer Erik Dyba, laying down some fresh cuts for her next full-length album. NorCal natives Cake also mixed some tracks from their current album *Comfort Eagle* at Hyde...Rainstorm Studios (Seattle, WA) hosted pianist Jack Stewart, who was in recording his first album. Paul Speer engineered the project. Staff engineer Steve Carter kept busy tracking a new release with the November Group. Dance group Reality Front were in to mix a new single with Speer. Jamaican artist Shan Coleman started tracking a new album with engineer Carter at the console...Glenn Sound's (Seattle, WA) Glenn Lorbiecki produced original music compositions for Microsoft in collaboration with Cabaret Productions and Immerse Creative. Zoe Knight, Glenn Sound's newest engineer, worked on a trailer for the independent movie house, The Grand Illusion.

STUDIO NEWS

Sound on Sound Recording (NYC) recently brought its new Studio E online. The new room is touted as a versatile suite designed for Pro Tools editing, recording, pre-production, sound design and mastering. The room is equipped with a Mackie 1604-VLZ mixer, ProControl and 5.1 monitoring...Ecstasy Recording Studios (Los Angeles) has announced the addition of mastering engineer Nancy Matter to its staff. In recent years, Matter has owned and operated Moonlight Mastering in Burbank, Calif...JamSync (Nashville) has recently opened two new suites in its facility on Nashville's Music Row: the DVD authoring suite and the "Elvis Room," a 96k audio production and sound design suite. The DVD room includes Sonic Solutions' DVD Fusion and Apple's DVD Studio Pro authoring systems, as well as Final Cut Pro for video editing. A 5.1 THX home theater monitoring system using a Studio Technologies control system with LSR Series monitors by JBL and Velodyne subwoofers completes the suite. The 96k Audio Production and Sound Design Suite is built around a Steinberg Nuendo system, racks of vintage synthesizers (Moog, Oberheim, etc.) and high-resolution analog processing from Millennia and Avalon...The Tape Gallery (London) recently upgraded its Studio 2 with the installation of a Soundtracs DS-3 64-channel digital console. ■

Please submit your Sessions and Studio News for "Coast to Coast" and "Current" to Robert Hanson. Submissions can be sent via e-mail to RHanson@primedia.com; fax 510/653-5142 or snail mail: 6400 Hollis St., Suite 12, Emeryville, CA 94608. Photo submissions are always encouraged.

FREE! The C-Tech e-catalog for:

- ✓ Studio networking
- ✓ MADI interface cards (64 I/O)
- ✓ High-end AD/DAs
- ✓ Professional turn-key PC DAWs for recording, post-production, broadcast, sequencing and GigaStudio.

Call Toll Free

✓ 1-888-773-9665

www.c-techsys.com

Been wanting a PC DAW to record on, but were afraid to because of all the horror stories you've heard about PC's?

Fear no more.

California Technology's professional turn-key systems are *rock solid*. That's why our client list includes Merging Technology (Pyramix software & the Mykerinos card), University of Southern Colorado and UT/Austin music departments, RBC Ministries (radio/TV broadcast), Soundworks Studios (post-production and mastering using Sequoia), US Navy NAWCAD (for mobile broadcast) & others.

Because we're a computer manufacturer, we can handle your networking needs, & upgrade and repair your current systems. That's why you want our *free* e-catalog.

So let's talk. Call Danette toll free at 1-888-773-9665 and she'll send you e-catalog right out. Or see us at www.c-techsys.com. Mention this Mix ad & get a free California Technology T-shirt.

California Technology
1837 Fulton Avenue
Sacramento, CA 95825
1-888-773-9665

STUDIO SHOWCASE



Phase One

Toronto, Ontario M1V 1E7, CANADA
 (416) 291-9553; fax (416) 291-7898
 1(888)728-3333
 email: info@phaseonestudios.com
 www.phaseonestudios.com

For 27 years Phase One has turned out international hits from Toronto. Recently renovated (see June 2001 MIX, page 36), this 7,500 square foot three room facility features a 58 input vintage Neve and a 64 input API Legacy, Studer tape machines, and ProTools in all three rooms. World class outboard gear and mics in an ultra comfortable setting. **TAKE ADVANTAGE OF A LOW CANADIAN DOLLAR AND STRETCH YOUR RECORDING BUDGET.**



Sunrise Sound is the premiere SSL recording and production facility in Texas. Our state of the art studios offer simultaneous analog and digital recording. We have one of the largest Protools systems in the state featuring 48 24bit I/O's. Our outboard rack contains equipment from manufacturers such as: Manley, Neve, Tubetech and Lexicon. Celebrating our 20th year, Sunrise proudly offers world-class studios without the world-class price.

Mastering Studios



Featured in Mix Magazine's
 "The Class of 2001"

Comprised of 3 audio suites designed by George Augspurger, M Works Mastering Studios specialize in providing the highest quality services in MASTERING for CD, ENHANCED CD & DVO AUDIO, EDITING, RESTORATION and 5.1 SURROUND utilizing today's state-of-the-art technology to accommodate all musical idioms. Over 3,000 credits ranging from James Taylor to Aerosmith to DEVO. Equipment: Sonic Solutions, HDCD, PCM 1630, Sintefex, Weiss...and much more!



617.577.0069

www.m-works.com



The Lodge

740 Broadway, suite 605,
 New York, NY 10003
 212-353-3895; fax 212-353-2575 info@thelodge.com
 www.thelodge.net

Located in Manhattan's Greenwich Village. The Lodge is the premier destination for high-end audio mastering. Meticulously designed by Mastering Engineer Emily Lazar, the studio suites include soaring windows and the finest equipment from Avalon, dB Technologies, Prism, Pultec, Sonic Solutions, TC Electronic, Tube Tech, Weiss and Z-Systems, among others. The dedicated and multi-talented engineers cater to all musical genres, so grab your tapes, pick up the phone, and book your stay at The Lodge.



Bogart Recording

1995 NE 150th Street, Suite #104
 North Miami Beach, FL 33181
 305-944-1008; 305-944-0847

Designed by Andy Munroe and Grammy nominated Mixer Bob Rosa. Studio A: 56-input 4000Series SSL (32G and 24E EQs), ProTools 5.1, ProControl, Apogee AD/DA conversion, RADAR II 24-bit recorders and lots of outboard gear. Custom Dynaudio monitoring. 27' x 15' live room with 14-foot ceilings. Studio B: Yamaha O2R Digital Console, Cubase VST 5.0/32 and cutting edge computer gear for sequencing, hard-disc recording, editing. **BRING IT!**

NOW ONLINE at
 www.mixonline.com

Bring Color to
 Your Facility with
 Studio Showcase
 Four-Color Ads!

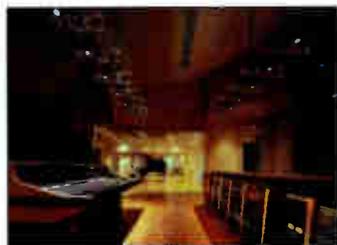


1. Run a minimum 6x frequency and color is **FREE!**
2. Online showcase is **FREE!**

Contact Shawn Langwell:
 (510) 985-3275;

slangwell@prmediabusiness.com

STUDIO SHOWCASE



Four Seasons Media Productions

1919 Innerbelt Business Center Drive
St. Louis, MO 63114
(314) 423-4767; Fax (314) 423-4867
e-mail info@4smp.com
www.4smp.com

- 48 input API Legacy w/ moving faders
- SSL 4056 G+SE w/Total Recall
- Quested 5.1 surround monitoring
- Russ Berger designed
- 3 Pro Tools Mix Plus
- Studer A820 24k w/SR, Studer A80 1/2" 24k
- Huge selection of vintage & state-of-the-art outboard gear & microphones
- Spacious tracking rooms w/ natural light
- Steinway Model B, 1957 Hammond B3 w/ Leslie 122
- Experienced, professional staff



Artisan Recorders Mobile

P.O. Box 70247
Ft. Lauderdale, FL 33307
(954) 566-1800; Fax (954) 566-3090
e-mail: mobile_red@aol.com
www.artisanmobile.com

For over 20 years, Artisan Recorders has been providing excellence in remote recording and broadcast. Along with an extensive array of equipment in a comfortable aesthetic environment, our "Mobile Red" studio boasts an expert staff of technicians with a love of music and a desire for perfection. Currently touring with ABC's *Tom Joyner Morning Show*. When you rock, we roll.



NPR

635 Massachusetts Ave., N.W.
Washington, D.C. 20001-3753
(202) 513-2482; Fax (202) 513-3033
e-mail: rgi@npr.org
www.npr.org/studios

Located in downtown Washington, D.C., Studio 4A offers a spectacular recording environment well-suited to all music genres. Studio 4A, at 2,600 sq. feet, is one of the largest recording facilities on the East Coast. We offer digital and analog multi-track recording, an extensive mic collection, digital editing suites and CD mastering. NPR also offers satellite uplinking, fiber-optic and ISDN capabilities worldwide.

WE'VE IMPROVED UPON PERFECTION



- SSL 4000II with 450 surround monitor speakers
- Studer A-820 16 Track



- Pro Tools Mix Plus 24 Digital Recording and Editing
- 5.1 Surround by George Langguth
- Excellent selection of vintage and state-of-the-art outboard gear
- 12x12 hp booth

1140 N. WESTERN AVENUE, HOLLYWOOD, CA 90029 • PHONE 323.462.7761 • FAX 323.462.3393

STUDIO SHOWCASE



Mastersuite

Los Angeles, CA
(323) 314-3562
atldigi@aol.com
www.promastering.com

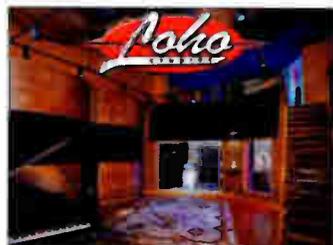
Mastering engineer, Jay Frigoletto, has 10 years of professional experience. Credits include Arrested Development, Clay Walker, India Aric, Sony/Columbia, Chrysalis, EMI, TVT, D.A.R.P., and Edmonds Entertainment. CD, DVD, & 5.1 mastering on gear including Weiss, Manley, Prism, Waves, GML, Dunlavy, and Sonic Solutions at surprisingly affordable rates. Free FedEx returns for out of town clients.



Az's "The Saltmine" An audio oasis in the desert

945 E. Juonita Ave., Suite 104
Mesa, Arizona 85204
(480) 892-6585
Bookings: Don Salter owner/manager
www.thesaltmine.com

Make tracks to Az's The Saltmine, where "vibe" is the key to our 10 year success. Located in Phoenix's East Valley... We feature 48 ch. discrete vintage Neve, Studer A-827, 24 Mix-Plus Pro-tools rig w/150 GB cheetas, Lynx II, Apogee AD 8000, AclatsII, 50 great guitars, 25 sweet amps, 33 compressors, DW studio drum kit, 80 mics, 6 isos with a Killer Drum room, dynaudioacoustic M-3 active mains Recent LPs Soulfly, Megadeth, Sunny Ledfurd



Loho Studio

48 Clinton Street
New York, NY 10002
(212) 979-8685; Fax (212) 979-8945
info@lohostudios.com
www.lohostudios.com

- Loho, located in downtown Manhattan, in the heart of the music and art scene. The studio provides a creative and comfortable atmosphere for making music.
- Vintage Neve 8048 console
- Large selection of vintage mics and outboard gear
- 1,000sq.-ft. live tracking room with 20' ceilings Natural light and 4 iso-booths
- Pro Tools Mixplus 32 I/O, Studer 820 24 trk
- Private lounge, pool table, full kitchen
- Living accommodations
- Clients include: Ronnie Spector w/ Keith Richards, Breeders, Guided By Voices, Thelonus Monk, Jr.

Soundcastle & Solid State Logic World Premiere



"One of the Hottest New Rooms to Open This Year"
Mix Magazine – "The Class of 2001 June Issue.

Mix both Stereo and 5.1 music assets on the new SSL 8000 G+ New Millennium "Classic" console!

- Most Popular Console in Music History!
- Full 5.1 7.1 Surround Capabilities!
- Private Producer's Suite w/ 5.1 Lounge

Call Pat: 323.665.5201 for a studio #2 preview
or an asset re-purpose quote: www.soundcastle.com



COYOTE
Recording Studios

Coyote Recording Studio

100 N. Sixth St.
Brooklyn, NY 11211
(718) 387-7958
www.coyoterecording.com

The recording industry is always changing... inventing itself. Coyote Recording Studio has done the same with a recently installed API 3288 Recording Console in Studio A, featuring 32 channels of classic MIC PRES and EQs. Plus a new musician-friendly Cue System which allows each player to create their own mix while tracking and overdubbing. Also added, a newly constructed Studio B, with a Protools Mix Plus 24 System. We've got the right combination of classic analog and hi-fi digital sound to produce superior recording. Our neighborhood offers many fine restaurants, bars and cafes as well as a Bed & Breakfast conveniently located across the street. Clients include: Atlantic, Elektra, Epitaph Records, Profile, Helcat, Dion DiMucci, Joan Jett & Blackhearts, Ramones, They Might Be Giants, Rancid, H2O, Diesel Only, Dictators. Check us out at CoyoteRecording.com for more information.

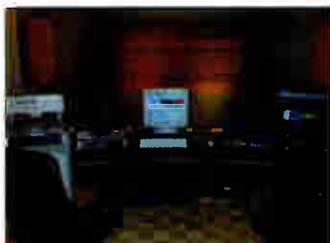
STUDIO SHOWCASE



Adrian Carr Music Designs Mastering

630 Ninth Ave.
New York, NY 10036
(212) 977-5390; Fax (212) 489-0050
<http://www.musicdesigns.com>

Adrian Carr Music Designs Mastering: cutting some of the finest masters out of New York. We've rebuilt our main mastering room and continue to be THE full-service mastering facility offering the most impressive array of digital, analog and tube gear while keeping our client-friendly prices. We added a pair of Dunlavy Audio Labs SCIV Speakers—AMAZING. We specialize in acoustic music and restoration/remastering using Cedar products. Other services include master vinyl cutting as well as the usual 1630s, PMCD, DDP Masters, etc.



Hollywood Masters East

27 Hanse Ave.
Freeport, NY 11520
(800) 387-3748 or (516) 623-0555
Fax (516) 623-4531
www.hollywoodmasters.com

Located 15 minutes east of NYC, Hollywood Masters East has been providing New York with quality mastering since 1992. Our newly designed mastering room provides a superb listening environment and quality mastering tools to achieve the clarity and magical sparkle that is so desirable. Hollywood Masters East uses the Manley "Massive Passive," the highly acclaimed Variable-MU, nightpro, Dynaudio, TC Electronic and an extensive list of software plug-ins. Call today for your next mastering project.



Record Plant Remote

1170 Greenwood Lake Turnpike
Ringwood, NJ 07456
(973) 728-8114; Fax (973) 728-8761

Record Plant Remote has been an industry leader in location recording for over 20 years. We've kept abreast of new developments in audio technology without sacrificing our sonic integrity. Some of our recent clients include MTV, Aerosmith, Elton John, Michael Bolton, Spin Doctors, R.E.M., Live, Meatloaf, Wynton Marsalis, John Mellencamp, Keith Richards, Chuck Berry, Guns N' Roses, Whitney Houston, Pavarotti, INXS, James Taylor, Emmylou Harris, Shawn Colvin, Billy Ray Cyrus, Mary Chapin Carpenter, Trisha Yearwood and Harry Connick Jr. Our reputation speaks for itself!



Cyclone Sound

1220 Surf Avenue
Brooklyn, NY 11224
ph/fx: 718 266 7755
email: cyclonesound@donfury.com

CYCLONE SOUND is the indie producer's NYC alternative...On Coney Island Beach. A big, beautiful loft with an awesome drum room. 13 foot ceilings. Tons of light and a sea breeze. Surrounded by roller coasters, go-karts, bumper cars, and the Freak show. With a private roof overlooking the ocean. Cool and funky. 25 minutes from lower Manhattan, 15 minutes from JFK. CYCLONE SOUND boasts a 44 input Amek Big console with inboard virtual dynamics and mix processing, automation, and total recall. TL Audio, Tube Tech, Apogee, JBL, and Mesa are featured. Call for CYCLONE SOUND's great rates or a custom indie producer package. Owned and managed by Don Fury.



1644 North Honore #101

Chicago, Illinois 60622

Call for our brochure.

800.730.2468

cmastering@aol.com

www.colossalmastering.com

First Quality in the Second City



—FROM PAGE 26, PROJECT THAT WOULDN'T END TV station. He knows his stuff. In early 1998, he put together his first DV editing suite, using a Mac-based program called "Edit DV" from a company then known as Radius.

Radius, for a long time, was one of the most important makers of monitors and video cards for Macintosh computers (remember the Pivot?). Edit DV, in fact, began life as an A/D video editing program called RadiusEdit. In that incarnation, and in its initial DV-only form, it was available only on the Mac, but it didn't take long for Radius to see the handwriting on the wall. "Since they were a Mac company, Mac development there was originally ahead of PC development," says Woolf, "but they looked at the market, and by the time that Edit DV 2.0 came along some 18 months later, they had put PC development ahead. The Mac people were livid.

"There's no question in my mind that the Macintosh architecture is better than Windows for DV," he continues. "They're designed for this kind of work, although the gap is closing, and Windows 2000 is a major improvement. Unfortunately, our initial Edit DV experience was with the first Macintosh G3s, which had just come out and had terrible bugs in their onboard video, which you couldn't get away from, even if you were using a dedicated video card. When Radius brought out its PC version, we jumped, which set us on a path we've been forced to continue down." Howard's lab (in the room next to mine), with 10 Windows 2000 workstations, would today be all Macs, probably running Final Cut Pro, were it not for those bugs.

Other companies were trying to bring Adobe's Premiere into the DV world, with new drivers, plug-ins and machine control, but Radius got there first. The big boys in nonlinear video editing, Avid and Media 10, were using a completely different storage format, a form of M-JPEG, and told DV users that they would have to transcode their signal in order to use their systems. "They tried to convince people that DV-to-DV transfers were somehow 'missing something,'" says Woolf, "which, of course, was ridiculous, since it's a direct data transfer." It wasn't until very recently that Avid came out with a DV system, but even now they don't make their own hardware for it.

The first version of Edit DV was actually two programs, much like the first, awful version of Digidesign's Pro Tools. "Moto DV" was the software that controlled the video decks and captured the video into

the computer, while Edit DV was the editing program. Soon after Woolf had committed to the PC base, Radius—then known as Digital Origin—came out with Version 2.0 of Edit DV, which combined the two programs. It wasn't a bad program, although it had some interesting glitches. Perhaps the worst was that the next version was very long to follow—almost exactly two years, which is two centuries in computer product-cycle time—and was even worse. In the meantime, Digital Origin had been bought by Media 100.

ON TO THE STORY

A year ago September, I was invited by the Acoustical Society of America to present a paper on a recent musicological project I was involved with at their convention in California that December. I was flattered that they asked, but with no one to pay my expenses, it didn't seem like something I could do. I asked the com-

**It was late November,
and it was a week
before we were
supposed to send the
finished video out to
California, but I
still hadn't even seen
a rough cut.**

mittee whether I could submit a video instead. They said, "Sure," and thus my fate was sealed.

I called up Howard and presented the idea to him, and he was very enthusiastic, lining up three students to help with the editing, and even using his connections to get some funding from the university provost so that I could get paid for writing the film and he could buy some new equipment.

I'm not a filmmaker, and I don't even play one on TV, but I've done music and sound for dozens of documentary films, and I know more than a little bit about how they're put together. So I was going to write the script, and, in my best friendly professor voice, narrate the film. Howard and the students were going to shoot me talking, log and edit a large amount of footage I already had relating to the project, and shoot new footage

where necessary: interviews, location shots and quite a few stills. Howard and I were going to be co-producers, but he was going to make most of the editing decisions. When he had a rough cut done, we'd go through it together. I'd offer suggestions, and he would make a final cut. Sounded pretty straightforward.

Howard and his students stuck me in front of a blue screen and shot me and recorded my narration, and over the next couple of weeks logged and digitized all the footage, while he and I went back and forth over the script, cutting down my 45 minutes or so of copy into something that would fit the 20-minute slot allotted to me. But then, for some reason, I never got to see any of the edited footage. Howard kept assuring me that it was going to be fine, but every time I asked, it seemed it wasn't quite ready for me to look at yet.

Now it was late November, and it was a week before we were supposed to send the finished video out to California, but I still hadn't even seen a rough cut. One evening, I was scheduled to give a lecture to some music department students and faculty, during which I hoped to show a "preview" of the video. As I was about to start the lecture, and the tape hadn't arrived yet, Don, one of Howard's student assistants, came in breathlessly and said that the film would be late. "Something went wrong when we were printing it to tape," he gasped, "and we have to do it over again." Fortunately, I was lecturing on two different topics, so I just reversed my planned order. An hour later, Howard arrived with a videotape.

We put it in the projector, and what I saw was 12 minutes of jumpily edited material, with flash and "ghost" frames around the edits, audio that kept jumping up and down in level, not to mention side to side between channels, sync that went in and out, and stills full of vibrating black lines. It was pretty awful, and I was pretty scared.

What had happened? Well, as Howard put it, the system "hiccupped." It happened during the rendering process, which is the step you have to take after you're done editing, during which all of the crossfades, wipes, sound level changes, zooms, pans and other effects are saved in separate, re-processed files that the manufacturer calls "generated media." Once all those files are created, the program is printed to tape. "There's a lot of room for real wacko things to happen during rendering and printing," explained Howard. "If you followed the instructions from the company, you would put all your files—pointers, clips and rendered video—on the same C drive. But this

goes against the oldest law on the books, which is that you keep those files on separate disks." Sound familiar?

"If they're all on one disk, when you want to print the program has to do three things at once. And even though we had dedicated disks for clips and rendered video, the longer and more complicated the movie, the more calls from the program to the drive bus. You can end up with a roadblock, everything coughs and then you lose data, including your clip files and the pointers. This is what happened during what we thought was innocuous 'save' after rendering. Everything froze, and when we rebooted and went back in to Edit DV, the clips acted like they were totally corrupted, even from backed-up versions. The funny thing was, that when we played the clips in Quick-time, outside of Edit DV, they were okay—which was of no help, of course."

Howard managed to reassemble a version of the program in the space of an hour, leaving all of the effects out, so that we could show it that evening.

All during the next weekend, Howard and Don literally worked night and day to get the piece back to where it was before the printing disaster, starting the assembly process from scratch and constantly running into file-corruption fallout—and almost ruining their Thanksgiving in the process. On the afternoon we were supposed to ship the final cut to California, Howard burned three copies of the DV tape, and then made a VHS copy of one of them so I could watch it and finally see what I hoped was a reasonably finished cut.

I made the mistake of not looking at the tape until that night, and imagine my horror when I saw timecode numbers prominently displayed on the left half of the picture. One of the folks, harried to the point of distraction, forgot to shut off the Display switch on one of Howard's cute little DV decks during dubbing, and it was generating visual timecode while it recorded. Howard couldn't be sure whether the copy he sent to California had the burn-in or not, so late that night he ran off yet another copy, checked it to make sure that it was clean and sent it off in the morning, Same-Day Delivery to California. By this point, for what we were paying FedEx, I could have gone to the convention in person.

Next month: It ain't over 'til it's over. ■

Paul D. Lehrman is Web editor for Mix and its sister magazines, but that doesn't mean he has to be nice about inferior entertainment media or crummy tools.

ModernRecording.com

The Premier Web site for Recording & Sound

HALL OF WISDOM

Enter Here.

No Hype, Just Help.

**3rd-Party Support for
the Real World**

For information call Hector LaTorre at 732-741-1275

NEED INFO
ON A PRODUCT
SEEN IN MIX?

Please go to pages 310-311

to request information

from the manufacturers

of products advertised in Mix!

Advertiser Index

ADVERTISER	WEBSITE	PAGE	ADVERTISER	WEBSITE	PAGE
Acoustical Solutions	www.acousticalsolutions.com	42	Dreamhire	www.dreamhire.com	82
Acoustics First	www.acousticsfirst.com	130	DSP Media Inc.	www.dspsmedia.com	109
ADK	www.adkmic.com	97	EAR Professional Audio/Video	www.ear.net	194
AETA Audio Corporation	www.aetausa.com	86	Ear Q Technologies	www.earq.net	190
Agular Amplification	www.agularamp.com	86	Eastern Acoustic Works	www.eaw.com	31
AKAI	www.akai.pro.com	151	EGO'SYS/AUDIGTRAK	www.egosys.net	58
AKG Acoustics (C3000B)	www.akgusa.com	19	E-Magic	www.emagic.de	167
AKG Acoustics (C40C)	www.akg-acoustics.com	131	EMTEC	www.emtec-usa.com	210
Allen & Heath	www.allen-heath.com	57	Europadisk	www.europadisk.com	114
AMEK	www.amek.com	27	Event Electronics	www.eventelectronics.com	44-45
AMS Neve PLC	www.ams-neve.com	33	Eventide	www.eventide.com	67
Antares	www.antarestech.com	23*	EVI Audio	www.electrovoicpe.com	17
Apex	www.apex.com	21	Expression Center for New Media	www.expression.edu	125
API Audio	www.apiaudio.com	204	Extasy Recording	www.extasyrecords.com	157
Apogee Electronics	www.apogeedigital.com/adda16/	95	Fairlight	www.fairlightesp.com	209
Argosy Console	www.argosyconsole.com	230	Five Towns College	www.fivetowns.edu	174
Ashtly Audio	www.ashtly.com	159	Fostex America	www.fostex.com	35
Audient	www.audient.co.uk	115	Francis Manzella Design Ltd.	www.fmdesign.com	132
Audio Accessories	www.patcbays.com	178	Full Compass	www.fullcompass.com	187
Audio-Technica	www.audio-technica.com	39	Full Sail	www.fullsail.com	193
Audix	www.audixusa.com	237	Future Disc Systems	www.futurediscsystems.com	128
Avalon Design	www.avalondesign.com	215	Future Sonics	www.futuresonics.com	262
Avid World East	www.avidworldeast.com	241	Genelec	www.genelec.com	9
B&H Photo-Video	www.bhphotovideo.com	312-313	Geppo	www.geppo.com	190
Blue B.E. Microphones	www.bluemc.com	111	Glyph Technologies	www.guitarcenter.com	233
BBE Sound	www.bbesound.com	283	Grace Design	www.gracedesign.com	218
Big Mo Recording Co.	www.bigmorecording.com	142	Grandma's Music & Sound	www.grandmas.com	271
Broadjam.com	www.broadjam.com	289	Groove Tubes	www.groovetubes.com	54
Broadway Lighting Master Classes		222	Group One Ltd./Blue Sky	www.bluesky.com	80-81
Broadway Sound Master Classes		202	Hafler	www.hafler.com	26
BSS Audio USA	www.bss.co.uk	261	Hannay Reels	www.hannay.com	273
Burlington/Quantegy	www.burlington-av.com	52	Harman International	www.jbl-synthesis.com	51
Burlington/Maxell	www.burlington-av.com	182	HHB (CDR850)	www.hhbusa.com	155
Burlington/BASF	www.burlington-av.com	195	HHB (Rosendahl)	www.hhbusa.com	200
Cakewalk	www.cakewalk.com	211	HHB (TL Audio)	www.hhbusa.com	216
Capitol Studios	www.capitolstudios.com	112	Husa	www.hosatech.com	220
Carvin	www.carvin.com	265	Institute of Audio Research	www.audischool.com	66
Cedar Audio	www.cedaraudio.com	133	JBL Professional	www.jblpro.com/vertical/pro_user_comment.htm	80
Chicago Case Company	www.chicagocase.com	264	John Hardy Company		146
Classic Sound	www.classicsound.com	162	Kitchen Mastering	www.kitchenmastering.com	289
Classic Sound	www.classicsound.com	186	Korg USA	www.korg.com	28-29
Community	www.loudspeakers.net	213	KRK Systems	www.krksys.com	87
Conservatory of Recording			Lexicon	www.lexicon.com/960L	103
Arts&Sciences	www.audiorecordingschool.com	194	Littlite	www.littlite.com	172
Countryman	www.countryman.com	264	Lws Angeles Recording Workshop	www.recordingcareer.com	122
Crest Audio	www.crestaudio.com/fillmore	259	Lucid	www.lucidaudio.com	130
Crown	www.crownaudio.com	107	Mackie (MDR 24/96)	www.mackie.com	2
C-Tech	www.c-techsys.com	303	Mackie (I604-VLZ Pro)	www.mackie.com	93
D.A.S.	www.dasaudio.com	110	Mackie (D8B)	www.mackie.com	177
dbx Professional Products	www.dbxpro.com	147	Mackie (S500)	www.mackie.com	180
Deron	www.deron.com	279	Mark of the Unicorn	www.motu.com	11
Dig.design	www.dig.design.com/mixcubed	71	Markertek	www.markertek.com	192
Disc Makers	www.discmakers.com	143	M-Audio	www.m-audio.com	75
Dolby Labs Inc.	www.dolby.com/pro	118	Merging Technologies	www.merging.com	141
DPA Microphones/			Meyer Sound	www.meyersound.com/m3d	153
TGI North America Inc.	www.dpamicrophones.com	22	Microboards Technology	www.microboards.com	85

ADVERTISER	WEBSITE	PAGE
Microtech Gefell	www.microtechgefell.com	40
Mldas	www.midasconsoles.com	117
Millennia	www.mil-media.com	99
Mitsui	www.mitsuicdr.com	98
ModernRecording.com	www.modernrecording.com	309
Music Industries Corp.	www.musicindustries.com	232
Musician's Friend	www.musicianfriend.com	163
MXL Professional Microphones	www.mxlmix.com	144
Nagra	www.nagrausa.com	78
NAPRS	www.naprs.org	274
Neumann/USA	www.neumannusa.com/M150/mix	64
Neutrik USA	www.neutrikusa.com	165
Nexo	www.nexo-sa.com	173
ORAM	www.oram.co.uk	101
Panasonic Pro Audio Group	www.panasonic.com	49
Peavey	www.peavey.com	97
Peterson Tuners	www.petersontuners.com	150
Pichner Schoustal Inc.	www.pichner-schoustal.com	42
Presonus	www.presonus.com	65
Primacoustic	www.primacoustic.com	185
Primera Technology	www.primeratechnology.com	189
PrismSound	www.prismsound.com	47
Professional Audio Design	www.proaudiodesign.com	169
Professional Audio Design	www.usedssl.com	239
ProSoundweb.com	www.prosoundweb.com	183
Quantegy	www.quantegy.com	89
Quantegy	www.quantegy.com	219
Radikal Technologies	www.radikaltechnologies.com	180
Recording Workshop	www.recordingworkshop.com	289
RODE Microphones	www.rodemicrophones.com/nt1000	161
Rolls Corporation	www.rolls.com	90
Rosati Acoustics	www.rosatiacoustics.com	208
Royer Labs	www.royerlabs.com	179
RPG Diffusor Systems	www.rpgdiffusors.com	214
Russ Berger Design Group	www.rbdg.com	160
Sabine	www.sabine.com	113
SABRA-SOM	www.sabrasom.com.br	88
SADIE Inc.	www.sadie.com	43
SAE Institute of Technology	www.sae.edu	55
Sam Ash	www.samash.com	175
Samson	www.samsontech.com	234-235
Schoeps	www.schoeps.de	68
Sekaku	www.sekaku.com.tw	38
SEK'D	www.sekd.com	275
Sennheiser	www.sennheiserusa.com/didomix	69
Simon-Kaloi Engineering	www.skeng.com	196
Solid State Logic Ltd.	www.solid-state-logic.com	1
Sonic Foundry	www.sonicfoundry.com	145
Sononic	www.sononic.com	301
Sony	www.sony.com/proaudio	243-254
Sound Devices	www.sounddevices.com	227
Sound-Effects-Library.com	www.sound-effects-library.com	77
SRS Labs	www.srslabs.com	79
Steinberg	www.nuendo.com	207
Stipko Media/Buzzine Magazine	www.stipko.com	333
StorCase Technology	www.storcase.com	171
Streaming Media	www.streamingmedia.com/east	191
Studio Atlantis	www.studio-atlantis.com	121
Studio Consultants	www.studioconsultants.com	174
Studio Network Solutions	www.studionetworksolutions.com	58-59
Studio Projects	www.studioprojectsusa.com	238
Studio Technologies Inc.	www.studio-tech.com	160
SurgeX	www.surgex.com	106
Sweetwater Sound	www.sweetwater.com	25
Sweetwater Sound	www.sweetwater.com	203
Sweetwater Sound	www.sweetwater.com	299
Sweetwater Sound	www.sweetwater.com	334-335
Switchcraft	www.switchcraft.com	136
Switchcraft	www.switchcraft.com	137
TAD/Technical Audio Devices	www.tad-pioneer.com	149
Tannoy/TGI North America Inc.	www.tannoy.com	3

ADVERTISER	WEBSITE	PAGE
Tascam (MX-2424)	www.mx2424.com	6-7
Tascam (US-428)	www.tascam.com	63
Tascam (GigaStudio)	www.tascam.com	181
TC Electronic	www.tcelectronic.com	229
TC Works	www.tcworks.de	91
TOA Electronics	www.toaelectronics.com	23
TransAmerica Audio Group	www.drawmerusa.com	180
Trans-Continental Studios	www.transconstudios.com	129
Tube Tech	www.tcelectronic.com	108
Universal Audio	www.uaudio.com	139
Village Recorder	www.villagestudios.com	105
Walters-Stork Design Group	www.wsdg.com	68
Wave Distribution	www.empiricalabs.com	41
WaveFrame	www.waveframe.com	221
Waves Ltd.	www.waves.com	37
Wenger	www.wengercorp.com	195
West L.A. Music	www.westlammusic.com	162
Westlake Audio	www.westlakeaudio.com	56
Whirlwind Music	www.whirlwindusa.com	258
Whisper Room	www.whisperroom.com	132
Yamaha	www.aw4416.com	13
Yamaha	www.yamaha.com/proaudio	135
Yorkville Sound	www.yorkville.com	263
Zero International	www.zerointernational.com	205
Z-Systems Audio Engineering	www.z-sys.com	116

MARKETPLACE

ADVERTISER	WEBSITE	PAGE
ATR Service Company	www.atrservice.com	317
Alter Media	www.studiosuite.com	315
American Duplication Supply	www.superdups.com	318
Angel Mountain Sound	www.angelmntn.com	318
Bayview Pro Audio	www.bayviewproaudio.com	319
Black Audio Devices	www.blackaudio.com	320
Boutique Audio & Design	www.boutiqueaudio.com	317
C & C Music	www.candcmusic.com	320
Clearsonic	www.clearsonic.com	315
Crystal Clear Sound	www.crystalclearcds.com	317
D.W. Fearn	www.dwfearn.com	316
Demeter Amplification	www.demeteramps.com	321
Digital Domain	www.digido.com	319
Earth Disc	www.earthdisc.com	316
Gefen Inc.	www.gefen.com	322
Ground Support Equipment	www.biomorphdesk.com	316
Lonely Records	www.lonelyrecords.com	316
Marathon Computer	www.marathoncomputer.com	316
Marquette Audio Labs	www.marquetteaudiolabs.com	322
Media Services	www.mediaomaha.com	317
MediaFORM	www.mediaform.com	315
Multimedia Recording Systems	www.gomrs.com	318
Neato, LLC	www.neato.com	321
Pendulum Audio	www.pendulumaudio.com	318
Primal Gear	www.primalgear.com	322
Progressive Music	www.progressivecds.com	319
Requisite Audio	www.requisiteaudio.com	317
Seventh Row Productions	www.seventhrow.com	317
Shreve Audio	www.shreveaudio.com	319
Sonic Circus	www.soniccircus.com	321
Sound Anchors	www.soundanchors.com	316
Sound Ideas	www.sound-ideas.com	320
TerraSonde	www.terrasonde.com	315
The Gate	www.gatemedias.com	318
United Agencies	www.gearinsurance.com	320
Vintage King	www.vintageking.com	320
Vintech Designs	www.vintech-audio.com	322
Woodwind & Brasswind	www.rocknrhythm.com	318

B&H

PHOTO - VIDEO - PRO AUDIO

- ▶ The Latest Gear At The Best Prices
- ▶ Expert Advice From Working Professionals
- ▶ Worldwide Shipping Usually Within 24 Hours



Complete Hardware & Software Solutions For Computer-Based Audio Production



Panasonic DA-7 & Mackie D8B Stations

Interactive Mic Shootout

Detail



Character



Confidence



Resolution



Control



Maximum Potential



Deliverance



Visit The B&H Superstore
 Featuring Our State-Of-The-Art
 Interactive Pro Audio Showrooms
420 Ninth Ave
New York City
 (Between 33rd & 34th Sts)

Call Toll Free:

800.947.5508

In NYC:

212.444.6698

On The Web:

www.bhphotovideo.com

The Professional's Source For All Of Your Pro Audio Equipment Needs



ProTools|24 Mix Plus Station

Interactive Studio Monitor Shootout

World Radio History

—FROM PAGE 22, FUN, FUN, FUN

can ask for the type of music I want at any time. Right now it's blues.

BUT SOMETIMES I'M JUST NOT HOME

And that's when I break out my Zoom PS-02 Palmtop Studio. Okay, this sounds a bit too ambitious to be real, but it kinda is. No bigger than the palm of your hand (and over a year old), this crazed-looking silver artifact has actually been instrumental in the creation of several new songs that I have done this year. I have this twisted belief that one way to keep from slipping into a rut is to get different pieces of gear from time to time that, by the very nature of how they sound or how they work, influence your creative process. So I got this, and it certainly did.

The PS-02 is a tiny 3-track studio with bounce and SmartMedia card storage. You can record several versions of a guitar or a vocal, and choose the best later. It also has a drum and bass machine built in, so you can build a bed real fast and get to the good stuff right away, before it leaks out of your mind and is lost forever.

It can be a bit complicated, as it does

so much with limited surface area for controls, but it is well worth learning. It even gives you giant effects on vocal and guitar (yes, I have actually used its internal mic to scratch vocals).

The bottom line is that I have several more songs in the can now than I would have had if I didn't have this thing, and I captured them all on the road—in cars, planes and cruise ships.

BEAN THERE, DONE THAT

POD Version 2.0. This giant kidney bean has earned a place on my office desk as an instant path to certain sounds for my guitar. While never as sweet or expressive as the real thing, the POD can do a pret-

As I am apparently mellowing somewhat, I find that I am now able to enjoy toys that may not be 24-bit perfect, or may not have a 150dB dynamic range.

ty good job of emulating most amp/effect setups that you might want to play through. With all kinds of advanced user-twistable parameters available in the newest version, I have even worked out several presets that I use live.

This thing is pretty nice, and the fact that you can go from one setup to a totally different one in a second makes it incredible for trying that new idea through every amp and effect you can think of until you get the one that sings.

WARNING, HOT PLATE!

THD's Hot Plate is absolutely the sweetest-sounding, most-expressive, power-soaking device that exists.

Warning! Before we go any further, I must tell you that my little brother runs THD, so you might think my opinions would be biased. Well, the truth is, they are. Because he is my *little* brother, I am pretty hard on him as far as performance goes. I have always shredded him relentlessly when I thought I heard a little bad dirt here or a muffled harmonic there. And he does the same to me. We have this sort of, "I can hear subtle trash you can't

hear" competition going on, and everybody benefits.

I am one of those guitar players who gets the best tube amp possible, and then gets something to dump 90% of its power so that it will sing like an angel. For me, the Hot Plate is that thing. I never play without it. See for yourself, and then try to forgive the annoying similarity between these last three paragraphs and a crass paid advertisement.

I CAN'T HEAR YOU...

Several years ago, I found a small, light and shockingly good set of active noise-canceling earphones in an obscure little corner store in an obscure little corner country. I got them so that I could actually *hear* when I arrived at my destination to produce and engineer an album in Finland. I searched for years to find something, and have spent as much as 2 kbucks for heavy systems with half-hour battery life that didn't really work well at all.

Then I found this wonderful little device. I have guarded it with almost insane zeal, as I have never seen it again, anywhere.

Well, six months ago, they showed up in Sharper Image, for the same 50 bucks that I spent on mine.

If you travel and wish to remove the bulk of the energy that fatigues and deafens you on those five-hour flights, then pick up a set of NoiseBuster Extremes. They don't get rid of everything by any means, but they work far better than anything else that you would ever want to drag around. They weigh a couple of ounces, the battery lasts forever, and they even have an input for you to listen to those nasty MP3s as you wing your way to fame and fortune.

TOYS ARE TOYS

Cool toys can be fun or make your life easier, or maybe even make you a bit more productive. Really cool toys do all that and might actually make you smile as well.

Perhaps one of the items I've touched on here might do this for you. Of all the toys that I have played with recently, I picked these because they *did* make me smile, literally. There were more, but I have used all my space for this issue. Note that I spared you the 200 totally lame new toys I tried.

And, of course, you *have* a Palm, right? ■

SSC SEZ: He who dies with the most toys better have a really good will and lots of lawyers, while he who dies with the most friends never really dies at all.

NOW ONLINE at
www.mixonline.com

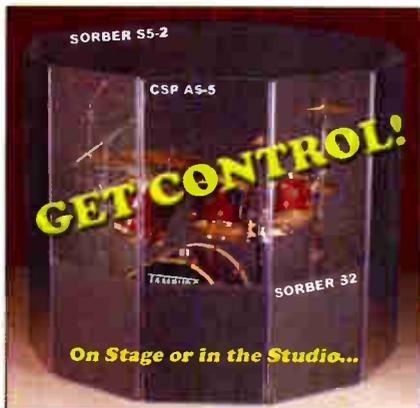
Bring Color to Your Facility with Studio Showcase Four-Color Ads!



1. Run a minimum 6x frequency and color is **FREE!**
2. Online showcase is **FREE!**

Contact Shawn Langwell:
 (510) 985-3275;
slangwell@primediabusiness.com

MARKETPLACE



CLEARSONIC
PANEL
&
SORBER
NEW!
Absorption Baffles

Effective
 Free-Standing
 Portable
 Factory Assembled
 Durable Full-length Hinge

BUY FACTORY-DIRECT
AT NEW LOWER PRICES

clearsonic.com
1.800.888.6360

CLEARSONIC

The Audio Toolbox™

The amazing DSP-powered acoustical analysis, audio test, calibration and troubleshooting tool.

Functions

SPL · 1/12 octave RTA · RT60 · Energy Time Graph
 Distortion Meter · Speaker Polarity · Signal Generator
 Frequency Counter · Stereo dB Meter · MIDI Analyzer
 Audio Scope w/phase · Impedance Meter · Cable Tester
 Time Code Generator / Reader / Re-gen / Analyzer
 Headphone Monitor Amp · Phantom Power Tester
 PC/Mac Interface · 40 memories · more...



Tel: 303 545 5848
 Fax: 303 545 6066
 Toll-free: 888 433 2821
 www.terrasonde.com

Available in
 Rack-mount, Plus,
 and Standard
 models (shown).



STUDIO SUITE®

STUDIO MANAGEMENT SOFTWARE **NEW! 5.0**

Office	Studio	Tech
Contacts	Projects	Sessions & Events
Calendar	Invoices	Library & Labels
Communications	Services	Titles & Tracks
Petty Cash	Media Inventory	Recall
Purchase Orders	Bar Codes	Samples & Clips
		Rooms
		Equipment
		Maintenance Log
		Patchbay Labels
		Parts

Setup One All Open Preferred About A Set Menu V Log Out

The #1 choice of top studios worldwide!
 You KNOW you NEED IT!

ORDER NOW!

1.800.450.5740

1.770.303.0970 International

by **altermedia**

www.studiosuite.com

Macintosh/Windows compatible & networkable across platforms

The SCRIBE Series of Professional CD-R, DVD-R and Print Stations

Where Value and Versatility are Defined

NEW!



Starting at under \$2,500!

Featuring:

- CD-R / DVD-R / Print station options — for a fully integrated system that creates, duplicates and automatically labels
- SmartDRIVE technology — to protect intellectual property and provide advanced professional audio features
- Wide Printer Selection — offering a variety of thermal transfer and inkjet disc labeling options; depending on your needs

1.888.607.1527

MediaFORM SMART TECHNOLOGY™

www.mediaform.com

Lonely Records

Affiliate Program Now Available!
You can now make money by simply referring people to us! Call for details.

100 Retail CDs complete!
\$199
includes... Diamond grade media, direct on disk print, jewel, traycard, case, assembly & wrap

1000 Bulk CDs complete!
\$560

- Barcodes
- Mastering
- Cassettes
- CD & DVD
- Web Services
- Graphic Design
- Promotion & Distribution
- Complete Printing Services

1.800.409.8513
www.LonelyRecords.com

We will beat any of our competitors prices on CDs, CDR, DVD, cassette, mastering or graphic design packages by as much as 5%. Call for details!

www.earthdisc.com
cd • cd rom • dvd • cassette • mastering • graphic design • printing

\$1199.00 1000 CDs package includes:
full color 2 page/4 panel insert
3 color on cd printing
glass master,
jewel box, shrink wrap

\$986.00 500 CDs package includes:
full color 2 page/4 panel insert
3 color on cd printing
glass master,
jewel box, shrink wrap

\$1299.00 500 CDs we do it all!
package includes:
graphic design/film
full color 2 page/4 panel insert
3 color on cd printing
glass master,
jewel box, shrink wrap

500 Free CDs !!!
WHEN YOU PURCHASE A CD PACKAGE AT EARTH DISC YOU WILL BE ENTERED IN OUR DRAWING FOR 500 FREE CDS. THE NUMBER OF CDS YOU WILL BE ENTERED BACK INTO OUR DRAWING FOR CDS WILL BE 500 PER CD PACKAGE PURCHASED.

1.800.876.5950

ANCHOR Your Speakers With Sound Anchor Stands

SOUND ANCHORS is your first choice when it comes to speaker stands for your studio. We have a complete range of designs to fill any speaker stand requirements.

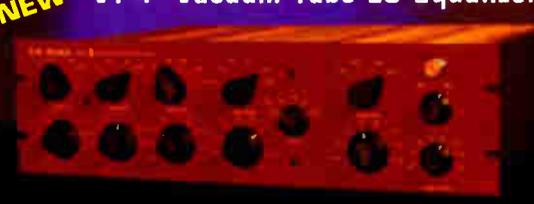
The Large Adjustable Stand in this picture features adjustable height and tilt. It is designed to support mid to large sized monitors safely. There is also a special version of this stand designed to support video monitors.

Sound Anchors Inc.
Phone/Fax (321)724-1237 www.soundanchors.com



Anyone who has heard it knows . . .

NEW VT-4 Vacuum Tube LC Equalizer



D.W. FEARN 610-793-2526
www.dwfearn.com

Put Your Mac in a Rack

Rackmounts for Macintosh and Macintosh accessories



the Marathon G-Rack

Innovative rackmount solutions for G3, G4, iMac, monitors, keyboards and more.

www.marathoncomputer.com
info@marathoncomputer.com
800 · 832 · 6326

MARATHON
COMPUTER



the only way to work



biomorph[®] interactive desk
ergonomic computer furniture

biomorphdesk.com
call now for free catalog 1-888-302-DESK

"After 27 years of Mastering, I can use anything I want and I use Requisite limiters, everyday."

Denny Purcell - Georgetown Masters - Nashville



ALL-TUBE, ALL-TRANSFORMER, POINT-TO-POINT

requisiteAudio.com

818 247 2047

The sound of my 1-inch ATR is incredible.



I won't mix to stereo without it."

Ainlay Mixes 1-Inch

Over two years ago, Chuck Ainlay bought this 1-inch machine from ATR Service Company. It's been his exclusive stereo mixdown deck ever since. Listen to the results on recent CDs by Mark Knopfler, Travis Tritt, and Trisha Yearwood, among others. Then call ATR Service, the originator of 1-inch stereo on the legendary ATR-102. Now, more than ever, the ultimate music mastering machine.

717.852.7700 / www.atrservice.com

ATR SERVICE COMPANY
AMPEX SPECIALISTS

MEDIA
services

CALL with any questions or inquiries
1.888.891.9091
www.mediaomaha.com

LOW PRICE GUARANTEE!



10 FREE CDR's

MEDIA SERVICES WILL BEAT ANY QUOTE BY 5% OR RECEIVE 10 FREE CDR'S
PROVIDE A COPY OF A COMPETITORS WRITTEN QUOTE
ON THEIR LETTERHEAD (1000 piece minimum order)

4 Panel Retail Ready CD's

Includes:

Glass Mastering, CD Replication (with 3 color printing)
CD films, 4 panel (4/1 Book), Tray (4/0), Print Films,
FREE Barcode, Jewel Case, Assembly & Wrap

\$1350



CD's .. Tapes .. CDR's .. Graphic Design
Designer CD's .. Posters .. Postcards ..
Printing .. DVD's .. CD-Rom's

The Revolution's here!



total recall
total programability
total signal processing

The Yamaha PM1D
and
Seventh Row engineers

It's the revolution in live audio mixing.

seventh row
productions

(203) 250-9697
www.seventhrow.com



Boutique Audio & Design
Presents

A safe harbor for your valuable vintage modules at a great price.

\$995.00 (Any Rack)

*Modules not included

- Enclosed 3RU Chassis
- Internal shielded power supply
- Conductive plastic output pots
- All steel chassis
- Rear chassis mount XLR's
- Front panel 1/4" line/inst inputs

Also available: Neve 8 channel racks and custom racks

PHONE: 818-340-6930 FAX: 818-340-6252 Web: www.boutiqueaudio.com

CDs • CD-ROM • CD-R • SHAPED CDs • AUDIO CASSETTES

NEED CDS?
the choice is

CRYSTALCLEAR
DISC & TAPE

Trusted experience for over 30 years.

1-800-880-0073
visit us at www.crystalclearcds.com

DIGITAL MASTERING • ART DESIGN • PRINTING • PACKAGING

Need recording gear?

Call us for the
Best Prices
Hottest Brands

We want to deal!!

Call For A FREE Catalog... 1-888-348-5003

Rock'n Rhythm

E-Mail: rmix@wwandbw.com
www.rocknrhythm.com

Class A Vacuum Tube Signal Processors



MDP-1 Mic/DI Preamp
The ultimate front end for high resolution recording

OCL-2 Optical Compressor
Smooth dynamics processing without coloration

ES-8 Variable-Mu Limiter
Classic feedback compression with a modern twist

At Pendulum, our modern tube designs provide superior audio performance and a level of clarity, intimacy and detail that is unattainable with vintage tube products.

Pendulum Audio

P.O. Box 719, Gillette, NJ 07938
1908.66.9333

Hand-built in the USA - www.pendulumaudio.com

CD & DVD Duplication

- Duplicators **Low price!**
- Printers **Next-day delivery!**
Rimage • Signature II • Inscripta
- Blank Media **All major brands!**
We will beat any advertised price.
- Supplies **In Stock - ready to ship!**
MediaFORM • Rimage • Cedar • Primera • More...
- Duplication Services **24 hour turnaround!**
Duplicated • labeled • sleeved

Check out our
HOT deals
online at
www.goMRS.com



GO MRS
MULTIMEDIA RECORDING SYSTEMS
www.GOMRS.COM

1-800-769-2715

The Pro Audio Dealer
With Expertise, Equipment
& Exceptional Service



Angel Mountain Sound
www.angelmtn.com

610.691.5056

One hour from NYC and Philadelphia

Aardvark
API
Apogee
Blue
Blue Sky
Brauner
Coles
Crane Song
Digidesign
DPA
D W Fearn
Dynaudio
Emperical Labs
Eventide
Lexicon
Manley
Neumann
Prism Sound
Quested
Shp
SPL
Sony
Soundlux

THE GATE MEDIA GROUP

www.GATEMEDIA.COM



CD, CD-ROM, DVD AND VINYL REPLICATION
CD-R SCREEN PRINTING AND REPLICATION
AUDIO & DVD MASTERING & AUTHORIZING
COMPLETE GRAPHIC DESIGN SERVICES
POSTERS, STICKERS & POSTCARDS
PROMOTIONAL SERVICES

800-655-1625

FILM AND GRAPHIC DESIGN INCLUDED FREE!

1000 CD'S RETAIL READY-\$1395.00	GATE PROMO PLUS
500 CD'S RETAIL READY-\$1200.00	1000 CD'S
2000 BULK CD'S-\$1280.00	2000 POSTCARDS
200 130GRAM VINYL-\$1295.00	1000 POSTERS
500 2-COLOR CD-R'S -\$495.00	\$2695.00

Member of Association for Independent Music

MAKE MONEY MAKING CDS

Start your own duplication shop!
Duplication suite #9

Inferno 10 Bay 12x Tower • Ink-Jet CD Printer • Shrinkwrapping System
Lease as low as \$199.00 per month

TOWERS
starting from
\$99.00
per month

WWW.SUPERDUPS.COM

500+ CDs
PER DAY
POSSIBLE!



QUALITY
CD-R'S
AS LOW AS
.29c

WE WANT YOUR BUSINESS FOR EXPERT ADVICE • SPECIAL PRICES • GUARANTEED

TRADE IN YOUR 4x OR 8x CD-R'S FOR 10x & 16x

800-617-3877

American Duplication Supply

MARKETPLACE

www. Click Here To See Our Inventory

SHREVE AUDIO.com

1-800-214-9222

We will buy your old gear, so you can buy new gear!!!

The absolute best value on all the brands you trust to get the job done the right way! **CALL US NOW** and see for yourself!!!

Mackie Digital 8 Bus



The most powerful digital console made today!

HR824 active reference monitor

HDR 24/96

SHURE

From the SM-57 to the KSM-44, we have everything SHURE.

Marshall ELECTRONICS



MXL2001 & 603 Recording Pac

AKAI **A R T**

ALESIS **BOSS** **CROWN**

digidesign **dbx** **GENIE**

EMU **KORG** **MOTU** **JBL**

ULTIMATE **PreSonus**

Roland VS-2480

CALL!

TASCAM a whole world of recording

MX-2424

BEHRINGER

ALL Behringer products in stock and ready to rock!!!

TRUTH B2031 Hi-Res Studio Monitors



Prices reflect a 2% cash discount and are subject to change without notice. Returns are subject to a 15% restocking fee. Not responsible for typographical errors.

Master at DIGITAL DOMAIN™ where music still sounds like music. Where punch, vitality, space, imaging, clarity, warmth and quality are not just buzz words. We enhance musical values with specialized techniques invented here.

Unsurpassed mastering quality by **Bob Katz**. Custom-built hardware and software. **Stereolization, Microdynamic Enhancement.** Unique Processes. Sonic Solutions Editing. Tube and Solid-State Analog Recorders.

CD Mastering is an art. Levels, dynamics, fades, spacing... everything is important to you and to us.

Recorded & Mastered 1997 Latin Jazz Grammy

CD Replication... Booklet Printing... Graphic Design...

How to make a superior pressed CD:
 1) 1X speed Glass Mastering
 2) Quality control
 3) Attention to detail
 4) Personalized Service
 5) Good, clean packaging and packing
 6) Dependable, on-time delivery

Digital Domain
 (800) 344-4361 in Orlando, FL

The Definitive, Award-Winning Internet CD Mastering Website
<http://www.digido.com>

GET IT FAST

Don't trust your audiophile duplication needs to anyone else!

Progressive Music

www.progressivecds.com Avail: VISA & Master Card

2116 Southview Ave.
 Tampa, FL 33606
 (813) 251-8093
 FAX: (813) 251-6050
 Toll Free: (800) 421-TAPE

ALL COMPLETE:
 Full color Pkgs. with Inserts, from your CDR & Film

500 CD'S	\$980.00
500 CASS	\$690.00
1000 CD'S	\$1275.00
1000 CASS	\$905.00

...also...
***NEW! 100 CD. RETAIL READY PACKAGE IN 5 DAYS!!! \$589.00**
 (just give us a photo & mockup!!!)

"Fastest Turn-Around in the Known Universe!"

BAYVIEW PRO AUDIO

se electronics **888.718.0300** **bayviewproaudio.com**

SE1
Sale \$89.00

Type: small diaphragm condenser
 Frequency Response: 30Hz to 18kHz
 Polar Pattern: cardioid
 Sensitivity: 10mV/Pa
 Output Impedance: <200 ohm
 Output Noise: <18dB typical, A weighted
 THD: <0.5% at 134 dB SPL
 Power: +48V phantom power

SE1000
Sale \$99.00

Type: large diaphragm condenser
 Frequency Response: 30Hz to 20kHz
 Polar Pattern: cardioid
 Sensitivity: >18m V/Pa
 Output Impedance: <200 ohm
 Output Noise: <17dB typical, A weighted
 THD: <0.5% at 120 dB SPL
 Power: +48V phantom power

SE2000
Sale \$129.00

Type: large diaphragm condenser
 -10db Pad - lo-cut filter
 Frequency Response: 30Hz to 20kHz
 Polar Pattern: cardioid
 Sensitivity: >18m V/Pa
 Output Impedance: <200 ohm
 Output Noise: <17dB typical, A weighted
 THD: <0.5% at 120 dB SPL
 Power: +48V phantom power

SE2500
Sale \$149.00

Type: large diaphragm condenser
 Frequency Response: 30Hz to 18kHz
 Polar Pattern: cardioid
 Sensitivity: >18m V/Pa
 Output Impedance: <200 ohm
 Output Noise: <17dB typical, A weighted
 THD: <0.5% at 120 dB SPL
 Power: +48V phantom power

SE5000 Tube Microphone

Type: vacuum tube condenser
 Frequency Response: 20Hz to 18kHz
 Polar Pattern: cardioid
 Sensitivity: >16m V/Pa
 Output Impedance: <200 ohm
 Output Noise: <18dB typical, A weighted
 THD: <0.5% at 120 dB SPL
 Power: external regulated 115/220 P.S

SE3000
Sale \$179.00

Type: 1.07" twin diaphragm condenser
 Frequency Response: 20Hz to 20kHz
 Polar Pattern: cardioid, figure 8, omni
 Sensitivity: >18m V/Pa
 Output Impedance: <200 ohm
 Output Noise: <17dB typical, A weighted
 THD: <0.5% at 120 dB SPL
 Power: +48V phantom power

SE3500
Sale \$169.00

Type: 1.07" large diaphragm condenser
 Frequency Response: 20Hz to 20kHz
 Polar Pattern: cardioid
 Sensitivity: >20m V/Pa
 Output Impedance: <200 ohm
 Output Noise: <15dB typical, A weighted
 THD: <0.5% at 120 dB SPL
 Power: +48V phantom power

What's New  at Sound Ideas?

THE DARK SIDE OF SOUND

SCI-FI WARP 2
8000

XV
SERIES

The Art of
FOLEY

IMPACT
EFFECTS

EMERGENCY

905-886-5000 Fax 905-886-6800 US: 1-800-387-3030 www.sound-ideas.com



www.vintageking.com

New or Used
Package Deals
Buy, Sell, Trade

Over 250 Vintage EQ/Pres &
More Than 75 Tube Mics in Stock

- AKG C12 silver-green/C12a pr/C24/C28/C60-61/D12/D25/D30/D36
- AD45/451/414/bulb/460b pr : ADR COMPLEX ALAN SMART CL1+2
- AMS RMX16/1580sAPI New 7600 strip, 2500 comp,
- 560 reissue, 550b in stock! 525/550a-1/550a312
- ALTEC 436c AUDIX 35102/35101 classic eq/pre racked,
- BBC classic tube mic pre B+K 4003 w/preamp
- COLES/STC 4038 new/used; CALREC 1161 racked/DL1656 comp-lim-gate
- DBX 160/161 VU boombox DECCA eq-pre/Comp-lim
- EAB 8x2 tube console EMI console, eq's, comps, pre's
- Emil 256II comp. EVENTIDE Instant Flanger, FAIRCHILD 670/661 comps
- FLICKENGER 3-band eq/rack, FOCUSRITE ISA 115
- HELIOS Island/Olympic eq/pre; KLARK TECH, DN780
- KORBY Empyrian mics/new CM3, LANGE PEQ4
- LEXICON LXP1-5-MRC/PCM41/PCM42/480L/200
- NEVE consoles: BCM10/8058/8068/24input-1073's/B0 series frames
- 24x8 frame -1073+ 24x8-holds 1081/VR Legend
- NEVE 1073 MIC PRE ONLY-racked in pairs, output level 48v, DI in)
- 1066/1073/1081/1089/1095/2053/33314/83065/2254/1272/1290/ tube pre-EQ
- NEUMANN U47fe/U47/M49a+b/M50pr/M269/UM57/U77/KM253/53
- cons./254/54/64/84/85/86/U67/U87/582/CMV583/SM23/Leipzig 7151/TLM 170pr
- NTP 170/160 comps/EQ's; OPTIFILE 3d 56 chan. automation
- PANSCAN, Pro Tools (inquire); PULTEC EQP1A/EQP1pr/EQH2/HLF filters
- Pye comps: RCA 44 jr/44/77/BA6A/BA86
- Rhodes and Swartz Omni measurement mic, ROLAND Dim D/SBF 325 Flanger
- Schaepf/Telefunken 221, SPENDOR SA300, SSL 4048/4056, 4080 G+
- STUDER 827, 700 hrs+6000 hr/A800MKIII/189+269 12+14 in mixers
- TELEFUNKEN V72/V72a/V76/V76a/V672/v676/W695eq
- TRIDENT 80b/80b w/ GML 80C/ stereo comp-lim
- UREI 1176LN black-silver/1178/LA2/LA3/565 filter
- QUANTEC QRS, VALLEY dynamite/Keyplex II

NEW ITEMS: WESTLAKE, API, FAIRMAN

Please inquire about products not listed

info@vintageking.com * Phone 313.965.0545 * Fax: 313.964.3334

CREDIT CARDS ACCEPTED FINANCING AVAILABLE

Speaker Isolators!

- Bring out the best your speakers have to offer
- Damps low frequencies - firms and cleans up bottom end response
- Eliminates mechanical coupling - speakers stop annoying neighbors
- Eliminates mechanically induced buzzes and vibrations in walls and floors
- Genuine Sorbothane® the best high-performance vibration isolation material
- Small size - 3/4" diameter hemisphere - discreet and unobtrusive
- Isolate sensitive equipment such as CD players and tube equipment
- Can be used in multiples - accommodates any size speaker
- Inexpensive - use it on all your speakers

BLACK 805-653-5557

AUDIO DEVICES Fine Audio Products since 1984

www.blackaudio.com

got gear?



Insure it now!



gearinsurance.com

Insuring Professional Audio, Video, Editing, Film, P.A. and Band
Gear for over 25 years in Southern California and Nationwide.

Insurance services provided by
United Agencies, Inc.
(800) 800-5880
CA Lic. #0252636

all under one roof!

deal direct & SAVE

FREE CATALOG or
CUSTOM QUOTE

Compact Disc Replication

Cassette Duplication

Complete Packages

Digital Mastering

Graphics and Printing

C&C
MUSIC

Toll
FREE

www.CandCmusic.com
OUTSIDE THE U.S. CALL 631-244-0800

You'll Hear & Feel
the Difference

800 ☆ 289 ☆ 9155

SONIC CIRCUS

Complete Studio Integration
Project Management
Console Exchange Program
Creative Financing

featured consoles this month

- SSL 4064G+ w/ultimation
- SSL 4056E/G
- Neve v3/60 w/flying faders
- Neve 8108 72 ch.
- Neve BCM 10
- Euphonix CS2000 96 loaded 56

GO TO soniccircus.com FOR OUR GIANT FALL GEAR BLOWOUT SALE!



We are the exclusive distributor of MAD LABS

617.696.9360

CD LABELING & PACKAGING FROM YOUR DESKTOP!

DESIGN • PRINT
APPLY • PACKAGE



40 FREE HIGH-GLOSS CD LABELS with the purchase of a NEATO2000 Kit. Use Coupon MIX when you CALL or CLICK

ONLY \$29.95



- KIT INCLUDES**
- NEATO 2000 CD Label Applicator
 - Assortment of Labels and Jewel Case Inserts
 - MediaFACE-II
 - Design Software (PC), Templates (Mac)
 - Digital Background Art for Labels and Inserts
 - Label and Insert Templates for Popular Graphics Programs (PC/Mac)

800-984-9800

Also available... Other Media Labeling Products including - Video Sleeves/Wraps/Labels, Business Card CD Labels/Sleeves



250 Dodge Ave. • East Haven, CT 06512 • 800-984-9800 • 203-466-5170 • Fax 203-466-5178

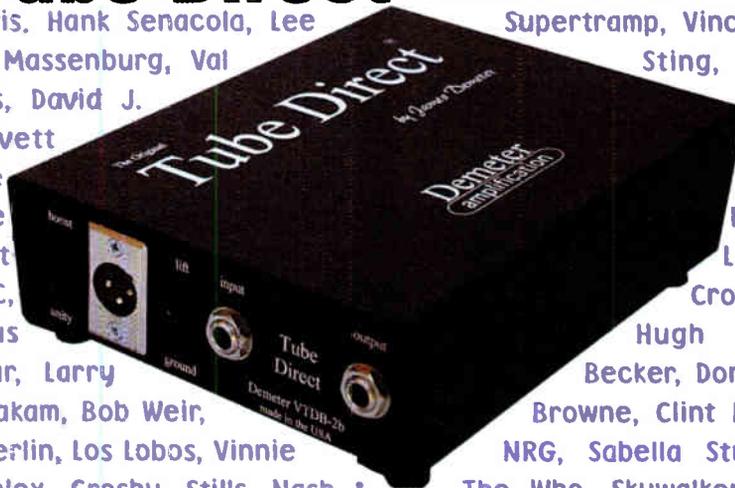
www.neato.com

Ry Cooder, Bonnie Raitt, Tracy Chapman, Stanley Clarke, Micheal Hedges, Clair Brothers, Steve Miller, Way

There can be only one original.

Recorders, Jesse Colin Young, Bob Glaub, Brian Aherne, Skywalker Ranch, Blues Traveler, Ben Harper, The Tube Direct

Studio, Steve Jarvis, Hank Senacola, Lee Ritenour, George Massenburg, Val Garay, Allen Sides, David J. Holman, Lyle Lovett and The Large Band, Stone Temple Pilots, Rage Against the Machine, AC/DC, Areosmith, Marcus Miller, John Farrar, Larry Carlton, Dwight Yoakam, Bob Weir, Brian Eno, Steve Berlin, Los Lobos, Vinnie Vincent, The Complex, Crosby, Stills, Nash & The Who, Skywalker Ranch, Bob Dylan



The professional's choice since 1981

Demeter Amplification

15730 Stagg St., Van Nuys, CA. 91406

818-994-7658 Demeteramps.com E-Mail: Sales@Demeteramps.com

MARQUETTE AUDIO LABS



**New, Used & Vintage
Recording Equipment**



*Specializing in
Custom Racking*

- Neve • Telefunken
- Siemens • Calrec
- Langevin...and more!

Phone 510-581-3817 • Fax 510-581-3917
www.marquetteaudiolabs.com



SEE US AT
AES BOOTH
#1347

Mercury Recording Equipment Co.

"There's nothing better than the best!"

- "All Tube and All Transformer," fully-balanced, variable-bias limiting amplifier, (comp./lmtr.)
- Hand built in the USA, No PC board or ICs (chips).
- Mono (linkable)



For more info and closest dealer please go to our website.

Phone 510/581-3817 • Fax 510/581-3917
www.mercury-rec.com

INTRODUCING THE VINTECH X73



THE VINTECH AUDIO X73 IS AN ALL DISCRETE, CLASS A MICROPHONE PREAMP WITH EQUALIZER. ITS DESIGN AND CONSTRUCTION ARE BASED ON THE CLASSIC NEVE 1073 MODULE. WE HAVE DONE EXTENSIVE COMPARISONS WITH ORIGINAL MODULES AND GUARANTEE THEM TO SOUND RIGHT OR YOUR MONEY BACK. LIST IS ONLY \$1995.00 WITH DISCOUNTS FOR MULTIPLE UNITS. PLEASE CALL 813-643-8114 OR VISIT www.vintech-audio.com

ATTENTION GEAR SLUTS!

**MAKE YOUR MONEY
WORK FOR YOU.
GIVE IT TO US!**

NEVE, API, SSL, TRIDENT, STUDER,
EUPHONIX, MANLEY, MILLENNIA,
CRANESONG, FEARN, LEXICON,
TC ELECTRONIC, AVALON, MACKIE,
TASCAM, AND MORE...



Only the finest New, Used & Vintage
Recording Equipment in the world!

615-269-0704

www.primalgear.com

1622 16th Ave. South Nashville, TN.

ex-tend-it

CAT5-3000

Show your noisy
computer the door.



- Extends two Monitors, USB, Audio & RS232
- Ideal for Protocols & Avid users



800-545-6900 www.gefen.com gsinfo@gefen.com

CHANDLER LIMITED

LTD-1 "EXPANDED 1073" PRE AMP & EQ



MORE EQ POINTS ORIGINAL CLASS "A" CIRCUIT
48 VOLT, DI. PHASE REVERSE, OUTPUT FADER

LTD-2 "2254 TYPE" COMPRESSOR



6 POSITION ATTACK NOT ON ORIGINAL
MORE RELEASE TIMES, STEREO LINKABLE.

Phone: (319) 352-2587

email: chandlerlimited@yahoo.com

CLASSIFIEDS

MIX Classified Ads are the easiest and most economical means to reach a buyer for your product or service. The classified pages of Mix supply our readers with a valuable shopping marketplace. We suggest you buy wisely; mail-order consumers have rights, and sellers must comply with the Federal Trade Commission, as well as various state laws. Mix shall not be liable for the contents of advertisements. For complete information on prices and deadlines, call (800) 544-5530.

Acoustic Products

Acoustics by db

...all the others are just brokers.

New products from Quested-Daking
Neotek • Martech • Sontec • MRL
Trident • Shep/Neve • United Audio
Prizm • Eventide • Alan Smart

- Total studio concepts created by experienced producers & engineers.
- Control rooms, studios, full facilities and turnkey packages.
- Wiring system design, custom cabling and full installations.
- Consultation and advice on equipment or system choices.
- Room tuning, noise problems, existing plans and custom traps.
- Packages of used & vintage consoles, 24 tr. mics & processing available.

Building Studios & Keeping 'em alive for 33 years!

Neve Classic 80 Range • Neve VI-VR Range
SSL 4000 • 5000 • 6000 • E/G/G+ • 9000J
Flying Faders • API 3224 • Trident 80C/80B
Neumann U47 VF14 • U67 • U47 • KM84
Studer A827 • A820 • A800 MKIII • A80 MKIV
Otari MTR90 • MX80 • Radar • Sony JH24ALIII
Sony PCM3348 • Studer D827 • Dolby XP/SR
EMT 250/251/140 • Lex 480/224 • Sony DRE
AKG C24 • C452EB • C12 clone • C28 • C60
AKG C414EB Silver • Neve 1066/1073 • Shep
Fairchild 670/660 • Quantec • AMS RMX/DMX

Building a project studio?
Designs from existing plans
start at \$1,000 per room.

SMALL AFFORDABLE SPECIALS
Trident 24 • Studer 169 • Alesis • Eventide
Neotek • Artek Big • Tascam MSP24 • MS16
Neumann U87ai • UREI 813C • 809 • Manley
Urei 1176LN • 1176 • LA3A • LA2A • LA3A
Neumann TLM103 • KM184 • U87 • KMS105
AKG C414EB • C451E • C60 • C12VR
Digidesign • Otari • Ampex • API

1194 Walnut St, Suite 205 Newton, MA 02461 • 617 969-0585 • fax 617 964-1590
Now on the web @ www.db-engineering.com • email db1db@earthlink.net

ARCHITECTUAL ACOUSTICS FROM Professional Audio Design, Inc.

- DESIGN AND CONSULTATION FOR EVERY PROJECT
- NO MATTER THE SIZE OR BUDGET
- EXCLUSIVE U.S. REPRESENTATIVES FOR MUNRO ASSOCIATES DESIGN, LONDON
- ROOM ANALYSIS AND MONITOR SYSTEM TUNING
- CUSTOM DYNAUDIO/MUNRO MAIN MONITOR SYSTEMS
- CUSTOM WIRING SYSTEMS DESIGNED AND INSTALLED
- EXCLUSIVE U.S. RESELLER FOR PRE-OWNED SSL CONSOLES

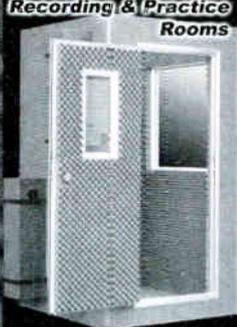
V (781) 982-2600 F (781) 982-2610
www.proaudiodesign.com

THE SYSTEMS COMPANY
RECORDING STUDIOS • MASTERING
FILM • POST • BROADCAST

Professional
Audio
Design
Inc.

Multi Purpose
Recording & Practice
Rooms

VocalBooth.com



Starting at
\$1499

Affordable Portable
4x4, 6x6 & larger
(541)330-6045

SoundSuckers.com

1-888-833-1554

*Soundproofing Products & Supplies
*Full line of Professional booths
*Custom Projects of all kinds

E-mail: sales@soundsuckers.com

SILENT

58 Nonotuck St., Northampton, MA 01062
INFO (413) 584-7944 • FAX (413) 584-2377
ORDER (800) 583-7174
info@silentsource.com • www.silentsource.com

AcoustiCore Fabric Panels • Sound Barrier
Isolation Hangers • A.S.C. Tube Traps
Silence Wallcovering • WhisperWedge
MelaTex • S.D.G. Systems • Tecnofoam
R.P.G. Diffusers • Sonex • Sound Quilt

kgvg.com

Design & Integration
800.822.3443

AcousticsFirst™

Toll Free: 888-765-2900

Full product line for sound control and noise elimination.
Web: <http://www.acousticsfirst.com>

Business
Opportunity

VIBRANT TECHNOLOGIES

SOUND CONTROL
DIFFUSER PANELS

800-449-0845
www.vibranttech.com

GET OUT OF DEBT FREE!
Stop collection calls, reduce payments up to 50%, lower interest.
Nonprofit, licensed, bonded.
Call (800) 847-6184, ext (5114).

WhisperRoom INC.

SOUND ISOLATION ENCLOSURES

Celebrating over 10 years of
reducing sound to a Whisper!

Recording, Broadcasting, Practicing



15 Sizes and 2 Levels of Isolation Available

New! SoundWave Deflection System
(Change parallel walls to non-parallel)
Immediate Shipping!

www.whisperroom.com
PH: 423-585-5827 FX: 423-585-5831

For
Classified Ad
Deadlines

Call:
(800) 544-5530

e-mail:
mixclass@primediabusiness.com

Tired Of Bad Sound?
It's Time To Take A Stand.

Introducing the Auralex

GRAMMA

The GRAMMA is a hot new patent-pending device that floats an amp, monitor, subwoofer, turntable or more for nearly total acoustic isolation.

Whatever device you put on top of a GRAMMA will instantly perform a lot more like it was designed to!

You'll immediately notice dramatically truer tone, higher immunity to feedback and a level of resonance-free purity you never thought you'd get out of your gear! The GRAMMA absolutely ROCKS! Check it out TODAY!

"(My) low end is much more focused...no room resonances...all the little buzzes & rattles went away immediately...my two recording amps stay on the GRAMMA!"
Lee Roy Parrnell
Vanguard Recording Artist

"Really smooths out my guitar tones. The road crew started using GRAMMAs under the monitors, the Leslie's & drum mics...fantastic results all around."
Jeff Tameliler
Guitarist, Tower of Power

Bass & Guitar Rigs

Monitors

Subs

Auralex Acoustics • www.auralex.com • 800-95-WEDGE

Computer Products

COMPUTERS for MUSIC.

Preconfigured Macs and PCs optimized for Cakewalk, Cubase, Digi 001, Digital Performer, Emagic, GigaSampler, Pro Tools LE/TDM, Sonar and more. Featuring audio & MIDI hardware from Digidesign, MOTU, Midiman, Frontier, RME. Optimized for MIDI sequencing, hard disk recording, AV, and CD-R mastering & duplication. Desktop, tower and rack-mount configurations available.

www.wavedigital.com (973) 728-2425

Call for information about our new

Rack-mount Apple G4 Macs and Powerbook-based portable DAW solutions

Employment Offered

We're Looking For A Great Pro Tools Engineer To Overpay. New recording studio in NYC has opening for a "Studio A" engineer. Lots of radio, some TV & corporate. Good salary & benefits, but you gotta be the best. Client following a big plus. Send sample work, resume and salary requirements to: Mix Classifieds, P.O. Box 8845, Dept. OI, Emeryville CA, 94608

COMPOSER/PRODUCER.

Rapidly growing ent. co. seeks multi-talented composer/producer to be based in L.A. office. Exp. working w/ad agencies, highly creative, versatile in many musical genres, exc. people skills. Salary/compensation based on exp/client base.

Resume and demo reel:
H & R Dept., 1701 Church Street, Nashville, TN 37203

Equipment Financing

A/V EQUIPMENT FINANCING

Specializing in Audio Video Equipment

Visit Our [Web Site](#) For Applications & Qualifications

- No Financials Required
- New & Used Equipment
- Upgrade Existing Leases

LFCI www.lfci.net

We Are Direct Lenders

Call: 800 626 LFCI

EQUIPMENT FINANCING

- FAST, EASY APPROVALS
- We Specialize in Audio-Visual Equipment
- No Financials Necessary
- True Lease or Finance Lease Option
- New or Used Equipment

LOANS BY PHONE

Call Jeff Weiner
(800)699-FLEX

24hr. Fax (972)599-0650

FLEXLEASE, Inc.
COMMERCIAL EQUIPMENT FINANCING

Contact Us at Our Web Address:
www.flexlease.com

Equipment For Sale

SINGERS! REMOVE VOCALS
Unlimited Free Backgrounds from Original Standard Recordings! **Thompson Vocal Eliminator™ VE-4** Free Brochure & Demo. 24 Hour Demo Info Line - (770)482-2485 - Ext 8
LT Sound Dept MX1 7980 LT Parkway Lithonia, GA 30056
Internet www.LTSound.com
Better Than Karaoke for Over 25 Years!

WARM IT UP!!!
Uncle Albert's VTB-2A
\$449* Shipping
(800) 416-2444

THINKING OF BUYING SOME PRE-OWNED PRO-AUDIO EQUIPMENT? CALL ME FIRST
Randy Blavins @ Blavins Audio Exchange
615-242-0596
www.blevinsaudio.com

MIX CLASSIFIEDS WORK!
Phone: (800) 544-5530
Fax: (510) 653-8171

HARBOR SOUND

HUGE SELECTION OF USED, VINTAGE & NEW GEAR
Consoles: Euphonix CS2000F 80-in, \$89.5k*; Trident 80B w/Audiomate, \$38k*; AP12488, \$35k*; Studer a-800MKIII/a-800MKII*; Lexicon 480L*; Neve VR72*; SSLG+ 100in w/Uit*.

Check website for details.
Credit Cards Accepted.

Ph: (781) 231-0095
Fax: (781) 231-0295

www.harborsound.com

EXCLUSIVE FACTORY AUTHORIZED RESELLER

www.UsedSSL.com

PROFESSIONAL AUDIO DESIGN, INC.
(781) 982-2600

CLASSIC MICS FROM RUSSIA

VINTAGE TUBE & FET

Telefunken, NEUMANN
AKG, LOMO, OKTAVA, etc.
TEL/FAX: 011-7-095-250-4200
E-mail: aeg210268@mtu-net.ru

www.vintageking.com



Buy, Sell, Trade...New and Used...Package Deals
Ph: (313)965-0645 Fax: (313)964-3338

SEE OUR AD IN MARKETPLACE pg 320

Neve 8068 64-input, 31102 mic pre/EQ modules. This console was formerly the two 8068s from Media Sound in New York. Custom refurbishment, assembly and mods by Fred Hill. Mods include insert on master fader, additional switching for monitoring ext. sources, level match between mix bus and external source, splittable bus structure. GML automation with Mac interface. \$360k. (212) 627-8200.

PATCHBAYS VINTAGE GEAR

we buy-sell-trade, see our list at www.audiovillage.org

(760) 320-0728

AVALON DESIGN

PURE CLASS A MUSIC RECORDING SYSTEMS

www.avalondesign.com

tel: 949-492-2000 fax: 949-492-4284
email: avalon@avalondesign.com

TAKE A BITE OUT OF STUDIO CRIME WITH THE MIX ONLINE STOLEN EQUIPMENT REGISTRY
WWW.MIXONLINE.COM/SER

Open for business
24 hours
<http://www.mercenary.com>



"this is not a problem"

TEL: (508) 543-0069
FAX: (508) 543-9670

GREAT EQUIPMENT



212-502-1880
234 WEST 30TH ST NYC 10001
yeraudio@aol.com

NO FUNNY AFTERTASTE

SSL - NEUMANN **K.G.B.** STUDER - NEVE
<http://killergearbroker.com>
VISA Professional Audio Specialist MC
phone (818) 904-9400 fax (818) 904-9444 pgr (818) 999-8970
"ANY GEAR NOT LISTED CAN BE FOUND WITHIN 48 HRS!"

VT-2 Vacuum Tube Mic Preamp
www.dwfearn.com



D.W. FEARN

MAKE YOUR OWN CDS!
Free Guide To Purchasing
CD Duplication Equipment
Buy • Sell • Trade
www.superdups.com

SEE OUR AD IN MARKETPLACE pg. 316

SEE OUR AD IN MARKETPLACE pg. 318

Citizen Statius 18P1 Recording
Console 24 modules
48 automated
inputs w/ Eagle Automation
480-point patchbay
Two years old
in excellent condition
Asking \$10k/CELO
Call (414) 708-3070
reamp@tillco.com

LOOKING FOR
BETTER SOUND?
Component-level upgrades for mixing
consoles, tape machines, mics &
all outboard gear. Also, high-speed,
high-quality mic preamps.

AUDIO UPGRADES
6410 Matilija Ave.
Van Nuys, CA 91401
(818) 780-1222
Fax: (818) 886-4012
www.audioupgrades.com

Sony MPX 3036 console
with 14 API 212s mic pre
10 API 560s EQs
Megamix 11 Automation
with Mac Ili
(718) 387-7958
www.coyoterecording.com

Radial **Winne**
Mix Magazine


(604) 942-1001 Direct Box

**SOUTHERN CALIFORNIA
PRO AUDIO**
NEW, USED AND VINTAGE
THE LAST CALL YOU'LL
HAVE TO MAKE!
Phone: (818) 222-4522
Fax: (818) 222-2248
www.socalproaudio.com

STEDMAN
"This one works!"
George Petersen/MIX Magazine
Available Now!
Call
888-829-5960 www.stedmancorp.com

Professional Audio Design
THE SYSTEMS COMPANY

- Exclusive factory authorized U.S. agent for pre-owned Solid State Logic consoles..
- US representatives for Munro Associates studio design and custom monitors.



QUALITY
EXPERTISE
VALUE

- In-house service, custom wiring design and fabrication and installation services.
- New, used and vintage equipment sales.

Please call us to discuss your facility's requirements.

Since 1964 we have had the largest equipment Data Base in the world.

Ocean Audio Inc.

Call (303) 449-8322 Fax (303) 449-8558
Email hadlerd@rmi.net
<http://oceanaudiainc.com>

CELEBRATING 10 YEARS
OF GREAT DEALS!

We list over 600 recording and live boards, plus hardware, analog effects, more. We can help you find used equipment, too!

• 4800 6011 analog	only \$2000
• 4800 6012 30C	\$17000
• Neveve 100	20000
• Neveve 1000	10000
• Neveve 10000	10000
• Neveve 100000	10000

Call us now for details & FREE catalog
The Grumpy folks at K.T.C.S.
818-222-4522 • 818-222-2248
www.ktcs.com

CONSOLES FOR SALE
SSL 9080 J, 80 Series Neves
60- & 72-channel Neve VRs
Flying Faders or GML
Contact Gary Belz
House of Blues Studios
(818) 990-1296

Professional Audio Design Inc.

Voice (781) 982-2600
Fax (781) 982-2610

REPRESENTING OVER 100 MANUFACTURERS
PLUS HARD TO FIND VINTAGE GEAR
API, AKG, AVALON, DYNAUDIO,
FOCUSRITE, GML, LEXICON,
MANLEY LABS, MUNRO CUSTOM
MONITORS, NEVE, OTARI, SONY,
SSL, TC, ELECTRONIC, & MORE

www.proaudiodesign.com

SEE US AT AES BOOTH #1036

**Coles 4038
RCA 44s & 77s**

(800) 798-9127

Call Wes Dooley

THE MIC SHOP
TUBE MICROPHONES
BOUGHT/SOLD/SERVICED
Mic Power Supplies & Cables
Bill Bradley: (615) 595-1717
Fax: (615) 595-1718
www.micshop.com

**SELLING EQUIPMENT?
GET IT SOLD!**

It's fast and easy on Digibid!

digibid.com
the professional equipment marketplace

www.digibid.com

Equipment For Sale

VINTAGE NEVE™ 1272 PREAMPS with D.I.



\$1089 Single w/p.s. \$1859 Two channel

VINTAGE NEVE™ 3415 PREAMPS with D.I. (PRE FROM NEVE 1081 EQ)
\$849 Single w/p.s. \$1349 Two channel w/p.s.

CLASSIC MIC PREAMPS MADE FROM VINTAGE API COMPONENTS
\$1449 Two channel w/p.s. \$549 Plug-in module

POWERED RACKS FOR VINTAGE API PREAMPS AND EQ'S
\$569 6-Module portable \$569 6-Module rack mt \$899 11-Module rack mt

Brent Averill
 ENTERPRISES

14300 Hortense Street • Sherman Oaks, CA 91423
 818 784•2046 FAX 818 784•0750
www.brentaverill.com

Every major brand of everything. Millions of dollars of musical gear in stock. ALTO MUSIC guitars, recording, keyboards, amplifiers, drums, pro sound, new & used. One of the largest selections in the country. We ship everywhere!
(845) 692-6922 • 680 Rt. 211 E.
 Middletown, NY 10940
www.altomusic.com
altomusic@altomusic.com

digital playroom

Everything needed to create an audio & video studio. Ready to use out of the box. Sales, service and setup.

Pro Tools, Final Cut Pro, Adobe & Other Pro Gear

(800) 822-6434
www.digitalplayroom.com

Pre-owned or new cosmetically flawed Digital recording equipment at near wholesale pricing. Mackie, Yamaha, Panasonic, Sony, Alesis, Tascam, Roland and more. Save thousands. Many new items have just had the box opened and never used. Over 350 brands. Absolutely the best prices anywhere! Over 72 years in business.

Call today **(800) 264-6614** or (860) 442-9600 or e-mail info@carusomusic.com.

Caruso Music 94 State St., New London, CT 06320
www.carusomusic.com

The Marketplace



Used Pro Audio

For Sale: Vintage tube Western Electric, Langevin, Studer, Gates, Altec, JBL, Tannoy, McIntosh, Marantz, UTC, UREI. 2000 Photos online. E-mail me for link to my Website. Save this ad.
archaicaudio@webtv.net

The gear you need.

We've got it.

Recording • Guitars Amplifiers • Pro Audio Keyboards • & More

We have everything you need for studio and stage!



Sweetwater

music technology direct

800-222-4700

www.sweetwater.com
sales@sweetwater.com
 5335 Bass Road, Fort Wayne, IN 46808
 (219) 432-8176 • FAX (219) 432-1758

BEST PRICES & SELECTION OF WORKSTATIONS, DIGITAL MIXERS, RECORDERS, OUTBOARD GEAR, MICROPHONES AND MONITORS.

Pro Tools MIX/MIX Plus, ToolBox, Plug-ins, Mackie Digital, Manley, TC Electronic, Tube-Tech, Apogee, Dolby, Neumann, MOTU 2408 and 1224, API, Summit, Genelec, Presonus, Steinberg Nuendo, Hafler, Lexicon, AKG, Yamaha Digital, Soundcraft, Tannoy, Roland Digital, Alesis Digital.

- Very Aggressive Pricing
- Experienced & Knowledgeable Sales Staff
- Serving the Recording Industry For Over 20 Years
- Ask About Our Used & Demo Selections

EAR PROFESSIONAL AUDIO (602) 267-0600

Visit our Website for more Product Information and Incredible Blowouts at **WWW.EAR.NET**

Digital Recording

Factory Direct Discount Dealer
 * Alesis * Yamaha * Sony * Tascam * Roland * Akai * Event Electronics * Digital Audio * Fostex * Korg * Pro Audio Plus (800) 336-0199
 Division of Rolls Music Center
www.rollsmusic.com

ES-8 Variable Mu Tube Limiter



A Modern Approach to Classic Tube Compression Same Compression Profile as the Fairchild Limiter Class A Sonically Accurate Signal Path

Pendulum Audio (908) 665-9333
www.pendulumaudio.com

SEE OUR AD IN MARKETPLACE pg. 322

SEE OUR AD IN MARKETPLACE pg. 318

MISTY HILL AUDIO

VINTAGE

NEUMANN • NEVE • AKG • STUDER
 API • TRIDENT • AMEK • UREI • RCA • SSL • TELEFUNKEN

Buy/Sell - We pay top dollar - FAX us your list
 Worldwide Shipping • Visit our website

VISA MasterCard American Express Discover

512.338.6777 • <http://audio.home.texas.net>

ODYSSEY PRO SOUND

New, Used and Vintage Recording Equipment

API, Neve, Fairchild, Manley, Quedsted, Urei Pultec, Neumann, Lang, Studer, and More!

www.odysseyprosound.com
1-800-249-1821
 Phone: (978) 744-2001 Fax: (978) 744-7224

M3P DAW Monitor
 Who needs a mixer?

colemanaudio.com
A Coleman Audio (516) 334-7109

SoundBroker.com

Bringing buyers & sellers together.

CONSOLES • SPEAKERS • AMPLIFIERS

(310) 333-1960

sales@SoundBroker.com

www.SoundBroker.com

ALAN SMART COMPRESSORS



C-1, C-2 & Multichannel version

available in the U.S. & exclusively distributed by:

Sunset Sound, Hollywood (323) 469-1186

www.sunsetsound.com

Switch between any combination of two computers. (PC and Mac)

800-545-6900
www.gefen.com

ex-tend-it
 mini PC/Mac



GEFEN, INC.

Upgrade Your Vocals

with
Variable Acoustic Compression™

Pop filters that adjust for the best combination of pop protection and sonic transparency BEFORE the sound reaches the microphone.

Get professional sounding vocals and protect your microphones.

ORDER TODAY!

www.popfilter.com

Popless Voice Screens

Tel: 1(800) 252-1503 email: info@popfilter.com



SONIC CIRCUS
A SOUND ALTERNATIVE
617.696.9360
soniccircus.com

SEE OUR AD IN MARKETPLACE pg. 321

Boutique Audio & Design
New 1073
See our ad in Marketplace

SEE OUR AD IN MARKETPLACE pg. 317

UNDER COVER
Custom Covers and Bags
Speaker Cabinets / Consoles
Anything!
www.undercovernyc.com
917 237 1535
Get your gear Under Cover!

THE CASE SPECIALISTS
FREE CATALOGUE

(800) 346-4638
(631) 669-8828, NY
(631) 669-1980, Fax
Custom or stock sizes.
Our prices can't be beat!
www.Discount-Distributors.com

FURMAN **SPB-8 Pedal Board**

- Holds up to 8 pedal effects on strong velcro surface
- Features famous Furman power conditioning
- Includes sturdy carrying case with shoulder strap and more

Sweetwater
1-800-222-4700
www.sweetwater.com



Equipment Rental

"RENTALS WITH SERVICE"



Professional Audio Rental Company for Music • Film • Post
We Carry Everything!

818/843-6555 800/441-4415

Equipment Wanted

Sales@SoundBroker.com
(310) 333-1960
SoundBroker.com
Linking Buyers & Sellers Together
We Buy & Sell For You
New & Used
Consoles - Speakers - Amps
Meyer, Crown, Crest, QSC
Satisfaction Guaranteed

Next time you call a classified advertiser, let them know you saw their ad in Mix!

Furniture

OMNIRAX
STUDIO FURNITURE

CODA DB with Sidecars
OMNIRAX 800.332.3300 416.332.3302
FAX 416.332.2007
www.omnirax.com

ARGOSY

NEW 90 series console enclosure for SONY DMX-R100
Specialized Studio Furnishings
www.argosyconsole.com
catalog: 800.335.0878

Neut TT Cabl: \$10.99
Switch TT Bay: \$279
Sig II CD Printr: \$599
Sig III Printer: \$1,099
Green Dot: 615-366-5964
www.greendotaudio.com

AB International
The best in live and studio Amplifiers

A division of Amplified Design Int'l
Amplified Design Int'l
1830-6 Vernon St.
Roseville, Ca. 95678
Phone 916-783-7800
Fax 916-784-1050
Visit us on the web at:
www.abamps.com

MARQUETTE AUDIO LABS
New, Used & Vintage Gear - Specializing in Custom Rocking

Phone: 510-581-2817 • Fax: 510-581-3817
www.marquetteaudiolabs.com
SEE OUR AD IN MARKETPLACE pg. 322

PRO AUDIO EXCHANGE
COM
THE USED GEAR TRADING POST

USED GEAR

THE TOY SPECIALISTS
PROFESSIONAL AUDIO SERVICES
hundreds of items in stock just point...click...and buy
www.toyspecialists.com
800 445 3330

Your search has ended!
We sell the finest new, used and vintage studio equipment in the world!

(615) 269-0704
www.primalgear.com
16th Ave. South, Nashville, TN 37212

Have a job to fill?
Place an ad in Mix Classifieds
(800) 544-5530

SEE OUR AD IN MARKETPLACE pg. 322

Furniture

SOUND ANCHOR SPECIALTY AUDIO STANDS (321) 724-1237

DESIGNED FOR ULTIMATE PERFORMANCE BEHIND CONSOLE AND FREE SPACE APPLICATIONS.
Standard & Custom Models
SEE OUR AD IN MARKETPLACE



SEE OUR AD IN MARKETPLACE pg. 316

MIX CLASSIFIEDS WORK!
Phone: (800) 544-5530
Fax: (510) 653-8171

Guitar Lamp

Strum me to turn me on!

www.guitarlamp.com
913-362-5004



Learn the Art of Recording

- Recording Technology
- Recording for TV/Film
- Music Business
- Music Theory
- Small Classes
- Placement Assistance

1-972-869-1122
www.dallassoundlab.com

- Solid State Logic
- Neve
- Yamaha O2R
- Protocols
- Synclavier
- Otari
- Tascam DA88

Maintenance Services & Repairs

ATR with References

Ampeg ATR102s remanufactured by Michael Spitz are known worldwide as the reference standard for high quality analog mastering. For a user list, please see www.atrservice.com/atr/clients.htm.

ATR SERVICE COMPANY
AMPEX QUALITY (717) 852-7700

SEE OUR AD IN MARKETPLACE pg. 317

SPEAKER RECONING REPLACEMENT DIAPHRAGMS

ACCUTRACK
RECORDING
AND SOUND INC.
www.accutrackrecording.com
(847) 465-8862

Instruction

Recording Engineer Broadcasting

Multimedia/Digital/Video/Film
Radio/TV/Sports/News/DJ/Talk Show

No experience required!

On-the-job-training

in local major Recording Studios & Radio/TV Stations

Part-time, nights, weekends - Call recorded info line for FREE video

1-800/295-4433 www.radioconnection.com



Audio Recording Technology Institute

- Extensive Hands-On Training
- Analog and Digital Workstations
- Music, SFX Design, Audio Post
- Low Student/Teacher Ratio
- Placement Assistance
- Financing to Qualified Applicants
- Accredited by ACCSCT
- Located in Beautiful Orlando, Florida

888-543-ARTI • audiocareer.com

BE A RECORDING ENGINEER

★ TRAIN AT HOME
Easy Home-Study practical training in Multi-track Recording. Join our successful working graduates or build your own studio. Career guidance... Diploma... Licensed

FREE INFORMATION:
Audio Institute of America
114 46th Ave, Suite A1, San Francisco, CA 94121
Or visit us at www.audioinstitute.com

FUTURE MEDIA CONCEPTS

Training a New Generation
of Pro Tools Artists

- Class Sizes - Maximum of 4
- Onsite Training Nationwide
- Digidesign-Authorized Training



Avid Authorized Education Center

New York
Philadelphia
Boston
Washington D.C.

877.362.8724

www.FMctraining.com

MUSIC RECORDING INDUSTRY CERTIFICATE PROGRAM

San Francisco State University
College of Extended Learning.
Classes taught by bay area pros.
Expand skills and earn certificate.
Engineering, business, management, songwriting and more!
www.cel.sfsu.edu
Call (415) 405-7700

TAKE A BITE OUT OF STUDIO CRIME
WITH THE MIX ONLINE STOLEN EQUIPMENT REGISTRY
WWW.MIXONLINE.COM/SEI

Music Products/Software

from Soundforest
VOICE FUSIONS A unique sampling tool
Double CD Collection
VOICE SYNTHESIZING VOICE EXPLORATIONS
"Voice Fusions is an admirable initial offering - a fun, unique, sometimes strange, and often inspiring collection - that is full of wonderful surprises..." ELECTRONIC MUSICIAN
"These samples are truly bizarre in a brilliantly creative way..." KEYBOARD
www.soundforest.com info@soundforest.com 1-877-237-5771

Music Production

Recording Services

"LOOKING FOR A RECORD DEAL???"

Getting signed is very hard to do. But we will get the record deal you are looking for! Guaranteed Service.
Call now to receive your FREE information

TALENT 2000
1-800-499-6395

New Publications & Books

THE A/B CD

Sonic comparisons of audio technologies and techniques
Analog vs Digital 24 Tracks
14 other categories of comparison.
All recording schools, studio owners and recording artists need this CD!
www.TheABCD.com

46 PRODUCTIONS

25 CD-Rs - \$45.....50 CD-Rs - \$88
100 CD-Rs - \$150 ...200 CD-Rs - \$290

ASK ABOUT OUR DISCOUNT FOR ASCAP MEMBERS
From CD or CD-R master. Includes CD-R in jewel box with text printing on CD label. Add \$35 for other digital master, \$55 for analog master. Orders must be pre-paid. Shipping not included.

42 W. 557 Hawk Circle
St. Charles, IL 60175
Phone: (800) 850-5423
E-mail: info@46p.com
Visit our Web page at <http://www.46p.com>

THE GATE MEDIA GROUP

1-800-655-1625

WE WILL BEAT ANY QUOTE!

WE WILL BEAT ANY QUOTE!

WWW.GATEMEDIA.COM

SEE OUR AD IN MARKETPLACE pg. 318

Best Price... Best Service... Period.

CD REPLICATION

Retail-Ready Packages or Bulk

- Graphics Studio - complete custom design & film output!
- On-Demand Printing - stunning color, fast delivery!
- Audio Mastering Studio - BB charted records every week!
- Vinyl Records - Direct Metal Mastering - simply the best!
- Cassette Duplication - Lyrec w/ HX-Pro!
- Digital Business Cards & Shaped Disks - now available!

Work directly with the factory and save - U.S. MOST COMPLETE FACILITY

(800) 455-8555
(718) 407-7300

www.europadisk.com
Major Credit Cards Accepted

EUROPADISK, LLC

- Compact Discs
- Mastering
- Graphic design
- Free over runs
- 24 hr online tracking

1000 CD's
\$599

SOLID!

www.xtcdisc.com
Call Toll Free
1-866-XTC-DISC



SPECTRUM'S FastTrack

Full Color CD's...
From your CD or DAT master

Mix Special GET 25 FREE
CD'S w/EVERY
100 ORDERED

100 CD's
Full Color
only \$595
complete

AUDIO CD'S
CD ROMS
AUDIO TAPES

INCLUDES:

- Full color one side front insert card
- Matching color tray card with color photo
- Fast Track layout and design
- One color black print on disc
- Jewel case and wrap



Spectrum
1.800.334.9328

Fast Track
Digital Chrome Cassettes
100 \$445 GET 25 FREE
w/EVERY 100
ORDERED

AMERICA'S BEST CD PACKAGES **HANDS DOWN**

1000 CD's Only \$1399.00 Includes:

- Full color booklets • design • film • glass master
- shrinkwrap • 2 colors on disc • priority proofs
- Free Overruns • Free Barcode • Fast Turnaround!
- Manufactured by a Major Label for the very best quality!

100 CD's Only \$299.00 Includes:

- Full color booklets • full color on disc • design
- shrinkwrap • priority proofs • free barcode
- Ready in 5 days!

100 Cassettes
with inserts
\$199.00

ELECTRIC

Records

800-367-1084
www.electricdisc.com



Serving you since 1987

CD CD-ROM DIGITAL CASSETTE
888.655.2272
digital duplication solutions

www.tapeanddisc.com szieglar@tapeanddisc.com

CD - R DUPLICATION

50+	2.49	300+	1.89
100+	1.99	500+	1.79
200+	1.91	1000+	1.69

Price Includes CD - R, Duplication, Thermal Imprinting, Jewell Box, Inserting of cover, & Shrinkwrapped



(936) 756-6861

Your Recording Services
Classified Could be here
Call Mix Classifieds
(800) 544-5530

EARTH DISC
YOUR NEXT
REPLICATION OF
500 CDS COULD BE
FREE
800-876-5950
www.earthdisc.com

SEE OUR AD IN MARKETPLACE pg. 316

Records Tapes
CD Services

TIM Disc Manufacturing

Highest Quality **1-800-324-8568**
Best Service

1000 CD Package **Better Period!**
4 - Panel, 4/1, 3 color disc,
full color rear tray, Includes film & glass master.

1199.00 www.timdisc.com

**Life is already
complicated enough:
Simplify your
CD manufacturing.**



**MUSIC
MANUFACTURING
SERVICES**

The most complete and cost effective
CD, cassette and vinyl services
under one roof.

1-800-MMS-4CDS
www.mmsdirect.com

MUSIC MADE SIMPLE
Since 1988

Records Tapes CD Services

THE WAREHOUSE

Studio Sales & Services

• CD & Cassette Albums
• CDRs • DATs • ADATs • R-DAT
• Blank Cassettes

Call, Fax or Email for
FREE
Catalog

• Overnight CDRs & Graphics
800-483-8273

www.warehouse-studio.com
Email: Info@warehouse-studio.com
2071-20 Emerson St., Jacksonville, FL 32207
904-399-0424 fax: 904-398-9683

In the Studio?

FREE Guide

Saves You Time & Money!

Contact Us Today!

1-800-468-9353

www.discmakers.com/mix
info@discmakers.com

DISC MAKERS

1,000 Store Ready CDs - \$999 www.TrackmasterAV.com
Toll Free: 888-374-8877
1,000 Bulk CDs - \$490
CASSETTES
GRAPHIC DESIGN & POSTERS
STUDIO MASTERING
CD-R MEDIA
YOUR 1-STOP SHOP FOR CD, AUDIO & VIDEO CASSETTE PROJECTS!

CD duplication

Guaranteed | Reliable | Highest Quality!

.59 each! Bulk CDs
1000 for \$590

100 CD
Retail Ready
Promo Package **\$379**

Call Toll Free **888-673-2615**
www.newenglandcd.com

New England
Compact Disc
A Division of New England Digital Media, Inc.

Lowest Price Period!

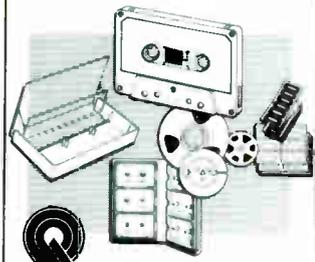
- CD, CD Rom, DVD, cassette & video manufacturing
- Graphic design & print production
- Customized packaging solutions
- Low run capability



1-888-256-DISC ballmedia.com

EST 1967 "IF IT'S RECORDABLE WE HAVE IT" EST 1967
FOR EASY **800-221-6578**
SECURE ORDERING **www.andolaudio.com**
RECORDING AND
DUPLICATING SUPPLIES
SONY • BASF • EMTEC • MAXELL
TDK • QUANTEGY • MICROBOARDS
MEDIAFORM • PRINCO
ANDOL
AUDIO PRODUCTS INC.
16X BLANK CD'S CALL FOR BEST PRICE.
CUSTOM LOADED AUDIO CASSETTES AVAILABLE
FROM 1 MIN TO 126 MIN

RECORDING & DUPLICATING SUPPLIES



TDK BASF SONY
QUANTEGY MAXELL

Cassettes • Reel-to-Reel Tapes
C-O's • Cassette Albums • Labels
R-Dat's • CDR's • Video Tapes
Data Storage Media

ARCAL CORP.

2732 Bay Rd., Redwood City, CA 94063
TOLL FREE 1-800-272-2591
FAX (650) 369-7446
Visit our web site: <http://www.arcacorp.com>

500 CDs and Jewel Boxes for \$650⁰⁰

QCA **800-859-8401**

Great prices on complete packages w/
printing, graphic design & mastering
www.go-QCA.com

ABET MUSIC

CD, CD-R, DVD, VIDEO & CASSETTE

DUPLICATION

WE'LL BEAT ANY PRICE!

ABETMUSIC.COM

888-382-2238

FREE DESIGN

RETAIL READY CDs
IN-HOUSE GRAPHIC DESIGN
using your files / images / photos
MAJOR LABEL QUALITY

ONE PRICE ALL INCLUDED

1000 @ \$1250 ~ 500 @ \$925

DESIGN & DUPLICATION SINCE 1983

dbsduplication.com

DEAL DIRECT • 888-565-8882

SINGLE-SPEED GLASS CUTTING NOW AVAILABLE FOR OASIS® CD CLIENTS

CAN YOUR REPLICATION COMPANY
CUT YOUR GLASS MASTER AT SINGLE SPEED?
*Yet another unique offering from Oasis CD Duplication,
the most unusual replication company in the world.*

We also offer our clients:

- Complete CD packages
- Patent-pending eco-packaging alternatives including the Oasis Jewel-Free™ Box.
- Free radio promotion
- Free national distribution via CDnow, amazon.com, & more

Single
Speed Glass
from Oasis

OASIS®
CD & CASSETTE
DUPLICATION

Call now for free information and samples of our products.
888/296-2747 • info@oasisCD.com • www.oasisCD.com

Making CDs?

Save \$100 on 1000 CDs!

Get More For Your Music!

Want it fast?

Request a quote ONLINE at:

Healey
disc manufacturing

www.healeydisc.com

Or call us now at 1.800.835.1362 for an immediate quote.

**1000 Bulk
CDs \$620!**

1.800.891.9091

MEDIA
CORPORATION

**Our CD & Cass's are
BETTER & CHEAPER!**

(800) 421-8273

Progressive Music

**CD, CASSETTE, CDR and CD-ROM
Complete Packages!**

DDAI
DIGITAL DYNAMICS AUDIO INC.

800-444-DDAI

- CD/CASSETTE MASTERING
- CD/CASSETTE REPRODUCTION
- CEDAR RESTORATION
- GRAPHIC DESIGN
- FILMS AND PRINTING
- CD-ROM AUTHORITY

SEE OUR AD IN MARKETPLACE pg. 317

SEE OUR AD IN MARKETPLACE pg. 319

Whitney Houston • Jennifer Lopez • Bob Dylan • Alice In Chains

When a leading Digital Rights Management company needed someone they could trust to handle top artist's internet material, they chose Eastco as one of their Preferred Service Partners. *You can choose Eastco to handle your project's too.*

1000 CD's • \$599 3 Color Silk-screen Bulk on spindle

100 CD's • \$369 Full Color Insert, Traycard, Direct-on-Disc Imprint, Jewelbox, Shrinkwrap

- Business Card CD's, Shaped CD's
- Audio/Video Cassette Duplication
- A/V Mastering/Digital Editing
- On demand short-run color printing
- WWW Development & Encoding
- Design/Printing/Packaging

1-800-365-8273

EASTCO PRO MEDIA CORPORATION
Serving the world since 1985
www.eastcopro.com

Disney • Warner Home Video • Sony Music Entertainment Inc.

CD PACKAGES

www.bmmi.com

300 - 585.00
500 - 625.00
1000 - 999.00

CALL RIGHT NOW FOR A BOTTOM LINE QUOTATION!

BASE Multimedia Inc.

USA **800-579-7010** CANADA

CD's • CD ROM • CD R • SHAPED CD's • AUDIO CASSETTES

CRYSTALCLEAR
DISC & TAPE

1-800-880-0073 www.crystalclearcds.com

DIGITAL MASTERING • ART DESIGN • PRINTING • PACKAGING

SEE OUR AD IN MARKETPLACE pg. 317

www.earthdisc.com

cd • cd rom • dvd • cassette • mastering • graphic design • printing

\$1325.00 1000 CDs package includes: full color 2 page/4 panel insert 3 color on cd printing glass master, jewel box, shrink wrap

\$986.00 500 CDs package includes: full color 2 page/4 panel insert 3 color on cd printing glass master, jewel box, shrink wrap

\$1299.00 500 CDs we do it all! package includes: graphic design/film full color 2 page/4 panel insert 3 color on cd printing glass master, jewel box, shrink wrap

500 Free CDS !!!
WHEN YOU PURCHASE A CD PACKAGE OF 1000 CDS, 500 WILL BE GIVEN TO YOU FREE OF CHARGE. WE WILL COMPRESS THE OTHER 500 AND SEND BACK MAILING TO OUR WAREHOUSE FOR CREDIT TOWARDS YOUR NEXT ORDER.

1-800-876-5950

Musicians-Bands-Studios

HIGH BIAS BULK/BLANK AUDIO CASSETTES

BASF maxell TDK

C-10	.18 / ea.	PERFECT
C-20	.22 / ea.	DEMO
C-30	.28 / ea.	LENGTHS

CHROME Cr02 C-94..... 50 / ea.
Clear Norelco Box/Round Edge .12 / ea.

All Lengths Available From 1 to 126 minutes

DAT Quantegy, Maxell BASF or Sony

124	94	64	48	34	15
\$5.40	\$4.75	\$4.20	\$4.00	\$3.60	\$3.10

All Formats and Brands Available.
Please Contact our Sales Department For the Lowest Prices!!!

CDR'S

TDK OR MITSUI BLANK FACE WITH JEWEL BOX

10-99	.95	100-499	.90	500+	.85
-------	-----	---------	-----	------	-----

BULK / SPINDLES

Princo	.55 / ea.	Mitsui	.80 / ea.
Generic	.50 / ea.	TDK	.80 / ea.
Taiyo Yuden	.70 / ea.		

Volume Discounts
CD Jewel Boxes With Trays .15 / ea.

2" ANALOG

QUANTEGY 499	\$138
QUANTEGY GP9	\$142
BASF SM-900	\$140

WE WILL MATCH ANY ADVERTISED OR CATALOG PRICE!

adat

QUANTEGY	\$8.50
BASF	\$8.50
SONY	\$8.50
HMB	\$7.00

764 5th Avenue,
Brooklyn, New York 11232
In NY: (718) 369-8273
24 Hour Fax: (718) 369-8275

NRS
National Recording Supplies Inc.

CONTACT US FOR A FREE FULL LINE RECORDING SUPPLIES CATALOG

<http://www.TAPES.com> • e-mail: sales@NRSTAPES.com

TOLL FREE 1-800-538-2336 (Outside NY Only)

Master Distributors of:

QUANTEGY

maxell PROFESSIONAL

DK

BASF SONY Taiyo Yuden

MITSUI

ADAGE

MICHELEX

MELLELEX

SAMSUNG

SKC
MICROCARDS

RIMAGE

PRINCO

TELEX

Got Fat Sound?

AnalogMastering.com
(800) 884-2576

mWORKS

617 577-0089

MASTERING STUDIOS

sonic solutions • restoration
sony PCM 1630 • HDCD
CD replication and one offs

www.mworks.com

Cambridge, MA

www.gvrjr.com

Good Vibrations-RJR Digital
800-828-6537

"Simply the best prices and service for CD Replication, Duplication and Design!"

SINCE 1976

Records Tapes CD Services

888-DISC-MFG
1000 CDs \$0.62^{ea.}
 compact discs
 cassettes
 posters
 postcards
 cd-r media

TGS www.tgsdisc.com
 Get an online quote or a free catalog!

Studios

CLASS STUDIO AND HOME...ORLANDO
 Rehearse, Record, Produce & Live
 www.privaterecordingstudioandhome.com

Miscellaneous

DIGI-ROM Full Services
 For Electronic Media

CD-ROM • DVD • AUDIO CD

MASTERING REPLICATION PRINTING

- CD-ROM One-Offs: Same Day - On Site • 2000 CD-R Duplication Next Day - On Site
- Video Compression: BetaSP & VHS to AVI, Quicktime, MPEG1 & MPEG2 - On-Site
- Audio & DVD Mastering Suites: On-Site • DVD-R Disc Duplication: On Site
- Audio Archival Restoration with CEDAR • Personalized Service: **Outta Sight!**

800-815-3444

In New York City: 212-730-2111

On the web: www.digirom.com

www.SoundBroker.com

**WE BUY & SELL
 FOR YOU**

-SATISFACTION GUARANTEED-

SoundBroker.com

Linking Buyers & Sellers Together

**Pro Audio & Lighting Equipment
 Live Sound, Recording, Vintage & Broadcast**

NEW PRODUCT LINES WE SELL

Anthony DeMaria Labs • Allen & Heath • Ashly
 Community Professional Loudspeakers • Crest Audio
 Crown Audio • dbx • High End Systems • TC Electronics
 JBL • James Thomas Engineering • Meyer Sound Labs
 QSC • Shure • Sony • Spirit by Soundcraft • Tri-Tech Audio • Vintech

WEBSITE UPDATED DAILY

TEL: 310-333-1960 • FAX: 310-333-1961

E-mail: SoundBroker@SoundBroker.com

e-mail your ad: mixclass@primediabusiness.com

MIX CLASSIFIEDS WORK FOR YOU

Text rate: \$120 (minimum) per inch; eight (8) lines per inch (approx. 27-32 lower case character spaces per line).

Enhancements: \$50 per inch for 4-color; \$25 for 1-color screen (CMYK only); \$10 per bold line; \$10 for a black border; \$25 for reverse type (white on black background).

Display rate: \$156 per inch; 1-inch minimum / half-page maximum. Classifieds display must be camera-ready, sized to MIX column widths and art specs. Frequency discount rates available.

Deadlines: Fifteenth of each month, six weeks prior to the cover date (e.g.: April issue closes February 15). Ads received after closing will be held for the next month unless otherwise stated. Cancellations will not be accepted after the closing date. Please submit copy changes and cancellations in writing.

Other requirements: Payment must be included with copy: check, Visa, MasterCard or American Express accepted. Sorry, no billing or credit available. Full street address (PO boxes aren't sufficient) and phone numbers must accompany all requests. All words to be bold should be underlined. Copy must be typed or printed legibly in standard upper/lower case. Publishers are not responsible for errors due to poor copy. Arrangement of characters may be altered in typesetting process due to space. The publishers are not liable for the contents of advertisements. **The small print:** No stated or implied discounts allowed on new equipment sales. Publishers reserve the right to refuse or discontinue any ad deemed inappropriate.

Direct all correspondence to: **MIX CLASSIFIEDS 6400 Hollis Street, Suite 12, Emeryville, CA 94608**
 Tel. (800) 544-5530 or (510) 653-3307; fax (510) 653-8171 E-mail: mixclass@primediabusiness.com

CATEGORIES AVAILABLE (check one):

- | | |
|--|---|
| <input type="checkbox"/> Acoustic Products | <input type="checkbox"/> Maintenance Services & Repairs |
| <input type="checkbox"/> Business Opps. & Consulting | <input type="checkbox"/> Music/Software |
| <input type="checkbox"/> Computer Products | <input type="checkbox"/> Music Production |
| <input type="checkbox"/> Employment | <input type="checkbox"/> Publications/Books |
| <input type="checkbox"/> Equipment Financing & Insurance | <input type="checkbox"/> Recording Services |
| <input type="checkbox"/> Equipment for Sale | <input type="checkbox"/> Records, Tapes & CD Services |
| <input type="checkbox"/> Equipment Rentals | <input type="checkbox"/> Studios |
| <input type="checkbox"/> Equipment Wanted | <input type="checkbox"/> Video Equipment |
| <input type="checkbox"/> Furniture | <input type="checkbox"/> Miscellaneous |
| <input type="checkbox"/> Instruction | |

Attach Your Classified Ad Copy on a Separate Sheet, Typed Double-Spaced or Printed Clearly in Capital and Lower-Case Letters.

Company Name _____
 Name _____
 Address (no PO Boxes) _____
 City _____
 State _____ Zip _____
 Phone () _____
 Signature _____

_____ Display (\$156 per inch)	\$ _____
_____ Text (\$120 per inch, one-inch minimum)	\$ _____
_____ Bold @\$10 per line	\$ _____
_____ Border @ \$10	\$ _____
_____ Reverse @ \$25	\$ _____
_____ Screen @ \$25	\$ _____
_____ Blind PO box @ \$25	\$ _____
TOTAL PAYMENT INCLUDED	\$ _____

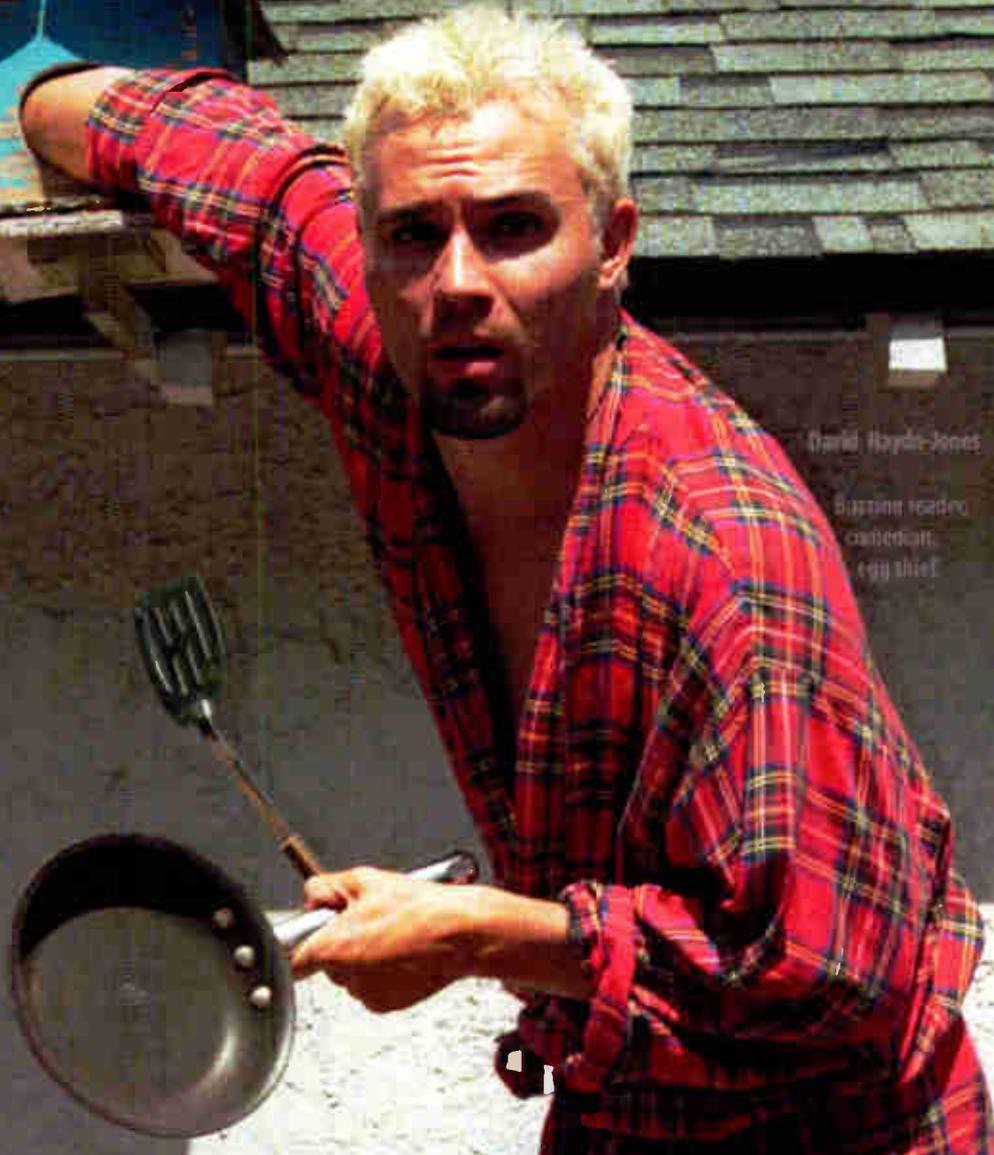
Visa MC AMEX Discover

Check/Money Order # _____

Card # _____

Exp. _____

FREE LUNCH?



David Hayde Jones

Buzzine reader
contestant
egg thief

Buzzine Magazine

Same original music and entertainment magazine. Great new print format. Best of all, you can get it FREE!

For a limited time only, you can get your free lunch by having Buzzine Magazine delivered directly to your door at absolutely no charge. So what's the catch? There is none. **Simply visit www.buzzine.com/freelunch** and tell us where you'd like your free copies sent -- We'll take care of the rest.

No money. No credit card info. No strings. No kidding.

And while you're there, be sure and check out the rest of the Buzzine.com web site for a preview of the great things to come. Need a celebrity fix? Try surfing our favorite "succes d'estime" web site: www.safesearching.com



For more information,
contact Steph Rose at
srose@buzzine.com

Buzzine is a Stipko Media
company.

www.stipko.com

Build Your MOTU Dream Studio



MAS STOR™ High performance drives & backup

Glyph Technologies is the undisputed leader in storage solutions for audio. Now Glyph partners with MOTU to bring you the absolute latest in high-performance storage technology: MAS STOR is a two-rack high, two-bay, removable-drive storage solution that provides enough massive throughput to support even the most demanding multitrack recording environments. MAS STOR is the ONLY drive you'll want to use for multitrack 96kHz projects

recorded with the MOTU 1296 audio interface. Configure a system that's perfect for you with the following removable drive components: 15,000 RPM 18GB Ultra3 SCSI drive, VXA 33GB backup tape drive and/or a Plextor 12x redbook compliant CD burner, all backed by Glyph's legendary service and support.



DigiMax™ Pristine mic pre-amplification for the MOTU 2408 audio interface

Why is the PreSonus DigiMax perfect for your MOTU rig? Because it's the purest path to digital. DigiMax combines 8 channels of award winning 24-bit mic pre-amplification with our unique simultaneous

RMS/peak detection limiting and EQ enhancement, giving you maximum gain before clipping while maintaining the musical transparency of a compressor. The result? Fast, natural and versatile

limiting on every channel. And DigiMax connects all 8 channels via ADAT optical to your MOTU 2408 system in pristine, 24-bit digital glory. And you can expand: add up to 3 DigiMax's to your 2408.



Peak™ 2.6 VST

Advanced waveform editing and mastering

BIAS Peak 2.6 VST is the ultimate editing and mastering companion for Digital Performer! Peak gives you lightning fast, nondestructive waveform editing with support for audio files up to 32 bits and 10 MHz, including 24-bit/96kHz files. Unlimited Undo/Redo with independent edit histories for each audio document gives you the freedom to work creatively. Select an audio region in Digital Performer, choose the "Use External Waveform Editor" command, and instantly switch into Peak! Peak's sophisticated options for on-the-fly marker, region and loop creation are simply unparalleled. Advanced looping tools include Loop Tuner™, Loop Surfer™, Loop It™ and Guess Tempo™. Process

thousands of files—or just a few—using Peak's batch processor. Peak directly supports the 2408mkII and all other MOTU audio interfaces and includes Toast™ CD burning software for making your own redbook audio CDs directly from Peak's powerful playlists. Or create web or multimedia content and export to Shockwave, RealAudio, MP3 and other formats.



MotorMix™

Hands-on automated mixing

With its new, custom software written specially for Digital Performer, MotorMix becomes a seamless, tactile extension of your MOTU software recording environment. Put your hands on eight 100mm motorized faders and rotary encoders to tweak your mixes in record time. Gain instant easy access to all MIDI and audio tracks with control banks. You'll never even think about mixing with a mouse again. Imagine having tactile control over most of Digital Performer's features with MotorMix's



intuitive layout and easy operation. MotorMix gives you all the advantages of a professional mixing board, at an incredibly affordable price. Bring motorized mixing to your MOTU desktop today. For more info, visit emlabs.net or contact your Sweetwater sales engineer today to enter the future of mixing.

order yours today

Sweetwater®
music technology direct.

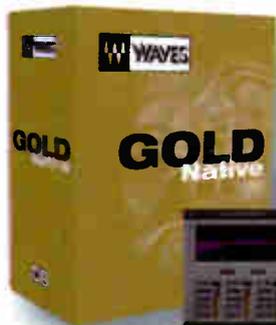
Start here

-  **G4 Power Mac**
Such as a G4/733 dual processor desktop
-  **MOTU DP3 — now shipping!**
Award-winning audio workstation software
-  **MOTU Hard Disk Recording System**
Such as the 2408mkII, 1296 or 828 FireWire



WAVES Gold Native™

It's all new: Version 3 for MAS!



Waves is the industry standard, and Version 3 Gold Native includes the entire line of Waves native plug-ins, including the C4 Multiband Parametric Processor and new Renaissance Reverberator! Waves Gold Native is the ultimate package with everything you need—from daily

tools, to sweetening and mastering processors, to sound design mind benders. From the original Q10 and L1, to the Renaissance series, to Enigma and MondoMod. Don't skimp. Go for the Waves Gold, on the way to your Gold record...

NI NATIVE INSTRUMENTS Absynth™

Feed your addiction to sound...

ABSYNTH, new from Native Instruments, is the benchmark for the future of soft synths. The powerful semi-modular architecture and clean interface let you effortlessly sculpt everything from organic textures to rhythmic madness, from time-evolving soundscapes to vintage sounds. ABSYNTH's unique strengths lie in its multiple synthesis techniques combined with the most flexible envelope control ever. To get a taste of ABSYNTH's potency, try drawing the shape of your LFO with the mouse while twelve rhythmic



envelopes twist your sound. Absynth is surprisingly efficient, giving you plenty of leftover bandwidth for mixing and processing. And Absynth feeds directly into your MOTU mixing environment for seamless operation.

RADICAL TECHNOLOGIES SAC-2K™ controller

Precision touch-sensitive automated worksurface

The Radical Technologies SAC-2K sets a new standard for hands-on control of Digital Performer with a custom plug-in for DP

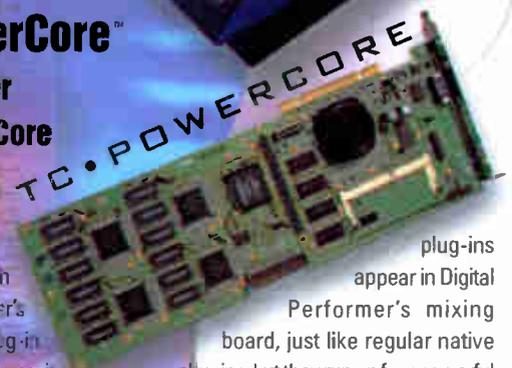
automated controls. Within minutes, you'll achieve a whole new level of interaction and creativity that you never thought possible with fader groups, mix automation, plug-in automation (up to 12 parameters at once), transport with jog/shuttle, solos, mutes... it's all just one touch away.



and easy, one-touch access to every element of the recording process in Digital Performer with responsive, touch-sensitive

TC•PowerCore™ DSP Turbo™ for MAS•PowerCore Plug-ins

TC•PowerCore is a major breakthrough for Digital Performer's real-time MAS plug-in environment because it provides DSP turbocharged plug-in processing. At last, the renowned TC TOOLS'96 studio-quality FX package (included), with TC MEGAVERB, TC Chorus/DELAY and TC EQ^{sat}, can be at your fingertips in Digital Performer, plus other TC | Works plug-ins such as TC MasterX and TC Voice Tools (sold separately). These powerful



plug-ins appear in Digital Performer's mixing board, just like regular native plug-ins, but they run on four powerful 56K DSP chips on the TC•PowerCore PCI card. It's like adding four G4 processors (equal to 2.8 gigahertz of extra processing power!) to your computer. Run 12 studio-quality TC plug-ins with no hit on your CPU power, and run other native plug-ins at the same time! TC•PowerCore is an open platform, so it will also run plug-ins from other respected 3rd party developers, too (details TBA).



TC | WORKS

www.sweetwater.com

Phone: 219-432-3176 • Fax: 219-432-1753 • Email: sales@sweetwater.com
5335 Glass Road • Fort Wayne, IN 46826

800-222-4700

LEXICON 480L

TEACHING AN OLD WORKHORSE NEW TRICKS

For more than a decade, the Lexicon 480L digital effects system has retained its status as a standard workhorse in the industry, and with continual hardware and software updates, it remains a viable production tool. Here are a few favorite tricks for the Lexicon 480L that we've developed over the years at JamSync.

USING THE SAMPLER

The 480L's sampler programs that use one machine can capture up to three seconds. This function allows you to tweak without tying up your main playback machine.

Put the 480L in Cascade mode. Load the FWD&REV 1.5 sampler (Bank 7, Preset 5) into Machine A. Load your reverb or effect into Machine B. Set the wet/dry mix in B to 100% dry. Capture a short sample (about 250 milliseconds) by hitting the REC button. Go to page two and trim the head and tail by repeatedly pushing the Cue button while adjusting the HEAD and FWD TIM sliders. Set the "<>" (Play Order) slider to the maximum value. Set the REV TIM slider to its maximum value. Then, go to page three and set the LEVL REV to "off." Go to page four and set TLV to Continuously. Push the Play button to start playback of the loop. Go to Machine B and set mix back to the normal setting (usually 100% dry).

Tweak the effect. When you have finished, change the machine configuration back to your normal mode.

MULTIPLE SOURCES FOR COMPLEX, REALISTIC REVERBS

Try using the Cascade mode and Illusion to create a complex reverb that approximates a natural environment. Illusion is a 40-tap delay effect with randomly modulating voices—sans pitch variation. Feeding it into the reverb creates the illusion of many more sources. Set the machine mode to Cascade. Load Illusion (Bank 5, Preset 1) into Machine A.



Load Large R Hall (Bank 11, Preset 1) into Machine B. Adjust the mix control of Illusion to change the feel of space. Warning: This approach requires some fine adjustment to get it right once you've found the area of the fader that approximates the sound you need.

SHAPE + SPREAD = NEW SOUNDS

You can create almost any desired envelope using Shape and Spread. The effect is similar to the ADSR (Attack, Decay, Sustain and Release) or envelope generator controls of a synthesizer. Start with Large R Hall (Bank 11, Preset 1) or Large Hall (Bank 1, Preset 1). Set pre-delay to zero. Set spread to 128. Adjust shape. Low values resemble plate reverb, while middle values (around 128) sound more like halls. Values around 190 sound like gated reverb, and above 190, the reverb has a reverse build, with amplitude increasing rather than decaying.

Want something really wild? Go to page two and set the DCO to Effects to unlink the size control. When the size control is linked, it works to keep the reverb sounding somewhat "natural," and it changes the RT and Spread values. Unlinked, anything goes. Try a very small size with a long decay time.

REAL-SOUNDING SAMPLES

To make percussion and drum samples sound as if they were recorded

in a room, start with Ambience (Bank 13, Preset 2). Turn the RTL Level off. Adjust "size" to get the correct size of space. Adjust wet/dry mix on console to set distance of "virtual microphone" from instruments. Add back RTL Level of reverb as desired.

3-D REVERBS USING PANORAMA

An interaural crosstalk cancellation program, Panorama resembles listening to headphones, except the sound image is outside the head (unlike most headphones) for a 3-D effect. Material that has a strong out-of-phase component will seem to surround the listener. It's almost like having virtual surround speakers, so you can use it to create the illusion of surround reverb. Set the machine mode to Cascade. Load a reverb into Machine A. Load Panorama (Bank 9, Preset 0) into Machine B. Adjust Panorama speaker angle (ANG) to change the 3-D impression.

WHAT'S MY SETUP?

When many people have access to the 480L and they change configurations, it's easy to start a session with the wrong setting. For instance, if the last person left the machine set to analog, then you won't see or hear your digital input. Push the CTRL key. Move the STA slider on page one. You'll see the status of key settings scroll by. ■

K.K. Proffitt is co-owner, with Joel Silverman, of JamSync, a multichannel surround mixing, mastering, DVD authoring and encoding facility on Nashville's Music Row.

BY K. K. PROFFITT

Sure we charge a heckuva lot for the S500 15-INCH 2-WAY. After you hear it, you may wonder why we SELL IT SO CHEAP.

Yeah, the S500 looks like a lot of other 15-inch 2-way SR loudspeakers but it sure doesn't sound like other 15-inch 2-way speakers. This one kicks so much butt you'd swear it was wearing army boots and is so accurate you can hear the tiny piece of roast beef stuck between the singer's teeth.



Walk into a music store and you'll encounter a whole wall of 15-inch, 2-way speakers — including our S500. Check out the price tags and your reaction may be, "Where does Mackie get off charging 20-25% more?"

Well, Greg Mackie figured the world didn't need yet another OK-sounding commodity-grade speaker. So instead of starting with a pricepoint, we started with a goal: make the best-sounding, widest-dispersion, highest-accuracy 15-inch 2-way loudspeaker yet.

Of course, owning RCF™, one of the world's most advanced transducer design and manufacturing facilities didn't hurt either.

We used their latest damped titanium compression driver and a new ultra-efficient LF transducer with heat-resistant Inside/Outside voice coil. Then we combined it with a low-impedance, low-distortion crossover and tossed in some sophisticated electronic protection circuits.

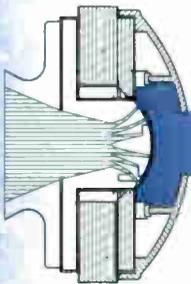
The result is 500-watt RMS power handling and 127dB SPL output with smooth frequency response and superb horizontal and vertical dispersion — so all of your audience hears the same great sound.

If you want to sound as good as you possibly can — and if you're willing to pay a bit more to get unparalleled accuracy, you're ready for the S500.

Get your ears pressure-washed at a Mackie dealer soon.

PERFECT MATCH: THE M-2600 POWER AMPLIFIER

- 2600W 4-ohms bridged • 1300W 2-ohm load • 850W 850W 4-ohm load • 500W 500W 8-ohm load • Fast Recovery™ circuitry
- Front-to-side T-Tunnel fan cooling via mirror-polished heat sinks
- Variable low-cut filters • Switchable limiter circuit • 60Hz/90Hz/120Hz electronic subwoofer crossover • 5-way and Speakon® outputs
- Signal present, OL, status, temp & short circuit LED displays



The S500 uses a new RCF Precision™ titanium compression driver with a 3-slot optimized geometry phase plug that significantly smooths high-end frequency response and provides exceptional coupling with the 75 x 65° exponential horn.



- Rugged resin end caps top and bottom
- RCF Precision™ 1.75-inch diameter titanium compression driver with 3-slot, optimized geometry phase plug
- 16-ply Baltic Birch plywood trapezoidal enclosure
- Weight balanced side handles plus top and bottom handles
- 15-inch RCF Precision™ high-efficiency LF transducer with heat-resistant Inside/Outside voice coil
- Inside: Phase-precise, low-Z crossover with active electronic HF protection circuitry



MACKIE.

www.mackie.com
800.258.6883



World Radio History



H A Harman International Company

VERTEC Line Arrays. Working In Concert With The World's Leading People, Projects And Places

ATK/Audiotek Corp.;
 Audio Analysts; BMW
 New Models Launch
 (Crystal Sound); COMDEX
 (Las Vegas); Crystal Sound;
 Democratic National Convention
 2000; Enterprise Live; Entertainment
 Sports Network ESPY Awards (MGM
 Grand Arena); Fan Nation Festival (Flag
 Systems); Flag Systems; GLAY Arena
 Tour (Hibino); Grammy Awards, Staples
 Center; Hibino PA; Howard University
 Commencement (RCI); Image Awards
 (Universal Amphitheater); Jands Production
 Services; Kiss Tour (Jands Production
 Services); Kloda Focus Group; Latin Grammy
 Awards; Liberty Bowl (MSI); Loudness; Maryland
 Sound; Meeting Services; Microsoft Exchange
 Collaborative Solutions Conferences; Morgan
 Sound; National Assn. of Elementary Principals
 Convention; PUR Stadium Tour (Sirius); RMC
 ShowService; Rocksound; Rocky Mountain
 Audio-Visual; Sirius Schalltechnik Services, GmbH; SPL
 Sound; Story Sound: Styx/Bad Company Tour USA 2001
 (Audio Analysts); TV Guide Awards (Shrine Auditorium);
 TwoMix, Inc.; UCSD Commencement, San Diego (Meeting
 Services); University of Washington Commencement
 (Morgan Sound); Utah Governor's Gala 2001; Wango Tango
 (ATK); XFL Stadium Productions; XXXX Audio...



Visit us at

www.jblpro.com/vertec1/pro_user_comment.htm



World Radio History

© 2001 JBL Professional