

**EQ**

THE PROJECT  
RECORDING &  
SOUND  
MAGAZINE

MAY 1996

EQ LIVE  
STATE  
OF THE  
WIRELESS  
ART

EXCLUSIVE  
FOCUSRITE  
GREEN  
SERIES

**MEN  
OVER  
BOARD**

BOYZ II MEN BUILD  
THEIR DREAM STUDIO

IN REVIEW  
ALESIS ADAT-XT

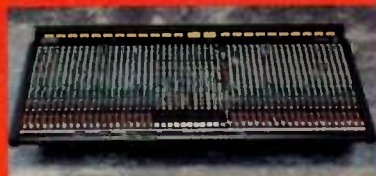


\*\*\*\*\*3-DIGIT 500  
012336 ED S 720 P 1436  
ZOOM TAPES-PRODUCTIONS  
RON CARLSON  
103 TAMA ST  
BOONE IA 50036-3616  
#####

USA \$3.95 • Can. \$4.95 • U.K. £2.95 • Issue #5  
05 >  
71896 47438 1



# EQ



PROJECT RECORDING  
& SOUND TECHNIQUES  
VOLUME 7, ISSUE 5  
MAY 1996



## FEATURES

- A BOYZ DREAM COME TRUE** *By Daria A. Marmaluk* .....62  
When the four members of the multi-platinum group Boyz II Men decided to build their own studio, each member made sure his own style was reflected with four individual writing rooms — each one tailor-made by the Boyz. Find out how it all comes together in this behind-the-scenes look.
- PC RECORDING: WINDOWS 95 IN 1996** *By Craig Anderton and David Miles Huber* .....68  
With the introduction of Windows 95, Bill Gates's favorite computer platform became a serious contender for your hard-earned studio hard-disk dollars. This special section offers tips and techniques on using this versatile tool and reviews some of the hottest Windows studio software on the market.
- THE ALESIS ADAT XT REVIEW** *By Eddie Ciletti* .....98  
By now you've undoubtedly heard something about this upgraded version of the machine that shook the world. Now learn the facts as *EQ* examines Alesis's enhanced digital multitrack recorder.

## EQ LIVE

- WIRELESS MONITORS: THAT EAR-RY FEELING** *By Steve La Cerra* .....96
- THE STATE OF THE WIRELESS ART** *By Steve La Cerra* .....110
- NEW GEAR FOR YOUR NEXT GIG** .....116
- ROAD TEST: CHARLIE LABS DIGITAR** *By Craig Anderton* .....120

## TECHNIQUES / WORKSHOPS

- JACK DOUGLAS: YOU DON'T KNOW JACK (BUT YOU WILL)** *By Bobby Owsinski* .....50
- VICTOR VICTORIOUS** *By Alex Lifeson* .....58

## COLUMNS / DEPARTMENTS

- MI INSIDER: EURONEWS: A FINE MESSE** *By Craig Anderton* .....44
- MAINTENANCE: OLD (AND NEW) RELIABLE** *By Eddie Ciletti* .....130
- FAST FORWARD: MR. CHIPS, WHERE ARE YOU?** *By Martin Polon* .....136
- ACROSS THE BOARD: THE DEFINITION OF HIGH** *By Roger Nichols* .....154
- EDITORIAL** .....6
- LETTERS TO EQ** .....8
- EQ&A** .....14
- PRODUCT VIEWS** .....20
- STUDIOWARE** .....26
- FIRST LOOK: FOCUSRITE GREEN SERIES** .....30
- ROOM WITH A VU: GREAT IMMEDIATELY RECORDING** .....36
- MICROPHILE: BEYERDYNAMIC MC 740** .....40
- IN REVIEW: TECHNICS SX-WSA1R** .....124
- AD INDEX** .....123

**ON THE COVER:**  
*Boyz II Men by Michael del Rossi*

EQ (ISSN 1050-7868) is published monthly by Miller Freeman PSN Inc., 2 Park Ave., Ste. 1820, New York, NY 10016. Second class postage paid at New York, NY and additional mailing offices. POSTMASTER: Send address changes to EQ, P.O. Box 0532, Baldwin, NY 11510-0532. SUBSCRIPTIONS: U.S. 1 yr. \$24.95, 2 yrs. \$39.95, 3 yrs. \$59.95; CANADA add \$10.00 per year for surface; other countries add \$15.00 per yr. for surface; All add \$30.00 per yr. for Airmail. Back-issues \$5. Printed in the U.S.A.



# THE BEST DYNAMIC MICROPHONES IN THE WORLD

...just got affordable

And that's *not* just our opinion.

Why do 70% of world tours specify the M 88 TG in their equipment schedules?

Pure quality of sound and dependable performance.

The M 88 TG's stunning performance together with a construction tough enough to cope with the road make it a favourite with artists and sound engineers.

On vocals, the M 88 TG's low proximity effect and hypercardioid response combine to give outstanding performance with fantastic feedback rejection while the high SPL capability provides a clean, clear signal with a unique sound.

For instrument use on stage, check out the M 69 TG. Its low proximity effect, high sensitivity, and extended frequency response give excellent results in almost every environment.

See your dealer today and check out the legendary M 88 TG and M 69 TG. The choice of the professionals.

**Now priced within everyone's reach!**

For more information or a brochure, call 1-800-293-4463

Circle 21 on free info card



beyerdynamic





A Miller Freeman PSN Publication  
Vol. 7, No. 5  
May 1996

**PAUL G. GALLO**  
Publisher

**KATHLEEN MACKAY**  
Associate Publisher

**TIM WETMORE**  
Editorial Director

**HECTOR LA TORRE**  
Executive Director

**MARTIN PORTER**  
Executive Editor

**ANTHONY SAVONA**  
Managing Editor

**CRAIG ANDERTON**  
Technology Editor

**STEVE LA CERRA**  
Senior Editor

**LIANA JONAS**  
Associate Editor

**ROBERT GRANGER**  
Assistant Editor

**DAVID MILES HUBER, EDDIE CILETTI,  
DAVID FRANGIONI, BOB LUDWIG,  
WADE MCGREGOR, ROGER NICHOLS,  
MARTIN POLON**  
Contributing Editors

**MP&A EDITORIAL**  
Editorial/Design Consultants

**MATT CHARLES**  
Sales Manager

**ANDREA BERRIE, CHRISTINE CALI, KAREN  
GODGART, PETE SEIDEL, TARA ESPOSITO**  
Advertising Sales

**AMY HERRION**  
Marketing Assistant

**RIVA DANZIG**  
Creative Director

**MARSHALL MOSELEY**  
Art Director

**JOY ZACCARIA**  
Reprint Coordinator

**FRED VEGA**  
Production Manager

**Editorial Offices**  
939 Port Washington Blvd.  
Port Washington, NY 11050  
Tel: (516) 944-5940, Fax: (516) 767-1745

**Administrative/Sales Offices**  
2 Park Avenue, Suite 1820  
New York, NY 10016  
Tel: (212) 213-3444, Fax: (212) 213-3484



EQ (ISSN 1050-7868) is published monthly by Miller Freeman PSN Inc., 2 Park Avenue, Suite 1820, New York, NY 10016. Second class postage paid at New York, NY and additional mailing offices. POST

MASTER: Send address changes to EQ, P.O. Box 0532, Baldwin, NY 11510-0532.  
SUBSCRIPTIONS: U.S. 1 yr. \$24.95, 2 yrs. \$39.95, 3 yrs. \$59.95, CANADA add \$10 per yr. for surface, other countries add \$15 per yr. for surface; All add \$30 per yr. for Airmail. Back issues \$5. All product information is subject to change; publisher assumes no responsibility for such changes. All listed model numbers and product names are manufacturers' registered trademarks. Printed in the U.S.A.

**in** Miller Freeman  
A Division of Time & Materials

## Two Guys Introduce An Issue



**W**e normally put some kind of hard-hitting, insightful editorial in this spot. Something we're sure will be read into the minutes of the next emergency General Assembly meeting of the United Nations. But somehow, this month our wires got crossed and we tapped into an online chat session between the two featured writers in our new PC Recording quarterly supplement. —HGL

**David Miles Huber:** Hey Craig, what are you doing here in EQ putting together a PC supplement? I thought you were a die-hard Mac fan.

**Craig Anderton:** Well, I still love the Mac hardware and OS, but there are some really incredible PC tools coming out; these days, having a PC isn't just a convenience, it's a necessity. Just look at the news from NAMM and Frankfurt in this issue — how could you not want a machine that can run the current crop of PC programs?

**DMH:** It sure wasn't always this way. I wish I had a buck for every time someone said, "Hey Dave, when are you gonna get a Mac?" I've been working with PC technology for years and have grown accustomed to being a lone wolf, but now everyone seems to be joining the pack. Fortunately, all those years of being "Poor Dave" have paid off.

**CA:** In EQ's recent survey, 60 percent of the readers have PCs, and 40 percent Mac. That's a 180-degree shift from only a year ago.

**DMH:** A few years back, the marketing manager of a company that makes MIDI sequencing software for Mac and PC told me that a couple of years before then, the Mac version outsold the PC by a factor of 2:1. A year later, the PC version outsold the Mac by 2:1 and the year after that, by over 4:1. Now the Mac version holds a mere fraction of their sales market. Software companies in general have caught on to the fact that most of the PCs that help us to make music are IBM-compatibles; even former Mac-only companies like Digidesign and Mark of the Unicorn are turning out IBM versions of their hardware/software products as fast as they can.

**CA:** Ports are cool, but some of the PC-specific stuff is pretty incredible. The reviews of Wavelab, Samplitude, and SAW Plus in this issue certainly prove that. Even utilities like the Sound Forge batch converter and consumer items like Midisoft's Studio 4.0 are pretty happening.

**DMH:** I like the software, too, but hardware is cheap, and with some patience you can learn how to upgrade your own PC. For example, the motherboard article is all about keeping your speed up with today's needs. It can be daunting, but it's doable.

**CA:** I know what you mean about daunting — swapping hardware on even the newest systems can be a problem. Actually, I think the editors at EQ assigned you that article on hard drives just so they could sort out their own machines...

**DMH:** It's not so bad when you get the hang of it. Besides, when plug-and-play works, it really works. We just need more devices that really take advantage of Windows 95.

**CA:** I really like having both machines; one doesn't have to exclude the other. In fact, I often use both computers at once. For example, if I'm reviewing a piece of PC software, I write the article on the Mac, and vice-versa. File transfers are getting pretty easy these days, and more peripherals can be shared between the two platforms.

**DMH:** And everything will get easier as time goes on. It better, or else we'll be raising a generation of musicians that are more insane than we already are.

**CA:** Well, enough of this, I think we should get back to working on the issue.

**DMH:** Good idea. Catch ya later, I've got some Windows to wash...

**CA:** Me too.



# EFFECTS WITHOUT EFFORT



## 512 Effects Processor

Whether you're on stage or in the studio you have more important things to do with your time than program your effects processor; like play. The DOD 512 Effects Processor is everything you'll ever need. Select an effect, select a preset and you're done. The DOD 512 can function as two independent processors, enabling you to use two independent effects at a time.



"Dial a Verb"

EFFECT	PARAMETER 1	PARAMETER 2
Reverb	Time	EQ
Delay	Time	Feedback
Modulation	Speed	EQ
Pitch-Bend	Detune	EQ
Noise Gate	Attack	Release
SI Dry	Gain	Filter
Stereo Dry	Gain	Filter
Chorus	Rate	Depth
Flange	Rate	Depth
Phase	Rate	Depth
Tremolo	Rate	Depth
Pitch	Rate	Depth
Reverse	Rate	Depth
Bank A	Rate	Depth

2 adjustable parameters for each effect or combination.

We fondly refer to the DOD 512 as "Dial-a-Verb". You'll refer to it as "Effects without Effort". Visit your DOD Dealer for a demo today.

### FEATURES INCLUDE:

- Easy to use interface
- True Stereo effects
- Series effects
- 32 Effects combinations w/15 presets ea.
- 18 bit D/A/D
- Dual effects capability for processing 2 channels independently
- Perfect for studio or live applications
- Noise gate with adjustable threshold
- 44.1kHz sampling rate

# DOD

A Harman International Company

Visit us on the World Wide Web: [www.DOD.com](http://www.DOD.com) • 8760 So. Sandy Pkwy, Sandy, Utah 84070 • (801) 566-8800 • Fax (801) 566-7005 • Int'l Fax (603) 672-4246

CIRCLE 31 ON FREE INFO CARD





**LOST & FOUND**

You guys found my crab meat! I saw it in your 1995 Reader Survey under "What is the strangest thing you've found stuffed into a speaker cabinet?"

Can you tell me who it was that found my 20 lbs. of crab meat? You see, we did this wedding, and there were two bands, and as we were packing up I saw all this crab meat (they would have thrown it out anyway). I figured I'd stuff it into the bass bins as we were leaving, but, as it turns out, it was the other band's cabinet. So, if you don't mind, somebody out there owes me some crab meat. Thanks for helping.

Steve Stranski  
Seattle, WA

**PASS THE SALT**

Your article on the Altec 633A "Salt Shaker" Microphone (MicroPhile; Jan. 1996) was very interesting, but as the article itself explained: (paraphrased) "There is very little information about this mic." The reason for this is that the 633A *really isn't* an Altec microphone. Sure, Altec produced it in the time frame given by the article, but the microphone itself is much older than that.

The 633A is actually a Western Electric microphone that dates back to (from what I can find) the late '30s. Arthur Godfrey used it in 1941 onstage — straight-up on a floor microphone stand with the wires obviously running down through the inside of the stand. There's a photo of this in a pictorial book about the history of radio. Also, *Smithsonian Magazine* recently published an article about a famous train photographer and a Western Electric "Salt Shaker" is clearly shown, mounted on a D-104 base with an Atlas positionable elbow to allow the mic to be positioned at an angle to the base.

From what I can surmise, Western Electric must have sold off its speaker and microphone division to Altec sometime in the 1950s, thus the Altec 633A. We have here at the radio station two Western Electric 633A's and an Altec 633A. (The Altec is mounted on an RCA 90A floor stand with a boom arm that we have converted to a coat rack.) Sorry folks, the 90A is mine (grin). All three microphones are in mint and working condition (God Bless Mr. Jacker, the late owner).

I hope, if you should do an update

on the microphone in the future, that this lead helps you track down more publishable information on it, as I certainly would like to add the info to my collection on microphones.

Mark "Byrd" Brantner  
WCRW 1240 AM  
Chicago, IL

**SOME DAT INPUT**

Cory Gustavo's question regarding his TASCAM mixer and Sony DAT interfacing (EQ&A; April '96) brings up a question I've been asked in many recording studios.

An important point that this EQ&A addresses is proper electrical interfacing. All inputs and outputs between the DAT and mixer are matched at -10 dBV. What was not addressed, however, is the DAT reference level.

Sony DAT's are usually aligned so that the output is -20 dB=0 VU. The technical approach to record alignment would be to feed a 1 kHz sine wave at 0 VU (-10 dBV at mixer output) and adjust the Sony DAT level to read -20 dB in record. Playback of the 1 kHz @ -20 dB on the DAT should be 0 VU at the mixer. In theory, if your mixer has 20 dB of headroom, it will clip at the same point as you run out of digital headroom.

The tendency in modern recording is to push levels, so keep in mind that if your DAT has peaks hitting 0 at this reference level, that these peaks are 20 dB above the 0 VU point. Different manufacturers of DAT machines use other reference levels, such as -18 dB. Some studios have adopted a -12 dB reference, since they don't need the headroom, and it is friendlier to their console meters.

I suspect the problem here is not equipment failure, but just hot recording levels or the meter ballistics, depending on one's point of view.

Neil Davidson, President  
N. E. M. Audio, Inc.

**YOU'RE WELCOME**

What a terrific surprise it was to receive the package containing the EQ Magazine Blue Ribbon Award for the Ultra Analog-track 2-inch head assembly introduced at the New York AES Convention. We at JRF are honored and pleased for the recognition, espe-

cially since it comes not only from the editors of EQ, but also from an exit poll of our industry peers.

JRF has been servicing the recording industry for almost 17 years. This is the first award related to our contributions that we have ever received. It has been displayed in an area of prominence in the JRF building.

As much as we appreciate the recognition for the Ultra Analog, it would be remiss of us not to inform EQ that we are not alone in its development. The original idea for the concept belongs to Michael Beinhorn, noted New York record producer. Fletcher of Mercenary Audio was responsible for putting the development team together and converting Michael's Studer A/800 recorders to work with the Ultra Analog package that was developed by John French. This product could not have come to fruition without the team of Michael, Fletcher, and John.

Response to the Ultra Analog concept has been incredible. JRF is currently developing Ultra Analog Conversion Kits, with an improvement on the concept, for a number of older machines. We anticipate their unveiling at the Los Angeles AES Convention this fall.

Cookie French  
JRF Magnetic Sciences  
Greendell, NJ

**HAMMING IT UP**

Wow, what a great editorial by Hamilton Brosius in the March EQ! Servicing the new pro/home commercial market is a problem we've been up against for a while now, and I'm afraid it will only get worse as the lines between commercial and project recording disappear.

Working for a Pro/MI music retailer in Nashville, I see this almost every day. Most of our business is to the recording market here, ranging from the guy with a 4-track in his basement to the latest multimillion-dollar mixing room in town. When a piece goes down, whether it's their console, a digital multitrack or whatever, we're the first to hear about it, and, quite frequently, the first to tell the manufacturer about the problem.

So far the only solution we have found is to actually go to the manufacturers and spend a week learning all the different products and problems.



# AMPEX

by  
**QUANTEGY**

## INTRODUCING QUANTEGY. THE NEW COMPANY THAT'S BEEN MAKING AMPEX TAPE FOR OVER 35 YEARS.

Nothing's changed, really.

You still get the audio mastering tapes that go gold more than all other brands combined.

The same top quality video tapes used by broadcast and creative professionals around the world.

The same market-leading instrumentation tapes used by aerospace and government.

And the same manufacturing, technical support and sales people.

You even get the same Ampex™ brand name.

The difference is that we're now the *only* media company dedicated exclusively to you, the recording professional.

So call us today and we'll tell you more about QuanteGy™

After 35 years, we're just getting started.

# QUANTEGY™

#### QuanteGy Worldwide Sales Offices

Northeast (New York) (201) 472-4100  
Mid-Atlantic (Washington, D.C.) (301) 530-8800  
Southeast (Atlanta) (770) 491-7112  
Midwest (Chicago) (708) 590-5100

South Central (Dallas) (214) 620-9033  
Northwest (San Francisco) (510) 881-7341  
Southwest (Los Angeles) (818) 566-1089  
France & North Africa (Paris) 33-1-4731-7171

UK & Ireland (London) 44 1-734-302240  
Italy & Iberia (Rome) 39 6-529-3330  
Germany & Austria 49 69-8007540  
Central Europe (London) 44 1-734-302208 ext. 209

Middle East/Africa (London) 44-1-734-302208 ext. 213  
Benelux (Nijmegen) 31-24-3730484  
Scandinavia (Stockholm) 46-8-590-78100  
Canada (Toronto) (905) 821-4840

Latin America & Caribbean (San Francisco) (415) 903-1132  
Asia (Hong Kong) 852-2736-1866  
Australia & New Zealand 61-2-869-0800



While it is not cheap for us, it's been the only way to ensure service to our customers. Most manufacturers have been more than willing to train us on their products, but we still have to go to them on our time and on our dollar. But it's worth it when a customer calls and says, "Hey, my machine just ate a tape!" or something similar, and we can say, "Yes, we know about that and can take care of you."

The breakdown tends to occur between us and the manufacturer. All too frequently we see a problem on a new piece, call up, and they will either deny there could be any problem with their gear, or have known about the problem and just haven't told anybody. (A notable exception to this was Yamaha's ProMix 01 — they discovered a fuse can blow too quickly under certain conditions, and we received a letter and a bag of new fuses a week before a customer came in with one. A fuse change and five minutes later, both we and Yamaha were heroes.)

As we sell and service more gear used in a pro/commercial situation,

communication between us and the manufacturer becomes critical. I think many companies are reluctant to admit to problems because they're afraid people won't buy the gear, or else they don't want to give out technical information because they're afraid someone will steal it. But, as Hamilton pointed out, this is not a perfect world, and problems will happen. And as always, it's much better to help prevent problems or have a cure ready when things go down than to try and play catch-up afterwards. Life moves much too quickly for that!

*Rick Jensen  
Service Manager  
Sam's Music, Nashville, TN*

**SADIE SPEAKS**

I just wanted to write and make a small correction to David Miles Huber's review of the SADiE De-Noise system. The system *is* real time in that noisy audio that is playing back off the audio drive may be routed through the Cedar software module directly to the out-

puts. This process does *not* need to be written back to disk, but may be as an option to allow the allocated DSP power to be used elsewhere. The limitation is that you cannot route audio to SADiE's inputs directly through the Cedar module and back out to the real world without stopping on the disk somewhere in between.

*Jeff Mac  
SADiE Inc.*

**CORRECTIONS**

In our March '96 issue, a demonically possessed word processor went on a rampage, causing several errors. The most damage occurred in Eddie Ciletti's Maintenance column, where, halfway through the article, the words "op amp" were changed to "opal." Other sightings were found in the 1995 Reader Survey, where an extra "n" was tacked onto Glyn Johns's name and Shalom Aberle's name was misspelled. Rest assured, that the demon has been exorcised, and we apologize for any confusion it may have caused.

**AVALON**  
**SONIC EXCELLENCE**  
*Pure Class A High-End Outboard*



M2 microphone preamplifier, AD2055 parametric equalizer and AD2044 opto-compressor



AD2077 Mastering Equalizer



U5 ultra-five DI preamp



M4 microphone preamp and R4 remote



**AVALON DESIGN**  
voice 714 492 2000  
facsimile 714 492 4284

Call for information or contact your nearest dealer for a demonstration.

**Evia Systems**  
818-557-7605

**Underground Sound**  
615-242-2442

**Wind Over The Earth**  
303-443-9822

**Harris Audio**  
305-944-4448





# Magic

for your ears

You will love the Wizard M2000. This digital multi-effects processor is specifically designed for the artist within you. Based on the unequaled DARC™ chip, the two independent engines deliver uncompromising effects, meeting the high performance demands of your ears. The clarity, density and feel is beyond anything you have ever experienced before. It will lift your music to the highest quality level.

We realize that you are busy creating music. TC's engineers are artists themselves, and have therefore gone to great lengths to make the M2000 intuitive

and easy to operate. For example, with the 'Wizard' function you can find the best presets in any given situation; and all parameters are maximum one menu level away - no more searching through multiple menu levels.



M2000 - Combine your artistic skills with science and create magic.

Please also refer to the brochure included with this issue of EQ.

For information about your nearest TC dealer, please call 1-800-798-4546.

**Wizard | M2000**  
*Art + Science = Magic*

**t.c. electronic**  
ALL YOURS TO BE USED FOR THE M2000

**CIRCLE 80 ON FREE INFO CARD**





Introducing the coolest upgrade path in all of digital audio.

Here's news for every musician, editor, producer, and engineer: The industry standard digital audio workstation—Pro Tools from Digidesign—now comes in a range of products tailored to your needs and budget. Now you can start with the all-new Pro Tools with DAE PowerMix™ for just \$795. As your needs grow, you can climb all the way to the world's best-selling

**Pro Tools Project™**

**Pro Tools with AudioMedia II™**

**Pro Tools Software with DAE PowerMix™**

New. An amazing value that turns your Power Macintosh or Mac-OS clone into a multitrack digital workstation with no additional hardware. Pro Tools interface. Random access, non-destructive editing. Up to 16 tracks of playback. Automated digital mixing with 2 bands of EQ per track.

This audio card adds 2 channels of high-quality analog and digital I/O, and comes with industry standard Sound Designer II software and entree to its family of DSP Plug-Ins.

New. Pro Tools software and Pro Tools Project Audio Card. Adds 8 tracks of simultaneous record/playback. Up to 8 channels of analog and digital I/O. Supports Sound Designer II and DSP Plug-Ins.



workstation, ProTools III, with mountains of record tracks, I/O, and real-time effects and mixing. Each step of the way, you'll learn and grow with Pro Tools software, share work between

systems, and take an upgrade path that lets you build on the value of your investment. Audio professionals now have more choices and flexibility than ever before. And getting started couldn't be easier. To learn more about the clearest path to the best in digital audio, call 1-800-333-2137 x247.

## Pro Tools III™



The ultimate workstation. TDM virtual digital mixing and processing environment accommodates a wide variety of real-time Plug-Ins. 16-48 tracks of record/playback. 8-64 channels of high-quality analog and digital I/O. New for '96: ProControl,™ an advanced tactile control surface with dedicated controls for mixing and editing, plus high-quality moving faders.

For audio professionals and musicians, as well as for more than 100 Digidesign Development Partners, Pro Tools is the industry standard. That's why more audio professionals use Pro Tools than all other digital audio workstations combined.

**digidesign**

Avid Audio Division



©1996 Digidesign, Inc. Digidesign is an Avid company. All features and specifications subject to change without notice. Digidesign and Pro Tools are registered trademarks of Digidesign, Inc.

**CIRCLE 26 ON FREE INFO CARD**



# EQQA

## BUY THE BOOK

**Q** Eddie Ciletti's February '96 EQ maintenance column sparked a new interest for me. I recently acquired a MESA/Boogie 400+ amp for my bass rig. Now I am curious to find some older tube amps to work with. Could you make few suggestions as to where I should start? I want to learn, but not on something so complicated as to be discouraging. If you could also recommend a few books to prepare me for this journey, I might even get good at it!

Randy  
via the Internet

**A** For a starter project, begin with low-powered amplifiers. They tend to sound great at low levels and are a bit less cantankerous. There are classic amplifiers like Ampeg's B-15 (two 6L6 output tubes) bass amp or guitar amps such as the Fender Deluxe (two 6V6's) and the Champ (one 6V6). These are about 25 watts, 15 watts, and 7 watts, respectively. Don't be afraid to scour the resale shops for an off-the-wall discovery.

As for literature, I grew up with the RCA Receiving Tube Manual. In addition to providing specs on specific tubes, it also contains some basic theory (with pictures) and, in the rear section, several amplifier projects with circuit descriptions. This book, and many others, as well as parts, are available from Antique Electronic Supply (Tel: 602-820-5411).

Eddie Ciletti  
Contributing Editor  
EQ Magazine

## PLUSSES & MINUSES

**Q** I have read all of your EQ articles and found them very useful. Here's a +4/-10 question. In my project studio, I connect XLR cables from the left and right mix outputs (balanced, I presume) of a Carvin 24\*4\*2\*1 to an Alesis 3630 compressor. On the compressor is a +4/-10 switch that I set to +4. I then run the compressor into an Aphex Aural Exciter (it too has a +4/-10 switch set to +4) and finally into the balanced inputs of a TASCAM DA-30 DAT machine.

I have read that when making analog cassettes from a DAT, compression could be used to make up for the cassette's lack of dynamic range. I'd like to use the +4 outs on the DAT, but my cassette deck only has RCA inputs. Can I use a cable that has XLRs on one end for the DAT and RCA plugs on the other for the cassette deck, or is that defeating the purpose? Should I just use the -10 outputs on the DAT and switch the compressor to -10, and turn

up the inputs on the cassette deck? Finally, I have an Alesis M-EQ 230. In the manufacturer's specs, the input is listed as Nominal Level: 0 dBV; Maximum Level: +18 dBV; and Impedance: 1M (ohms). The output Maximum Level is also +18 dBV; Impedance: 240 ohms. Can I assume that this piece of gear is unbalanced?

Pete Bottinelli  
SNS Music  
via the Internet

**A** Yes, you are defeating your purpose by using the +4 output. Use the -10 outs on the DAT, and, if you need to reduce the dynamic range, switch the compressor to -10 and set the inputs on the cassette deck accordingly. You are not sacrificing anything except, possibly, the hassle of switching back and forth.

Of course, you could also get a "10/4" level matching box for the cassette deck. The Aphex 124 is designed for this purpose. As for the Alesis M-EQ 230, I believe this is an unbalanced device, but you may want to check directly with the Alesis tech support department at 310-558-4530.

Eddie Ciletti  
Contributing Editor  
EQ Magazine

## DISC-USTED

**Q** First off, I'd like to commend you guys on the great job you're doing. It seems every time I'm going to make a purchase for a major piece of gear, you come out with a great article reviewing all of the top contenders. You must be psychic. Now that I've buttered you up, hopefully you can help me with my dilemma.

I have the Pinnacle Micro RCD-1000 recordable CD with the Corel CD Creator software. I am using it with a 486DX4/100 and a Teac 55 CD-ROM

Whirlwind's new PM<sup>®</sup> Tubes set a higher standard for performance, matching, and reliability.

**whirlwind**

All PM power tubes shipped computer matched in pairs and quads at no extra charge, and are at dealers now.

WHIRLWIND • CABLES • TUBES • PATCH BAYS • MIXERS • AMPLIFIERS • ADAPTORS • CONNECTORS • 8473 • 800-733-9473 • 14612 • ROCHESTER • NY • 14612 • 800-733-9473

Circle 87 on free info card



# The RØDE™ to Recording Success Starts Here...



The real passion behind a hit song lies in the performance. You want all the emotion and the expression of the performance to burst onto the track and shine its way through the mix. Whether it's a truly great take or just a happy accident, you want that moment captured in all of its glory. When that inspired moment occurs, you need to have the right mic...the RØDE™ NT2. The RØDE™ has all the special stuff:

- **Dual Gradient Transducers with Large Diaphragm and Gold Plated Membrane** to warmly receive and translate the full body of the performance
- **Internal Gold Plated Connections**, insuring warmth and precise signal transitions for years to come
- **Transformer-less** low-noise circuitry
- **Switchable Filter** enabling you to change the low frequency response
- **Switchable Pad** enabling you to handle high gain
- **Switchable Pattern** providing cardioid or omni patterns
- **High SPL (sound pressure level)** allowing it to work cleanly for screaming vocals or instruments, or even soft spoken word
- It even comes with a **Shock Mount, Flight Case, and Pop Filter.**

The RØDE™ large Diaphragm Condenser Mic is hand-assembled in Australia. In the tradition of the great microphones, it's designed to furnish outstanding, vintage-flavored vocal or instrumentation miking—at a truly untraditional, breakthrough price . . . \$749.00.

Step on the road to recording success by seeking out your nearest EVENT Electronics dealer. Listen to the NT2 and hear the difference a great mic can make.

RØDE is a trademark of Freedman Electronics.

**EVENT**  
ELECTRONICS INC

P.O. Box 4189

Santa Barbara CA 93140-4189

voice 805-962-6926

fax 805-962-3830

**CIRCLE 36 ON FREE INFO CARD**



# GET WIRELESS

with the Nady 101XL/201XL

## THE WORLD'S BEST SELLING WIRELESS SYSTEMS

There are a lot of reasons why Nady makes the number one selling wireless in the world. Over 20 years ago, Nady pioneered high quality wireless audio transmission with patented companding circuitry. To this day, no other wireless brand can

match Nady's 120 dB dynamic range for clean, clear, natural sound. And Nady gives you true

value—the performance and price leader in wireless systems. That's why Nady has sold nearly a million wireless systems—more than all of our competitors combined.

## CHOOSING THE 101XL OR 201XL

The Nady 101XL and 201XL both offer uncompromised professional performance in an affordable package. The 101XL has a single VHF receiver front-end and one antenna. The 201XL has two complete receiver front-ends and two antennas for True Diversity reception, which provides maximum protection against audio dropouts when used in adverse RF conditions. Optional Tone Squelch™ is available for protection against RF interference.

## WIDE RANGE OF TRANSMITTER OPTIONS

Nady offers a wide range of transmitter options including instrument, handheld, lavalier, headmic, or The Link™ snap-on transmitter for your favorite XLR microphone.

## NADY WIRELESS—THE PRO AUDIO CHOICE

Over the past 20 years, Nady wireless has proven its excellent sound quality and outstanding reliability on the road—logging millions of tour miles with the biggest names in entertainment. Not only have most of the top touring acts used Nady, but more vocalists, musicians, ministers, performers, and audio professionals at all levels choose Nady wireless systems every day.

## COMPARE PERFORMANCE AND PRICE—YOU'LL CHOOSE NADY

Before making a final decision, compare features and price. Then listen to the difference. We think you'll find the best sounding, best performing wireless is also the most affordable. Choose the best value—choose Nady.

**Nady Systems, Inc.**  
6701 Bay Street  
Emeryville, CA 94608  
PH. 510.652.2411  
FAX. 510.652.5075  
<http://www.nadywireless.com>

CIRCLE 56 ON FREE INFO CARD



*drive loaded with Windows 95. I'm having difficulty recording audio onto the CDs. I plan on upgrading my sound card to something like a Digital Audio Labs CardD, but I currently have a Soundblaster 16.*

*I seem to be able to record data to the CD, but not audio. The Corel software says my current ROM drive can't do digital extraction, and I can't seem to find anything in the Corel software manuals that says you can record right into the cache from the sound card or other source. All references seem to say that audio needs to come from an already recorded audio CD. I have talked to Corel and they have sent me the latest software versions, but it did nothing for me. How can I make this software work? Also, can I somehow record the soundfiles that I've recorded using my Turtle Beach 56K as audio onto the CD?*

*Andy Laverdiere  
Foundation Studios  
Seekonk, MA*

**A** Unfortunately, we have to answer you by asking some questions. We need to know what specific difficulty you are having. Is it a buffer underrun? Is it a Servo Tracking error? Does the software tell you that the audio file format is incorrect?

You should first contact Teac directly regarding your CD-ROM drive and find out whether the drive supports digital audio extraction. Chances are that if the Corel software says the drive doesn't support it, then it's probably true. The good news, however, is that the Pinnacle Micro RCD-1000 will support the audio extraction feature you are looking for and will allow you to copy audio tracks from any standard Red Book audio CD directly to your hard drive. You cannot copy audio data from a CD-ROM to a recordable CD drive. The seek times and throughput of the CD-ROM drives are still too slow for this specific application.

Audio does not need to come from an "already-recorded CD." The audio information you send to the RCD must come from your hard drive. How it gets to the hard drive before the recording session is initiated is entirely up to you. You can extract the audio data from a CD (using Corel's CD Creator or Optical Media International's Disc-To-Disk software) and save the data to your hard drive. Or you can even use the software that comes with

your Sound Blaster 16 card and capture the audio data from any external audio source and once again save the information in the WAV file format to your hard drive.

Give Pinnacle Micro a call and tell us more about the specific error you are encountering. P-M has numerous customers in the field that are not experiencing this error and are able to cut audio CD's without a problem.

*Dave Marotta  
Pinnacle Micro*

## PER-PLEXING PROBLEM

**Q** Please tell me where (or if) I can get a replacement tape cart for my 1970-something Echoplex. All inquiries have been dead ends.

*James H. Powelson  
Americawest Recordings  
Cape Coral, FL*

**A** You have asked a tough question. I'll assume you do indeed have an actual "Echoplex," and not one of the follow-up devices. I think Maestro had the original patent on the Echoplex tape echo device. Gibson then bought Maestro, and Maestro eventually went out of business. The Echoplex was subsequently discontinued as new technology arrived. Guild manufactured the Binson Echorec, but that also was discontinued. HH Electronics in the UK also manufactured a tape-echo device (I still use one; it's ancient), but no luck on replacement parts there either. Try contacting Jim Dunlop at 707-745-2722 for repair/replacement info. I'm sure there are a few tape-echo-loving guitarists out there in EQ Land; if so, send us any updates on where to find replacement tape carts for the Echoplex. E-mail, snail-mail, or holler real loud and we'll pass the info on. James is counting on you.

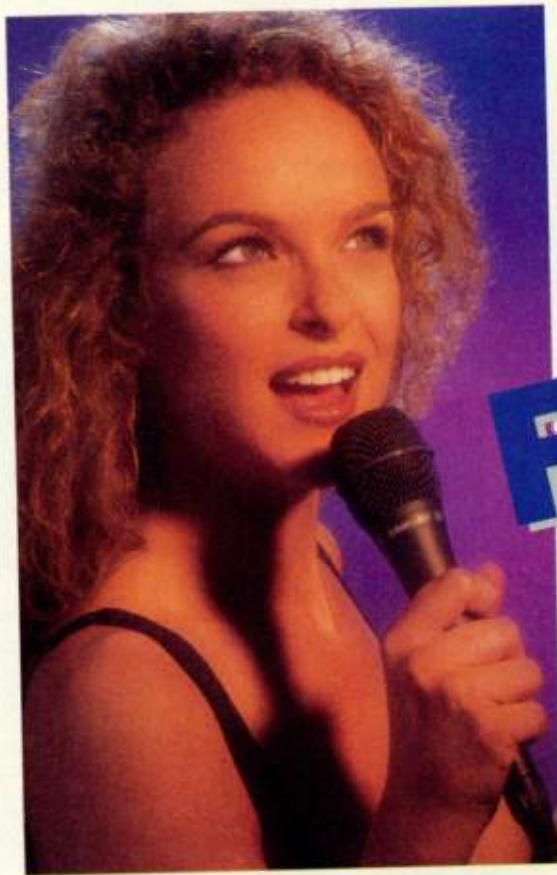
*Hector G. La Torre  
Executive Director  
EQ Magazine*

Send your queries to:  
EQ Editorial Offices,  
939 Port Washington Blvd.,  
Port Washington, NY 11050  
Fax: 516-767-1745  
E-mail: [EQMagazine@AOL.COM](mailto:EQMagazine@AOL.COM)



INTRODUCING SAMSON'S NEW QMIC OFFER:

**BUY TRY GET  
ONE. ONE. ONE**



Introducing the world's hottest new microphone with the coolest offer on the planet. The QMIC from Samson. Designed to cut through the mix in live concert situations and excel in project studios. Plus an amazing BUY-ONE-GET-ONE-FREE offer that may only come around once in this lifetime!\*

It's true. And the only thing that sounds better than this offer is the QMIC itself. Why? A neodymium element and tight hypercardioid

pattern that pins your vocals to the back of the hall—with no feedback. A special midrange peak and super-fast transient response for crisp, articulate sound in any miking situation. And a unique multi-stage windscreen that virtually eliminates "pops," sibilance and noise.

QMIC. An incredible new microphone with an even better offer. Sometimes the best things in life *are* free.

**SAMSON®**

Suggested retail price is \$199. Also available in wireless version. For more information, please call (516) 364-2244, fax (516) 364-3888 or write Samson Technologies Corp., P.O. Box 9031, Syosset, NY 11791-9031. ©1996 SAMSON

\*Simply buy the QMIC from an authorized Samson dealer. Fill out the enclosed response card with three reasons why you love your new "Q." Then send it back to us with a copy of your original sales receipt, and we'll send you a FREE QMIC! Please note: FREE QMICs supplied without carrying case and mic clip. Offer valid only on QMICs purchased in the United States. Limit one FREE QMIC per customer. All FREE QMIC requests must be accompanied by a sales receipt. Offer ends October 31, 1996.

Circle 64 on free info card



# NOW HEAR THIS.

*The MIDI and Digital Audio Workstation for Windows™*

**CAKEWALK**  
MUSIC SOFTWARE



**CAKEWALK**

# Pro Audio™

**Next Generation Coming Soon!**

**New Features: Native 32-Bit Windows 95 Version; Support for the Digidesign Audiomedia III™ and Soundscape SSHDR1™; New On-Screen Tutorials; Jammer Hit Session™; More...**



# Introducing Cakewalk Pro Audio™.

You heard right. The world's leading MIDI sequencer now lets you record, edit, and play digital audio and MIDI in one integrated environment. So you can record vocals, guitar leads, or any other audio along with your MIDI tracks — and play them back in tight synchronization.



But listen up. With over 50 new features, the next generation of Cakewalk software brings more than digital audio to your desktop.

Use new "clips" to build visual song structures freely, without measure and beat boundaries.

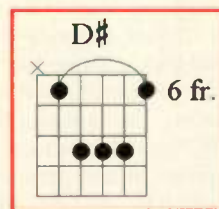
## Only \$399.\*

Cakewalk Pro Audio is the MIDI and digital audio workstation for Windows. It combines pro-level MIDI sequencing with multi-track digital audio technology. So you get the best of both worlds.



Unlike other digital audio systems, Cakewalk Pro Audio doesn't just support expensive audio hardware. Its scalable architecture lets you record CD-quality digital audio with a wide range of Windows sound cards, *and* the Digidesign Session8™. Cakewalk Pro Audio's Turbo Mixer™ technology drives your Windows sound card to new levels of audio performance. You can do graphic and parametric EQ, cross-fades, mix-downs, and other audio edits quickly and easily.

Now your printed scores will look even more



polished. Cakewalk Pro Audio's staff notation supports dynamic markings, expression text, enharmonic spellings, and even guitar chord grids.

### See and Hear It for Yourself.

Cakewalk Pro Audio is available at finer music and computer stores everywhere.

For more information, please call **800-234-1171**, or fax **617-924-6657**.

Ask about our Demo Pack!



**CAKEWALK**  
MUSIC SOFTWARE

P.O. Box 760, Watertown, MA 02272

\*Suggested list price. Actual retail price may be lower.  
CompuServe: type GO MIDI/AVEN. 24-hour Fax-Back Service: 800-370-6912.

CIRCLE 20 ON FREE INFO CARD



# EQ PRODUCT VIEWS

## TRIGGER, TOO

**A**lesis's ATK Integrated Drum Trigger System package includes seven custom drum trigger pads; a hi-hat pedal with trigger switch; a kick-drum trigger; complete hardware and cables; and the DM5 18-bit drum module. The ATK's trigger pads are coated with Moongel™, a proprietary material designed to add realism in performance feel. The DM5 features detailed trigger adjustment parameters including gain, crosstalk, noise, decay, and velocity curve. The pads' sensors have been designed to provide a linear output that corresponds to the drummer's playing force. For more information, contact Alesis Corporation, 3630 Holdrege Avenue, Los Angeles, CA 90016. Tel: 310-841-2272. Circle EQ free lit. #101.



## PLAYING THE FIELD

**B**ased on the same technology as the SoundField Mk.V is SoundField's SPS 422 microphone. It employs the same tetrahedral capsule configuration, providing enhanced spatial resolution and versatile pattern control. The SPS 422 can be set to any polar pattern from omni, to cardioid, to figure eight. The unit's matrixing circuitry allows the mic to function as either a single (mono) microphone or as a virtual stereo array; the width of which can be controlled directly from the control unit's front panel by way of two controls. For further information, contact QMI, 7 October Hill Road, Holliston, MA 01746. Tel: 508-429-6881. Circle EQ free lit. #102.

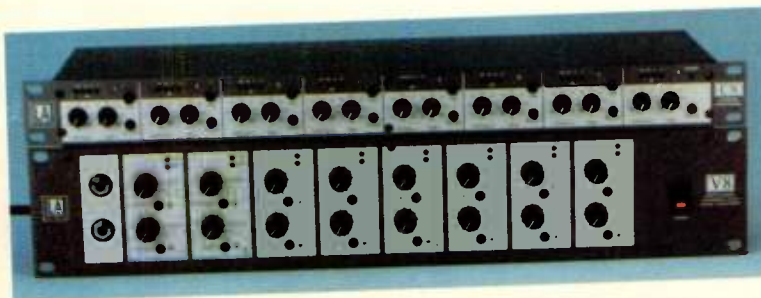
## DRIVEN TO SUCCESS

**F**ostex's Model D-80 8-track hard disk recorder/editor has a removable 850 MB hard drive that offers approximately 18 minutes of uncompressed recording time. The 3U-rack-space D-80 features 8-track simultaneous recording and a program-change function that allows the hard drive to be divided into five segments, each with a different tempo map, time signature, and so on. The unit also boasts the ability to slave to another unit via MTC/optical interface, multiple copy/move pasting, and the ability to paste to and across different tracks. The D-80 can be linked together with a Fostex DMT-80 or other D-80's for up to 24-track recording. The recording medium is a removable 3.5-inch 850 MB hard disk (IDE type). For more information, contact Fostex Corporation of America, 15431 Blackburn Ave., Norwalk, CA 90650. Tel: 310-921-1112. Circle EQ free lit. #103.



## YOU CAN HAVE A V8

**C**reated as a front end for digital multitrack machines, LA Audio's V8 "Thermionic" valve signal conditioner offers eight channels of active tube signal conditioning. Set in a 19-inch 2U rack-mount chassis, the V8 accepts both balanced and unbalanced signals with active valve gain stages allowing full control over signal level at -10 dB or +4 dB. Also from LA Audio is the C8 8-channel compressor, which offers eight channels of compression in a



19-inch 1U unit. The C8 is equipped with eight individual compressors with balanced stereo 1/4-inch ins and outs, individual bypass switches per channel, a LED gain-reduction display, and gain and threshold to suit -10 dBV or +4 dBm equipment. For more details, contact SCV London, 6-24 Southgate Road, London N1 3JJ, England. Tel: 0171-923 1892. Circle EQ free lit. #104.



## IN THE MIX

**L**ectrosonics' new AM-8TC automatic microphone mixer features both high- and low-frequency tone controls on each channel. The AM8TC comes supplied with its own dedicated software that includes Lectrosonics' patented Adaptive Pro-

portional Gain algorithm, which wards off background noise and nonspeech sounds from the auto mixing function. The software also includes a compressor/leveler. The AM8TC includes a serial port for computer monitoring and control, while the software can also be loaded and programmed for automatic use. Besides operating with any type of microphone, the AM8TC also accommodates line-level sources such as tape decks and telephone hybrid interfaces. For more details, contact Lectrosonics, Inc., 581 Laser Rd. NE, Rio Rancho, NM 87124. Tel: 800-821-1121. Circle EQ free lit. #105.



## AMAZING GRACE

**G**race Designs Model 801 eight-channel microphone preamplifier is fully transformerless. With eight channels, the Model 801 is a good front-end for DA-88's or ADATS, or for any situation that requires multiple channels of transparent microphone preamplification. All eight channels have regulated 48V phantom power, a 20 dB attenuator, and phase reverse. There are no electrolytic capacitors in the signal path, and internal signal wiring is minimized to preserve sonic integrity. The unit's chassis is CNC machined from T-6 aluminum to eliminate RF interference and provide total durability. For more details, contact Grace Design, P.O. Box 204, Boulder, CO 80306-0204. Tel: 303-443-7454. Circle EQ free lit. #106.

## ONE OF THESE DAYS, NORTON...

**N**orton Audio's new 'N' Series power amplifiers are available in six configurations ranging from the N300, which handles up to 150 watts per channel, to the N1500, which handles up to 850 watts per channel into a nominal 4-ohm impedance. All 'N' Series amplifiers (apart from the N300) feature XLR/jack inputs, XLR3 and binding post output connectors, and clip/protect mode. Protection on the above models include high temperature, DC, soft start, short circuit, and overload. All units are 2U high and measure 483 x 89 x 370 mm. Norton Audio has guaranteed its power amps for three years. For more details, contact Norton Audio UK, 61 Garry Road, Sheffield, South Yorkshire S6 4FR, England. Tel: +44 (0) 114233 4840. Circle EQ free lit. #107.



## WHAT A WONDERFUL WORLD

**W**eighing in at only 17 pounds, Stewart Electronics' newest amp, "The World 2.1" occupies two standard rack spaces, is 1 inches deep, and delivers 2100 watts into 4 ohms when bridged to mono. The World 2.1 features a new active power supply that fully recharges 120,000 times per second, requiring less capacitance for filtering and storage. This allows for many of the major components of the amplifier to be downsized, saving weight and cost. The World 2.1 also includes short-circuit protection and offers a five-year warranty. For more details, contact Stewart Electronics, 120 Blue Ravine Road, Suite 2, Folsom, CA 95630. Tel: 916-985-7200. Circle EQ free lit. #108.





# EQ PRODUCT VIEWS

## THAT'S MR. ENSONIQ

**E**nsoniq's MR Series of keyboards is comprised of the 61-key synth-action MR-61 and the 76-key weighted piano-action MR-76. The MR-Series is based on the technology found in the Ensoniq MR-Rack. New features include: The Idea Pad, which records everything that you play and divides it into phrases by selection of a different sound or pauses in playing; a full 16-track sequencer with 50,000 note memory and SMF capability; an on-board drum machine; 64-voice polyphony; 14 MB of onboard wave ROM; and Wave expansion of up to 86 MB. For further information, contact Ensoniq, 155 Great Valley Parkway, Malvern, PA 19355. Tel: 610-647-3930. Circle EQ free lit. #110.



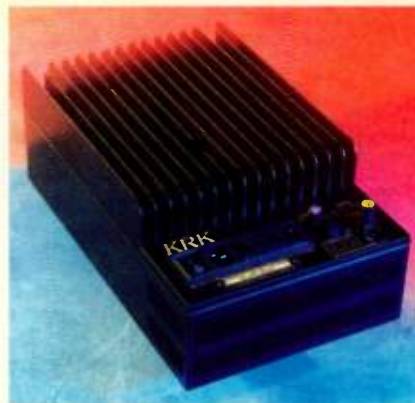
## QUAD SQUAD

**W**ith circuitry identical to its HV-3 High Voltage microphone preamplifier, the Quad from Millennium Media provides four channels of HV-3 mic preamps in a single rack space. The Quad employs Corcom power filters, Wima capacitors and Roederstein resistors, Neutrik gold XLRs, Grayhill gold gain switches, and C&K phantom switches. Millennium has also incorporated a twin-stereo toroid power supply (external), and a welded-steel road chassis. For further details, contact Millennium Media, Inc., 9624-C Kiefer Blvd., Sacramento, CA 95827. Tel: 916-363-1096. Circle EQ free lit. #113.



## BLOKHEAD

**T**he K•RoK 6000, 7000B, and 9000B may now all be purchased with the optional POWER BLoK. The POWER BLoK offers 140 watts mono at eight ohms. The proprietary power module features regulated power supplies to all voltage gain stages and Neutrik Combo connectors. Distortion is less than 0.05 percent at 140 watts RMS, while Noise is specified at -100 dB EIN input open. The POWER BLoK also features a frequency response of 0.5 Hz to 50 kHz  $\pm 0.5$  dB, as well as protection circuitry. For more information, contact Group One Ltd., 80 Sea Lane, Farmingdale, NY 11735. Tel: 516-249-1399. Circle EQ free lit. #109.



## SILENCE IS GOLDEN

**R**oland's SN-700 Noise/Hum Eliminator is a stereo noise eliminator designed to identify and isolate troublesome frequencies and noise sources in a variety of applications. The SN-700 can remove a 60 cycle hum, dimmer buzz, fluorescent lighting and ground loop noise, and more. With threshold, release, and frequency settings, users can dial out unwanted noises and hums. The "Auto" function will set these parameters automatically. Both D/A and A/D conversions are 20-bit. All functions can be controlled via MIDI and the parameters can be edited and saved into one of the 16 program locations. For more details, contact Roland Corporation, 7200 Dominion Circle, Los Angeles, CA 90040. Tel: 213-685-5141. Circle EQ free lit. #111.

## POWER PLAYER

**T**he new 2U rack-mountable PA-150 power amplifier from TASCAM provides both balanced XLR input connectors as well as unbalanced RCA input connectors. On the rear panel there is a stereo/BTL mode selector switch that enables you to feed the PA-150 in stereo or bridged mono. The amplifier is rated at 150 W per channel at 4 ohms or at 115 W per channel at 8 ohms. LED clip indicators are standard fare with the PA-150. The suggested retail price is \$400. For more details, contact TASCAM, 7733 Telegraph Road, Montebello, CA 90640. Tel: 213-726-0303. Circle EQ free lit. #112.



# It's a Free Tape Explosion!



What studio couldn't use more professional tape — and a TASCAM DA-88? So to celebrate the DA-88's numerous technical achievements and awards (including the coveted Emmy), and introduction of the new TDK PRO line of precision recording media, TASCAM and TDK are rewarding DA-88 buyers with what they need most — FREE tape. Act now and for each DA-88 you buy, you'll get the explosive 60-piece TDK Studio Tape Package. That's 20 each of TDK's hottest and highest quality professional Hi8 (MP120), DAT (DA-R60), and Cassette (SM60) tapes — tape you'll use every day. For tracking, mastering and cutting demos. You'll get 80 hours of record time on 60 free tapes — over a \$500 value. So if you've been waiting to buy your DA-88, or want to add tracks to your current set-up, don't hesitate any longer. Get to your dealer and make a deal today. Because this explosion won't last forever.

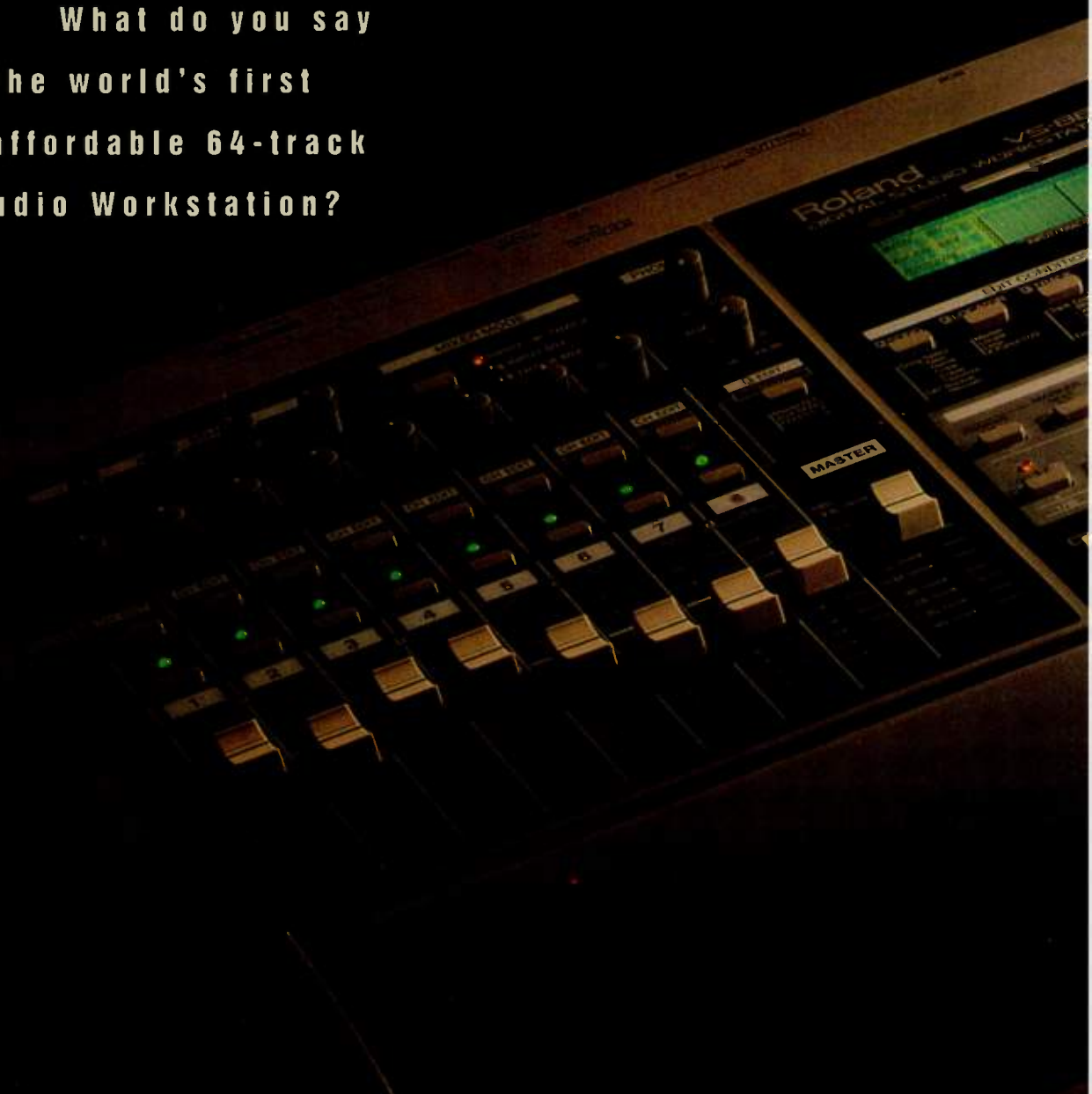


**TASCAM.**  
Take advantage of our experience

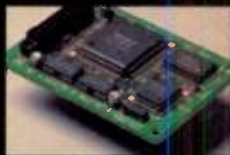
To qualify for the free TDK tape offer, you must purchase a TASCAM DA-88 between April 1, 1996 and June 30, 1996 from any authorized USA or Canadian TASCAM Dealer. After you take delivery of your DA-88, mail a copy of your fully paid dealer receipt, complete with serial #'s, directly to TASCAM USA, Dept. FREE TAPE!, 7733 Telegraph Rd., Montebello, CA 90640. In Canada, mail to TEAC CANADA LTD, Dept. FREE TAPE!, 340 Brunel Road, Mississauga, Ontario L4V 2C2, Canada. For your protection, we suggest mailing by certified mail. TASCAM will ship prepaid directly to you The TDK 60 Piece Studio Tape Package. Offer good for each and every new DA-88 purchased during the duration of the promotion (sixty tapes as described for each DA-88 purchased). All requests must be received by mail, no later than July 15, 1996; no FAX requests will be accepted. Please allow 6-8 weeks for processing and delivery.



What do you say  
to the world's first  
affordable 64-track  
Digital Studio Workstation?







# Welcome home.

Say hello to the first fully integrated digital recording workstation practically anyone can afford. The VS-880 is for anyone who ever wanted more and more out of their home or studio recording environment.

## A 14-Channel Digital Mixer

The VS-880 comes with a 14-channel digital mixer with digital EQ. Fader, pan and mixer parameters can be automated by MIDI control change messages. Internal snapshot automation is included.

## An 8x8/64 Virtual Track Digital Recorder

Eight primary tracks with eight levels of virtual tracks give you the ultimate in recording flexibility. Record multiple takes, edit or undo edits and compile the best parts of various takes to create the perfect track without compromise. You can accumulate up to 64 instantly accessible tracks and choose eight for final mixdown.

## Digital Mastering

The VS-880 is fully digital and has digital in and out. This makes it compatible with all your existing digital equipment, both linear tape-based and non-linear hard disk format.

## Digital Editing

With the VS-880, you get fully non-destructive editing capabilities. You can copy, move, exchange, insert, cut and erase tracks. Because it functions like a word processor, you can select the perfect chorus of your song, copy it or move it somewhere else without re-recording it. Or cut out another section and have the remaining material slide over and fill the open space automatically. And if you're not satisfied with a particular edit, simply return to the previous performance. Instant locate points make editing on the VS-880 as user-friendly as it gets. For advanced applications, functions like Scrub Preview or Time Compression/Expansion are available.

The user installable VS8F-1 Effect Expansion Board adds two completely independent stereo multi-effects processors. There are 200 patches, extensive effects including 3-D RSS capability, and guitar effects chains with COSM-based guitar amp simulator.

## Two Digital Effects Processors

A VS8F-1 Effect Expansion Board can be easily user-installed, giving you two totally independent multi-effects processors. Reverb, stereo delay, chorus, flanging, vocoder as well as distortion/overdrive and guitar amp simulation are a few of the effects that can be added during recording or during final mix in realtime. Three dimensional effects based on Roland's proprietary RSS<sup>®</sup> system are also included.

## Digital Memory

You can choose the type of memory which best suits your needs. Select a 540 MB internal drive or an internal 1 Gigabyte removable Iomega<sup>®</sup> JAZ<sup>®</sup> drive capable of 500 minutes of recording time. A standard SCSI port allows for easy connection to external drives such as Iomega<sup>®</sup> ZIP<sup>®</sup>, magnetic optical or other storage media.

## Synchronization

The VS-880 is MIDI compatible for synchronization with MIDI Time Code (MTC) as both a master or slave. MIDI Machine Control (MMC) also allows automated transport control, putting playback, fast forward, rewind and more at your fingertips.

It's time to turn your home or workplace into the studio you've always wanted. Call (213) 685-5141, ext. 798 to order a free demonstration video.



The rear panel has four RCA and four 1/4" inputs, digital in/out, MIDI in/out for sync and automation, a programmable footswitch input, headphone jack, two aux sends, master outs, and a SCSI port for archiving or adding additional storage devices.

VS Studio  
VS-880

# Roland



Roland Corporation U.S., 7200 Dominion Circle, Los Angeles, CA 90040 (213) 685-5141 Roland Canada Music Ltd., 5480 Parkwood Way, Richmond, B.C. V6V 2M4 (604)270-6626  
COMPUERVE<sup>®</sup>: GO ROLAND Fax-Back Information (213) 685-5141, ext. 271 <http://www.rolandus.com>

All trademarks are registered by their respective companies.

CIRCLE 67 ON FREE INFO CARD





# THIS AD CONTAINS 8 REASONS TO BUY YOUR FREE 1-HR. MACKIE

**1** **VLZ CIRCUITRY FOR ULTRA-LOW NOISE AND CROSSTALK.** Did we just make up a fancy name for the same old circuitry? Nope. VLZ (Very Low Impedance) is a Mackie innovation based on solid scientific principles. Through the careful deployment of high operating current and low resistor values at critical points in our consoles, we're able to dramatically reduce thermal noise & adjacent-channel crosstalk. Open up all the channels, subs & masters on a Mackie B•Bus console and compare what you hear (or rather don't hear) with any Brand X console. Because Very Low Impedance circuitry needs loads of high current, we ship a humongous, 220-Watt Triple-Regulated power supply with every B•Bus

**2** **IT EXPANDS ALONG WITH YOUR NEEDS AND BUDGET.** You'd be surprised just how many B•Bus console setups like the one below are currently in use. But you don't have to start out this way. Start out with a 24•B or 32•B and then grow your B•Bus console 24 channels at a time with our 24•E add-on modules. 1, 2 or even 3 of 'em connect in minutes. They come with their own 220-watt power supply; optional meter bridges are available.

**3** **IMPECCABLE MIC PREAMPS.** A console can have motorized dooflammers and an optional MIDI espresso attachment, but if the mic preamps aren't good, you don't have a fully-useful production board. Our discrete preamps with large-emitter-geometry transistors have won a critical acclaim for their exceptional headroom, low noise (-129.5dBm E.I.N.) & freedom from coloration. VLZ circuitry in the preamp section also reduces crosstalk.

**4** **THIS CONSOLE JUST PLAIN SOUNDS GOOD.** Sure, you may be able to buy a Brand X console for less. But you end up with a console that sounds like...well...a Brand X console. Granted, we're getting into a pretty subjective area here...but we have tall mounds of B•Bus warranty cards that rave about our consoles' "clarity," "sonic purity," "sweet sound," "transparency," "lack of coloration" and a lot of other superlatives we wish we'd thought of first.



Above: 24•E 24-ch. expander with optional MB•E meter bridge and stand.

## **6** **MAC® & WINDOWS® 95-BASED AUTOMATION THAT'S RELIABLE, PROVEN AND AFFORDABLE.**

Along with affordable digital multitrack recorders, the Mackie B•Bus has made it possible to do world-class productions on a modest budget. But until now, Big Studios have still had one remaining and unattainable creative "secret weapon"... computerized level automation. That's why we developed the UltraMix™ Universal Automation System. It gives you fully editable and recallable control of input, channel and master levels — plus features not found on even the most expensive proprietary Mega-Console automation systems. Equally important, it doesn't degrade sound quality, introduce zipper noise or cause

audible "stepping." UltraMix is currently being used to mix network television music themes and on several major album projects — by seasoned engineers who grew up on Big Automation Systems. Their verdict is that UltraMix is a serious automation solution — stable, reliable and frankly easier to use than more expensive systems. The basic system controls 34 channels and can be expanded to as many as 128 channels. UltraMix Pro™ software, for 030/040 & Power PC Macintoshes and PCs (Windows® 95 required), includes a wealth of

UltraMix™ includes the Ultra-34 Interface, UltraPilot Controller and software for \$2797 suggested U.S. retail. Macintosh® or Windows® 95-compatible PC not included.



features like editable fader curves, built-in level display, unlimited subgroups, SMPTE time code display, event editor with pop-up faders, optional control of outboard effects devices and the ability to play Standard MIDI files from within the program.

† Mention in this ad denotes usage only, as reported to Mackie Design, and is in no way intended to constitute official endorsement by the artists or groups listed.

\* As compiled by a leading Independent Console Video Fretold Evaluation Laboratory. Your count of superior Mackie-B•Bus console features may vary.



# SONS TO BUY OUR 8-BUS CONSOLE. VIDEO CONTAINS AT LEAST 71.5\* MORE.



**5** PROFESSIONALS REALLY USE THEM. The members of Boyz II Men could have afforded any console they wanted for their studio's second room. They chose an 80-input 8-Bus with 102 channels of UltraMix™ automation. In the studios of artists as diverse as k.d. lang, Yes, Queensryche, Lee Roy Parnell, Aerosmith, Bryan Adams, Carlos Santana, Whitney Houston, Eric Clapton & U2, our consoles really are used to make great music.

**FREE VIDEO!** Choosing the right 8-bus console can be pretty confusing these days. That's why we've whomped up a free video that gives you some solid reasons to buy a Mackie 8-Bus. This eclectic compilation contains excerpts from our epic 8-Bus Video Owner's Manual, an introduction to UltraMix™ Automation System and an award-winning short subject, The 2nd Mackie Home Video. Watch all three parts before you part with bucks for any 8-bus console.

**FREE VIDEO FINE PRINT.** Visit your local Authorized Mackie Dealer for a real live 8-Bus demo, and then snag your free video. This handsome offer is good while supplies last, or until August 31, 1996, whichever occurs first. So, you snooze, you looze. Limit: one per customer. If you just can't seem to make it to a dealer, it's available from Mackie by phone or fax request - no reader response cards. Allow six weeks for delivery. You will also receive our 48-page 8-Bus and UltraMix™ Universal Automation System color



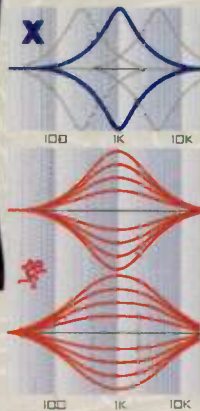
Above: 24\*E 24-ch. expander with optional MB\*E meter bridge and stand. Above left: 32\*8 with optional MB\*32 meter bridge and stand.

Above: The SideCar, matching 8-Bus equipment rack.

**7**

## WIDE MID RANGE EQ.

Whether you're tracking or mixing, equalization is one of your most important creative tools. We concentrated on important things like giving you Classic English Console EQ capabilities. By that, we mean extremely-wide-bandwidth peaking equalization that can be used to achieve effects that simply aren't possible with narrower EQ. Most Brand X midrange EQs have a fixed bandwidth of about 2 octaves (blue graph above right). You can sweep it up & down the frequency spectrum, but the "sharpness" of the EQ curve is always the same.



This kind of EQ is good for some purposes...but if you've worked with it before, you know it's too drastic and localized for gentle changes in overall tonal coloration. The 8-Bus' true parametric Hi Mid lets you spread the bandwidth out to as much as 3 octaves (red curves at left). That extra octave of "width" gives you a whole new creative palette.

© 1996 MACKIE DESIGNS INC. ALL RIGHTS RESERVED

## 8 LEGENDARY RELIABILITY.

This is one of those factors you probably don't think much about - until your console goes down at in the middle of a critical session...at 2AM on a holiday weekend. Built with pride in Woodinville, WA, USA, 8-Bus consoles have an enviable 3-year track record for enduring continuous, round-the-clock use and abuse.

tabloid. This video offer is available to respondents in the U.S. only. Canadian readers, call SF Marketing at the toll-free phone number below. In other countries, please consult your local Mackie Designs Authorized Distributor.

# MACKIE™

16220 Wood-Red Road • Woodinville • WA • 98072 • 800/898-3211 • 206/487-4337 • e-mail sales@mackie.com  
 Represented in Canada by S.F. Marketing • 800/363-8855 • Outside the USA • 206/487-4337 • 206/485-4152

WRN

CIRCLE 53 ON FREE INFO CARD



# Focusrite Green Range

Focusrite makes its famed processors "for the rest of us"

BY ZENON SCHOEPE

**B**uilding on the success and acceptance of its Blue and Red ranges of outboard processors, Focusrite has taken a somewhat unexpected step in moving further down market than it has ever been before. The Green range was launched at the Frankfurt Musik Messe in March and is expected to start shipping in quantities in the summer.

Initially there are three products — a dual mic preamp (Green 1), the Focus EQ (Green 2) direct recording module, and the Green 3 "Voicebox" microphone signal path module. These are expected to be followed up with three other new units towards the end of the year, with as many as another six rumored to be in the pipeline.

What is significant about these products is that they will all be very much under 1000 pounds sterling in

the U.K. (around \$1500 U.S.), bringing the Focusrite name within the grasp of more ordinary folk.

The Green 1 dual mic preamp has a variable gain from +10 dB to +60 dB with switchable phantom power and phase reverse, a 75 Hz high-pass filter, externally controllable mute, and a peak LED. The direct recording module Green 2 has mic, line, and instrument level inputs passing through six stages of EQ — high- and low-pass filters, low- and high-mid parametrics, and low and high shelving bands with bell switches. There's also an overload LED, output fader, and VU response bargraph metering.

The Green 3 voicebox is designed to offer a single channel of high-quality mic input processing for critical applications. It has a single mic preamp identical to that in Green 1, but follows this with a notchable mid parametric and low and high shelving EQ, a compressor, de-esser, and noise-reducing expander.

In the same way that sales of Blue units went up when Focusrite launched its more affordable Red range, the exclusivity of the brand name is unlikely to be harmed by the arrival of what are effectively mass-market products by Focusrite's stan-

dards. The company has spotted the trend among project studio owners for embellishing their hard-disk systems or digital 8-track setups with high-quality outboard as dedicated recording paths and has responded.

The reason these units are cheaper is because Focusrite has broken away from the hand-wired and individually assembled manufacture used on the Red and Blue ranges to automated volume assembly. Clever production engineering has reduced the component count and employed surface-mount technology, allowing a Green circuit board to be put together in a few minutes rather than the four hours it takes for a Red module. The other major saving is in the casing. Greens may look like they're hewn from stone, but they're actually molded aluminium shells into which the electronics slot.

The company is at pains to stress that the Greens are up to the Focusrite name electronically and share much of the ideology of the more expensive products. Input stages are wide bandwidth and low noise while the outputs have wide bandwidth buffers to make the performance independent of the cable or any other gear that follows. No compromises are claimed, the Greens are just made in a more modern and mass produced manner to reduce cost.

Cosmetics are a curious subject to raise when discussing bland old outboard, but the Greens really are quite distinctive in appearance. They might not be to everybody's taste — they're certainly not as classy looking as the Focusrite Reds — but they are definitely different and may even mark the advent of a new era in "designer" outboard.

The Green range is undoubtedly good news for musicians and project studio owners, not only because of the price but also because of the fact that these units are intelligently targeted at the specific requirements of these users. I can hardly wait.

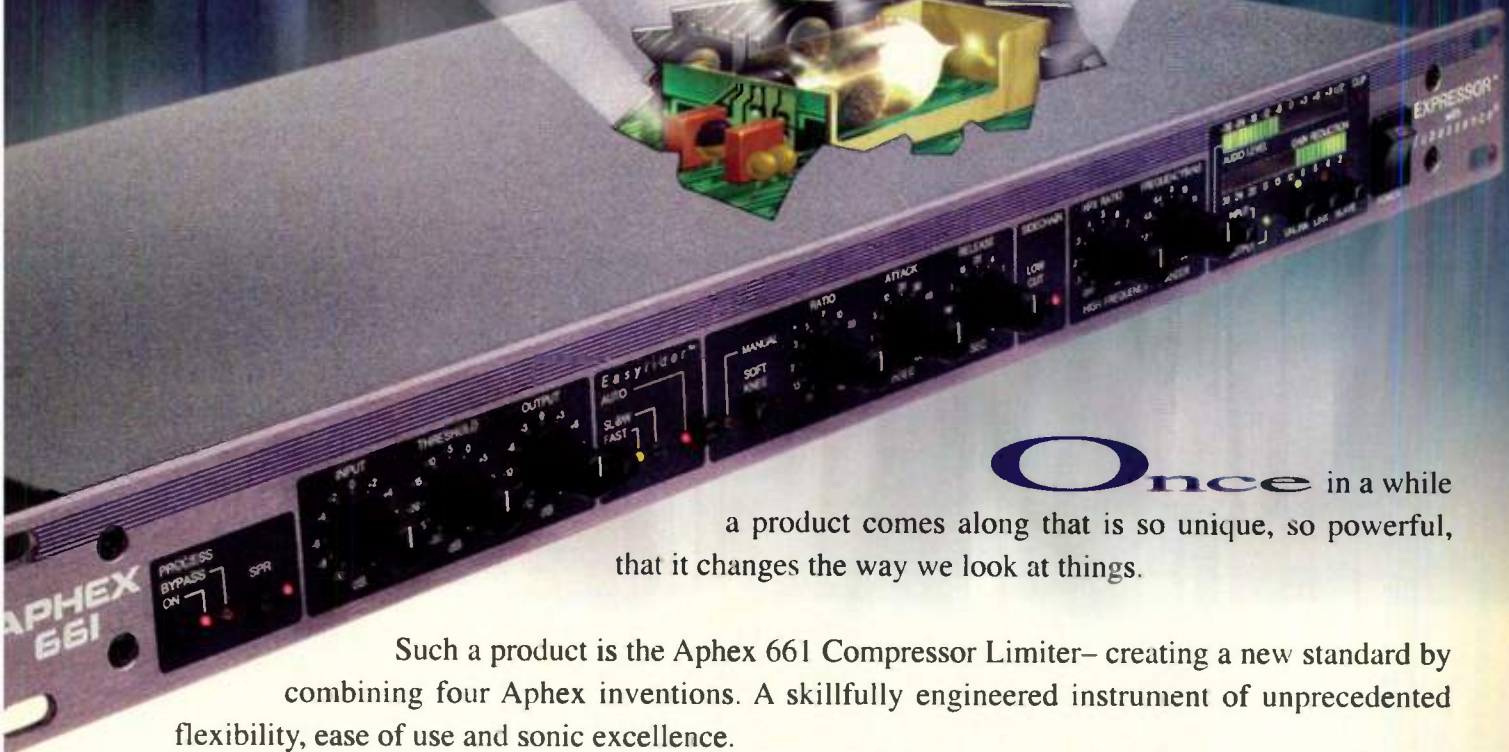


ROLLING IN GREEN: Focusrite's latest series is priced right for the average studio owner.

For more information, contact Focusrite, 80 Sea Lane, Farmingdale, NY 11735. Tel: 516-249-1399. Circle EQ free lit. #148.



# APHEX TUBE COMPRESSOR



Once in a while  
a product comes along that is so unique, so powerful,  
that it changes the way we look at things.

Such a product is the ApheX 661 Compressor Limiter—creating a new standard by combining four ApheX inventions. A skillfully engineered instrument of unprecedented flexibility, ease of use and sonic excellence.

Tubessence® - true vacuum tube technology and warmth; High Frequency Expander (HFX)™ for automatically retaining the high frequencies lost during compression; Easyrider® circuitry for an Auto mode that really works; and the world's best VCA - the ApheX 1001, the fastest, most accurate and transparent available.

The ApheX Model 661 - another revolutionary step toward improving the way the world sounds.

**APHEX**  
SYSTEMS

Improving the way the world sounds<sup>SM</sup>

11068 Randall Street, Sun Valley, CA 91352 • Tel: 818-767-2929, Fax: 818-767-2641



VOCAL



**SHURE**

**BETA 58A**

Just what is it that makes Beta microphones the world's most respected for live performance?

Ask a professional performer and you'll hear about Beta's remarkable response to vocals *and* instruments. While an engineer will talk about their tight, uniform supercardioid pick-up patterns which allow exceptional gain-before-feedback. And how Beta's technical precision turns every live performance into a studio-quality sound experience.

INSTRUMENT/  
VOCAL



**SHURE**

**BETA 57A**

VOCAL



**SHURE**

**BETA 87**

# IS IT ART OR ENGINEERING?

*The Premium Performance Shure Beta Microphone Family*

If you're miking an entire stage, you'll want the full Shure Beta Line. It includes the improved Beta 57A and 58A with smoother response and lower handling noise.

The premier Beta 87 brings accuracy and detail to vocals. And to drive it all home, complete your stage with the exciting new Beta 52 for your kick drum and the unique Beta 56 for drums and other instruments.

Is it art or engineering? With Shure Beta, it's one and the same.

Call 1-800-25-SHURE for the Shure Beta dealer nearest you.

INSTRUMENT



**SHURE**

**BETA 56**

KICK DRUM



**SHURE**

**BETA 52**

# SHURE®

THE SOUND OF PROFESSIONALS... WORLDWIDE

CIRCLE 69 ON FREE INFO CARD





# Solo's "Heaven"

EQ talks to engineer  
Jeff Taylor about the  
Jam & Lewis-produced  
R&B hit

BY STEVE LA CERRA

**EQ:** "Heaven" has a very "retro" sound to it. Was this a conscious decision?

**Jeff Taylor:** We were focused from the outset on making the guys in Solo sound exactly as they are: very retro and their voices have overtones from a lot of the popular '60s and '70s groups. We wanted to really showcase that in a '90s kind of way.

**How did you record their voices to obtain that sound?**

We used a Harrison Console — it provides a lot of natural warmth, which is key in achieving that "classic" sound. I recorded on an Otari MTR-100 at 15 ips with Dolby SR, on 2-inch Ampex 499. We used an AKG Gold Tube Mic. Very light compression was applied using a dbx 160X.

**There is something happening sonically that sounds like you are listening to a vinyl record...**

Record hiss is what you are hearing. It's an old trick that I picked up some years ago. I went through my record collection and found some "old dusties." Then I sampled the actual record noise using a Roland S760 sampler. I looped the sound, smoothed out the loop points, and then looped it in time throughout the song, based on the song tempo. Then you have static

from start to finish! It's meant to sound just like a vinyl record.

**The other thing is the tone of the drum sounds — they are real mellow, classy kind of sounds, like the old Motown sounds.**

Jam & Lewis wanted to emphasize that this was a super-simple song, the kind that when you hear it on the radio you think, why didn't I think of that. With that in mind, the drum pattern had to be basic and open, as to not crowd the lyrics so that the listener could really concentrate on hearing the song. My assignment was to find simple but classic drum sounds to compliment the song.

**Did the band sing their parts simultaneously or were they overdubbed?**

"Heaven" started out as a rough demo idea that became a full-blown song during the taping of a television show called "Name Your Adventure." The show was about a young kid who had won the chance to do his adventure — which was to be a record producer for a day. So they flew him in to work at Flyte Tyme productions with Jam and Lewis, Solo, "Big Jim" Wright, and myself. We cut the song live and its all on videotape with the kid overseeing the session. During the session, Solo sang live in the booth as I engineered and ran the MPC-60, Jam was at one keyboard and "Big Jim" Wright at another, I was changing the patterns in real time to accommodate the chord progression. We were essentially writing the song as we recorded it. Once we solidified the arrangement, Jam played along and Solo sang as I recorded our efforts to separate tracks and the song was done. We did go back and do some sweetening during mixing, but for the most part what you hear is what happened during the first creative session as cameras were rolling. Fun was had by all, but when we were done we knew that this song had major hit potential.

*To check out the latest activities at Flyte Time, visit Jeff "Madjef" Taylor's web site at: <http://www.future.net/~madjef>.*



**SOLO EFFORT:** The group's self-titled album has been a mainstay on the R&B charts.





# UNITY™

S E R I E S

## When the Artist, Soundman, and Engineer is You.

**+48V Phantom Power**

**Low-Z Mic Preamps**

**Rugged 60MM Faders**

**Powder Coat Finish**

**U.L. Approved**

Compact console advertisements don't usually talk about sound quality, perhaps that's because they don't have anything to talk about. Every console in the Unity™ Series uses ultra-low, noise-discrete, transistor microphone preamps. These are the same transistors we use in our \$20,000 recording consoles. These preamps come within 2 dB of a theoretically perfect, "noiseless" preamp. If you could find a quieter preamp for any price the noise difference wouldn't be audible.

High-quality, precision film capacitors are used in every equalization stage, so you don't have to worry about the sound-corrupting effects of DF, DA, voltage coefficient, etc. High-speed, low-noise opamps are used in every audio path maintaining signal integrity from slew induced distortions.

We don't have room to talk about every trick we've learned in thirty years of designing professional sound reinforcement equipment. Just about anybody can make a mixer sound like a million bucks for a million bucks, the magic is doing it for \$349 (U.S. suggested retail for the Unity™ 500).

Please, don't take our word for it. Make your dealer plug in and compare any one of these Unitys to the most expensive console in his store. We know how it will turn out because we've already done it. Prepare yourself to be amazed.

# Unity™ Series – Designed For The Artist Who Does It All...



# Unity™ 500

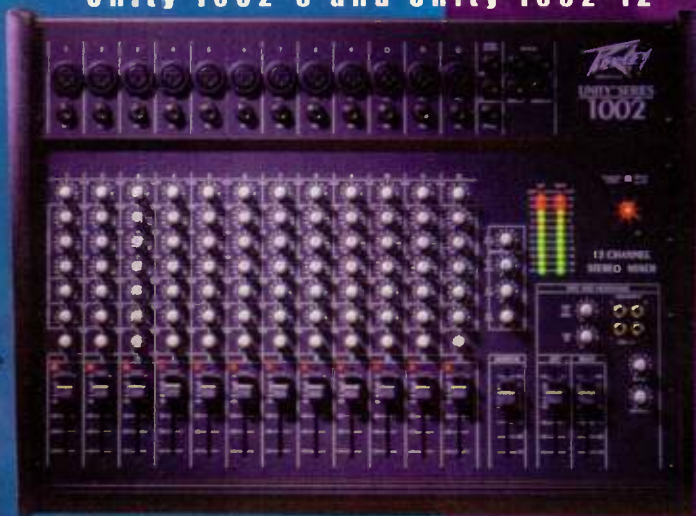


Good things do come in small packages. The Unity 500 delivers recording studio sound quality in a compact mixer with compact mixer pricing.

- U.L. approved for your safety
- 6 ultra low noise, low-impedance mic preamps
- TRS insert patch points on Low-Z inputs
- Hi and Low frequency Baxandall type EQ
- 2 auxiliary sends on each channel
- 4 stereo Line Input channels
- +48V true phantom power (switchable)

# Unity™ 1002 Series

Unity 1002-8 and Unity 1002-12



Don't be misled by its compact size. The Unity 1002 Series is professional to the core. Low-noise, discrete transistor mic preamps complement our no-compromise approach. High quality 60MM faders sound as good as they feel.

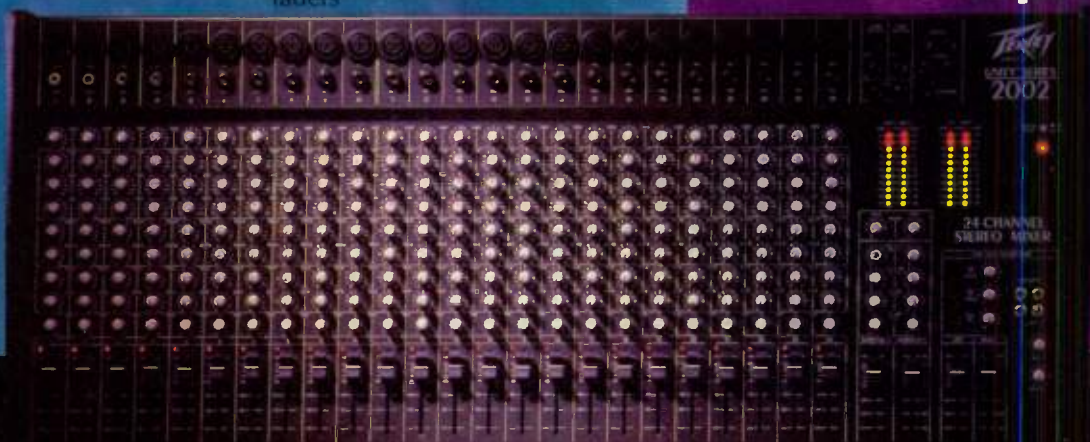
- U.L. approved for your safety
- 8 or 12 ultra low noise, low-impedance mic preamps
- 3-band EQ, Hi and Low shelving type, mid-peaking type
- 1 pre monitor send and 1 post EFX send
- +48V true phantom power (switchable)
- 1 monitor master fader
- Rugged, smooth feel 60MM faders

# Unity™ 2002 Series

Unity 2002-12, Unity 2002-16 and Unity 2002-24

The Unity 2002 Series carries the success of the 1002 Series one step further with two pre monitor sends and two post EFX sends per channel. Providing up to 24 low-Z mic channels in a compact 2 bus console.

- U.L. approved for your safety
- 8 or 12 ultra low noise, low-impedance mic preamps
- 3-band EQ, Hi and Low shelving type, mid-peaking type
- 2 pre monitor sends and 2 post EFX sends
- +48V true phantom power (switchable)
- Rugged, smooth feel 60MM faders



SERIES™  
UNITY™  
UNITY™  
UNITY™



The MONITOR Magazine is a publication filled with the latest information musicians want to know. To receive 4 issues for only \$5 (price good in U.S. only) send check or money order to: Monitor Magazine, Peavey Electronics, 711 A Street, Meridian, MS 39301 • (601) 483-5365 • Fax (601) 486-1278  
AOL Keyword: Peavey • Compuserve Keyword: Go Peavey • World Wide Web: <http://www.peavey.com> • © 1996

Circle 58 on free info card



# No Wait

At Bob Christianson's New York City studio, the sound is Great Immediately

**STUDIO NAME:** Great Immediately Recording

**LOCATION:** New York, NY

**KEY CREW:** Bob Christianson (owner/composer); Jean Blair (studio manager)

**PROJECTS RECORDED:** TV Theme Package: ESPN "1996 Olympic Trials"; Film Scores: "Mindbender," "Vibrations," "Sea Of Fire," "Kounterfeit"; Discovery Channel: "Disaster Proof?," "When Nature Rules"; TV Promos: "Sophie and The Moonhanger," "Almost Golden"; and commercials for Advil, Dimatapp, Kodak, U.S. Army, and General Mills

**CONSOLE:** 44-input Amek Big with Recall and Virtual Dynamics

**KEYBOARDS & MIDI:** Kurzweil Midiboard; Roland JD-990, JV-1080, and JV-880; Korg M1REX, 01/WR and Wavestation SR; E-mu Proteus World; Hammond B-3; Opcode Studio 5 MIDI interface

**SAMPLERS:** Roland S-760 [2] and S-700

**MONITORS:** Genelec 1031A with subwoofer; Tannoy PBM 8; ROR cubes

**AMPLIFIERS:** Hafler; Urei; and BGW

**COMPUTERS & SOFTWARE:** Apple Power Mac 7500 with NEC Multisync 3FGX monitor; Steinberg Jones Cubase Score (sequencing and notation); Emagic Logic; Opcode Vision (sequencing software); Cue Music (spotting software); DynaTek Optical CD-ROM

**RECORDERS:** TASCAM DA-88's [4], 122 Mk II, and Mk III (cassette decks); Roland DM-80 (hard-disk recorder)

**VIDEO RECORDERS:** Sony BVU-800 and VO-5600 U-matic; JVC Super-VHS decks

**DAT MACHINES:** Sony PCM7010; TASCAM DA-30 Mk II

**OUTBOARD GEAR:** Lexicon Models 300, 200, and LXP-15; TC Electronic M2000 reverb; Summit DCL200 limiter and



dual program PEQ200 equalizer; Amek 9098/Neve equalizers; UREI LA-4 and 1176 limiters; dbx 166 compressors; Korg and Lexicon digital delays; Demeter mic preamps

**MICROPHONES:** Neumann U87's; AKG C414's; Shure SM57's

**STUDIO NOTES:** Bob Christianson notes: The studio was recently renovated by Fran Manzella for a more acoustical-

ly correct design and to make more efficient use of the available space. We tried to make the room more comfortable to work in, and, being in New York City, every inch of space counts.

**EQUIPMENT NOTES:** Christianson comments: For the recent ESPN project, we did a recording with an orchestra in London to four TASCAM DA-88's





and then took it back here for mixing. I like the DA-88's because they are very dependable, lock-up quick, and have become the de facto standard with postproduction houses. I rely heavily upon the Roland samplers because I have a huge library of orchestral sounds that I constantly use for scoring. There is so much music and so little time that often I

don't even record the sequenced parts to multitrack — I just mix the virtual tracks to DAT. The video decks serve as the masters and I use a TimeLine MicroLynx to synchronize Cubase and (when necessary) the multitracks to picture.

**PRODUCTION NOTES:** Christianson continues: For short music cues and commercials, I have not found it necessary

to mix to timecode DAT. Most of the time, the cues are flown into either Pro Tools or ScreenSound, and then that will be locked to picture via SMPTE code. Since DAT doesn't drift much, especially in such short segments, I can put a count-off at the beginning of the segment that can be used to time the start of the spot and it will stay in sync until the end.



# KRK: Up Close

## RoK•Bottom

The perfect addition for anyone requiring better low-end response in a near-field monitoring application, the RoK•Bottom kicks some serious butt. The sub-woofer utilizes a unique enclosure shape similar to the popular K•RoK, minimizing parallel walls to maximize low-end punch. The 2.1 cubic enclosure features a 12-inch long-stroke polyglass woofer with a metric sensitivity of 91 dB and is available in non-powered and 140 watt powered versions with an LCR summing amp and an internal crossover.



## K•RoK

The K•RoK personal monitor, featuring radical new designs in driver and enclosure technology, has developed into one of the most popular near-field monitors on the market. The unique cabinet shape, which minimizes parallel walls, was designed to optimize linearity and maximize low-end punch. This provides extremely accurate reproduction of instruments and vocals. Perfect for all near-field applications, the K•RoKs not only out perform the competition, they also represent an incredible value at \$495.00 per pair.



**NEW**

## POWER BLoK

The 140-watt KRK POWER BLoK represents a revolutionary concept in near-field monitor amplification. Offering a cost-effective alternative to conventional rack-mount amplifiers, the class A POWER BLoK is available as an internal option to all KRK monitors, including the RoK•Bottom sub-woofer, or may be purchased separately and used as an outboard amplifier. The proprietary power module features regulated power supplies to all voltage gain stages and heavy duty Neutrik combo connectors as well as extensive DC protection circuitry. Distortion is less than 0.05% at 140 watts, while noise (A weighted) is specified at -100 dB EIN input open.

**NEW**



Keith Klawitter  
Captain K•RoK

## Keith Klawitter,

KRK Systems, Inc. president and chief design engineer, started the company in 1986. Previously, Keith had worked as an independent recording engineer at many of the world's major recording and film studios and has gained numerous film credits with projects at Metro/Goldwyn, Paramount, MGM and Universal. KRK's phenomenal success can be attributed to a unique combination of exotic driver materials, proprietary crossover stylized cabinet design and Keith's vision of uncompromising sonic quality.



Chris Fichera  
with KRK mascot, "Pinky"

## Chris Fichera,

vice president, Group One Ltd., exclusive distributor of KRK Systems products worldwide, has gained international recognition as both a Grammy Award winning engineer and industry marketing veteran. "We have intentionally limited KRK distribution," says Fichera. "KRK dealers were selected on their ability to effectively serve the professional audio market with product knowledge and a thorough understanding of the recording process."



# And Personal

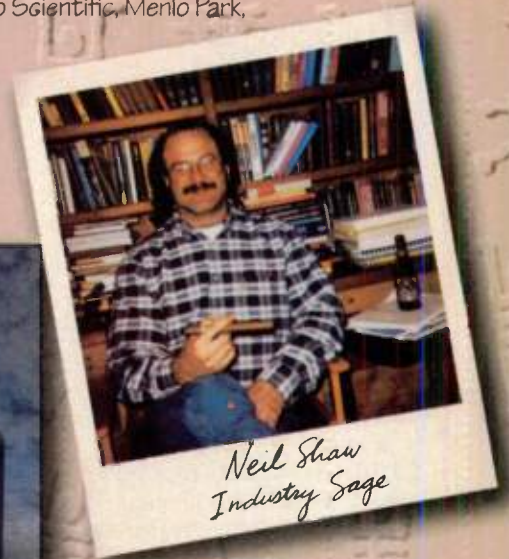
## Imaging Is Everything

KRK monitors have become an integral tool in many of the world's top recording and post-production studios. The KRK line of near field monitors are without peer for accuracy and imaging. Each driver is extensively tested to ensure a zero failure rate out of the box and monitor pairs are matched to within one-tenth of a decibel for unequalled accuracy. With a complete family of near-field products to choose from, KRK has a product for every application, including video-shielded and powered versions.



## Questions About The Universe?

Just ask Neil.  
Neil Shaw, Menlo Scientific, Menlo Park,  
California



Neil Shaw  
Industry Sage

NEW

## Veneer Options

If the "granite-type" look in a monitor is not your cup of tea, KRK offers veneered versions to complement the most demanding interior. Available in attractive oak or rosewood, the optional models include the K•RoK, 6000, 7000B and 9000B. They are also available in powered and non-powered versions and with optional video shielding.



KRK Old RoK Dude



Distributed by Group One Ltd.

East Coast Office: (516) 249-1399 • (516) 758-1020  
West Coast Office: (310) 656-2521 • (310) 656-2524  
E-mail: jakel.groupone@aol.com

KRK Systems, Inc.

16612 Burke Lane • Huntington Beach, CA 92647  
(714) 841-1600 • (714) 375-6496  
E-mail: krksys@msn.com

CIRCLE 47 ON FREE INFO CARD



# beyerdynamic MC 740

Multiple polar patterns highlight this new mic

**MIC NAME:** beyerdynamic MC 740

**PRICE:** \$1699 (includes case and suspension mount)

**TYPE OF MIC:** Dual large-diaphragm condenser

**POLAR PATTERN:** Wide cardioid, cardioid, hypercardioid, omnidirectional, and figure eight.

**FREQUENCY RESPONSE:** 20 Hz to 20,000 Hz,  $\pm 2$  dB

**SENSITIVITY:**  $-40$  dBV/10 mV/Pa

**NOMINAL IMPEDANCE:** 150 ohms

**OPERATING PRINCIPLE:** Pressure-gradient gold vapor condenser

**SELF NOISE:** Approximately 17 dB (A-weighted)

**MAXIMUM INPUT SPL:** 134 dB (144 dB with pad switched on)

**POWER REQUIREMENTS:** 48 volts,  $\pm 4$  volts

**DIMENSIONS:** 215 mm (length), 37 mm (shaft diameter), 35 x 55 mm (head)

**WEIGHT:** 390 grams

**MIC NOTES:** The MC 740 is beyerdynamic's multipattern studio condenser mic, which can be used on just about any instrument. The MC 740 was intended for uncolored reproduction of the sound source.

**USER TIPS:** Unlike many studio condenser microphones, the beyer MC 740 offers the hyper- and wide-cardioid patterns in addition to the "big three" (omnidirectional, bidirectional, and cardioid). The wide cardioid polar pattern is useful when you want to avoid some of the proximity effect normally resulting from use of the cardioid pattern, but also need more room rejection than the omnidirectional pattern typically offers.

Classical recordists will like the fact that the MC 740 can be remotely controlled when the mic is powered by beyer's MSG 740 power supply. This feature comes in particularly handy when the mics are placed high overhead for distant miking technique: you can change the pickup pattern quickly, without disturbing the position of the microphone.

EQ



Photo by Edward Colver



# Rembrandt

- The latest ultra-high performance benchmark master production console from AMEK
- 80 and 112 input chassis options with 4-band AMEK-EQUALIZATION on all inputs
- Discrete AMEK Mic amps and 16 Auxiliary send buses
- Every input automated with AMEK SUPERTRUE VCA automation as standard or AMEK SUPERMOVE Moving Faders as a main fader option
- AMEK RECALL allows positions of all non-automated channel controls to be memorized
- AMEK VIRTUAL DYNAMICS provides a range of digitally-controlled analogue compressors, gates and other gain control devices
- AMEK Visual FX allows remote operation via MIDI of outboard devices by Lexicon, TC, Yamaha and other premier brands from the console
- Automated Solo-In-Place and off-line editing of Mix Data and automated switch positions
- Onboard or External jackfields
- MIDI Machine Control from within SUPERTRUE
- Optional Stereo input module to be released later this year

# AMEK



Head Office, Factory & Sales:  
AMEK Systems & Controls Ltd  
Tel: 0161 834 6747  
0161 950 8767  
Fax: 0161 834 0593  
E-Mail: [amek@console-city.com](mailto:amek@console-city.com)

In the USA:  
AMEK US Operations, Inc.  
Tel: 818 508 9788  
Fax: 818 508 8619

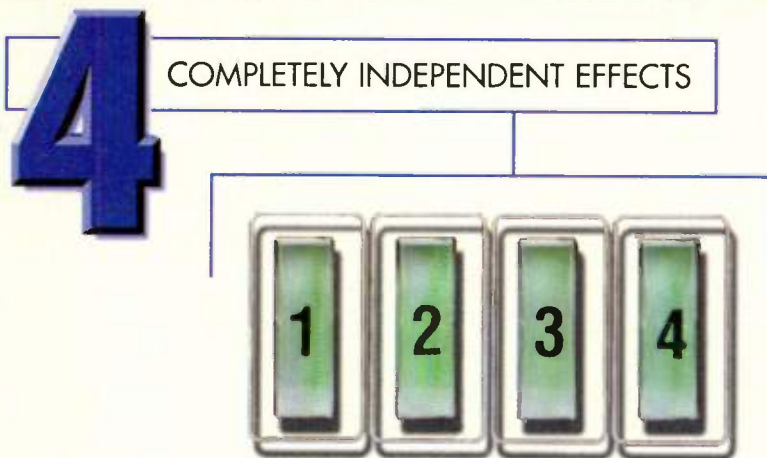
In Germany:  
Mega Audio GmbH  
Tel: 06721 2636  
Fax: 06721 13537

In Singapore:  
AMEK Systems & Controls Asia  
Tel: 65 251 1629  
Fax: 65 251 1297

Circle 7 on free info card



# GET 4 PROCESSORS



That's less than **\$135** ea.

**Do the math. It's your money.**

\*Buying one Studio Quad is like buying 4 independent processors. Inside the Studio Quad is a multi-effects processor that is multi-talented and while most of us can't do more than one thing at a time, the Studio Quad can do 4. Why did we put the power of 4 multi-effects processors into one unit? So you, too, would be able to do more than one thing at a time.

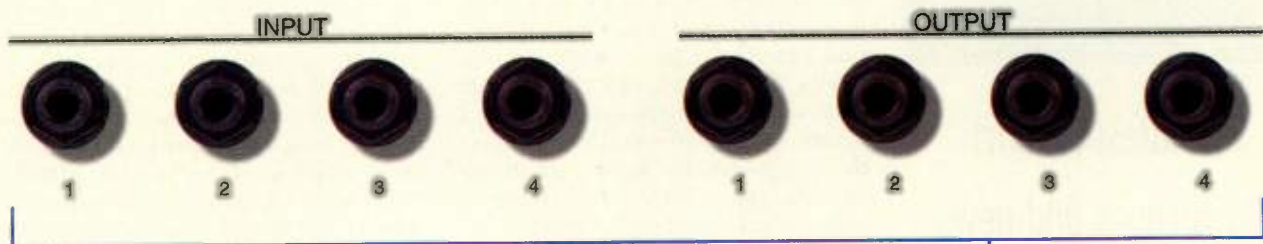
The Studio Quad features 4 completely independent inputs and outputs that give you the power of four independent mono

processors or two true stereo processors. Imagine the power to process two true stereo sources simultaneously without sacrificing control. But true stereo is only the beginning. Imagine having 4 independent reverbs for vocals, guitar, keyboards, and drums, where each reverb can be optimized specifically to achieve the best audio performance for each application. And imagine a processor that gives you the power to create any combination of effects, in any order. And then multiply by four.

Visit DigiTech on the World Wide Web at <http://www.digitech.com>



# FOR \$529<sup>95</sup>\*



# 4

COMPLETELY INDEPENDENT INPUTS

# 4

COMPLETELY INDEPENDENT OUTPUTS

Check out the Studio Quad. With its ingenious user interface, large custom display, and potent S-DISC® technology at its heart, the Studio Quad is capable of not just replacing, but thoroughly eliminating the need for multiple, expensive, single-purpose processing units.

You work hard for your money. DigiTech makes sure you get the most for it.

# STUDIO *Quad*

# ⋮ DigiTech

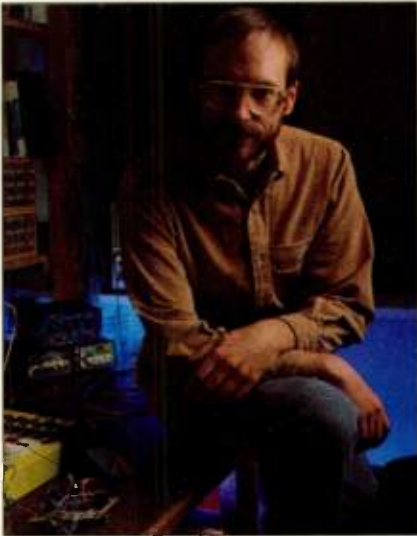
8760 South Sandy Parkway, Sandy Utah 84070 • (801) 566-8919 • Fax (801) 566-7005 • Int'l Fax (603) 672-4246

WRB

Circle 28 on free info card



# Euronews: A Fine Messe



The latest product  
introductions and news  
from the Frankfurt Musik  
Messe

BY CRAIG ANDERTON

I just returned from Frankfurt, Germany — the home of the yearly Frankfurt Musik Messe, whose 1996 attendance of 90,000 people and 1689 exhibitors from over 45 countries dwarfed NAMM. However, unlike NAMM, the Messe opens two of its five days to the public, which creates a madhouse but helps make musicians (and potential musicians) more aware of the latest musical toys. The Messe also organizes evening concerts and cultural events, which provide additional incentive to get the public to visit the Messe and check out new products.

More and more companies seem to hold back at least a few major product announcements from NAMM to break the news at the world's largest music trade fair; here are a few of the highlights.

## DANCE MUSIC MACHINES

Dance music — house, techno, jungle, etc., which often combine real-time playing along with sampled and sequenced loops — remains huge in Europe. This type of music has inspired a lot of beginners to get into music, since all they need to do is pull some licks off a sample CD, load them into a sampler, and start playing. Given the popularity of techno, it's not surprising that the Messe is where E-mu chose to debut Orbit (\$1095), a rack-mount tone generator. Aside from dance-oriented samples, it features MIDI-synched LFOs, over 50 user-editable drum loops, 6-pole resonant filters, and real-time modulation control for up to 8 parameters. (E-mu also introduced the Launch Pad, a \$469 control surface with 1 octave of velocity-sensitive buttons, five programmable faders, six trigger buttons, pitch knob, MTC transport buttons, and MIDI clock control.)

Also jumping on the dance bandwagon, Yamaha's CS1X real-time control synthesizer is a compact keyboard with six real-time control knobs — amplitude attack and decay, filter cut-off, filter resonance, and two assignable data knobs. It comes with 480 dance/techno preset voices, arpeggiator, and a computer interface.

## THE MIDI FILE PHENOMENON

In Germany, Standard MIDI Files (SMF) are huge: there were a ton o' booths with SMFs on disk, from Billy Joel's greatest hits to techno music construction kits. Why such a big market? According to Axel Schäfer of PC Music, a major German purveyor of SMFs, GEMA (Germany's equivalent to ASCAP and the Harry Fox agency) makes it very easy to license songs. Interestingly, of the licensing fees, a certain percentage goes to the publisher specifically to compensate for the embedding of lyrics in SMFs. Perhaps if the U.S. figures out a licensing scheme for SMFs (the MMA has been pursuing this), a parallel market will develop here.

## MD: THE NEXT CASSETTE MULTITRACK?

Hot on the heels of TASCAM's intro-

duction of the 564 Digital Studio, the Yamaha MD4 (due this summer) features a self-contained 4-channel mixer and records up to 37 minutes of 4-track material on a standard Mini-Disc (or 74 minutes stereo, 148 minutes mono). Editing options include append, split, and punch; the mixer offers 4 mic/line inputs, 3-band EQ, one aux send and return, stereo out, monitor out, direct out, and stereo submix in. Other goodies: 8 location points, 44.1 kHz sampling speed, ±6 percent varispeed, and MTC out for sequencer sync. Meanwhile, the Sony MD-MTR, due for a fall release, integrates a mixer with four mono inputs, one stereo input, two stereo aux returns, and two aux sends with a recorder featuring a jog/shuttle wheel, four location points, automated punching, punch in/out footswitch jack, single-level undo, and editing functions such as move and combine. The MD-MTR also records up to 37 minutes with 4 tracks, and offers MTC out.

## UPDATES

Akai has updated the DR4 to the DR4vr, which can hold 250 virtual tracks in addition to the four physical tracks — ideal for composite edits. Furthermore, the DR4vr allows for digital stereo premixing, with control over pan and level, of both standard and virtual tracks.

Ensoniq's 1682-fx mixer has undergone a few design changes since it was announced. An optional expansion bay adds up to two groups of 4 inputs, such as eight mic ins, eight line ins, or four mic and four line ins. Also, a line mixer expander can be integrated with the expansion bay, or used as a standalone box for mixing down synths, effects returns, and the like. Overall, the mixer can be expanded up to 80 total inputs.

Future Korg Trinity upgrades will include: Solo Synthesizer Option (turns the Trinity into a Korg Prophecy, including 64 of its programs), Flash ROM Option (adds 8 MB of read/write nonvolatile memory), Digital/IF Option (adds ADAT-compatible outputs for digital recording), and



# YOU DON'T NEED BBE

Until you hear it!

*Then your point of reference is forever changed.*

*"There is an added fullness and clarity. Stereo program becomes more three dimensional, more spacious. Dense textures become more pleasurable, with a more palpable space around each discrete instrument. This is powerful stuff. Maybe its voodoo?"*

**Recording Magazine**

*"As close as we've seen to a magic black box, the BBE 462 is probably the most cost-effective improvement you can add to your rig."*

**Guitar Player Magazine**

*"Listening on a variety of loudspeakers - JBL, KRK, Meyer, Tannoy, Yamaha and a few lesser-known names - I discovered that the BBE Process provided a nice punch to older recordings without being brittle or shrill. The LF contour emphasized the bottom end, without undue boominess."*

**MIX Magazine**

*"All of the mixes we played gained extra sparkle and clarity when processed with the BBE 462."*

**Keyboard Magazine**

**GO HEAR WHAT YOUR EARS HAVE BEEN MISSING.**

A 30 second demo is all you need. Call your dealer now!



**BBE®**

5381 Production Drive • Huntington Beach, CA 92649 • (714) 897-6766 • Fax (714) 896-0736

CIRCLE 91 ON FREE INFO CARD





HD Recorder Option (adds 4-track hard-disk recording capabilities).

Panasonic's SV-3800 DAT machine (the successor to the SV-3700) includes multiple front-panel selectable digital interfaces (AES/EBU with both optical and coaxial S/PDIF), adjustable analog output level, front-panel cumulative cylinder rotation time display stored in nonvolatile RAM, infrared wireless remote, 8-pin parallel remote terminal, independent level controls for the left and right

channels, error-rate display for head A, B, and A+B, shuttle wheel with dual-speed range, 250X normal speed search, digital fade in/out, and single program play (plays up to the next start ID, then stops until the play key is pressed again).

#### NEW PRODUCTS

**Fostex D-80 Hard Disk Recorder.** The D-80 provides up to 40 minutes of 8-track recording out of the box (with no data compression) and syncs to any

MIDI sequencer, as well as responds to MMC. You can also create a tempo map with up to 64 tempo/time signature changes for synchronizing a sequencer to previously recorded live material. For postproduction, synchronization is sample-accurate via optical S/PDIF word clock. A hard drive key-lockable caddy provides a way to switch projects instantly using removable IDE drives, and supplements the available DAT backup. Other features include a removable front-panel remote, five "virtual reels" per drive (with independent tempo mapping, timing, etc.), 18-bit A/D and D/A conversion, cut/copy/paste for individual tracks or groups, auto punch, search, and autolocate.

**DigiTech Studio 400.** The unit's four inputs and outputs (1/4-inch and XLR) recall the Studio Quad, but this signal processor has twice the processing power. Up to eight effects at a time are possible, as are several new configuration options and additional input/output routing capabilities. Optional digital I/O rounds out the package.

**Generalmusic's "Racktop" mixers.** These work in a rack or on a desktop. The Racktop 18 packs a total of 26 inputs (10 mono, 4 stereo, and 4 stereo effects returns) and 14 outputs (four groups, stereo mix, tape, and six aux) in a 9U frame. Each mono input has an insert point, 3-band EQ with sweepable midrange, six sends (two pre, two post, and two pre/post switchable), and 1&2 or 3&4 bus routing. The master section offers a complete cue section, two 12-step bargraph meters, insert point, and returns. The smaller Racktop 12 requires seven rack spaces and provides up to 16 inputs (eight mono, two stereo, two stereo returns) and six outputs.

**Akai half-rack synth modules.** The SG01v vintage synthesizer has raw waveform samples from the Prophet 5, Minimoog, DX7, D50, Solina String Synth, Jupiter 6, ESQ-1 vocal, TR808, etc., and uses onboard 24 dB/octave filtering, up to four oscillators, and three envelope generators per voice. The SG01p Piano module has 8 MB of piano samples, 32-voice polyphony, and 50 presets (including nine chromatic percussion and 12 organ/misc. presets). The SG01k General MIDI module includes an 8-pin mini DIN

*continued on page 151*

With most analog distribution amps,

when you put **this** in, you get  
**this, this, this, this, this,**  
**this, this** and **this** out.

With our analog distribution amp,

when you put **this** in, you get  
**this, this, this, this, this,**  
**this, this** and **this** out.

Sounds a lot better doesn't it?



To find out more about our sassy little one-stereo-in, eight-stereo-out Model 80 Stereo Analog Audio Distribution Amplifier, or its digital sibling the Model 85, call Studio Technologies, Inc. at (847) 676-9177.

**STUDIO  
TECHNOLOGIES  
INC.**

©1991 Audio Technologies, Inc.



# “So, how ‘bout the truth? I know quality, I know power, and I really know sound...PowerLights are the best.”

**Michael Adams**  
Live Sound Engineer, Sound Image  
Jimmy Buffett and the Coral Reefer Band  
(and Restorer of Classic Machines)

When PowerLight™ Professional Amplifiers were introduced in late '94, we said they were the best sounding amps we had ever made. Now that they've passed the ultimate road test, you can take somebody else's word for it. While on tour with some of the best sound engineers and hottest acts, PowerLight amplifiers have delivered on every kind of performance and musical demand—without missing a beat. In fact, two international tours using over 240 PowerLight 1.8's have been on the road continuously for the past year with **not one channel failure!** PowerLight has emerged as the new standard in sound quality and reliability by which all other amps will be compared.

## 4 PowerLight Models

Output Power in Watts per Channel			
MODEL	8Ω*	4Ω*	2Ω**
PowerLight 1.0	200 Watts	325 Watts	500 Watts
PowerLight 1.4	300 Watts	500 Watts	700 Watts
PowerLight 1.8	400 Watts	650 Watts	900 Watts
PowerLight 4.0	900 Watts	1400 Watts	2000 Watts

\*20 Hz-20 kHz, 0.1% THD, \*\* 1 kHz, 1% THD

## What makes PowerLight amps work so well?

- ▶ Refined “stepped linear” output circuits for optimum efficiency.
- ▶ PowerWave™ Switching Technology for tighter, fuller sound.
- ▶ Remarkable 2ohm load performance with unsurpassed thermal capacity.
- ▶ Extensive, proven protection circuitry, providing continuous fail-safe operation.
- ▶ Full compliance with worldwide safety and EMC requirements assures trouble free system integration.
- ▶ All PowerLights now include a data port for integration with QSC's computer controlled Network Audio Systems.

For more details, call 714-754-6175.

**QSC™**  
AUDIO

**HEAR  
POWER  
TECH  
NOLOGY™**

QSC Audio Products, Inc. 1675 MacArthur Blvd.  
Costa Mesa, CA 92626-1468 Ph (714)754-6175  
Fax (714)754-6174 E-mail: info@qscaudio.com  
QSC WorldGroup BBS: (800)856-6003 or (714)668-7569  
(In Canada) S.F. Marketing 6161 Cyphrot St. Laurent,  
Quebec, Canada H4S 1R3 Ph (514)856-1919  
Fax (514)856-1920

© Copyright 1996 QSC Audio Products, Inc. PowerLight, PowerWave, and Hear the Power of Technology are trademarks of QSC Audio Products, Inc. QSC and the QSC logo are registered with the U.S. Patent and Trademark Office.

**CIRCLE 66 ON FREE INFO CARD**





# TL AUDIO INTERNATIONAL DISTRIBUTORS

**AUSTRALIA**  
ELECTRIC FACTORY  
TEL: +61 3 9480 5988  
FAX: +61 3 9484 6708

**ASIA & FAR EAST**  
VW MARKETING  
TEL: +44 (0)1372 798481  
FAX: +44 (0)1372 724009

**AUSTRIA**  
TON EICHINGER  
TEL: +43 4865 165  
FAX: +43 4865 165

**BALTIK STATES**  
A & T TRADE  
TEL: +371 9 371141  
FAX: +371 9 370061

**BELGIUM**  
AMPTEC  
TEL: +39 11 98 14 58  
FAX: +39 11 28 14 59

**CANADA**  
SASCOW MARKETING GROUP  
TEL: +1 905 469 8010  
FAX: +1 905 469 1199

**CYPRUS**  
EMPIRE MUSIC  
TEL: +357 2 490478  
FAX: +357 2 490863

**DENMARK**  
DANISH AUDIO DISTRIBUTION  
TEL: +45 3968 9811  
FAX: +45 3965 2449

**FINLAND**  
SOUND MEDIA LTD  
TEL: +358 0 510 9355  
FAX: +358 0 510 9257

**FRANCE**  
MUSIC BUSINESS  
TEL: +33 1 43 38 15 95  
FAX: +33 1 43 38 70 79

**GERMANY**  
GROHE MUSIC (S.E.A.)  
TEL: +49 5903 93 880  
FAX: +49 5903 6141

**GREECE**  
SOUND CONTROL S.A. AUDIO  
& VIDEO SYSTEM  
TEL: +30 1 8837 6930  
FAX: +30 1 8836 377

**HOLLAND**  
AUDIO ELECTRONICS  
MAATSCHAP  
TEL: +31 80 699 04 80  
FAX: +31 80 699 36 41

**IRELAND**  
B.F. PA SYSTEMS  
TEL: +354 1 101 44  
FAX: +354 1 612 144

**INDIA**  
POST LOGIC  
TEL: +91 98 261 7550  
FAX: +91 98 263 3880

**INDONESIA**  
MULTI AUDIO PERIKASA  
TEL: +62 21 699 6029  
FAX: +62 21 699 8453

**ITALY**  
PRODIGE SRL  
TEL: +39 2 393 11571  
FAX: +39 2 393 12609

**JAPAN**  
HODOX INC  
TEL: +81 35 256 9853  
FAX: +81 35 256 9856

**KOREA**  
DAI KYEHO ELECT. TRADE CO.  
TEL: +82 2 747 6187  
FAX: +82 2 766 8504

**NEW ZEALAND**  
A2Z TECHNOLOGIES LTD  
TEL: +64 9 275 3085  
FAX: +64 9 275 1860

**NORWAY**  
LVD-SYSTEMER A/S  
TEL: +47 92 71 07 10  
FAX: +47 92 71 07 12

**PORTUGAL**  
MUNDO MUSIC  
TEL: +351 2 900 4616  
FAX: +351 2 908 4949

**C.S.**  
A & T TRADE  
TEL: +7 095 829 7516  
FAX: +7 095 456 0881

**SINGAPORE/MALAYSIA**  
SWEET LEE COMPANY  
TEL: +65 339 7866  
FAX: +65 339 7035

**SOUTH AFRICA**  
8TH AVENUE SOUND CC  
TEL: +27 11 792 3699  
FAX: +27 11 792 3895

**SPAIN**  
REFLEXION ARTS  
TEL: +34 86 48 11 55  
FAX: +34 86 48 20 65

**SWEDEN**  
ESTRAD MUSIC  
TEL: +46 8 643 00 07  
OR: +46 8 643 12 60  
FAX: +46 8 709 20 10

**SWITZERLAND**  
ZAP AUDIO  
TEL: +41 99 340 05 70  
FAX: +41 99 340 05 75

**SWITZERLAND**  
NAGRA BROADCAST  
TEL: +41 91 739 01 01  
FAX: +41 91 739 01 00

**TAIWAN**  
TRUE SOUND TRADING CO. LTD  
TEL: +886 2 595 8519  
FAX: +886 2 594 0039

**THAILAND**  
MULTIMEDIA STUDIO  
TEL: +66 2 311 5111  
FAX: +66 2 311 6875

**USA**  
SASCOW MARKETING GROUP  
TEL: +1 905 469 8020  
FAX: +1 905 469 1199



# THOROUGHbred PRODUCTS FOR PROFESSIONAL AUDIO

When you choose TL Audio you're getting a combination of superb design, quality manufacture and un-paralleled audio industry experience.

Our key personnel include individuals who have worked with Neve; (9 years research and development project leader), Trident; (11 years chief installation engineer and sales support installing the classic A-Range, B-Range and TSM consoles in many top studios worldwide), and Soundcraft; (5 years as UK Sales Manager).

All in all a total of 50 years sales and engineering experience in professional audio.

VALVE TECHNOLOGY



\$1,595

**EQ-1 Dual Valve EQ**  
2 channels x 4 band valve EQ, balanced mic & lines, +48v phantom power, front panel AUX input, bypass switch.



\$795

**VI-1 8 Channel Valve Interface**  
Line amp, balanced ins & outs, unbalanced compatible, level matching for -10dB & +4dB equipment.



\$2,395

**EQ-2 Stereo Valve Parametric EQ**  
4 band parametric, variable filters, mic-amps, +48v phantom power, dual mono or stereo linked modes.



\$595

**VI-S 8 Channel Switching Unit**  
8 channel switching unit for use with VI-1 Valve Interface. Offers switching between record and replay modes plus bypass.



\$1,795

**C-1 Dual Valve Compressor**  
Stereo valve compressor, balanced mic & line inputs, +48v phantom power, 2 AUX inputs, variable 'soft knee' compression.



\$595

**PA-2 Dual Valve Mic Pre-amp/DI**  
Mic & instrument inputs, peak LED, +48v phantom power, switchable sensitivity, variable gain control, rack ears included.



\$1,695

**PA-1 Dual Pentode Valve Pre-amp**  
Transformer coupled mic input, +48v phantom power, input/output gain controls, front panel instrument input, Phase reverse switch, Filters.



For UK sales: Tony Larking Professional Sales Ltd.  
Letchworth, SG6 - 1AN (UK)  
Tel: +44 (0)1462 490600 Fax: +44 (0)1462 490700

**SASCOW MARKETING GROUP** Canada & USA:  
Sascow Marketing Group  
Tel: +1 905 - 469 8080  
Fax: +1 905 - 469 1129

# CLASSIC SERIES



TL Audio would like to thank all the professionals from around the world who have taken time out to express their thoughts about our equipment.



**Stereo MCs** - "We found our previous choice of mixers to be unusable. The M-8 has a nice warm, fat sound that makes it easy to blend material - we don't have to spend half an hour EQ'ing to obtain a great sound."



**Mark King - Level 42** - "The C-1 Compressor has a marvellously transparent sound that I find ideal for vocals...bright, sparkly and very impressive."

**Pete Bellotte** (Songwriter/Producer - Donna Summer, Elton John, Janet Jackson) - "Recording through the VI-1 Interface makes a world of difference - drums become not just punchier, but clearer - more defined."



**Alex Marcou - Abbey Road Studios** (House recording engineer) - "The VI-1 makes hard sounding digital sound like cosy, rounded analogue - a joy to listen to. The control that the EQs, Pre Amps & Compressors give is excellent."



# INDIGO SERIES

**NEW!**



\$5,995

**M-1 8:2 Valve Mixer**  
4 band valve equalisation, balanced busses, valve mix amps, balanced outputs, Link facility providing 16, 24, 32, etc channels.



\$7,995

**M-2 8:2 Valve Mixer**  
As the M-1 plus 100mm faders, 2 AUX's per channel, 2 stereo FX returns, channel direct outs switchable pre/post EQ & post fader, comprehensive link facility

The new Indigo Series of valve products from TL Audio boasts the same critically acclaimed audio quality as the Classic range, but with an even more affordable price tag - making the unique characteristics of valves available to musicians and project studios for the 1st time.

Each unit comes in a compact 1U 19" package, and features the usual superb TL Audio build quality, un-paralleled sonic integrity, and, of course, that classic valve sound.



**STILL AVAILABLE!**

**TL Audio Classic Neve EQ**  
Classic Neve EQ at an affordable price. For a fraction of the cost of new modules, TL Audio brings you 2 used Classic Neve EQ modules, tested, refurbished and mounted in a sturdy 19" 1U case. Stocks of Neve EQ modules will not last forever so unfortunately we can only supply this unit while we still have modules available.

\$3,495



\$1,295

**PA2001 4 Channel Valve Mic Pre Amp**  
Continuously variable input & output gain controls, 48v phantom power, 90Hz low cut filter, Phase reverse, Peak LED metering.



\$1,295

**EQ2011 2 Channel 4 Band Valve Equaliser**  
Variable input gain, two channels x 4 bands equalisation, front panel AUX input, EQ bypass switch, peak LED metering.



\$1,395

**EQ2012 2 Channel Parametric Valve Equaliser**  
Variable input gain, 'mono mode' allows mono 4 band operation, divide / multiply by 10 frequency switching, EQ bypass switch, peak LED metering.



\$1,395

**C2021 2 Channel Valve Compressor**  
Fully variable control of input gain, threshold, ratio and gain make up, stereo link facility, 8 segment LED metering, side chain insert point.



\$1,295

**O2031 2 Channel Valve Overdrive Unit**  
Continuously variable input and output gain, defeatable 'Boost' level control, 3-band EQ, high-cut filter, EQ bypass switch.



**SASCOM MARKETING GROUP**

For UK sales:  
Tony Larking Professional Sales Ltd.  
Letchworth, SG6 - 1AN (UK)  
Tel: +44 (0)1462 490600  
Fax: +44 (0)1462 490700

Canada & USA:  
Sascom Marketing Group  
Tel: +1 905 - 469 8080  
Fax: +1 905 - 469 1129



**Andy Jackson - Pink Floyd** (Sound engineer) - "All the lead vocals on the 'Division Bell' album mix were run through the EQ-1 - I certainly prefer the EQ-1 to other Valve Equalisers for vocals. The new EQ-2 is probably the best all-round EQ I've ever used."



**Ed Hopson - Lynyrd Skynyrd** (FOH Engineer & Production Manager) - "On lead vocals we replaced our existing valve compressor with the C-1 Compressor and the increase in intelligibility and signal quality was immediately noticed by all."



**Nigel Lewis - Soul City Productions** (Songwriter / Producer - Eternal, Dina Carroll, Louise) - "The EQ-1 Equaliser warms up vocals and adds quality to the bottom end, and the C-1 Compressor makes a real bass sound like a million dollars... Amazing sound!"



**Carmelo Luggeni** (Songwriter / Producer - Kiki Dee) - "Both the EQ-1 Equaliser & C-1 Compressor add warmth to my digital system - the C-1 is subtle and warm without being intrusive, the EQ-1 makes everything sound better!"



**Dennis Charles & Ronnie Wilson - 1st Avenue** (Producers - Eternal, M8, Michelle Gayle, Dana Dawson, Louise) - "The EQ-1 and C-1 units helped us put the power into the EW1 album 'Power of a Woman' by Eternal."



**Chris Porter** (Producer - Take That) - "I bought one of the first EQ-1s and I've enjoyed using it immensely. It gives a unique quality to the vocals in particular - Take That's 'Back For Good' is a typical example of the EQ-1 adding depth and presence to a vocal track."

Circle 24 on free info card



# You Don't Know Jack

But you will after this trip through some of recording history's finest moments with the legendary Jack Douglas

BY BOBBY OWSINSKI

Producer-engineer Jack Douglas has been turning out hits for such esteemed artists as John Lennon, Aerosmith, Cheap Trick, Alice Cooper, The Who, Patti Smith, and The Band for the better part of two decades. He produced John Lennon and Yoko Ono's *Double Fantasy*, Cheap Trick's *Live At The Budokan*, six Aerosmith LPs, and Patti Smith's *Radio Ethiopia*, and engineered such seminal records such as *Who's Next*, *Woodstock*, and *Imagine*, among others. *EQ* caught up with Mr. Douglas during the completion of the new CD for the modern Blues band Blue By Nature. Jack Douglas, as always, had some particularly interesting observations on recording past, present and future.

**EQ: Is dealing with artists different now from the way it was when you started?**

Jack Douglas: The way I deal with artists is still pretty much the same in that I really dig in to find out what that artist is trying to say. It's really important that we get along pretty well, so I like to hang out and socialize with them. I also like to have a pretty good preproduction period, which could be a week for some artists and a month for others.

**When you're tracking with a band, do you have the whole band playing or are you layering things?**

As often as I can, I try to track with the whole band and make it as live as possible. In fact, I go for a lot of leakage. I like to hear guitars and bass in the drum track, and on one guitar track I like to hear a little bit of

the other one leaking in there if there are two guitars. I love live vocals. You really get the excitement, and that's important. When you put it all together it just sounds so much bigger. It goes back to preproduction. You have to get the artist ready for the studio, and I don't mean ready like there's not going to be any surprises, like they've learned it like robots. Sometimes I get a band and I have to go the opposite way in that aspect. I have to say, "Lookit, let's not lock in so much here."

I can remember recording this guy where if he was going to sneeze in the middle of this guitar solo, he'd make sure that he did that every time he played it. Every single note had to be perfect. That doesn't work for me. There's got to be some surprises. Generally, I like the band to know and to understand the piece, and, for some reason, drummers usually have to work a little harder at this so they know where the shots are and what has to

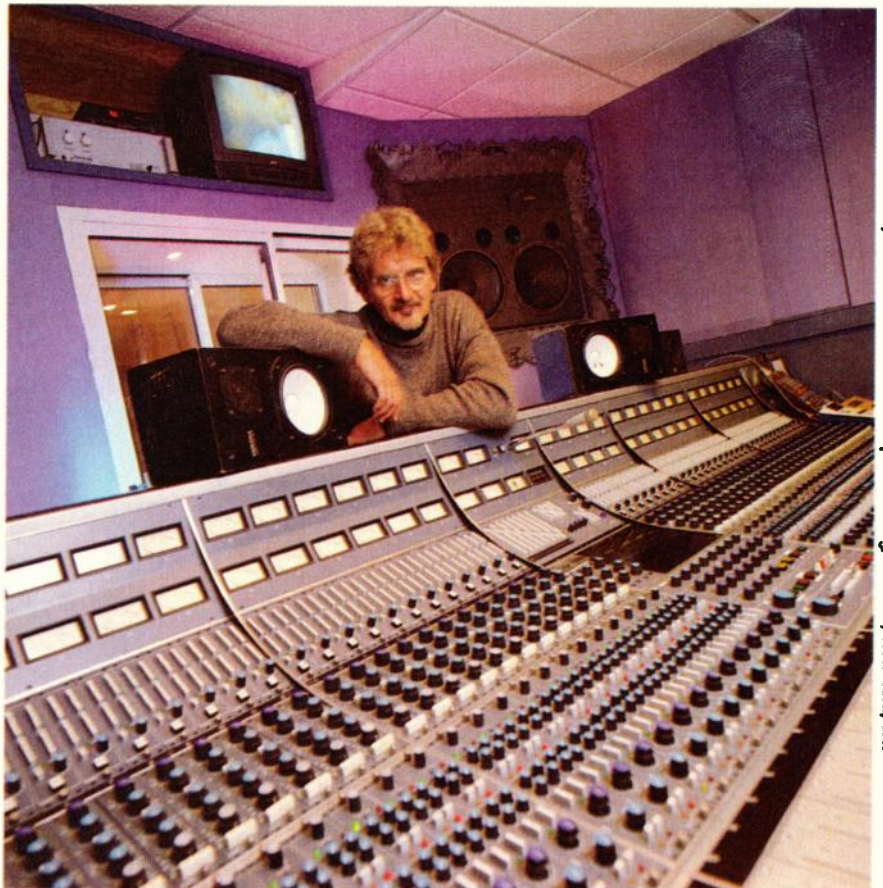
be emphasized. But, for the most part, I encourage bands to let go and try things. I always tell them that they're holding back during rehearsal, even if they're not. Even if they're at rehearsal playing their absolute best, I will say, "Well, when we get into the studio you can really let go."

**You're not one for studio perfection then...**

No, but I don't like a real blatant mistake either. What I'll do in that case is just cut a piece in there from another take so that I can keep that sound rather than all of a sudden have all the leakage disappear from the drums or the guitars. I don't mind imperfection or that the band changes the whole arrangement around on me because all of a sudden it felt better that way. That's cool if it really works.

**IN THE BEGINNING**

You started in New York, right?



Photos by Julian Javne. Taken at Unique Recording, Studio D, New York, NY.

**STUDIO VETERAN:** From John Lennon to Aerosmith, Jack Douglas has seen it all.



brand new digital-based recording technology from E-mu Systems

# DARWIN

## Is the Natural Selection

- Seamless integration into an Alesis ADAT/BRC system, providing random access editing and processing of ADAT tracks, all in the digital domain.
- Digital audio workstation power without a complicated computer interface.
- Price and ease of use comparable to a modular multi-track tape machine.
- Records onto inexpensive 1GB Iomega Jaz cartridges eliminating the need to back up and restore between projects.



### DARWIN

Ready to record right out of the box, no cards, no computer, no headaches! (no kidding)

Call for a dealer nearest you at 408.439.0368



# E-mu Systems

For more information, contact: P.O. Box 660015, Scotts Valley, CA 95067-0015  
 UK Office: Suite 6 • Adam Ferguson House • Eskmills Industrial Park • Musselburgh • EH21 7PQ • 44.131.653.6556  
 Visit our web site at: <http://www.emu.com>

CIRCLE 30 ON FREE INFO CARD

MORPHEUS  
3-TRACK SYNTHESIZER





## LEARN THE ART OF RECORDING

You can get the practical, real-world skills needed to successfully start your career as a recording engineer, producer or studio musician. •Hands-on approach, learning by doing •Previous experience not required •Complete 300 hours of training in less than 2 months •6 studios filled with the latest equipment •Small classes, excellent personal attention •Job placement assistance •Financial aid available •Low cost, on-campus housing

For free brochure, call or write today  
1-800-848-9900 1-614-663-2544



### THE RECORDING WORKSHOP

455-Q Massieville Rd  
Chillicothe, Ohio 45601

Ohio State Board of Proprietary School Registration #80-07-0696T

CIRCLE 82 ON FREE INFO CARD

# Heads Up!

When it comes to head relapping  
new replacement heads  
digital/optical alignment services

Your best choice is JRF...  
**Hands Down!**



201 579 5773 FAX 201 579 6021

CIRCLE 51 ON FREE INFO CARD

Yeah. I came up the tape op/assistant engineer way at Record Plant in NY. It really was an absolute blessing to be able to work with lots of great engineers and producers. I could see what didn't work and what did, and I started putting my tools together from a catalog that was 50 percent stolen and 50 percent my own ideas. In stirring together all those things, I think I came up with something that's a little original. Today it's different. There's guys out there that just walk into a studio from a club where they're DJing and they sound phenomenal.

That's true, but their school is listening to records all the time.

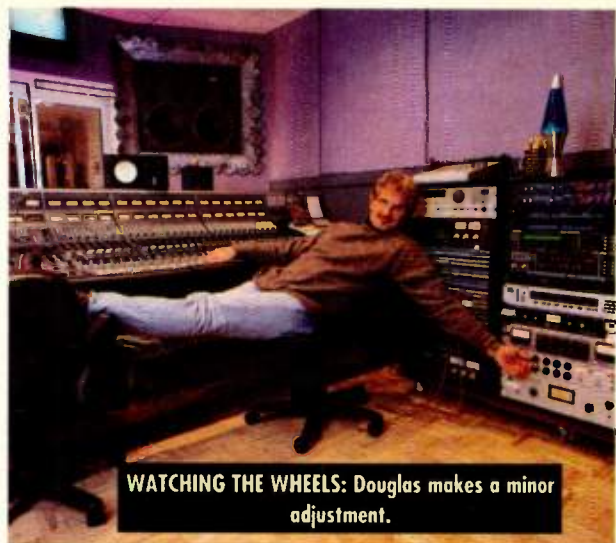
Right. So I'm saying it can work that way, too. I grew up listening to records. In fact, I decided I wanted to become a producer while I was on an acid trip listening to the [Beatles's] *White* album.

How are things technically different now from when you started?

Well, I went through a lot of different changes and I ended up just like I started out — recording analog. I started out using tube equipment and ended up trying to use the same tube equipment as often as I can. I'm still using the same mics because they don't seem to have improved mics that much.

How critical is the engineer for you? Can you get what you want or need out of anybody?

No, the guy's gotta know a little bit about what's going on. I can be really tolerant of somebody that's kind of new as long as they have ears, but I prefer to work with somebody really good because then I can really give my all to the artist and not have to think so much about the sound — especially if I'm cutting tracks. Plus, there's a class of engineers that's really just tremendous. I'll take the tracks to where I think they should be, and then when I'm out in the studio running it down with the band that super class of engineer has taken it to twice what I heard while I was in there. I'll come back in and get a great big surprise. Engineering is really an art, and there's some real good artists out there.



WATCHING THE WHEELS: Douglas makes a minor adjustment.

Have things changed in terms of what effects you use?

The options are just phenomenal now. Things that I used to have to go crazy doing are just so simple to do. But again, I find I end up going back and doing it the old way. I mean, I still like the sound of real tape machine flanging better than anything. I prefer live chambers, a plate with an analog tape delay on it, and natural acoustics when possible. I'm doing an album right now with the Scorpions in a great big old house that's got an indoor swimming pool with a roof that opens and closes. We drained the water from the pool and put the drums in there, and as a result I can get all kinds of really great effects. The sound of it is just incredible because it is a real physical sound. You can't identify what it is, but it alerts your senses that this is not the norm.

Certainly by now every listener out there has heard every possible device on the market, so, as a result, we've become desensitized to most effects. The only thing that's going to stir your senses again is if you walk into a cave and yell out and hear the echo that naturally happens. Like everybody else, I tried all the new toys and some of them are so convenient that you have to use them. But for the most part, give me something organic and I'll give you a record that sounds different.

People always enjoy your guitar sounds — especially where the reverb on it is very short but loud, and it makes the guitars sound really big and fat.

Yeah, when you were doing 16-track — like we did with Aerosmith — you had to stack so many things onto a single track because there was no place else to put them. On most of the Aerosmith albums, we had to stack things one upon the other; any effect that you were going to do



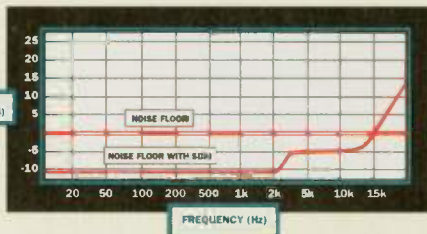
# BUILT LIKE A BATTLESHIP.



## WITH A SOUND THAT WILL BLOW YOU AWAY.

The Sony PCM-2600 and PCM-2800 DAT recorders are durable enough for the daily battles of the audio professional, sophisticated enough to provide day in and day out great sound.

Four direct-drive motors (on the head drum, capstan, supply and take up reels) and our servo-controlled mechanism mean better tracking, lower error rate, longer motor and tape life, and faster, smoother high speed cueing and shuttling.



*SBM is a sophisticated noise shaping technique that significantly reduces audible noise by shifting it to a higher, less audible frequency range, maintaining near 20-bit performance.*

And only Sony offers Super Bit Mapping® (SBM), a patented technology used in major mastering facilities and now available on our pro DAT recorders for improved sonic performance.

SBM maintains much of the sonic quality of the 20-bit signal created in the recorder's advanced A/D converter and stores the data in the 16-bit DAT format. The result is superior sound resolution with added clarity and greater imaging.

And the PCM-2800 adds Read-After-Write (RAW) confidence monitoring for those critical recording situations.

But don't just take our word for it all. Call 1-800-635-SONY, ext. SBM for more information. And prepare to be blown away.

# SONY



on that instrument, you had to put it to tape when it was going down.

**So you printed all your effects?**

Printed everything. I really had to make sure that I had all the ambience and everything that I wanted on that track. During the mixing process I might have to brighten it up a little bit and it might need a little plate just to meld it into the whole. Then this guitar would come roaring in with a sound that had become visual because it would just cut right into the track with all the personality already on it.

**Interesting phrase: the visual personality. That's the thing that distinguishes your records from others. There are sounds that come out of nowhere and grab you. There's no way you could not listen to it.**

The thing is that if you've got the effect right on that track, and say you've got it panned slightly left of center, fur and everything comes flying just in that one place. It's not over to the left, it's not over to the right, it's not an effect that's spread left and right. It's just there in this one

spot, burning away while it plays, and then it's gone. It's like, "What the hell!" Having learned that from the '70s, I've gone 'round the circle and come back and said, "That's the way to do it."

Sometimes, when I run into a guitarist who has a whole load of great effects, I'll insist he use the same stuff when we record as he does live. A lot of times guitar players will come in and say, "Can't you add all that stuff later?" or "Wouldn't it be better if you did it?" And I say, "Well, you've been doing it all this time and it sure sounds pretty good when you're on stage." It sounds different when it comes out of an amp than when it's added later.

I can remember when I was a kid watching some of these old-time producers when the guitar player would go in and turn the reverb up on his Fender and they'd go, "What are you doing that for? We have a \$1000 reverb right in here. Turn that shit down!" And the poor guy would turn it down. It was almost like the principle of, "That's a cheap reverb in your amp, so you can't use that. We have a big EMT here that we're gonna use for

that." I'd be thinking to myself, "Wow, it doesn't sound as good when you do that." I was so lucky that I came up that way because I got to steal what works and what doesn't from all the great producers.

**Do you have a specific approach to mixing?**

Well yeah, I do. I'm into a lot of bussed limiting where I'll have an old Fairchild or something, either stereo or mono, but I prefer mono, dedicated to the whole drum track and drum ambience. When I finally have the drums mixed the way I want them, then I'll pop the limiter in, and all of a sudden the drums will really come to life.

**This is just mono now?**

The limiting is mono; the drums are up there [in] stereo. The limiting will just pull it together and tighten it up. If you have the proper timing on the attack and release, every time the snare hits it's going to pop right out. I'll also use guitar busses for limiters, again usually mono.

**All the guitars are in it?**

**DIRECT BOX • RECORDING • LIVE SOUND**

- Extremely high input impedance
- Parametric mid-range control
- Full-function BBE
- Switchable notch filter
- Low impedance output

*"The 386 offers a functional and inexpensive way to squirt your acoustic amplified signal into a recording console or P.A. mixer — AND tweak the sound in the process."*  
Guitar Player Magazine

*Acoustification*



5381 Production Drive • Huntington Beach, CA 92649 • (714) 897-6766 • Fax (714) 896-0736

CIRCLE 14 ON FREE INFO CARD



Yes. That's really obvious on the Aerosmith albums. It makes Joe and Brad, who never really played as tight as they sound on record, sound super tight. Both of them are in one mono limiter, which tightens them up.

**How hard are you hitting the limiters?**

It depends on the limiter. Engineer-producer Shelly Yakus has a great answer for that. When you asked how hard, he'd say, " 'Til it sounds right." Shelly was great. One time I was Shelly's assistant and he taught me the greatest trick ever. He'd tape cards across the VU meters so he couldn't see them. He'd say, "You'll know when it's wrong."

**What was your approach with Aerosmith?**

They would come into preproduction with these little guitar riff gems and we would work them into songs while Steven [Tyler] scatted phonetics over them. Then we would take cassettes back to my house and Steve and I would sit there and turn those phonetics into lyrics. They would always be the right phonetics for the song 'cause they sounded good, so all you had to do was kinda get them to be words and they would automatically fit.

**Those records all had such a personality. They're timeless.**

A lot of their stuff still holds up because it's just flat-footed rock 'n' roll, and that seems to work best. It was never a flavor of the month, and it has no reflection of the times. You can't even tell we were wearing bell-bottom pants.

**Is there a particular project or record that you find the most personally gratifying?**

Yeah, sure. The John Lennon half of *Double Fantasy*. Recently I was listening to a CD of the John Lennon compilation album, and I couldn't help remembering how inspired I was by him. I mean, he was in Bermuda and he sent me tape copies of these songs in their rawest possible form. For "Watching the Wheels," which he played like a Bob Dylan song with just him on acoustic guitar, his instructions were: "This is angular, make it circular." Now when I listen back to that song, I think, "It's circular. It worked!" He was a true artist. When he was in the studio, he respected your position to help him make that record what he wanted it to be. He was in your hands and it was an incredible feeling.

*continued on page 128*




# SONEX. Feel The Groove.

SONEX acoustical treatments deliver a long-established pattern of excellence. And its FIBER-FREE, CLASS 1 materials address fire and environmental concerns. SONEX. The name you know for suite sound. Call us today!

 **illbruck**

**1-800-662-0032**

Circle 45 on free info card




# HOLDS UP ON THE ROAD

TYPE 85 FET DIRECT BOX

AMP. INST. PICKUP

INPUT SPEAKER

 **COUNTRYMAN ASSOCIATES, INC.**  
417 Stanford Ave. Redwood City, CA 94063  
Phone: 1-(800)-669-1422 Fax: (415)-354-2794 Email: sales@countryman.com

Circle 23 on free info card



# CUSTO





# M CD's IN JUST 3 WEEKS!

**300 CD's** for only **\$1,590**

with black & white inserts

*Includes FREE  
design!*

## *Stand out from the crowd.*

Compete with the majors. Make it on your own. At Disc Makers we custom-craft every project for a truly unique finished CD or cassette.

Our award-winning graphic designers make your cover design a work of art, while our mastering engineers can give your production that final touch it needs for airplay.

Best of all, you get your masterpiece in record time, so you'll never miss another release date. Call us today to find out why thousands of satisfied artists use Disc Makers each year to kick their careers into high gear.

Call today for your FREE 1996 full color catalog:

**1-800-468-9353**

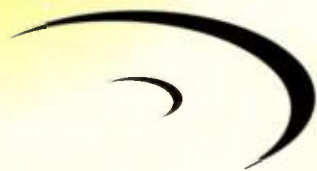
24 HOURS TOLL FREE

Outside USA call 609-663-9030; FAX 609-661-3458  
<http://www.discmakers.com>



*"I recommend Disc Makers  
to anyone who wants a  
manufacturing house that  
gets it right the first time."*

— Beatriz  
La Miranda, CA



# DISC MAKERS

AMERICA'S #1 MANUFACTURER FOR THE INDEPENDENT MUSIC INDUSTRY

Circle 32 on free info card

NEW YORK  
1-800-446-3470

SAN FRANCISCO  
1-800-869-0715



LOS ANGELES  
1-800-731-8009

PHILADELPHIA  
1-800-468-9353



# Victor Victorious

How I broke my new band — during a break from my current band — in my project studio

BY ALEX LIFESON

**W**e finished the last Rush tour in May of '94 and Geddy [Lee, bassist and lead singer] and his wife had a baby girl a week later. He really wanted to spend a year off the road with her. And Neil [Peart, drummer], as always, had a number of things on his agenda, so our break stretched out to 18 months. I just couldn't see myself sitting around for a year-and-a-half not doing anything, so Victor was born.

I'd always talked about doing a solo record, so it was really the opportunity for me to put my money where my mouth was. I dove in head first with no real plans for what I wanted. I knew I would need about a year to do everything I needed to accomplish, so I set some goals for myself and I just worked it out day-by-day.

## STUDIO SCENE

I have a studio, Lerxst Sound, here at home, so it was only natural to do all the recording here. My studio is outfitted with a Mackie 32-channel 32•8 console, four ADATs, and Acoustic Research AR18's and DynAudio monitors. Everything is powered by Bryston power amps. I have an assortment of microphones, including Sennheiser 421's, and Neumann U87s and KM84's. For guitar I use the 421's and Shure SM57's. I picked up a Shure SM 7 for vocals, which is really a great

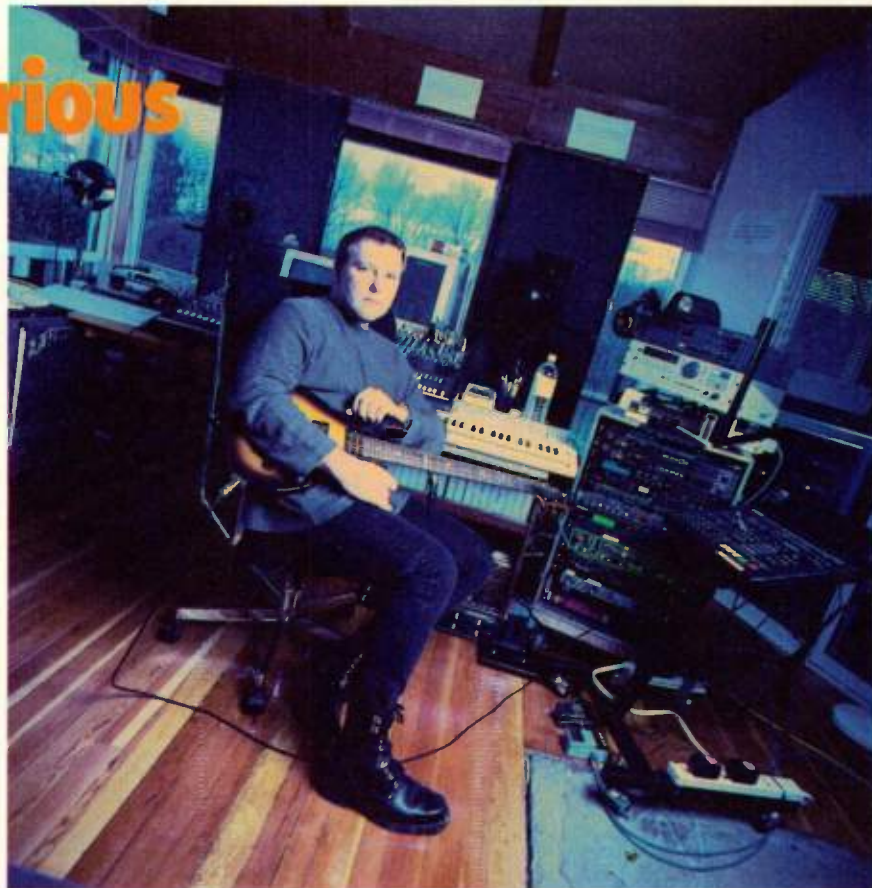


Photo by Andrew MacNaughton

**NO RUSH:** Alex Lifeson used his time off to record his own project, Victor.

vocal mic because you can get right on it and it sounds clear and warm.

I also have a pretty big assortment of compressors including a Trident Audio, a couple of UREI 1176's, and a Brooks Siren. For effects, I'm using a couple of TC Electronics 2290's, the TC 1210 spatial expander, a 15-year-old Lexicon 224, a Lexicon PCM 70 for additional reverb, and Neve 1073 EQ strips, which I like to use primarily for guitar.

I also have a Digidesign Pro Tools 16-channel digital system with Emagic logic audio that I'm running off of a Macintosh Power PC 7100 with two 1 GB drives. I prefer to record in more traditional ways rather than doing it on the computer, but it's a real benefit to do the writing and arranging on the hard-disk system. I'd sit down and I'd fool around with a guitar idea, establish it, and then I'd lay down a basic

drum pattern that I could play to for tempo more than anything. I'd throw down a couple of tracks of guitar, a track of guide bass, then I'd do any sequenced stuff — keyboards or any additional drum sounds that I wanted to do as the song developed — and then all my cut-and-paste editing would be done on the computer. Once that was established, I would transfer all the guide tracks over to ADAT and run the BRC on the ADATs through SMPTE with the sequencing program so that I could fly in any additional things I'd do afterwards with keyboards. From there, I would rerecord all the other instruments.

## THINGS WITH STRINGS

For my guitar sound, I used a 50- and 100-watt Marshall JCM 800, and one of the 6300 Anniversary series that I use with Rush live. I also used a DigiTech GSP 2101 Studio tube preamp that I ran direct through a Palmer PD105 speaker simulator.

The Palmer's really great; it's warm and it has got a couple of variables that you can dial in. The 2101

*Alex Lifeson is lead guitarist for the famed power trio Rush. He recently went on the other side of the board and did his first producing gig for his new band, Victor. The recording was completed at Lifeson's project studio, and here he discusses how it was done.*



Someone finally  
built a deck that beats  
the SV-3700.

Us!

There's only one DAT machine that even comes close to the performance and value of the new Panasonic SV-3800 DAT recorder. We should know—we used to make it. The SV-3700 was the standard in the industry with over 60,000 units in use worldwide. Now, it's time to take a step forward with the new champion, the SV-3800—all the performance you loved in the 3700, and more.

The new 3800 gives you better sound, with D-to-A converters offering 20-bit playback resolution. The deck is more flexible and easier to use, with front panel assignment of all system settings, including digital I/O connections, SCMS status, and a new Single Play mode. Coaxial and optical digital I/Os are also added for maximum flexibility. With all these improvements, however, we did retain a key feature of the SV-3700—its price! The suggested retail price of the SV-3800 (including remote) is \$1,695, so you get better sound and more features at the same price.

The SV-3800 is the new performance and value leader in DAT recorders. We should know, because our strongest competition is ourselves.

Official Broadcast Equipment Supplier of the 1996 Olympic Games



For the dealer nearest you, call 1-800-777-1146.

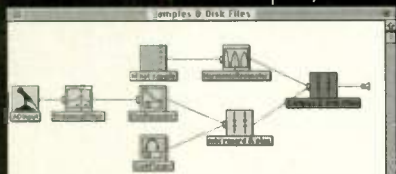


# K Y M A

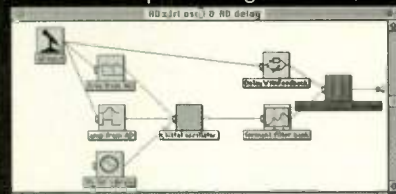
Sound Design Workstation

...an intelligent, interesting [system] that shapes sounds, routes, synthesizes, and morphs... It's cool!  
— Frank Serafine, sound designer

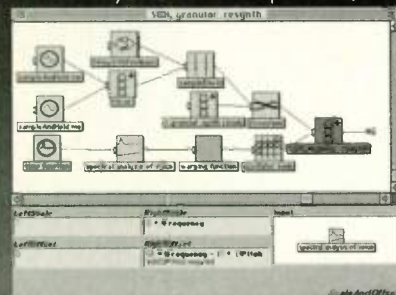
Kyma (kee-mah) runs on your Macintosh or Windows PC and combines:  
disk tracks & samples,



real time processing & effects,



with synthesis & composition,



all generated in real time on a box full of DSPs attached to your computer.



A few minutes with a Kyma system, and you'll be certain that the future has arrived.

— Dennis Miller, Electronic Musician

Visit our Web site for demo sounds:  
<http://www.SymbolicSound.com>

For a free brochure, call:

1-800-972-1749

or contact:

Symbolic Sound Corporation Tel: +1-217-355-6273  
Post Office Box 2530 Fax: +1-217-355-6562  
Champaign, IL 61825 • USA info:kyma@SymbolicSound.com

## TECHNIQUES RECORDING

was probably the most valuable piece of equipment I had for recording guitar. With any kind of guitar sounds I got through the amps, the 2101 seemed to knit them all together, warmed them up, and made them more focused in terms of sound. With this new Rush record we're working on, I'm using the 2101 on just about every song for that same reason — it just seems to glue everything together into the perfect mono track.

I miked the guitars in the room but I ended up building a little enclosure for them. Because the room is basically a square, there's lots of standing waves and the reverberation is really weird. I put up all kinds of pieces of carpeting and anything I could find to deaden the room a little bit, and it was close miked so I wasn't really relying on the room to add any character to the sound. However, I could still hear the room when I had it set up, so I built an enclosure for the cabinets out of foam padding, carpeting, and pieces of Styrofoam to deaden the reflection. I ran the mics through the Neve strips to warm up the sound just a bit. The Mackie is a great console, it's very clean, very clear, and very quiet, but the EQ on it for something like guitars is just a little tough to handle. It tends to be a little bit brittle and a little hard-edged, and the Neves just help to warm that up.

Quite often, I had the two Marshalls going as well as the 2101, and I'd just find balances and maybe make slight EQ changes. I tend to not EQ too much. I'd rather move the mics around until I got the sound I wanted and then make small EQ changes from there. I find that it's a little more controllable. From there I would fiddle around with the mix of all those components.

I would lay down a rhythm track with a Les Paul [guitar] and then I would double that. Then I'd lay down two tracks of Fender Telecaster, again, just to give the impression of one big guitar sound. I find that with the Tele/Les Paul combination I get all the clarity, top end, and edge from the Tele, and the Les Paul adds that nice round bottom. Not everything was like that, but generally that's my rule, to build up the guitar presence that way.

All the acoustic tracks were direct. I had a Fishman stick-on transducer pick-up that I used on the mandola, as well as on all the other acoustic instruments. Plus, I have a couple of Ovation's that I either ran direct into the console or through the 2101 on a clean sound and fiddled around with it a bit. This technique started out as being convenient at the writing stage: I could just pick up the acoustic, stick the pick-up on, plug it in, and get an idea of how the acoustic part would work. However, I found that with a little bit of time spent on shaping the sound, I could get the kind of character that I wanted out of the acoustic. I could hear the pick against the strings a little more than I would have by doing it traditionally, plus it was slightly more aggressive and more present doing it that way.

### RULE OF DRUM

I used an Electro-Voice RE-20 and the 421 on the kick drum. Again, the RE-20 had a nice bottom end to it and the 421 has got that "smack in the mids" that worked out quite well within the limitations of the room. I used a couple of AKG C414's as overheads, and a KM84 on the hi-hats. I miked the top and the bottom of the snare with 57's, and

*continued on page 128*

## THE PRODUCER'S LIFE(SON)

Producing the Victor album was a liberating and clarifying experience. Becoming so focused on the material and the mental image of the finished work, I felt a great sense of control. In Rush, we've always worked with a coproducer and made decisions amongst the four of us. Being completely in charge was both exciting and refreshing. I would very much enjoy working with other artists as a producer. The most important lesson I've learned after working with the producers Rush has used over the years is to be sensitive to how the musicians hear and feel their music and not interfere with this basic energy and vision. A good producer will enhance all these characteristics and retain that special quality that makes the artist unique. It is, after all, their music, and the producer's job is to make sure they hear it in the best way possible.

—Alex Lifeson



Creative control, superlative sound and uncompromising support — Lexicon's commitment to the audio professional.

STUDIO SERIES

# The PCM 90 & PCM 80: so good, you'll need both.



Introducing the PCM 90 Digital Reverberator. It's the latest addition to Lexicon's great-sounding line of effects systems, joining the acclaimed PCM 80 Effects Processor. Individually, they're impressive: together, they're phenomenal.

The PCM 90: optimized for reverb. 250 new programs from Lexicon's most famous algorithms — specifically for music production, audio post and sound design — drawn from Lexicon's top-of-the-line processors. Available for the first time in a compact, affordable package.

## POWERFUL PRESETS



The new PCM 90 includes 250 all-new presets — from Lexicon's most powerful reverb algorithms. The PCM 80 features 200 presets, with a wealth of stunning effects capabilities and two new algorithm cards.

# Lexicon

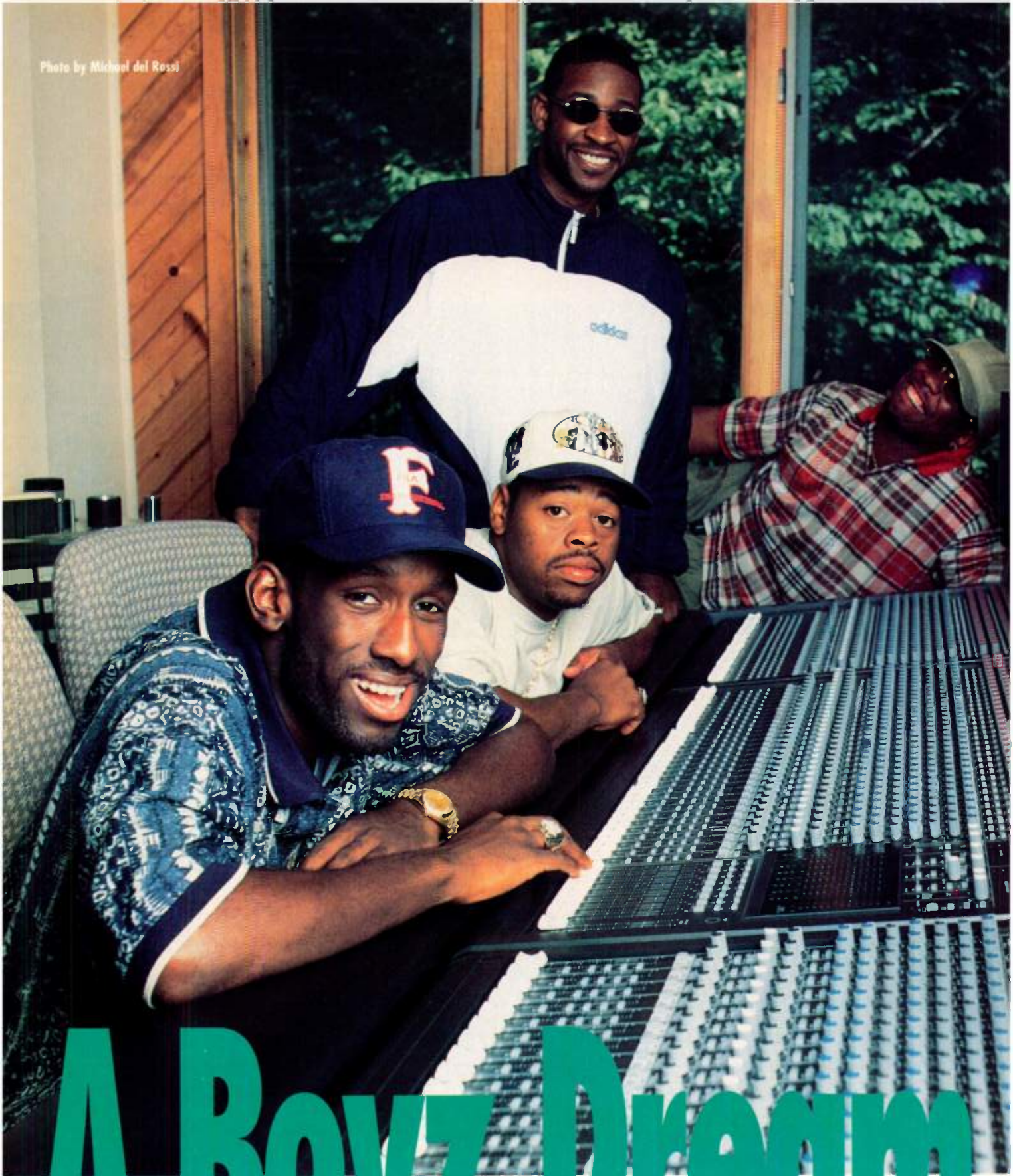
Heard In All The Right Places

The PCM 80: effects with a capital 'E'. Its delays, modulation, EQ, time domain and spatialization effects will leave you breathless. (And as you'd expect from the descendant of the famous PCM 70, it's reverbs are superb.)

Which to buy? Take our advice — get both. The PCM 90 and PCM 80 are totally complementary. The ultimate quality reverb; the leader in astounding effects; both with that special Lexicon sound. Try them at your authorized Lexicon dealer — you'll want to keep this perfect pair together.



Photo by Michael del Rossi



# A Boyz Dream

*The quartet puts it together in*



It's not unusual for a successful recording act to want their own studio. For the four members of the popular group Boyz II Men, however, one studio was not enough. With record-breaking success as both a recording and a touring act, the group chose to put their life-long dream into action by creating a studio located just outside of their native Philadelphia. Known as Stonecreek, it now houses two major studios, one production suite, the offices of a new record label, and four private writing rooms — one for each of the highly creative and productive singer/songwriters who compose the group.

Stonecreek began in April 1995, when the Boyz purchased the structure of an existing studio and began renovating, enlarging, and adding to the facilities all housed within an expansive turn-of-the-century gun factory. The location was perfect. It was just far enough off the beaten path to give them the privacy they needed — but the place cried out for help. Walls came down, audio and electrical wiring were completely redone, and the studio offices were overhauled. And, of course, it all had to happen ASAP to be ready for upcoming projects such as the remake of Marvin Gaye's "Let's Get It On," remixes of several tunes, and other important projects by friends and cohorts such as L.L. Cool J, Brandy, and Color Me Badd. Within 49 days the place was equipped and ready for the celebration of its May 19th grand opening.

Inside the A Room was an SSL 4048 (E/G Series) and both analog and digital tape formats (Otari MTR 90 II, MTR 100, TASCAM DA-88's, and Alesis ADATs), a Motionworker Synchronization system, and an extensive array of outboard gear along with Quedsted HQ 410 active speakers built into the control room walls. Several months later, the adjacent production facility, once home to rapper Jazzy Jeff, became Stonecreek's B Room and was outfitted with a Mackie 80-input console, 102 channels of Mackie Ultramix automation and both analog and digital tape formats as well. Also

central to the B Room set-up was a 48-track Digidesign Pro Tools system for direct-to-hard-disk recording. The choice of Mackie gear along with Pro Tools offered the best combination of recallability and ease of use at a fraction of the cost of other systems that were considered. Next, as the A and B Room studios neared completion, the demand for equipping each private room became overwhelming.

Overseeing the installation and handling headaches was another Philadelphia native — studio designer and pro audio consultant George Hajioannou. Having planned and developed a variety of similar facilities, Hajioannou had also worked with several of the group members, so he had a jump on understanding their writing styles, preference in gear, and so on. Working closely with group leader, Nathan Morris, they passed equipment lists, room design ideas, and MIDI configurations back and forth until all proposals came in line with the overall game plan.

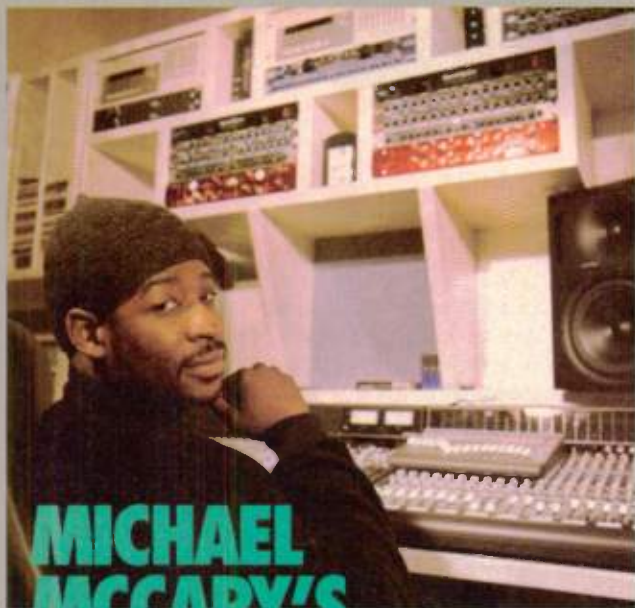
Comments Hajioannou: "It was Nate's idea to keep the rooms all compatible, so that you could take a computer disk from the writing rooms and go almost anywhere else in the facility and continue work." With that in mind, each of the writing suites could be used to sketch out compositions, work on grooves, and develop song ideas while the A and B rooms cranked or accommodated other group members or their associated projects.

"Because of this compatibility by design," says Hajioannou, "about 90 percent of the gear in the writing rooms as well as the MIDI setups in both Studios A and B are the same." The only exception to the plan was Michael McCary's room, which was designed by his producer/partner, "Durell Lamar" Bottoms. This room utilizes a great deal of the same gear as chosen for the other rooms, but is equipped instead with a larger console — the 56-input Mackie with Mackie Ultramix automation — plus a wider variety of signal processing gear



**Come True**  
*their facility's four different writing studios*





## MICHAEL MCCARY'S ROOM

**CONSOLE:** Mackie 24•8 and 32•8 (both with Ultramix)

**MONITORS:** Genelec 1032A; Tannoy PBM8 LM

**RECORDERS:** TASCAM DA-88 [4], 302 dual-cassette deck, and DA-30 II DAT machine

**MICROPHONES:** Audio-Technica 4050/CM5

**KEYBOARDS & MIDI:** Akai MPC-3000; Alesis S1+; E-mu ProCussion, Proteus 1, Proteus 2, Ultra Proteus, and Vintage Keys Plus; Ensoniq ASR-10; Korg X3/R and Wavestation SR; Kurzweil K2500R; Roland JD-990, JV-1080, JV-880, and S-770; Studio Electronics SE-1; Yamaha SY-99 and TX81Z [2]

**OUTBOARD GEAR:** Focusrite Red 2 dual EQ and Red 7 mic pre; Eventide H3000 D/SE; Lexicon PCM 80; Roland SRV-330; TC Electronic M2000; Zoom 9200; Ashly SGE-35 quad gate; Behringer MDX2000 compressor [2]; dbx 166A [2] and 1066 [4] dual compressors; Symetrix 564E quad gate; Tube Tech LCA2A; Summit Audio DCL-200

**COMPUTER GEAR:** Apple Macintosh Performa 6200CD; Mark of the Unicorn Digital Performer, MIDI Time Piece II [4], and Unisyn Librarian

**MISCELLANEOUS:** AKG K240 headphones [2]; beyerdynamic DT 990 headphones [3]; Furman PL-PRO 20-amp power conditioner [2] and RR-15 surge suppresser [6]; Marantz PMD320 CD player; Samson Q5 headphone amp [2]; Sony Trinitron monitor and stereo VCR

and TASCAM DA-88's for more involved production and mixing.

Inside the writing rooms at Stonecreek, all setups are based around Macintosh computers running Mark of the Unicorn Digital Performer, chosen for its versatility and for its ease in getting ideas down without losing inspiration. The Macintosh computers communicate to MIDI gear through three Mark of the Unicorn MIDI Time Piece II's, controlled by either a Kurzweil PC-88 or a Kurzweil

K2500. Grooves and catchy drum tracks generally originate from Akai MPC-60's or MPC-3000's, each equipped with Bernoulli drives used to save samples too large to fit on floppy discs. Keyboard choices are not surprising with the Boyz drawing much of their inspiration from early Motown and classic live recordings. Because of this, the group gravitates away from gimmicks and high-tech sounds and relates more to choices like the Roland JV-1080, JV-880, and JD-990, E-mu Ultra Pro-

**CONSOLE:** Mackie LM-3204 and CR-1604 [2]

**MONITORS:** Alesis Monitor One [2]

**AMPLIFIERS:** Hafler P3000

**RECORDERS:** Alesis ADAT [2]; Panasonic SV-3700 DAT recorder

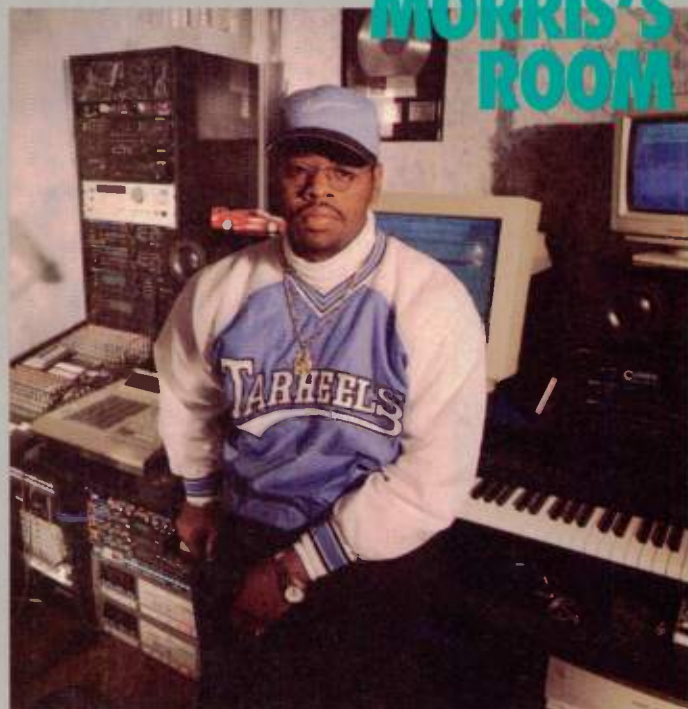
**SAMPLERS:** Akai S1100

**KEYBOARDS & MIDI:** Akai MPC-3000 and MPC-60 II; E-mu Proteus; Kurzweil PC88 and K2000R; Roland JV-880, D70, JD-990, and JV-1080; Studio Electronics SE-1; Novation Bass Station; Yamaha TX81Z [3]; Korg 01R/W; E-mu Proteus

**COMPUTER GEAR:** Apple Macintosh 7100; Mark of the Unicorn MIDI Time Piece II [3]; Bernoulli Transportable 230 drive; NEC MultiSync XE21 monitor; Philips color monitor; Apple color StyleWriter

**OUTBOARD GEAR:** Peavey VMP2 mic pre; Ensoniq DP/4 effects processor

**MISCELLANEOUS:** Furman PL-Plus power strip [2] and PB-40 patchbay; Marantz PMD500 and PMD320 CD players



## NATE MORRIS'S ROOM

teus, Korg 01WR, and the Yamaha TX81Z.

Nate Morris is hard pressed to pick a favorite, but finds the JV-1080 particularly inspiring for getting creative. Shawn Stockman is a big fan of the Roland JV-1080 as well: "Amazing sounds, all of them." He also likes the nylon guitar and string patches found on the Roland JV-880 and the E-mu Proteus's percussion sounds. Wanya Morris was the first of the Boyz to discover the E-mu Vintage Keys Plus and E-mu Classic Keys, but within days these pieces



# SOUND

# CHECK



## GET A \$10 REBATE ON THE SM57 MICROPHONE

**FROM APRIL 1st THROUGH MAY 31st 1996:**

Quick! Check your gear. If you play an instrument and don't have a Shure SM57, you're missing out on great sound.

The SM57 is the world's most popular instrument and recording mic. And for a limited time, when you purchase an SM57, we'll send you something else that will be music to your ears: a \$10 rebate check.

But hurry! While the SM57 is designed to provide great instrument sound for many years, the \$10 rebate check offer will soon fade away.

### SHURE'S "SOUND CHECK" REBATE:

To receive your rebate send: 1. A copy of your dated sales receipt (non-returnable) indicating model number and name of store where mic(s) were purchased, 2. The actual silver model number label (no substitutions) from the end of each outer carton, 3. Your completed product registration form from inside the SM57 carton, and 4. This completed coupon to: Shure "SOUND CHECK" Rebate Offer, P.O. Box 174210, Denver, CO 80217-4210

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
Phone \_\_\_\_\_ / \_\_\_\_\_ Qty. purchased: \_\_\_\_\_

\$10 rebate applies to Model SM574C only. Rebates are limited to a maximum of four (4) per customer, household, family, or organization. Offer valid only on consumer purchases made at retail between April 1, 1996 and May 31, 1996. Rebate claim forms must be postmarked no later than June 30, 1996. This is a consumer (end user) offer only. Shure microphone distributors, retailers, their employees or their families are not eligible for rebates, nor may Shure microphone distributors, retailers, their employees or their families claim rebates on behalf of consumers (end users). Rebate requests not including proper documentation (official coupon, actual silver model number label (no substitutions) from end of carton, and dated sales receipt with retailer's name) will be ineligible. Shure is not responsible for late, lost, or misdirected mail; insured or certified mail is recommended. Offer good only on purchases made in the U.S.A. and open to U.S. residents only. Void where taxed or prohibited by law. Allow 6 to 8 weeks for delivery of rebate check. Coupon face value 1/4¢. Rebate eligibility as determined by Shure is final.





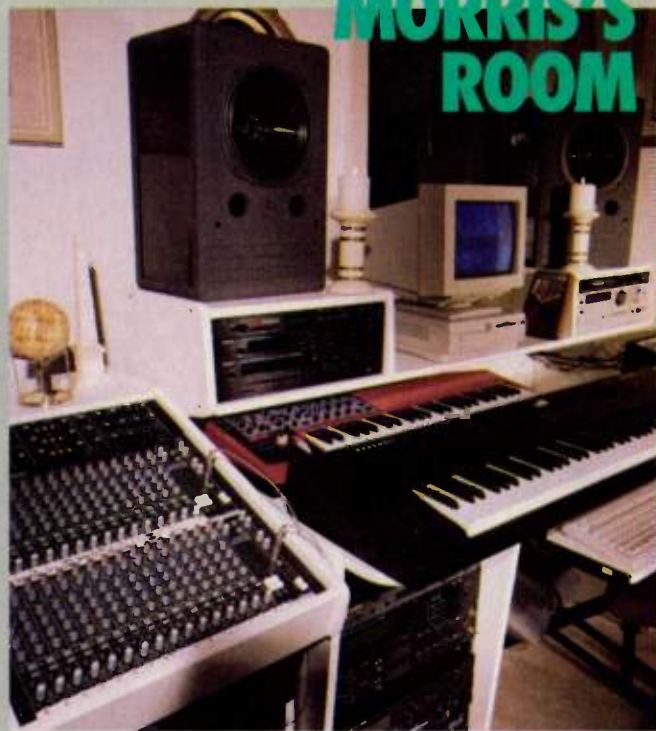
## SHAWN STOCKMAN'S STUDIO

**CONSOLE:** Mackie LM-3204 [2]  
**MONITORS:** Alesis Monitor One [2]; Tannoy SBM 10B  
**AMPLIFIERS:** Hafler Trans•nova  
**DAT MACHINES:** Panasonic SV-3700  
**KEYBOARDS & MIDI:** Ensoniq ASR-10; Roland JV-1080, JV-880, and D-70; E-mu Ultra Proteus; Kurzweil PC88; Korg 01R/W; Kurzweil K2000R; Yamaha TX81Z; Akai MPC-3000  
**COMPUTER GEAR:** Apple Macintosh Quadra 630 and 17-inch multiscan display; Mark of the Unicorn MIDI Time Piece II [2]; Bernoulli Transportable 230  
**OUTBOARD GEAR:** Ensoniq DP/4  
**MISCELLANEOUS:** ACM PC-8L and PC-8C power strip; Marantz PMD500 and PMD320 CD players

**CONSOLE:** Mackie LM-3204 [2] and Mixer Mixer  
**MONITORS:** Tannoy DMT 10 II [2]  
**AMPLIFIERS:** Alesis RA-100  
**DAT MACHINES:** Panasonic SV-3700  
**KEYBOARDS & MIDI:** Studio Electronics SE-1; E-mu Classic Keys, Vintage Keys, and Proteus; Roland JV-880, JV-990, and JV-1080; Kurzweil PC88 and K2000R; Korg 01R/W; Akai MPC-60 II

**COMPUTER GEAR:** Apple Macintosh Performa 630CD and Macintosh 16-inch display; Mark of the Unicorn MIDI Time Piece II [2]; Bernoulli Transportable 230 drive  
**MISCELLANEOUS:** Behringer MDX 2000 compressor; Marantz PMD320 CD player; Teac W-515R double-cassette deck; Furman RR-15 surge suppresser

## WANYA MORRIS'S ROOM



Photos by Jim Graham/GSI

appeared as standard fare throughout the building. Though keyboard preferences vary, the choice for a bass module is unanimous. All rooms offer the Studio Electronics SE-1, whose bass sounds can be heard on several of their hit records and in quite a few of their new compositions.

In three out of four rooms, everything is connected through Mackie LM 3204 audio mixers — pieces that had traveled and toured with the Boyz during their last stretch on the road. Last but not

least, speaker choices also differ from room to room, with Nate utilizing Alesis Monitor Ones, Michael using Genelec 1032A's, Wanya using Tannoy DMT 10 II's to rattle the walls with bass, and Shawn alternating between Alesis Monitor Ones and Tannoy Super Gold SGM 10B's. Exact gear lists point to other minor differences in preferences of sounds and additional writing tools.

Stockman remembers the days when his family didn't have the money to buy

him a keyboard and he had to create and store musical ideas in his head. With equally humble beginnings, the other members of the group recall when they had all hoped for the opportunity to make music and to make a living at it. Not only did those wishes become reality, but their hopes of turning one Philadelphia location into a center for their musical creativity has become a Boyz dream come true. **EC**



# Get 20/20 Vision.

Visualize this . . .

A monitoring system so good that it's easy to recognize the perfect detail of each sound.

Introducing the **20/20 bas** system from **Event Electronics**.

## **20/20 bas** BIAMPLIFIED MONITOR SYSTEM

- Internally BiAmplified; **200W Total Power**
- **An Active Asymmetrical Fourth Order Crossover** that separates the line level frequencies prior to amplification
- **A 130 Watt Amp** that receives only the low frequencies and is designed to perfectly match the **8" Mineral Filled Polypropylene Low Frequency Driver**
- **A 70 Watt Amp** that receives only the high frequencies, designed to perfectly match the **1" Natural Silk Dome Tweeter**
- **A Large Diameter Low Air Restriction Front Mounted Bass Port** for full, accurate bass response
- An intelligent combination **XLR or 1/4" Input Connector**
- Continuously **Variable Precision Low and High Frequency Trim Controls**
- **Input Sensitivity Control** and **Clip LED Indicator**
- **Circuit Breaker** (no looking for fuses in the middle of the night)

It's easy to put the puzzle together when you can clearly see each piece. Seek out your nearest **Event Electronics** dealer and start your next mix with perfect sonic vision.

**\$1000** per pair\*

\*Unpowered 20/20's available for under \$400 per pair.



**ELECTRONICS INC**

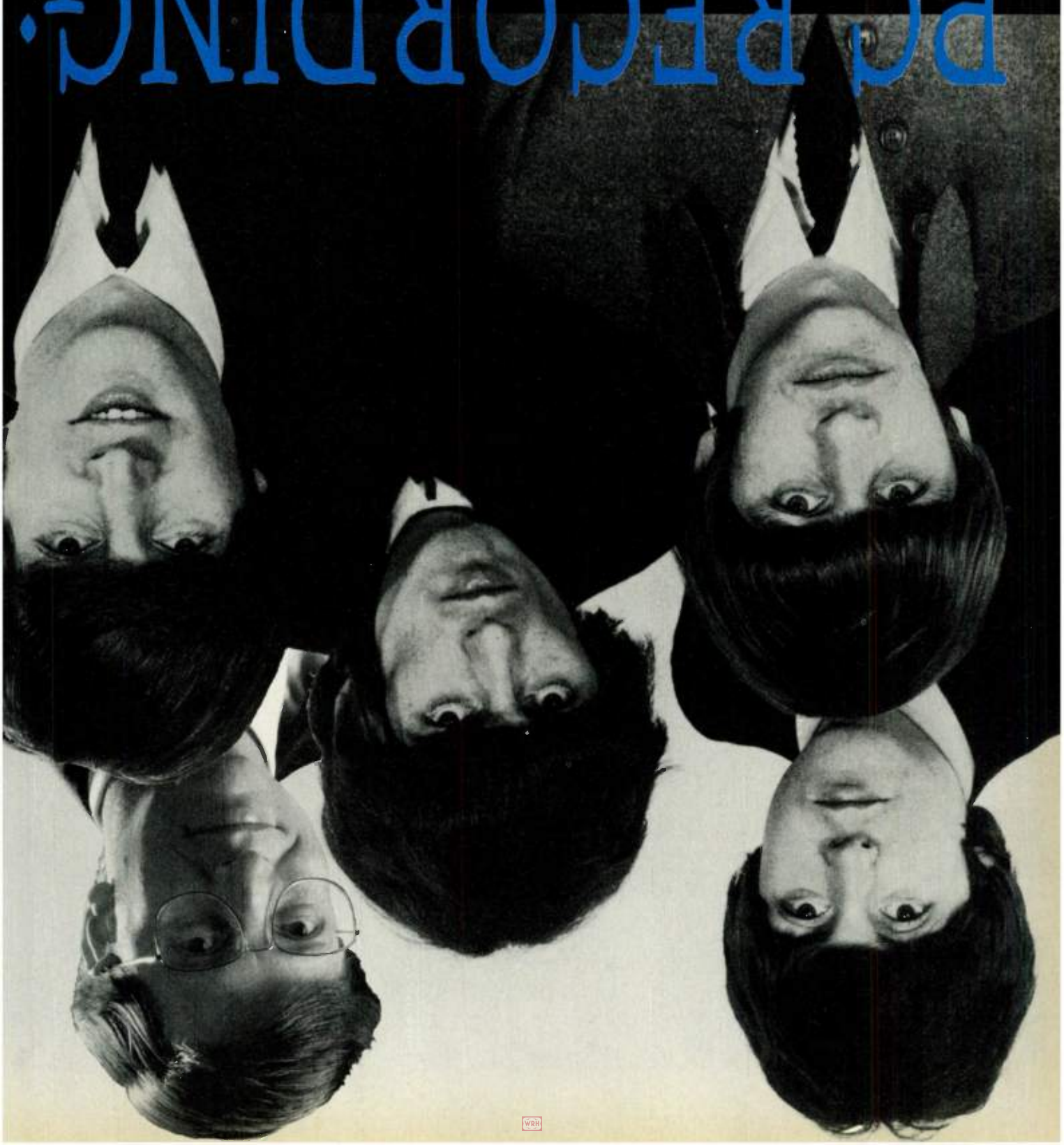
P.O. Box 4189  
Santa Barbara CA 93140-4189  
voice 805-962-6926  
fax 805-962-3830

Circle 35 on free info card



# WINDOVS 95

# PC RECORDING





# Windows 95 rocks the hard disks of today's project studios

---

*Bill Gates has changed the face of music. Traditionally, the Macintosh has been the computer of choice for the majority of recording studios. But, since the release of Windows 95, Gates's camp has taken back some of that market, and with strong third-party support, are looking to become the new king of desktop recording.*

*In this special section, Craig Anderton and David Miles Huber take a closer look at the recording possibilities offered by Windows and review some of the software that is available for this platform.*

# IN 1996



# Making the Switch

Some tips on  
making  
the transition to  
Windows 95  
easier

BY CRAIG ANDERTON

If you're migrating to Windows 95 from the Mac, Atari, Amiga, or even Windows 3.1, you may be filled with trepidation. Having delved into the world of Wintel after a decade of Mac-centric behavior, I was prepared for the worst — only to be pleasantly surprised. Windows 95 is very powerful, but can be confusing at first. The following tips are intended to make the transition a little smoother.

## START FROM SCRATCH

Make a list of the hardware you need — sound card, quad-speed CD-ROM, 16 MB RAM (8 MB isn't really enough), PCI and ISA slots, etc. — and buy the computer preconfigured, with Windows 95 pre-installed. Ignore the cheapo systems; although it has become easier to set up a PC yourself, it's worth paying extra for a system from an established company such as Dell, Hewlett-Packard, Compaq, or IBM that works right out of the box.

## UPGRADING FROM WINDOWS 3.1

I didn't have to upgrade from 3.1, but here's what I've been told by those who have:

1. Back up all your data files (make *two* copies).
2. Reformat the hard drive and forget Windows 3.1 ever existed.
3. Install Windows 95 with no other programs running.
4. Reinstall your programs.
5. Copy over your data files.

## INSTALLING PROGRAMS

Many programs now come on CD-ROM. With a W95-compatible CD-ROM, restart the computer just to be safe, pop the disc in the drive, and a dialog box comes up with an "install" icon. Click on it, and follow any prompts (you may be given the option to save the program somewhere other than your main drive, but as is usually the case with W95, your best bet is to simply follow the defaults).

If the CD is not W95-savvy, then 99 percent of the time you go to the Start button, select Run, and type D:\SETUP.EXE. Follow any prompts and your program will be installed. (If you're installing a program from a floppy disk, you usually type A:\SETUP.EXE.)

## THE SOUND CARD MENTALITY

Sound Blaster or equivalent sound cards are common on the PC, but their consumer orientation can mean less than CD-quality specs and no MIDI connectors. For better audio, use a pro sound card (e.g., Digital Audio Labs' CardD Plus or Adb's MultiWav board). A detailed comparison of the two isn't appropriate here, but basically the CardD Plus offers analog I/O with an optional digital I/O, while the MultiWav is digital I/O only (use the A/D and D/A converters in your DAT to provide the missing link).

S o u n d

cards have a joystick port that carries the MIDI signals. To access MIDI you need some extra circuitry and a connector; Midiman makes several suitable and inexpensive interfaces. Or, make one yourself — to download a schematic (courtesy of Jack Orman) from AOL, the path is keyword SSS > Articles Library > Do It Yourself > Sound Blaster to MIDI Interface. Either way gives you 16 channels out and an input. For multiple ports, both Mark of the Unicorn and Opcode (which recently acquired the MusicQuest line of PC interfaces) offer suitable products.

You needn't be too concerned with the config.sys and autoexec.bat files, which are holdovers from the DOS days and matter mostly with DOS-based games. If you want to run games and encounter problems, one call to the game company's tech support should get your config file happening. You basically open it in a text processor (like W95's notepad), add or modify a few lines, resave the file as text only, and you're done.

Drivers are similar to the extensions in a Mac; they add software routines for specific functions, such as talking to digital audio cards, MIDI options, CD-ROM drives, etc. Mac veterans know that extensions can cause conflicts and other system-related problems, which is why extension manager programs let you selectively turn particular extensions on or off. W95 builds driver control right into the operating system, which gives you a lot of control but can also be complicated to figure out.

There are two basic ways to add drivers for hardware. With W95 plug-and-play compatible



Vintage photos by Michael Ochs Archives



# essential tools for your studio

**New Lower Price!**

**2 Independent 24-bit Stereo Processors**  
(28 MIPS DSP Power)

**600 Presets**

**65 Dynamic Effect Algorithms**

**2 Inputs & 2 Outputs**  
(1/4" Balanced TRS)

**Able to Process 1 True Stereo or 2 Mono Input Signals**

**Seamless Switching of Effects**

## the ENSONIQ DP/2 the biggest selection of the best tools

When it comes to equipping your studio, your list of effects needs can grow pretty long. Probably longer than your budget. So make the right choice – one that will cover all of your signal processing needs from tracking to final mixdown. The DP/2 from ENSONIQ.

What makes the DP/2 so special? To start, it offers sixty-five great-sounding algorithms – the most complete selection available anywhere. Take a look at the list – you'll find all the tools you'll need to record and mix your music.

Use compression, de-essing, or EQ for recording voice-overs or vocals. A variety of speaker and amp simulations help you record guitar or bass direct and get anything from a natural mic'd amp sound to some serious "crunch." Shape drum tones or clean up noisy signals with a number of EQs, gates, and expanders.

An assortment of time-based effects (including chorus, flanging, phasing, delays, pitch shifters, and combination effects) are there to add richness and life to a track. And a selection of world-class reverbs lets you place each instrument in its own perfect "space" in your mix.

Not only does the DP/2 offer a complete range of processing functions; it has 600 well-crafted presets to handle every recording and live sound application you can throw at it. The presets are organized by type so you can quickly find what you need and get right back to your music.

The DP/2 offers two of our powerful ESP chips – 20 MIPS of industrial-strength DSP power that we use to create stellar-sounding effects. With two

D P / 2 A L G O R I T H M S				Phaser-Reverb
Hall Reverb	Tempo Delay	Guitar Amp 2	Expander	EQ-Chorus-DDL
Large Plate	3.6 sec DDL 2U	Guitar Amp 3	Keyed Expander	EQ-Flanger-DDL
Small Plate	8 Voice Chorus	Guitar Amp 4	Inverse Expander	EQ-Panner-DDL
Large Room	Flanger	Digital Tube Amp	Ducker/Gate	EQ-Tremolo-DDL
Small Room	Phaser-DDL	Dynamic Tube Amp	De-esser	EQ-Vibrato-DDL
Gated Reverb	Rotating Speaker	VCF-Distortion 1	Rumble Filter	EQ-DDL with LFO
Reverse Reverb 1	Speaker Cabinet	VCF-Distortion 2	Van der Pol Filter	Sine/Noise Generator
Reverse Reverb 2	Tunable Speaker 1	FuzzBox	Vocal Remover	ADSR Envelope Generator
NonLinear Reverb 1	Tunable Speaker 2	Guitar Tuner 2U	Vocoder 2J	Distortion-Chorus-Reverb
NonLinear Reverb 2	Parametric EQ	Pitch Shifter	No Effect	Distortion-Roto-Reverb
NonLinear Reverb 3	EQ-Gate	Fast Pitch Shift	Plate-Chorus	Wah-Distortion-Reverb
MultiTap Delay	EQ-Compressor	Pitch Shift-DDL	Chorus-Reverb	Compressor-Distortion-Reverb
Dual Delay	Guitar Amp 1	Pitch Shift 2U	Flanger-Reverb	Flanger-Reverb

inputs, two outputs, and two processors the DP/2 is equally useful as two separate mono in-stereo out effects devices or as a true stereo device utilizing both processors.

From its low-noise hardware design to its many new algorithms and presets, the DP/2's great sound has been refined from our DP/4 Parallel Effects Processor. The effects legacy that has become a fixture in top studios and live rigs around the world is now available in a single rack unit designed for your project studio and live performance needs.

Serious work requires a complete set of the right tools, each designed for the job at hand. For your recording needs, there's no better choice than the DP/2.

You can reach us at:  
800-257-1439 documents to your fax  
<http://www.ensoniq.com> on the Web  
GO MIENSONIQ on CompuServe  
800-553-5151 phone  
610-647-8908 fax

**ENSONIQ**

LEADING THE WORLD IN SOUND INNOVATION

Yes! Grab a torque wrench and crank me out some info on the DP/2.

I'd also like info on:  DP/4+ effects processor  MR-Rack expandable synth

ASR Series samplers  TS Series synths  KS-32 weighted action synth

KT Series weighted action synths  SQ Series synths  1682-Fx mixer

Name \_\_\_\_\_ Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone (\_\_\_\_) \_\_\_\_\_

Mail to: ENSONIQ Corp., Dept. Q-60,  
155 Great Valley Pkwy., P.O. Box 4005,  
Malvern, PA 19354-0705

Circle 39 on free info card

WRN



devices, you plug in the device (with the power off, of course), then from Start select Settings > Control Panel > Add New Hardware. W95 then scans your system and hopefully installs the appropriate driver.

If W95 doesn't find an appropriate driver, it prompts you to insert a disk containing the driver (this will be included with the device you want to install). Follow the prompts to "add driver," and you're set.

To check out the drivers included for music and MIDI applications other than system-level stuff (e.g., Sound Blaster card), the path is Start > Settings > Control Panel > Multimedia. You'll see "tabs" for Audio, Video, MIDI, CD Music, and Advanced. Click on a tab to change general settings, like turning a driver on or off; to really get into the system, click on Advanced and you'll see a list of all driver categories used for sound, video, etc.

tom, which lets you select the card's port and DMA address (essentially the channel within the computer the audio will use), as well as whether it's going to listen to its analog or digital inputs and whether you want copy protection or pre-emphasis. Don't be scared by the hex numbers; this data just tells the computer where to look for the card. The CardD Plus manual recommends default settings. Leave the defaults as is unless things don't work (see next paragraph).

The Sound Blaster (or equivalent) card is so fundamental that it is considered part of the system. To find info on its settings the path is Control Panel > Settings > System > Sound/Video/Game Controllers > Sound Blaster > Resources. This shows the DMA and interrupt settings for the card. When I first installed the DAL card, there was a conflict with the Sound Blaster because they were both set to DMA channel 5. I simply changed the playback default channel for the CardD from 5 to 6, and all was well. The moral of the story is: don't panic! If you install a card and it doesn't work, find its driver, write down the original settings so you can return to them if needed, and change the defaults one at a time to see where the problem lies. This may sound complicated, but by reading the manuals that came with the CardD and Sound Blaster, I was up and running within an hour, learned a lot about how to use the system, and haven't had to change anything since.

## THE MAGIC OF KEYBOARD EQUIVALENTS

Using keyboard equivalents can save time (and prevent "mouse shoulder"); W95 makes the process easy. Calling up a menu from the menu bar usually involves pressing the Alt key and the letter underlined in the menu item. Once the menu appears, type the underlined letter for a particular option (or a keyboard equivalent shown to the right of the option). For example, suppose you wanted to call up the Normalize dialog box from the Process menu in Sound Forge. Press Alt+P to call up the Process menu, then type N and voilà—instant normalization. If a button (such as "OK") is surrounded by a dashed line, hitting Return equals clicking on that button.

You can also create your own keyboard equivalents for shortcuts (these are like the Mac aliases). Right-click on

the shortcut, then select Properties > Shortcut > Alt+K (or click in the Shortcut Key field). Type the desired keyboard equivalent then click on Apply (unlike Mac programs, when you make these kind of changes you must click on Apply before closing the window). If the keyboard equivalent already exists, Apply will be grayed out. To eliminate a keyboard command, click on the field and hit backspace.

## A FEW OTHER TRICKS...

- The right-hand mouse button is somewhat like hitting Command-I on the Mac, but with more detailed options. Right-click on a drive under "My Computer" and select Properties (or just type R) for a pie graph showing remaining memory. Right-click on the desktop and select New > Folder to create a new folder, or on a file to bring up a menu of options; click on Properties to see stats on file size and other salient information.

- For contiguous file selection, the key combination is Control-Shift, not Shift-Click as with the Mac. Shift-Click selects every file between where you shift-click and the last place you shift-clicked. This is useful for selecting several adjacent files within a column of multiple files.

- Long file names are still much better supported on the Mac. You can have long file names on the PC desktop, but use those files with DOS or Windows 3.1 programs and they'll be truncated back to those stupid 8 characters + 3 character suffix. As insurance, make the first 8 characters of your long file name something vaguely useful, like "TK2FLYME\_Take 2 Of Fly There With Me.WAV." This will get truncated to "TK2FLY-1.WAV." The file name "Take 2 Of Fly There With Me.WAV" would have been truncated to TAKE2O-1.WAV, which is somewhat more cryptic.

- When copying to a floppy, W95 won't inform you if you try to copy over more than the disk can handle. It will just stop at some point during the copy and say that the disk is full, whereupon you have to get another disk. If you use floppies, always have some formatted spares.

- To use SCSI peripherals with the PC, get an Adaptec SCSI board (preferably the PCI model if you have PCI slots). W95 will recognize the thing, install drivers, and get you SCSIified. **EQ**

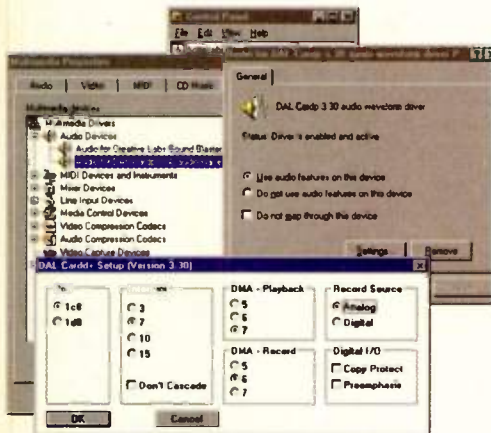


FIGURE 1

These are set up as folders, so click on the appropriate icon to see individual drivers. For example, in my system if I click on Audio Devices, drivers for the Sound Blaster and the DAL card show up. Click on the driver, and you'll see several options: general options, then perhaps a button for "settings" and "remove." The former lets you customize the driver settings; the latter removes the driver entirely.

Fig. 1 shows some of the windows you might find during this process. The control panel is at the top, from which you select the list of multimedia drivers (upper left window). Clicking on "Audio for DAL..." brings up the window in the upper right, with the general settings. Clicking on "settings" brings up the setup window at the bot-



# Hafler®

PROFESSIONAL

## Brilliant Award Winning Amplifiers

Musicians • Broadcasters • Engineers  
 • Producers... It's not a coincidence!  
*Thank you from your friends at Hafler!*



Wally Traugott  
Capitol Records



Pat Scholes  
Ardent Studios



Mark Egan  
Wavetone Records



Wayman Tisdale  
Recording Artist



Erick Labson  
MCA Music Media



Tom Jung  
DMP Records



Ronnie Montrose  
Recording Artist



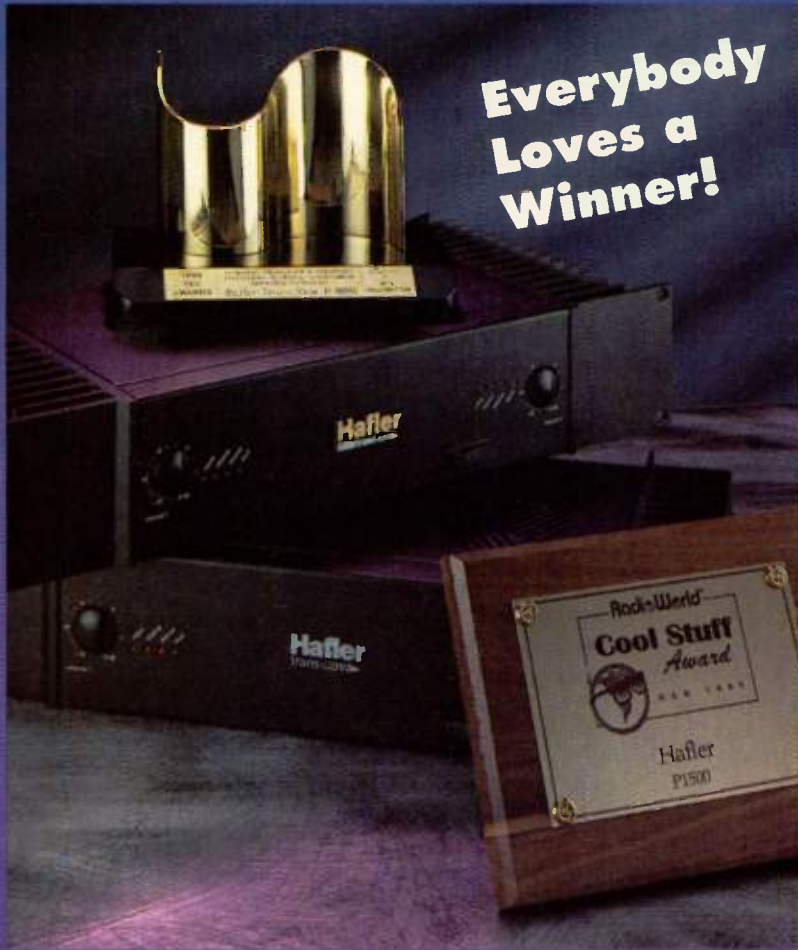
Pat Weber  
Engineering



Chaton  
Recordings



Rusty Milner  
Marshall Tucker  
Band



**P3000** Winner Technical Excellence and Creativity Award

**P1500** Winner Radio World Cool Stuff Award National Association of Broadcasters

**NEW!**



P7000 Trans•nova  
D.I.A.B.L.O.



9303/9505 Trans•nova  
D.I.A.B.L.O.

**HAFLER PROFESSIONAL**, A DIVISION OF ROCKFORD CORPORATION • TEMPE, ARIZONA 85281 USA  
 1-800-366-1619 • INTERNATIONAL FAX 602-967-8132 • IN CANADA, CONTACT CABLE TEK 604-942-1001

**MADE  
IN THE  
USA**



# Software Update

*The latest word in computer-driven, audio-related products*

**BY CRAIG ANDERTON**

**Cubase Meets SGI.** Cubase Audio will soon be available for the Silicon Graphics "Indy" computer, which, thanks to its four independent audio ins and outs, digital interface for AES/EBU and S/PDIF, and video input, is ideal for high-performance multimedia development. Engineers at Steinberg found MIDI timing on SGI machines accurate within 0.1 ms, more than an order of magnitude better than the Mac or PC. Also impressive: the SGI software synthesizer that's slated for release with SGI's version 6.2 operating system. It boasts features like two resonant filters and three envelopes per voice. Contact: Silicon Graphics, 2011 Shoreline Blvd., Mountain View, CA 94043-1389. Tel: 415-960-1980; Steinberg, 9312 Deering Ave., Chatsworth, CA 91311. Tel: 818-993-4091. Circle EQ free lit. #121.

**Mac Ports: The Big Fix.** Opcode's OMS 2.1 provides a software fix that allows reliable inputting of high-bandwidth MIDI into both PowerMac serial ports. OMS 2.1 is available free of

charge to registered users — download it from Opcode's web site (<http://www.opcode.com>) in the FTP download section. Contact: Opcode, 3950 Fabian Way Suite 100, Palo Alto, CA 94303. Tel: 415-856-3333. Circle EQ free lit. #122.

**QuickTime Music Architecture (QTMA) Enhancements.** Apple's QTMA software synth, featuring Sound Canvas sounds licensed from Roland, made it simpler to do out-of-the-box audio/synthesis. Now with QuickTime 2.2, music and synthesizer developers can create their own custom software synthesizers, instruments, and libraries within the QuickTime protocol. Opening up the QuickTime architecture allows companies like InVision to license its Cyber-Sound software synthesis to developers, or Yamaha to support QuickTime with its XG synthesis engine.

QuickTime 2.2 also provides direct support for OMS 2.1 so that MIDI sequences can be directed to any MIDI-compatible device connected to the computer, in sync with QuickTime movies. QuickTime 2.2 will be available free of charge through Apple's home page on the web (<http://www.apple.com>) and from online services.

**Apple And SGI Collaboration.** Both companies are working on the development of digital studios for feature film, animation, and broadcast video. Expect file viewers and converters (both Apple and SGI standards) for 3D and animation applications, as well as SGI's adoption of QuickTime technology for its SiliconStudio architecture, thus providing a common multimedia file format for both platforms.

**Pro Tools 4.0 Preview.** The four automation modes, various move update options, custom fade curves, real-time automatic data thinning, and individual playlists per track were alluded to at NAMM, but the big news is Pro

Tools 4.0's "Destructive DSP" menu, which incorporates Sound Designer's DSP functions. These can process waveforms shown on-screen, or digital audio in the "bins." Although all standard Sound Designer functions may not make it into 4.0, the goal is to integrate as many as possible, and all of them eventually. This will also eliminate the current need to switch between Pro Tools and Sound Designer. Pro Tools 4 is expected in August '96, roughly concurrent with the Pro Control hardware control surface. Contact: Digidesign, 1360 Willow Rd., Menlo Park, CA 94025. Tel: 415-688-0600. Circle EQ free lit. #123.

**PCI Is Coming.** Digidesign's Audio-media III is a PCI-bus board for the Mac and/or PC (greater than 75 MHz clock rate recommended). It costs \$795 bundled with Windows and Mac DAE (Digital Audio Engine), which allows up to eight tracks with compatible sequencers (expected by 3rd Q '96: Cakewalk Pro Audio, Logic Audio, Digital Performer, Studio Vision Pro, and Cubase Audio). Session software for Windows is another \$195 (use Sonic Foundry's Sound Forge or Steinberg's WaveLab for 2-track editing); for the Mac, Pro Tools is the program of choice. The board supports 22.050 and 11.025 kHz sample rates as well as 44.1 and 48 kHz. There are two analog ins, two analog outs, and S/PDIF digital I/O with 24-bit output capability (although the current system writes only 16-bit files to disk).

Korg's PCI 1212 I/O card for the Power Mac is optimized for use with Macromedia's Deck II. The board fea-





# Simply Logical



# MicroVerb<sup>®</sup> 4

**PRESET/PROGRAMMABLE 18 BIT SIGNAL PROCESSING**

Introducing the new MicroVerb<sup>®</sup> 4 from Alesis. It's the logical solution for songwriters and performers who need great-sounding, easy-to-use, affordable digital effects.

**GREAT SOUND** MicroVerb 4 provides 200 programs of reverb, delay, chorus, flange, rotating speaker effects and more, many in true stereo. Some Programs offer up to three effects at once. Plus, MicroVerb 4 provides two real-time editing knobs so you can easily tweak the two most logical parameters in each program (like decay and high cut on a reverb or chorus rate/depth) without complex programming hassles. Then, you can save 100 of your edited effects patches in a dedicated User bank.

**GREAT PERFORMANCE** MicroVerb 4 also makes it easy to add life to your live performances, since it responds to MIDI

program change and modulation, and provides a two-way footswitch jack that offers both bypass and program control. And with 18-bit converters and a 20kHz frequency range, MicroVerb 4 offers professional-level processing at an incredibly affordable price. You can't get more logical than that.

When you're in the groove and need to get a great sound without spending a lot of time getting set-up, the new MicroVerb 4 is simply the logical choice. Check it out at your Authorized Alesis Dealer today.

For more information about MicroVerb 4, see your Authorized Alesis Dealer or call 310-841-2272. MicroVerb is a registered trademark of Alesis Corporation.

Alesis Corporation 3630 Holdrege Avenue Los Angeles CA 90016 310-841-2272 alicorp@alesis1.usa.com

**ALESIS**

Circle 4 on free info card



tures 12 inputs and outputs configured as TRS stereo line-level input (18-bit), TRS stereo line-level output (20-bit), RCA S/PDIF digital I/O, and 8-channel ADAT optical I/O, all of which can be used simultaneously. Korg envisions the 1212 I/O as being part of a system including Deck II, the 168RC recording console (which can also connect to the 1212 I/O), ADAT, and Trinity Music Workstation DRS. Contact: Korg, 89 Frost St., Westbury, NY 11590. Tel: 516-333-9100. Circle EQ free lit. #124.

**Sound Forge 3.5 Preview.** This popular 2-channel digital audio editor for Windows will be able to sync

while recording or playing back, do crossfade loops for sampling applications, include new (and better-sounding) time compression and reverb (the previous reverb has now been turned into a multi-tap delay), normalize to a particular level, perform AVI file editing, and offer true Windows 95 compatibility including OLE support. Version 3.0 owners can upgrade for \$99. Contact: Sonic Foundry, 100 S. Baldwin Suite 204, Madison, WI 53703. Tel: 608-256-3133. Circle EQ free lit. #125.

**The Mac Silencer (approx. \$700).** Bugged by hard drive and fan noise? The RemoteVideo system lets you run

your DB-15 connector compatible video monitor, keyboard, and mouse up to 300 feet away from the computer. The system includes a transmitter with RGB video out, receiver (with two ADB ports), and a special cable to connect the two (the stock cable is 46 feet long; longer lengths are optional). Contact: JCC, 10 Rue Marie, 91230 Montgeron, France. Fax: 011-33-1-6942-5283. Circle EQ free lit. #126.

**Steinberg's VST—"Virtual Studio Technology."** Cubase Audio xt 3.0, in addition to supporting TDM, includes VST. This provides up to 32 tracks of digital audio and 128 real-time EQs, a software effects rack (chorus, reverb, etc.) with four multieffects processors, time stretch, pitch shift, automated mixing of faders/pan/EQ settings/effects, plug-in interface for external audio processing, and the usual Cubase MIDI/scoring/groove quantize options—all on a Power Mac with no external hardware. According to Steinberg, 3rd party developers are working on VST-compatible plug-ins. (Speaking of plug-ins, Steinberg has added the Red ValveIt, a virtual tube amp including speaker simulation, to its line of TDM plug-ins.) Cubase Score 3.0 and Cubase 3.0 also support VST. Minimum system requirements are 6100/66 MHz, 16 MB RAM, 2nd-level cache, and System 7.5.

For Windows, Cubase 3.0 incorporates its Wavelab technology for digital audio editing features (compression/limiting, EQ, time stretch, pitch shift, and fades/crossfades) with automatic updating in Cubase as you edit. Cubase Score 3.0 adds scoring options, while Cubase Audio 3.0 provides extended support for dedicated hard-disk recording hardware such as Digidesign's Session 8, Audiomedica III PCI, and Yamaha CBX D3/D5. Also, Cubasis now supports up to eight tracks of digital audio using conventional sound cards.

**New Creamware Board.** triple-Board 2.0 is a pro-quality PC ISA card with stereo analog I/O, stereo digital I/O (optical and coax S/PDIF, optional AES/EBU transformer balanced), MIDI in/out, MIDI timecode input, and 18-bit/128x oversampling A/D and D/A converters. Contact: Creamware, Siegburg, Germany; U.S. sales line: 800-899-1939. Circle EQ free lit. #127.

**Wave Distribution Turnkey PC for Digital Audio.** This rack-mount

## ATARI/FALCON COMPUTER UPDATE

**Put An Atari in Your PC.** The problem: you have a ton of great Atari software, but you traded in your 1040 or Mega for a PC. The solution: C-Lab's STzer, a TOS-compatible, \$350, ISA-compatible card (complete with MIDI in/out and dongle/cartridge port) that plugs into your PC and runs a GEM desktop from within Windows. Yes, it really works.

Also new from C-Lab: Upgrade a Falcon 030 or C-Lab MK I or MK II to the Falcon MK X (upgrades start at around \$300). The MK X is similar to the original Falcon, but housed in a sturdier case and with improved internal data storage options (1 or 2 GB IDE drive, or removable media such as Jaz 1 GB or SyQuest 1.3 GB) and I/O (pro-quality A/D and D/A converters with 1/4-inch phone jacks). Options include an S/PDIF interface, ADAT interface, and internal SCSI. Contact: C-Lab, Postfach 700303, 22003 Hamburg, Germany. Tel: 011-49-40-694-4000; e-mail: 100434.37@compuserve.com. Circle EQ free lit. #128.

**Other Falcon News:** Studio Son is an 8-track digital audio workstation with DSP effects (equalizer, harmonizer, echo), SMPTE/GPI/MIDI sync, multiple crossfade options, CD-ROM sound manager (that displays all audio clips and allows real-time previews), precision VU meters, import/export AIFF, WAV, TRK, and AVR (Falcon), test oscillator, and standard editing effects.

Sunrise Electronics' SE-600 provides 8 individual outputs; the SE-800 allows 8 individual inputs for simultaneous recording.

Friend Chip's K-AT remote-control keyboard is a palm-sized controller that includes seven buttons and a shift button, laid out somewhat like a transport, which can be assigned to any 14 keyboard keys (function keys etc.) using the supplied desk accessory. A footswitch jack parallels the nominal "record" button. Friend Chip also announced an upcoming interface that provides eight lines to the Yamaha ProMix 01 and four record lines to the Falcon.

**SoundPool Falcon Products:** SoundPool's Falcon-compatible hardware and software includes AudioTracker (8-track tape recorder emulation with DSP and sync that's also designed for ADAT editing), WaveMaster sample editor, AudioMaster (writes audio and other files to CD recorders; includes scrubbing, multiple real time fade ins/outs, optional plug-ins for six stereo parametric EQs, real-time spectrum analysis, MIDI sync, dynamics processing), and CD Recorder ("plain vanilla" CD-ROM burner supports Ricoh, JVC, and Philips CD recorders). Hardware products include an S/PDIF interface (with 44.1 and 48 kHz sample rates), ADAT digital interface, and Analog 8 for eight individual audio outputs. Contact: SoundPool, Postfach 1112, D-74373 Zaberfeld, Germany. Tel: 011-49-70-469-0215; e-mail: 101233.3213@compuserve.com. Circle EQ free lit. #129. —Craig Anderton



# THE **SAW** NEXT GENERATION...

Software Audio Workshop

VERSION 6.0

**NEW & IMPROVED!**  
**Completely Rebuilt Using the**  
*Plus* **Architecture!**  
**Still Only \$599.00**



Live format conversion during playback (mix any combination of regions, 8-bit or 16-bit, mono or stereo, and any sample rate). • Software emulated DSP functions provide parametric EQ, noise gate, limiter, compressor, echo effects and vari-pitch. • Emulated DSP functions patchable to each track or sound card output for real-time processing during playback. • Adjust volume, pans, mutes and solos during playback (without additional expensive hardware). • Get the same high performance with any size project - from seconds to hours in length. • Live, automated mixing of L&R audio to single mono sound file while recording. • Live, automated splitting of L/R audio to two mono sound files while recording. • Programmable Function Key Views provide fast access to multiple workspaces. • Supports up to two stereo sound cards for a maximum of 4 inputs and outputs. • Record direct to MultiTrack or to sound file only. • MultiTrack Edit Tools provide quick segment splicing or removal functions. • Simultaneous playback of up to 4 mono OR stereo tracks (8 tracks max). • Mix changes automatically recorded for exact duplication during playback. • Separate master volume controls for each sound card output. • SMPTE sync & generate capability with sub-frame accuracy. • Realistic segmented bar graph meters in record panel with peak hold. • Simultaneous Sync Record/Play (sound card dependent). • Non-destructive Region & Play Sequence list editing. • Backup & restore entire editing sessions with an audio DAT. • Complete Drag and Drop, non-destructive editing. • Supports both WAV and SND sound file formats. • MIDI Region & MultiTrack trigger capability. • Adjustable MultiTrack display width. • Multiple Levels of Undo. • Loop Scrubbing, and much, much more!

## For Even MORE Power:

**SAW<sup>Plus</sup>**  
 Software Audio Workshop

Simultaneous playback of up to 16 mono OR stereo tracks (32 tracks max).

Supports up to 4 stereo sound cards for a maximum of 8 inputs and outputs.

An alternative choice to products costing thousands more... Only \$999.00



4680 S. Eastern Ave., Ste D  
 Las Vegas, NV 89119

Tel (702) 435-9077  
 Fax (702) 435-9106  
 BBS (702) 435-7186

Visit us on the web:  
<http://www.iqsoft.com/>  
 Email: [info@iqsoft.com](mailto:info@iqsoft.com)

Circle 48 on free info card



PC with 133 MHz Pentium, intended for digital audio recording and editing out of the box, comes preconfigured with RAM, hard drive, Windows 95, DSP, Digital Audio Labs V-8 card with ADAT, DA-88, S/PDIF, or analog I/O, CD-ROM drive, and 8/16-track mixing/editing software. System prices range from \$8995-\$11995, or more with options like Pinnacle Micro 4.6 GB optical drive, Iomega Jaz drive, Sony CD-R drive, and so on. Contact: Wave Distribution, 50 Bordeaux Terrace, West Milford, NJ 07480. Tel: 201-728-2425. Circle EQ free lit. #130.

**SonicWORX Artist.** Intended for creating new sounds for soundtracks and experimental/dance music on the Power Mac, operations include room simulation, filters, format-altering EQ, audio morphing, three different 18-band vocoders, time compression/expansion, dynamics, sample-rate conversion, "de-reverberation" for drying out sounds, and other special effects. Supported file formats (8-50 kHz sampling rate, 8/16/24-bit word

length) include AIFF, AIFF-C, and Sound Designer II. It supports external audio hardware through Apple Sound Manager, and can process more than one file simultaneously. Power Mac native, a 680X0 family version with fewer functions is also available. Prosoniq Contact: Products Software, Hauptstrasse 24, 69151 Neckaregmünd, Germany. Tel: 011-49-622-392-0632; e-mail: info@prosoniq.com. Circle EQ free lit. #131.

**Pyramix Virtual Studio.** Designed to run under Windows 95 or NT in 4- and 8-track configurations, Pyramix provides digital audio mixing, editing, signal processing, and CD-R mastering. The basic system includes the Kefren ISA bus audio board, which uses multiple AT&T 32-bit DSP processors for processing up to 24-bit, 48 kHz audio. I/O is dual-S/PDIF optical connectors for input and output, and S/PDIF coax I/O (ADAT optical I/O comes with the 8-track versions). TDIF, SMPTE/VITC, and ADAT sync are optional for 8-channel versions. The architecture allows for software

signal routing and effects configurations for the virtual mixer, à la Peavey MediaMatrix. The core effects group consists of parametric 4-band EQ, 10-band graphic EQ, 3-band tone control, dynamics, and digital delay. Optional reverb, time compression, and pitch shift are planned for later. Other features include OMF/AIFF/WAV/Snd file support, and a lossless data compression scheme for up to 3:1 storage savings.

The starter system is Quadrix (\$4995; four channels and digital mixer with up to eight channels for mixing four external inputs and four hard-disk inputs simultaneously). Octix (\$6995; eight channels) is expandable to Octix HP (\$9995), which includes a DSP expansion option that allows more DSP effects and larger mixer configurations. Adding the DSP expansion to Octix costs \$2995. A Quadrix to Octix upgrade is \$2295. Contact: Merging Technologies, 11440 W. Bernardo Ct., Suite 290, San Diego, CA 92127. Tel: 619-675-9703. Circle EQ free lit. #132.

EO

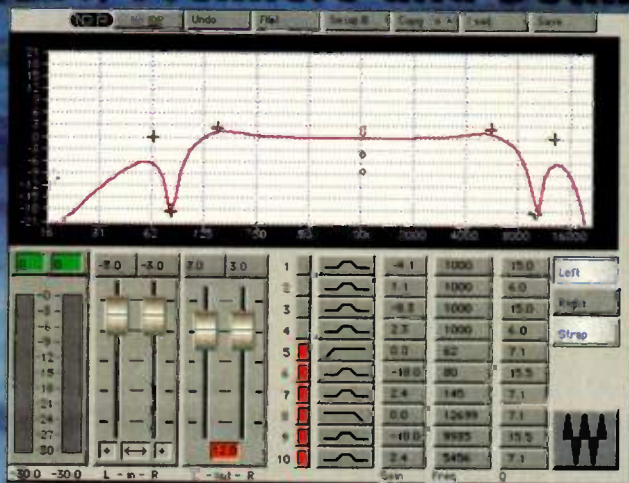
# Audio Plug-Ins by Waves

For digidesign SDII & TDM, Premiere and DeckII

-  **L1- Ultramaximizer**
-  **C1- Compressor/Gate**
-  **S1- Stereo Imager**
-  **AudioTrack- EQ/Comp/Gate**
-  **TrueVerb- Reverb/Distance**
-  **PS22- StereoMaker**



usWaves Tel: 423-588-9307 Fax: 423-588-9472  
 ukWaves Tel:(+) 44-1637-877170 Fax:44-1637-850495  
 ksWaves Tel:(+) 972-3-5107667 Fax: 972-3-5105881  
 HomePage: <http://www.waves.com>  
 Compuserve GO WAVES



## Q10 ParaGraphic EQ

The Q10 Equalizer offers flexible, surgical precision for all audio production, from subtle mastering to exceptional special effects. The 200-piece factory Setup Library provides an extensive 'Swiss-Army knife' array of user-customizable tools.



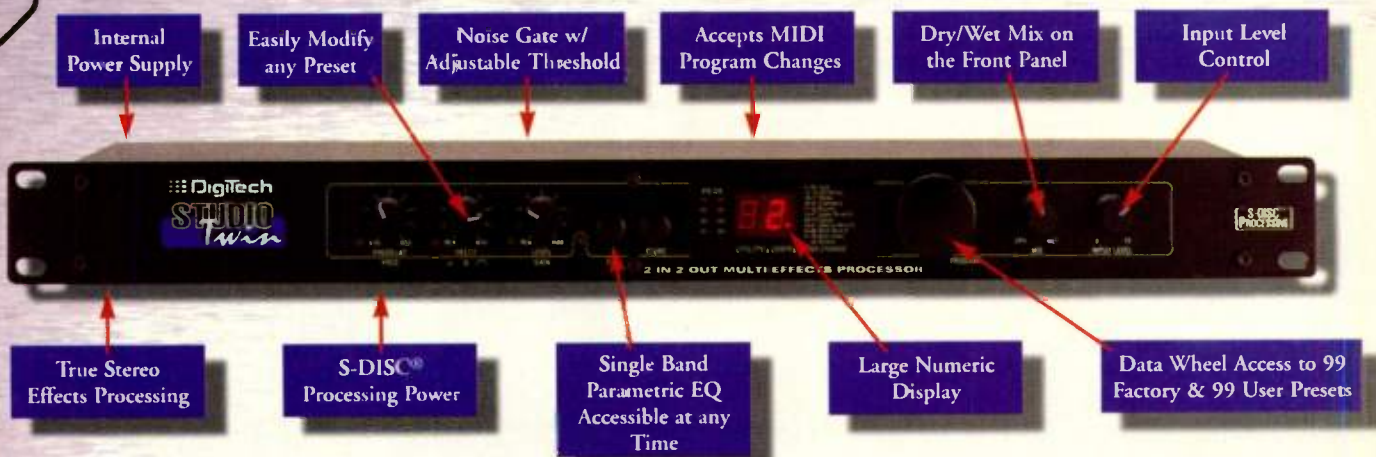
# STUDIO TWIN

## SIMPLE. POWERFUL. AFFORDABLE.

# STUDIO Twin



You say you need a true stereo effects processor that's ideal for any application, a unit that is flexible enough to fit your unique situation, whether it is for sound reinforcement or studio applications. But it needs to fit your budget. Enter the Studio Twin Stereo Effect Processor. With 99 factory and 99 user presets, each with the 3 parameters you use the most at your fingertips, and a single band parametric EQ, it's **SIMPLE** to operate. The high performance, award winning S-DISC® processing offers great sounding, high quality effects like True Stereo Halls, Cathedrais, Plates, Chambers, Rooms, Gated Reverbs single and multi-tap Delays, Chorus, Flanger, Detune, and Tremolo. **POWERFUL** Multi effects combinations like Mod+Delay, Mod+Reverb, or Delay+Reverb are also available. You can even process 2 independent mono sources through 2 separate effects. We also included a Noise Gate with an adjustable threshold, MIDI program change control, and an internal power supply. All these features packed into a single **AFFORDABLE** rackspace. Check out the DigiTech Studio Twin at you dealer today. Start sounding great tomorrow.



# DigiTech

A Harman International Company

8760 South Sandy Parkway, Sandy Utah, USA 84070 • (801) 566-8919 • Fax (801) 566-7005 • Int'l Fax (603) 672-4246 • Visit DigiTech on the World Wide Web at <http://www.digitech.com>

Circle 29 on free info card

www



# The Big Fix

*How to easily upgrade your PC's motherboard*

**BY CRAIG ANDERTON**

Not long ago, the most that a typical PC had to deal with was word processing, spreadsheets, and the business of general day-to-day operations. Now that the PC has become a real media workhorse, the demands upon data processing speed, disk access and graphics display have greatly increased. Installing newer-generation digital audio and multimedia PC software and hardware into a system that can't handle the extra load often won't enable your system to perform tasks like keeping up with real-time audio demands, nonreal-time DSP calculations (i.e., applying digital EQ to a soundfile can be excruciatingly slow when using an older CPU) or playing back digital video without having the jitters. Quite simply, a faster system can handle more tasks in less time, letting you get on with the business of being creative.

So if you have an older, slower PC, you need to rush out and buy a whole new system, right? Wrong! Since the heart of any computer is its motherboard (containing all BIOS, processing, and data-routing components), removing the old board and installing

a newer, faster one can often significantly increase a system's speed and performance. The process isn't difficult; it simply requires a few of the right tools, common sense, and patience. You may encounter some moments of frustration, but the rewards (both financially and educationally) will be worth it. Ready? Let's start.

## **BEFORE YOU DO ANYTHING**

Before attempting any repairs or upgrades, heed the following safety precautions. Remember, the sanity you save by strictly adhering to this checklist may be your own!

1. Always make a full backup of your hard disk data.

2. Windows 3.1 users should make a bootable (system) diskette containing the following files:

(Root Dir.) — command.com, autoexec.bat, and config.sys

(DOS) — fdisk.exe, format.com, backup.exe, and restore.exe (for DOS Ver. 5.0 and less)

<Windows> — win.ini and system.ini

Note: With Windows '95, the bootable (system) diskette that you created when you first installed Win '95 will include all the necessary files to perform the fdisk, format, and restore functions.

3. Write down your drive type setting numbers from the initial BIOS display screen. You might also want to perform an fdisk on the system and write down all partition information.

4. Document the complete listing of hardware settings, detailing the interrupt, port, and DMA settings (where applicable). You probably won't need these settings when installing the new board, but just in case...

5. Draw the original motherboard's wiring layout (keyboard/speaker/LED/turbo wires, and so on) on paper, so that you'll know which wires go where when swapping motherboards or

in case you need to reinstall the old one (which happens a lot when Murphy's Law pops up).

6. If at all possible, test the system's CPU, I/O, and disk speed using a benchmark program. (If you don't have access to a shareware or low-cost benchmark program, most PC repair places will run this test for a nominal fee.) Once done, print or write down the results for future comparison to the newer CPU.

7. Stash all these papers and diskette in a safe place for future reference.

## **YO MAMA!**

First, you need to choose the right board. Determine the processing speed needed to get the job (and future jobs) done. I'd recommend at least a 486DX4-100, but you might as well go for a Pentium 100 or faster if you can afford it.

Second, consider the hardware requirements and physical layout. If you're like me and have all your slots filled, this can become a problematic jigsaw puzzle. Some of the more important considerations are: Are there enough hardware card slots to handle your system's needs? Do the slot types match your present or future hardware cards (EISA, VLB, or PCI)? Are the memory SIMM slots compatible? Does it use 72-pin slots, while you have 30-pin SIMMs? (If you need to go to 72-pin slots, memory-saver "trees" can adapt 30-pin to 72-pin slots, while some companies will let you swap SIMM types for a nominal charge.) Often, newer CPUs will have heat sinks and fans that tower up to an inch above the CPU. Make sure your system's physical layout can handle it.

For example, would the drive bays get in the way? Is the



Photo by Harry Goodwin/MOA



# TANNOY®

*Get Real*



PBM II

For more than three-quarters of a century, Tannoy has been designing and producing loudspeaker systems and components to meet the demands of the world's most demanding user. A philosophy of constant research and investment in state of the art materials, technology and processes enables Tannoy to ensure that every monitoring system we produce will re-produce absolute fidelity to the source, true dynamic capability, and most importantly, real world accuracy. This is why Tannoy systems are used in more of the world's professional facilities than any other brand.

In the North American marketplace, Tannoy has been the number one monitor of choice for several years according to the Billboard's international recording and equipment statistics. This clearly illustrates why Tannoy enjoys its reputation as the world's leading manufacturer of reference loudspeakers. In fact, **leading the market is what Tannoy is all about.** While other multi-faceted manufacturers, not dedicated solely to the

art of reference monitor loudspeakers, scurry to produce products to compete with Tannoy's original highly acclaimed and award-winning PBM series, **Tannoy moves on.**

The new PBM II series, once again, is setting new standards in the industry. Pioneering new technologies such as **variable thickness, injection molded cones with nitrile rubber surrounds** are but one fine example of our dedication to perfection. The new molded cones are stiffer than conventional cones producing more linear extended low frequency. They are better damped for reduced distortion and exhibit more naturally open and detailed midrange. They are immaculately consistent and durable for years of faithful trouble free use. From the high power polypropylene capacitors to the hardwired minimalist crossover, every component has been carefully selected for the new breed of PBM II series. When leading edge technology is so affordable, *Get Real*. Don't settle for second best.





CPU physically placed where a full-size hardware card needs to go? If the answer is yes, keep looking until you find the right motherboard.

It's generally not a good idea to upgrade by simply buying a faster CPU. For example, motherboards that have been built to handle a wide range of CPU types and speeds will often compromise on performance. As a friend said, "Putting a Porsche engine in a Volkswagen doesn't mean that it's gonna drive like a Porsche." Once, when I installed a 486DX2-66 into such a motherboard, it actually processed

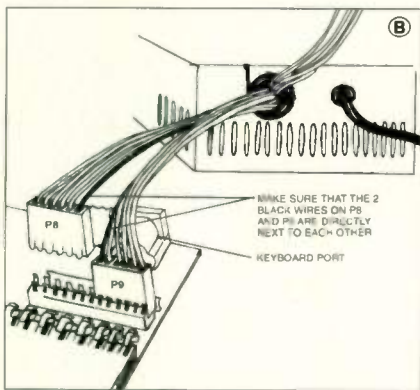


FIGURE 2

slower than a 386DX-40. The moral: Think twice before adding any kind of "one size fits all" component into your system.

Mail-order catalogs offer the best hardware buys (look for *Computer Shopper*, a monster-sized monthly available at almost any magazine store with ads from hundreds of companies). However, I've found out the

hard way that motherboards bought sight unseen were often incompatible with my system's needs, and most of these pitfalls were avoided by buying locally...caveat emptor! Another big plus for buying from the home-boys is nearby technical support. Most mail-order companies have technical support phone numbers (often toll-free) and they're generally good in an emergency, but if you're not the techie type and are knee-deep in trouble, there's no substitute for a local pro.

And now, a very important rule: *Keep all your billing receipts.* Fifty percent of the time, you'll need them for proof of warranty, or to return parts that are wrong or bad.

**OUT WITH THE OLD**

Once you've found the object of your desires and have followed all the necessary stages outlined above, remove the old motherboard.

First, discharge any static electricity that may have built up in your body. Voltages that are sufficient to destroy hardware aren't overly common, but if it happens, you could be up the creek without a warranty. One

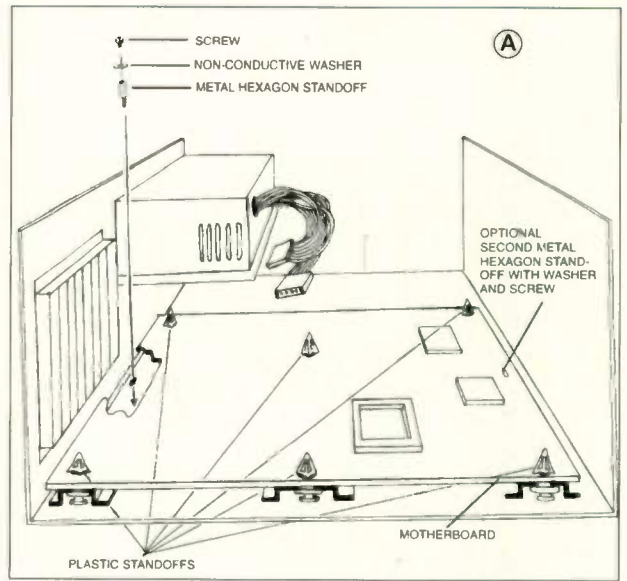


FIGURE 1

solution is to cut off the two line prongs of a spare IEC AC cord, leaving only the ground plug. By plugging this line into the computer and wall socket (thus placing the chassis at ground), you can discharge any potential surge by touching the power supply chassis before and while you handle any static-sensitive parts, such as boards. Note that touching cable pins can also cause problems, as these might connect to sensitive pieces of circuitry.

Then, remove all hardware, memory SIMMs, and plug-in cabling. Remove the mounting screws and carefully crimp any plastic standoffs with thin, needle-nose pliers, so that the motherboard can be easily removed.

**IN WITH THE NEW**

The next step towards a newer, faster life is to gently insert the new motherboard so that the keyboard connector lines up with the case's keyboard hole. Now lift it out slightly, carefully noting if all of the plastic and metal standoffs line up exactly with the new board. A misplaced metal standoff could potentially damage a new motherboard (I know, it happened to me). If one exists, either remove it or insulate it at the top using electrician's tape or by cementing a nonconductive washer to its top.

Once you're sure the board will slip safely into the case, insert it and snap the plastic stand-offs into their

**MAC MOTHERBOARD REPLACEMENTS**

These same techniques work for certain Mac models as well. For example, when my IICI blew up (and I determined the problem wasn't the power supply, as verified by substituting one known to be good from a friend's IICX), I went to the Classifieds section on America Online and found a company in Texas selling new CI motherboards for \$200. I also had the option of upgrading to a Centris 650 board for several hundred more dollars, but decided that since I want to replace the CI with a PowerMac as soon as the NuBus/PCI scene stabilizes, there was no point in getting into an 040 machine at this late date. Besides, using a Diimo 50 MHz 030 accelerator with the CI actually outperforms an 040 machine in some applications.

The entire operation took about 45 minutes. I removed the power supply, the bay with the hard drive and floppy, and a few other parts; the old motherboard slipped out, and the new one slipped in. After reinstalling the drives and supply, the CI was up and running again.

—Craig Anderton



respective holes. Screw the board into place and reconnect all the LED and power leads. Make sure that the black wires on the two power leads are facing in towards each other, as plugging them in backwards would be catastrophic.

Once the memory SIMMs and essential hardware cards (i.e., video, I/O, and disk controller cards) have been installed, test the system by plugging in the keyboard and monitor. When you're comfortable, let 'er rip! Do all the LEDs light? If not, check their plug polarity. The BIOS CMOS setup screen should then appear on the monitor. At this time, enter the appropriate floppy, hard disk, and any other necessary settings. The system may or may not boot, depending upon whether or not the system is using the same BIOS type as the older motherboard. If not, you're going to have to get out your bootable (system) diskette, perform an fdisk on the hard disk(s), format the disk(s), and restore the data from your backups. If the system works properly, turn it off and install the rest of your hardware and run a speed benchmark to test it out. If not, retrace your steps to find the problem or call your local service pro. I warned you that it might not be all roses.

#### LET'S GET ENHANCED!

Many of the newer motherboards incorporate on-board Enhanced IDE (EIDE) drive ports, which can increase hard disk access by 30 to 120 percent over conventional IDE ports (which is important for hard disk recording). As a bonus, up to four hard drives can connect to the system simultaneously. Since most PC-based CD-ROM drives communicate data via the IDE protocol, connecting them to this port will often increase their data access speeds as well. If such a controller isn't present on your existing motherboard, you can benefit from the increased access speeds by adding on a dedicated EIDE controller card.

#### THE OLD FOLKS HOME

In keeping with the recycle mentality of the '90s, consider selling your old motherboard, drives, and/or hardware to a PC recycle store, or simply sell/donate it to a friend who could benefit from the used toys. Happy trails!

triple **DAT**

Audio Workstation for Pentium-PC

**real time experience**

The all-realtime DSP Suite - parametric EQ, Compressor, Limiter, Delay, Room Simulator, Spectrum Analyzer, Correlation Meter and much, much more!

**The DSP Suite**

**The Multitracker**

**The Mastertrack**

Finally, a solution.

**\$ 1798!**

**creamw@re**

tripleDAT V2.0 includes the 4-channel tripleBOARD (DAT quality analog & digital).

**1-800-899-1939**

Circle 24 on free info card

# WEST L.A. MUSIC

## GUARANTEED LOWEST PRICES!

EVERY MAJOR BRAND

DIGITAL TAPE RECORDERS & WORKSTATIONS  
 CD RECORDERS • HARD DISC RECORDERS • MIXING CONSOLES  
 MICROPHONES • SPEAKERS • MACINTOSH COMPUTERS  
 SOFTWARE • KEYBOARDS • GUITARS • DRUMS

**WE'LL BEAT ANY DEAL! CALL NOW!**



NATHAN EAST  
 WITH GARY KRAUSE - PRO AUDIO DEPT.



DAVID GARFIELD  
 WITH JIM MONA - PRO AUDIO DEPT.



GRAHAM NASH  
 WITH NOEL GOULD - PRO AUDIO DEPT.

**"WHERE THE PROS SHOP"**

Phone or Fax your order. We Ship Everywhere.



**"Where The Pros Shop"**  
**WEST L.A. MUSIC**  
 11345 Santa Monica Blvd. West Los Angeles  
 Two blocks West of the San Diego (405) Freeway  
 (310) 477-1945 Fax: (310) 477-2476

**ALL MAJOR  
 CREDIT CARDS,  
 FINANCING,  
 AND LEASING.**

Circle 86 on free info card

SALES: 1 (800) 899-1939 EAST: Tel: (416) 504-2264 Fax: (416) 504-3624 WEST: Tel: (604) 527-9924 Fax: (604) 527-9934



# Software Reviews

## Cakewalk Pro Audio

Cakewalk has developed from the best of the DOS-based sequencers to the finest of Windows MIDI applications. Although there are a few excellent professional-level sequencers available, you no longer choose between them for the features. It is now a question of which tools feel comfortable in your hands and which sequencer uses a philosophy you can relate to when building music. I have used Cakewalk Pro for many years as a music sequencer and a MIDI system/controller generator and storage platform for MIDI control of audio gear. In the past few months, I've been using Version 4.01 of Cakewalk Pro Audio for both audio recording and MIDI sequencing with great results.

Over the last few years, all the major sequencing programs have integrated audio into their tool set. Although previous versions of Cakewalk Pro included the ability to trigger WAV files from the program, this was really only a nod to multimedia production. The latest version of the program, Cakewalk Pro Audio, finally gives the audio data the functionality developed for MIDI data. The basis of Cakewalk has been a linear format

that is well suited to the addition of audio events.

Clearly Cakewalk developers have learned from the mistakes of other sequencing programs that integrated audio over the past few years.

The clear and concise visual metaphors of the program allow you to easily create audio clips (using scissors in the audio window) and shuffle the audio and/or MIDI data around with precise control, thanks to snaps that can be set to samples, beats, or time. Waveforms (during playback on faster processors) and MIDI data are displayed and allow you to keep track of your location easily when making changes.

Cakewalk Pro Audio will work with most Windows-compatible 16-bit sound cards, although some cards cannot simultaneously playback and record. The program can be bought bundled with one of the best audio cards for the PC — the Digital Audio Labs CardD Plus, which supports simultaneous record and playback and has 18-bit D/A conversion for playback and an optional digital-out daughter board for digital I/O. I also tested the program with the Turtle Beach Tahiti card (also 18-bit) and the Ensoniq Soundscape Elite card (which will be supported for simultaneous record/playback in Version 4.2). The program supports the Digidesign Session 8 interface, but this will limit the number of tracks to eight. The program supports 11 kHz, 22 kHz, and 44.1 kHz sample rates and can record stereo or mono tracks with panning and levels set in the program. You do need to set the Windows sound levels first, using

the Windows sound mixer applet.

Recording within the program is as simple as tapping the R key on the keyboard or clicking the mouse on the record button. Punch-ins can be located numerically, graphically, or on the fly and then recorded automatically. Basic Windows conventions, such as Control Z for Undo, are supported to make even casual users feel at home.

Considerable effort has been taken to prevent the usual complications of audio, MIDI, and the PC from stopping the earnest musician from getting down to making music. Hard-



ware complications are the norm for the PC platform, but Cakewalk has most of the basics covered. Windows 95 is also a great improvement for most sound-card installations, but does create greater processing overhead, and therefore requires a faster (read: Pentium) processor for good results with more than a few audio tracks.

### MANAGED CARE

One of the worst problems with hard-disk recording of complex projects and/or multiple clients is the file management. You can end up with a lot of files that may share





# SPIRIT 8

**THE EXTRAS COME AS STANDARD  
THE PRICE COMES AS A SURPRISE**

*Spirit 8 is a quiet, compact and rugged 8-bus mixing console, hardly surprising from a company with over 22 years of knowhow in audio design.*

*What may be surprising is that it comes with every feature you could wish for, as standard, at a price\* that will make the competition wonder how we did it.*

- METER BRIDGE BUILT IN**
- UP TO 40 BULLET-PROOF MIC INPUTS**
- 4 MUTE GROUPS**
- INDIVIDUAL CHANNEL BOARDS**
- 10 X 2 MATRIX SECTION**

**ULTRAMIC\* PREAMPS** on mono channels. An incredible 66dB of gain range provides 28dB of headroom - enough to accommodate virtually any input signal, from the hottest line level electronics to the lowest level condenser mics.

**48V PHANTOM POWER** individually selectable on each mono channel

**HIGH PASS FILTER** at 100Hz with steep 18dB/octave slope, essential for combatting stage rumble and mic popping (mono channels)

**4-BAND EQ** with 2 swept mids on every mono input. **2-BAND EQ** on stereo inputs

**EQ In/Out bypass** switch on every input

**6 AUX buses** with 6 controls, 2 of which are selectable pre- or post-fader at the master.

Internal solderless jumpers can be accessed for pre- or post-EQ configuring

**8 GROUP BUSES**

**4 MUTE GROUPS** for scene setting

**Multi-tap PEAK/PFL** indicator

**DIRECT OUT** on every mono channel allows multitrack recording or individual effects sends (internally selectable pre- or post-fader for live recording)

## MONO INPUT



## DUAL STEREO INPUT



## GROUP SECTION



**8 STEREO RETURNS** for additional stereo sound sources or effects units: 4 have EQ

**10 X 2 MATRIX** section for additional mixes

- \$4,299 **16**
- \$5,299 **24**
- \$6,399 **32**
- \$8,299 **40**

\* Prices are 1995 US suggested retails

Also available:  
Spirit Live 3' 3-bus  
Spirit Live 4' 4-bus

- 4 FRAME SIZES:** 16, 24, 32 and 40 channels
- UP TO 64 INPUTS AVAILABLE** (40 channel version)
- 4 STEREO INPUTS** with 2-band EQ and full access to Aux's
- METER BRIDGE AS STANDARD**, showing mono input, group and master levels
- INDIVIDUAL CHANNEL PCBs** for ease of maintenance and replacement
- Every pot **INDIVIDUALLY FASTENED** to the steel fascia, the professional way, to cope with knocks
- RUGGED "NO-TWIST" STEEL CHASSIS** built to survive hectic tour schedules
- Side-cheeks can be removed for **FLIGHT CASE INSTALLATION** if desired



## APPLICATIONS

- Front-of-House Mixing
- Theatre/Venue
- Installations
- Touring
- Recording direct to multitrack

Spirit by Soundcraft™ Inc.,  
11820 Kemper Road,  
Auburn, CA. 95603  
Tel: (916) 888 0488  
Fax: (916) 888 0480



# SPIRIT

A Harman International Company

Circle 72 on free info card



some audio data and will either use up extra disk space or provide a new career for you managing files before, during, and after the session.

Cakewalk Pro Audio takes a different approach. All the files that belong to WRK files (the default format for sequences with or without audio) are stored in a separate directory and given unique names by the program. Tools are available to bundle the project into a single large file, clear up unused audio, or compact the data (dump old edits). The files do not have recognizable names and must be managed within the program. The new Version 4 Cakewalk WRK files are not compatible with older versions of the program (hey, there's audio in there now), but you can export the MIDI data in the old (Version 3) format.

### BUILT FOR SPEED

I started working with the program on my old 33 MHz 486 running Windows 95 in 16 MB of RAM. I found that I was getting clicks in the audio and speed

changes in the MIDI data while recording. I then replaced the motherboard and a few other parts to create a Pentium 100 with 16 MB of RAM, and all the recording problems disappeared. I was never really satisfied with the performance of the program on any of the 486-based computers I tried it on, even those running Windows 3.11. Computers with slower processors or hard disk throughput may require lower sample rates for multiple tracks.

You will need a 486/66 as a minimum for reasonable results, and if you want to lay down more than a couple of tracks, get the fastest Pentium you can afford with lots of memory and a modern high-speed, direct-bus hard disk that doesn't perform Tcal (thermal calibration) during read/write cycles. Don't even think of recording digital audio on a compressed drive, such as those formatted with DriveSpace or Stacker.

If you have multiple sound cards, you can switch between them from a drop-down menu, although the current version doesn't support simultaneous playback from more than one audio card. The next version (4.2) will include some new features and improvements in dealing with the Microsoft-overhead in shuttling audio and MIDI through a PC. The current 16-bit version does work in either Windows 3.1, 3.11, and Windows 95. It also makes extensive use of the right mouse button to bring up context-sensitive menus that speed the process of making and refining the music.

The deluxe CD-ROM version of the program includes the program, additional drum (Steve Gadd and Charlie Morgan) and rhythm audio samples, a series of tutorials, more sample song files, groove template samples, and utilities for editing Roland Sound Canvas synths and hyphenating lyrics.

Lyrics? Why, yes. Cakewalk has been beefing up the music notation aspect of the program over the past few revisions, and Version 4.01 includes lyrics with hyphenation, 24 staves per page, guitar-chord grids, expression marks, and more. This is a great MIDI sequencer that can roll along the music notation and your lyrics on-screen while you lay down the vocal tracks. Just keep close to that microphone so the whirring hard drives don't mess up the track.

### SCRUBBING THE MISSION

Mixing can be done by drawing the volume with a mouse over a graph (the program uses MIDI 0 to 127 instead of dB, though), with an external MIDI controller, or by adjusting the individual volume of each audio clip with a knob controlled by the mouse. Unfortunately, knobs are very difficult to accurately control with a mouse even when they use the touch and slide approach. Let's face it, knobs are meant to be turned with fingers; programmers should use knobs as indicators and have the knobs change to faders when touched by the mouse. However, if you want accurate level setting for audio clips, a numeric level is just a right-mouse click away.

The scrub feature is a little weird, repeating a 100 ms or longer section of audio around the cursor location. This provides recognizable audio, but is not a good indication of the cursor location in relation to what you are hearing. I prefer something more akin to rocking the tape reels, pitch change and all. The Session 8 interface will support this form of scrubbing in Cakewalk, but it remains a hardware limitation of most other PC audio cards.

Now, with the recent availability of large high-performance hard drives at very low prices, you can finally use your PC to make some serious music without taking out a second mortgage. Cakewalk Pro Audio brings the power of one of the very best sequencers to the world of hard-disk audio. Synchronizing MIDI playback with audio tracks has never been easier, and you can select which time base you are most comfortable with: measure, time, or samples. The basic audio tools — including graphic EQ, parametric EQ, fades, crossfades, merging audio, normalizing or incrementing levels, and removing silence — are all there. You can also extract the timing from an audio track to use as the basis for the MIDI sequence. Expect to see Version 4.2 (in 32-bit Windows 95 and 16-bit Win 3.1 formats) very soon. This is a very powerful sequencer of MIDI data and audio that now makes hard-disk recording a cakewalk. —Wade McGregor

**Price:** \$399; trade-up from V3.0, \$99; \$479 for CD Deluxe version, trade-up from V3.0, \$129

**Contact:** Cakewalk Music Software, P.O. Box 760, Watertown, MA, 02272. Tel: 617-926-2480. Circle EQ free lit. #133.

## MANUFACTURER'S SPECS FOR CAKEWALK PRO AUDIO

**Platform:** Windows 3.1, 3.11, or Windows 95

**Hardware Requirements:** Minimum — 486SX/33 with 8 MB of RAM and 8 MB of HD space; Recommended — 486DX/66 with 16 MB of RAM and over 16 MB of HD space. Reviewed with Pentium 100 with 16 MB of RAM and over 800 MB of HD space. *Note: Audio at the 44.1 kHz sampling rate consumes hard-disk space at a rate of 5 MB per minute per track.*

**Tracks:** 256 virtual MIDI tracks. Audio track number is limited only by CPU and HD performance.

**File Formats:** WRK (native Cakewalk); MIDI files type 0 and type 1; WAV files (standard Windows Wave format audio files); BUN (bundled file of all WRK data including audio files); TPL files (template files compatible with DNA Groove templates).



# Hot new software programs created by PG Music!

**NEW!**

The Jazz Soloist

Gospel Pianist

Band-in-a-Box Pro Version 6

PowerTracks Pro Version 3.0

The Pianist Volume 2

Jazz Pianist Volume 2

"Version 6 is a killer" EM Jan. 95



**NEW! ONLY \$88**

## BAND-IN-A-BOX PROFESSIONAL - VERSION 6.0

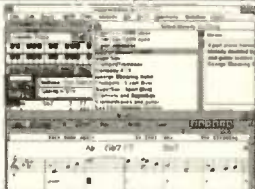
INTELLIGENT SOFTWARE FOR IBM (DOS/WINDOWS), MAC & ATARI

Version 6 for Windows and Macintosh is here. Automatic Accompaniment has arrived!

Type in the chords to any song, using standard chord symbols like C or F#7b5, choose the style you'd like and Band-in-a-Box does the rest... Automatically generating professional quality five instrument accompaniment of bass, drums, piano, guitar & strings in a wide variety of styles

- Built-in Sequencer allows you to record or edit melodies
- 100 Styles Included with Pro Version
- Built-in Stylemaker™ lets you make or edit styles
- Support for 70 Synths built-in
- Standard Music Notation & Leadsheet printout
- Auto Harmonization - create or edit harmonies

PLUS... 50 MORE NEW FEATURES IN VERSION 6!!!



OUR CUSTOMERS LOVE VERSION 6.0  
"Wow!! I love the notation & harmonies you've added everything I wanted. Bravo!"

## The Jazz Guitarist™ (Windows, Mac, Atari) \$49

A music program containing a huge collection of over 60 jazz standards, played on MIDI guitar by top jazz/studio guitarist Oliver Gannon

RECORDED IN REAL-TIME ON A MIDI GUITAR!

Hear the music with CD-quality through your sound card or MIDI system. Most pieces have bass/drums as well as guitar so you get a full sounding jazz trio for the tunes!

LEARN TO BE A GREAT JAZZ GUITAR PLAYER!

On-screen fretboard shows you exactly what notes & chords are being played on the guitar. Slow down the performance or, better still, step through the music chord by chord, so you can learn every note as it's played!

PLUS MANY MORE FEATURES...

Jazz Trivia Game & Guess That Song Game, Program Notes, Biographies (all on disk) • Over 60 Top Jazz Standards with Complete Guitar Arrangements • Listen to the music while you work in other programs • Special support for Roland GS or General MIDI Modules • Standard MIDI files can be copied & used in other programs or presentations • Use your existing sound card or MIDI synthesizer



## NEW! Music Printout! ONLY \$29

Version 3.0

## PowerTracks Pro™

SEQUENCER/NOTATION/PRINTING FOR WINDOWS (IBM)

"Solid sequencing at an unbelievable price" Electronic Musician Sept. 93

PowerTracks Pro 3.0 is a professional full featured MIDI sequencing, notation and printing program, and is so easy to use! And we include versions for Windows 3.1 or Windows 95 AND DOS, so you'll be able to use PowerTracks PRO on all of your machines!

PRO RECORDING, PLAYBACK, SYNCH, EDIT & SYS-EX OPTIONS  
48 tracks, real-time punch record, sound on sound, MIDI file support, sync (SMPT), MIDI Time Code, MIDI edit (quantize/cut/copy/paste/undo/redo fillers/transpose), multi-part support, 480 ppq (realtime), 8/16/32 bit editor, 16-bit patch names, banks & much more

MUSIC NOTATION

Enter MIDI, record music in standard Music notation, intelligent automatic features such as: Correct beaming type of notes, measure rests, eighth, sixteenth notes, "center" (this automatically allows for beaming eighth notes & sixteenths to be notated properly!!!) Prints in any MIDI file & displays it as notation!

MUSIC PRINTOUT (ON ANY PRINTER!!!)

Print any track in standard music notation. Selectable staves per page, and bars per line. Selectable margins and paper size. Portrait or Landscape (sideways) printing. Titles, composer, style, copyright information. Make your own lead sheets! You can also print the piano roll window for even more detailed analysis of a track.

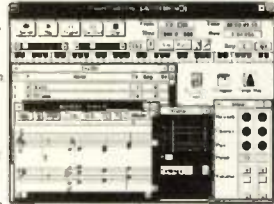
NEWEST FEATURES...

- ✓ Wave file record & playback
- ✓ Lyrics, drum pattern editor
- ✓ Piano Auto-Harmon Splicing
- ✓ Programmable using DDE
- ✓ Patch Bank names
- ✓ Non-DM3 Drum mapping
- ✓ Windows 35 (mostly) & many 32 new features in all (existing customers may upgrade for \$15)

BUT POWERTRACKS GOES MUCH FURTHER... WITH EXCITING EXCLUSIVE FEATURES!

- ✓ Enter/print out chord symbols in notation
- ✓ Automatic drum tracks (160 drum styles included)
- ✓ Reads in chord symbols from Band-in-a-Box 6.0 MIDI files
- ✓ Patch caching for Gravis Ultrasound
- ✓ Comprehensive support for guitar on-screen guitar, tab printout
- ✓ Built-in Roland SoundCanvas editor
- ✓ On-screen piano & guitar show notes as they're played
- ✓ Pro MIDI files included

POWERTRACKS FOR DOS VERSION INCLUDED FREE. Yes! We include the DOS version for FREE in the same package. NOTE: The DOS version doesn't support music notation, or other graphical features.



**REQUIREMENTS FOR ANY OF THE PROGRAMS:**  
**IBM (DOS versions)** require 640K, MPU401/MIDIATOR/SoundBlaster/SC-7, TG100  
**WINDOWS** versions require 3mb RAM + any soundcard or MIDI interface  
**MACINTOSH** versions require 4mb RAM, system 6 or 7  
**ATARI** versions require 1040ST or better

**30 DAY UNCONDITIONAL MONEY BACK GUARANTEE ON ALL PRODUCTS**

## NEW! The Jazz Soloist™ \$49

VOLUME 1 (50 songs) \$49 • VOLUME 2 (50 songs) \$49



The Jazz Soloist features professional jazz quartet arrangements of 50 songs, each with great solos played by top jazz musicians, as well as piano comping, bass & drums. There are over 3 hours of jazz soloing on each volume. Learn to solo like a professional jazz musician. Copy the soloists' performances. Windows users can see/print the notation in the standalone program and Band-in-a-Box. Mac users see/print the notation in Band-in-a-Box only. Includes a standalone "Jazz Soloist" program with MIDI files, and files are also included in Band-in-a-Box format.

## NEW! The Gospel Pianist™ \$49



Over 50 Gospel style piano pieces played on MIDI keyboard by top Gospel Pianists Louise Rose, Davell Crawford, Henry Butler, Sam Berlect, Derrick Bethune, Joel Simpson & Jon Cleary. The "Gospel Piano" style underlies much of the blues, jazz & popular music played today. View or print out the notation - a great way to learn these virtuoso performances. Amazing Grace, By and By, At The Cross, Go Tell It On The Mountain, Will The Circle Be Unbroken, Sweet Chariot... over 50 pieces in all!

## THE PIANIST... OVER 200 OF THE WORLD'S MOST POPULAR CLASSICAL PIANO PIECES, PERFORMED BY WORLD CLASS CONCERT PIANISTS! \$49



Moonlight Sonata, Sonata Pathétique, Minute Waltz, Claire de lune, Mephisto Waltz, Hungarian Rhapsody, Fantasia Impromptu, Military Polonaise... & over 200 more!!!

PLUS... Music Trivia Game, "Guess the Song", Program Notes, Biographies, Music Dictionary (all on disk) & much more.

OUR CUSTOMERS LOVE THE PIANIST  
"Incredible... amazing... terrific... masterful... fabulous... love it... my favorite program!"

## NEW! The Pianist Volume 2

Volume II upgrade - \$49 (requires The Pianist) first time purchase Volume 1 & 2 - \$98

Turn your Pianist into a SUPER PIANIST with Volume 2! We've recorded 200 more fabulous pieces for Volume 2. There are new program notes, new biographies and improved listings. If you thought the quality of the performances was great in the original Pianist program, just wait until you hear these new world-class, live piano recordings - you'll have endless hours of listening pleasure!

## The New Orleans Pianist™ \$49

Over 65 New Orleans Style piano music standards, played on MIDI keyboard by top New Orleans pianists Henry Butler, Jon Cleary, Tom McDermott, Joel Simpson & David Torkanowsky playing a wide variety of New Orleans, R & B, Blues & Ragtime piano music.

St. James Infirmary, When the Saints Go Marching In, Down by the Riverside, Burnt Mouth Boogie, Creole Lament, King Porter Stomp, The Pearls, Bogalusa Strut, My Bucket's Got a Hole in It, John Brown's Body, Margie, Charleston Rag, Maple Leaf Rag, The Entertainer, Raise the Rafter, Dirge for James Black and many more...

## The Jazz Pianist™ \$49

This program makes it "too easy" to learn to be a great jazz PIANO player!

Top jazz/studio pianists play 60 jazz standards in a wide variety of styles.

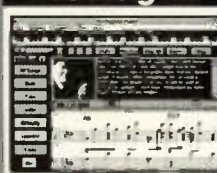
Hear the music with CD-quality through your sound card or MIDI system. Most pieces have bass/drums as well as piano so you get a full sounding jazz trio for the tunes! Jazz Trivia Game & Guess That Song Game, Program Notes, Biographies & Music Dictionary (all on disk).

## NEW! The Jazz Pianist Volume 2

Volume II upgrade - \$49 (requires The Jazz Pianist) (first time purchase: Volume 1 & 2 - \$98)

60 more fabulous jazz standards for Volume 2, complete with new program notes and biographies!

## The Ragtime Pianist™ \$49



& early jazz piano standards, played on MIDI keyboard by top Ragtime Pianists... and featuring world-renowned Ragtime performer JOHN ARPIN!

Hear virtuoso performances of every Joplin rag in this program, as well as many other rags, CakeWalks, waltzes & other Ragtime Era tunes by Eubie Blake, Joseph Lamb, Daniels and, of course, Scott Joplin. HEAR... The Entertainer, Maple Leaf Rag, Chevy Chase, Easy Winners, Elite Syncopations, Fig Leaf Rag, Pineapple Rag, etc. (total of 34 Scott Joplin Rags), Indiana, Meet Me In St. Louis, St. Louis Blues, Bill Bailey, For Me and My Gal, & more.



**PG Music Inc.** *Maker of PowerTracks and The Pianist & Guitarist series*  
 266 Elmwood Avenue Suite 111 Buffalo NY 14222  
 Phone Orders 1-800-268-6272 or 604-475-2874  
 e-mail orders: Internet: 75300.2750@compuserve.com  
 VISA/MC/AMEX/cheque/mo/po# Fax 604-658-8444  
 — Recorded Demo 604-475-2954 —



## Samplitude Editing Program V. 2.5

Samplitude Version 2.05 is one of the recently arrived digital audio editing programs for the PC working under Windows. Born out of the Studio für elektronische Klangerzeugung Dres-

den (SEK'D), an electronic studio of the Dresden Music College, this software program (which requires at least a 386 processor with 4 MB RAM under Windows 3.1) offers up a virtual banquet of features for the serious musician, audio professional, or multimedia hacker.

Samplitude comes in four flavors. Although each version includes most of the commonly encountered editing and signal-processing bells and whistles, the major difference is that each

succeeding version (with the exception of the new Samplitude CD, which is specifically programmed for desktop CD mastering) gives you more functions, tracks, and processing options. These versions are: Samplitude Multimedia with four tracks, virtual editing, MIDI/AVI integration; Samplitude Pro with eight tracks, record while play, resampling/time-stretching, MIDI Sample Dump; Samplitude Studio with up to 16 tracks, ext. sync, digital filters, dynamic functions; and Samplitude CD, which has two stereo tracks, PQ-Editing, and ToC Generation.

In its most beefed-up Studio version, Samplitude can, just to name a few highlights, support up to eight stereo or 16 mono tracks; four simultaneous sound cards (giving a total of eight individual outputs); simultaneous "Record while Play" feature that lets you overdub a track while listening to previously-recorded tracks; up to 100 undo/redo operations within a project; full MIDI-Clock and SMPTE synchronization; extensive automated mixing using a nondestructive, easy-to-use graphic interface; time and pitch shifting; digital EQ (both graphic and parametric, with real-time preview and 3-D graphics display); and real-time effects generation.

### WYSIWYG

One of the biggest differences between Samplitude and most other Windows-based editors is that Samplitude is object-oriented. This means that waveform regions are assembled into a working multitrack project in a graphic WYSIWYG (What You See Is What You Get) environment. All that's needed to get started is to select a track for recording, call up the record window and lay down the track. Once done, the waveform will immediately appear on the project screen. To record onto another track (if you have multiple sound cards or one that supports simultaneous record/playback, you can overdub while listening to the previously recorded tracks), all you need to do is place another (or the same track) into record ready, place the cursor at the desired position, and begin recording. It's that simple.

These waveforms appear in their respective tracks as Objects that can be named and then moved, cut, or copied

a new dimension in musical expression:

# the Dimension BEAM™

control your sound by moving in the BEAM!

### It works like this:

A beam of high resolution infrared light translates motion into an electronic expression signal. Move the neck of a guitar, your hand, your whole body, or anything in the beam to trigger and control sounds, effects, lights, samples, or notes in a musical scale.

### Send us your ideas!

The most creative musical application wins a free Beam™

- send continuous control, pitch bend, and/or note trigger
- play through musical scales with a wave of your hand
- includes 6 factory presets and 6 user presets

For more information:

Interactive  
Light

800-213-3752

fax: 310-452-7443 1202 Olympic Blvd. Santa Monica, CA 90404

Circle 49 on free info card



# POWER IN DISGUISE



C 417 Acoustic Pickup MicroMic



C 416 Accordion & Speaker MicroMic



C 420 Headset MicroMic



DB 1 Double Bass Bridge Pickup



C 418 Drum & Percussion MicroMic



C 419 Wind Instrument MicroMic



C 417 Lapel MicroMic



B 29 Power Supply and Mini-Mixer



MPA II MicroMic Phantom Power Adapter

World Premiere

## MICROMIC SERIES II

CIRCLE 02 ON FREE INFO CARD





to any location on any track. In and out points can be easily "slipped" either forward or backward in time by grabbing onto an Object's lower left- or right-hand



corner, while the entire soundfile region can be moved by clicking anywhere within its boundary and moving it to its new position. Whenever a portion of one Object overlaps another, the top-most visible waveform is played, while the hidden portion is ignored (unless you want to perform a crossfade between the overlapped waveforms). Any number of Objects can be grouped together and manipulated as one by roping them in using a mouse-based "lasso."

Mixing is carried out in real time in a number of ways. Fading each object in or out couldn't be simpler. All you need to do is grab the little volume boxes at the upper left- or right-hand corners of each object and draw in the desired fade. Grabbing the box's top centerline will lower its overall volume. Varying levels over the entire track can be custom drawn by double clicking on a virtual rubber band and then drawing a new curve with the mouse. A master fader located in the left-hand control box varies the overall track volume in real time, while a "pan" control acts as a balance control for controlling relative L/R levels (unfortunately, mono files can't be panned into a composite stereo field).

*Note:* I would like to point out a significant program hazard. The folks at SEK'D quite rightly thought that it would be nice if the user could redraw waveforms (presumably to clean up snaps, crackles, and pops). However, inadvertent mouse movements make it all too easy to redraw large portions of the waveform (mostly resulting in large DC offset voltages and pops), which then is immediately saved to disk! Whammo! The soundfile is destroyed!

#### THE MEDIA IS THE MESSAGE

One of the cooler aspects of Samplitude is its ability to integrate with, talk to, and lock up with various types of media. For example, Samplitude fully supports the MIDI Sample Dump standard (SDS), meaning that you can record a sample (or import it from the sampler), edit it, and then transmit it directly into your sampler over the MIDI lines. It's also a simple matter to import Standard MIDI (MID) or Video-for-Windows (AVI) files directly into Samplitude without the need for external hardware or software applications. However, if you want to sync Samplitude to your sequencing software (say that five times fast), a software driver (such as Sonic Foundry's Virtual MIDI Driver) can be used to internally connect the two within the computer itself. Of course, sync with the outside world is fully supported when a MIDI interface that supports SMPTE is used.

Getting up and running with Samplitude 2.05 was fairly fast and simple. As I mentioned above, recording into a track simply couldn't be easier. And unlike the previous Samplitude versions (which in this respect were a nightmare), 2.05 was able to import WAV files with ease. Being a loopmeister, I immediately got to work building patterns from a project that I've been working on and found it to be straightforward (mostly due to the graphic environment). Because you can pick from well over 50 background colors, it's easy for the screen to end up looking like a van Gogh paint palette. Building a soundtrack to an AVI comic strip was also lots of fun — and as easy as apple strudel.

Due to its large number of functions and unique German outlook on life, this program has a relatively steep learning curve. Nonetheless, once you get the basic working style down, you'll be off and running. Samplitude has really grown on me. It's a truly affordable, imminently powerful, all-in-one multitrack toy.

—David M. Huber

**Price:** *Samplitude Multimedia:* \$69; *Samplitude Pro:* \$199; *Samplitude Studio:* \$398; *Samplitude CD:* N/A

**Contact:** U.S. Distributor: *Soundspiration Systems*, 9704 White Ash Road, Dallas, TX 75249. Tel: 214-298-3472; WWW: <http://www.sekd.com>. Circle EQ free lit. #134.

## IQS SAW Plus Software

In EQ's October '94 issue, I reviewed Innovative Quality Software's Software Audio Workshop (SAW) hard-disk editing software for Windows. That system can mix up to four stereo channels of digital audio in a real-time, virtual environment to the two outputs of a hardware soundcard. Now, the IQS folks are at it again with the recent release of their next-generation digital audio editing program for the PC.

This software package, appropriately dubbed SAW Plus, is capable of mixing up to 16 stereo or mono soundfile tracks to any of up to four stereo hardware soundcards in a real-time, virtual environment. No additional proprietary hardware is required, because all disk and real-time signal processing is carried out by the computer itself. This degree of simultaneous disk access and number crunching means that a high-speed CPU (a Pentium 90 MHz is the recommended minimum) and fast hard drive/controller combination (preferably SCSI or fast EIDE) are needed in order to get the maximum track and processing performance out of your computer. Beyond this, system requirements include at least 16 MB of system RAM and a minimum VGA video resolution of 800 x 600 at 256 colors.

#### WINDOWS ON THE WORLD

The SAW Plus user interface is made up of a series of windows, each having its own function that relates to soundfile definition, manipulation, and production. These can be arranged on the screen in any number of ways, and the user-defined layout can be saved and instantly accessed using the keyboard's twelve function keys. Here's a quick summary of the system's most commonly used windows.

- The Recording Control Panel (which can be accessed from the Soundfile or Multitrack View windows) lets you record WAV or SND soundfiles into a selected soundcard at all stereo/mono rates with either 8- or 16-bit resolution. Volume faders, stereo hi-res RMS/peak metering, and soundfile and time readouts are pro-



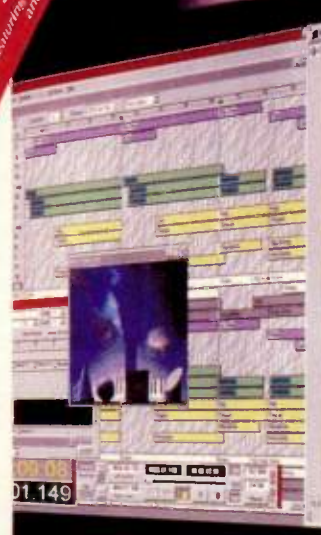
# CUBASE

FOR WINDOWS

New Version 3.0 included!  
Features Sound Card and Digital Audio  
and Wavelab Lite!

CUBASE  
Score

NEW VERSION 3.0



## THE LINE FOR AUDIO STARTS HERE

These days MIDI recording is standard in Windows® sequencer software. But integrating digital audio recording into these same applications can be a real blow to your budget. Until now.

With the introduction of the Cubase 3.0 line, professional audio recording using a typical soundcard becomes the *new* standard. Starting with **Cubase 3.0** you get up to 8 stereo tracks of audio, waveform editing, time stretch, pitch shift, var speed, digital mixdown, Wavelab Lite and much more, without squeezing your budget. Plus, with its high resolution printing your scoring will never look more professional. At \$349 even the price is better than the competition's.

But that's only the beginning. **Cubase Score 3.0** is the next step. With all the Cubase 3.0 features included, Score 3.0 also integrates automatic guitar tablature and chord analysis, percussion scoring, and 60 staves of notation. The page layout mode gives you professional scoring and desktop publishing and proves that \$549 never went so far.

If you want even more audio, and want to use other hard disk recording systems such as Digidesign's® Session8™ and Audiomedia III™ or Yamaha's® CBX D3/D5™, look no further than **Cubase Audio 3.0 XT** – the top of the line. For only \$799 you really can have it all.

Cubase 3.0. is available for Mac OS and Windows making digital audio a standard for everyone. **To find out more call your local dealer or contact Steinberg Customer Service at (818)993-4091 for a copy of our CD ROM demo (\$5 includes shipping and handling). And see why the line for audio begins and ends with Steinberg.**

**Steinberg**  
NORTH AMERICA

Steinberg North America, 9312 Deering Avenue, Chatsworth, CA 91311-5857 USA Phone (818)993-4091 Fax (818)701-7452 Fax On Demand (800)885-7510  
All trademarks are registered by their respective companies.

To download a demo program visit our web site at <http://www.steinberg-us.com>, AOL Keyword Steinberg, or CompuServe: GO MIDI/CVEN



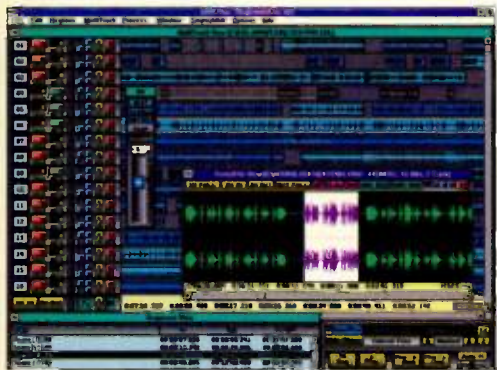
Circle 74 on free info card



vided. A couple of interesting features include the addition of a Retake button that lets you record over the last take without having to close and re-open the record panel, and a Simultaneous-Record-Play button that lets you overdub a soundfile to disk while monitoring any of the previously recorded tracks in sync.

- Once a soundfile has been recorded, its waveform will be fully displayed within the Full View window. Here, any portion of the soundfile can be selected for display in greater detail within the Soundfile View window. The Soundfile View window is one of the most important workspaces within SAW Plus, in that this is where playlist regions are non-destructively defined and named. It's also where destructive editing (such as cut-and-paste edits or sample-rate conversions) is carried out.

- Defining and naming a region immediately places it into the Region View window in alphanumeric order. Once regions have been defined and listed, we can shift our attention over to the heart of the program — the Multitrack View window. It's here that



regions can be graphically placed, manipulated, and played back in a linear-track format along a horizontal timeline.

- Mono or stereo regions can both be placed into any of the 16 tracks in either of two ways. Clicking the "Add to Multitrack" button within the Regions View window provides a quick-'n'-dirty way to paste regions into a track in a simple, sequential fashion. Alternately, regions can be graphically dropped into a track by holding down the Shift key, selecting a region from the list, and dragging it to the desired spot on any track. Once placed, a region or group of regions

can be easily moved or copied at will.

- Playback is controlled from the Remote Transport window, which also provides readouts for cursor position and marked region length, as well as straightforward control over marker and playback cursor navigation.

### FIX IT IN THE MIX

The left-hand side of the Multitrack View window houses most of the controls that relate to the mixing of up to 16 stereo tracks to any of up to four soundcards in a real-time, virtual environment. In addition to the usual solo and mute buttons, clicking on the small fader icon will cause a larger, active fader to pop up on screen that lets you adjust levels and pan (or stereo balance). These mix changes can be programmed to smoothly fade from one level or pan position to another, or changes can be made on-the-fly by simply moving the track's fader or pan pot during playback.

All gain calculations are non-destructively processed and mixed during playback in real time, letting you make any number of changes or save several mix versions for future comparison. By pressing any of the four assignment buttons, up to four hardware sound cards can be assigned to a track during record or playback. The effects (FX) button lets you assign real-time DSP (such as vari-speed, reverse audio, graphic EQ, signal processing, and delay) into the signal path. Yes, some rather impressive multieffects processing can be user-programmed and applied to a track without the need for any external boxes. Provided your computer can handle all the access and processing demands, all you need to do is press Play, sit back, and enjoy the show.

### LET'S GET REAL

In addition to real-time mixing and effects processing, SAW Plus can also blend different file formats (mono, stereo, 8-bit, 16-bit, etc.) and sample-rate conversions to a selected, native format and rate in real-time. Since such real-time calculations can really put a drain on the CPU's processing overhead, it's best if the mixing of rates and formats be kept to a minimum.

Should too many soundfile calculations (such as an excessive number of tracks, DSP or effects processing)

over-extend the system's processing capabilities, a "Build Mix to Output File" option can be used to "bounce" a mix section or set of actively selected tracks down to a single, stereo/mono soundfile, freeing up the system's processing overhead for more tracks or DSP. Another way to increase this overhead is through the use of the "Cut MT" function, which effectively tells the system to ignore user-programmed portions of a soundfile that contain silence or unused data, thereby reducing unnecessary disk and DSP demands upon the system.

### HIDE 'N' SEEK

One of the many cool features of this program is the Hide/Show buttons that have been placed in the Remote Transport, Markers View and the Recording Control Panel windows. Pressing the H/S button will bring any active desktop application that's running behind SAW Plus to the forefront, while the selected SAW window remains visible and active on the desktop. For example, jumping between SAW Plus and a MIDI sequencer couldn't be easier. All you do is open the sequencer, open up SAW Plus, then hit the transport's H/S button, and *voila*, the sequencer pops back onto the screen along with SAW's transport panel. To bring the entire SAW Plus program back to the forefront, just hit the H/S button again. It's a powerful tool that couldn't be simpler.

### SYNC A SONG

In its standard multitrack environment, SAW Plus can chase trigger and generate timecode in all SMPTE formats (with time offset options), allowing multiple soundfiles to be triggered at their precise SMPTE location.

Both SAW and SAW Plus deal with sync hardware (and audio hardware, for that matter) differently than most other Windows-based programs in that the Windows operating system is entirely bypassed and the hardware is directly controlled in the background. To the user this means two things: 1) In order for sync or MIDI implementation to be present, an interface card that's supported by SAW Plus (such as Opcode's Music Quest MQX-32M MIDI/sync interface) must be physically present. Unfortunately, this means that software-based sync dri-



vers, such as Sonic Foundry's Virtual MIDI Router can't be used. 2) Since SAW Plus's 32-bit program code bypasses Windows, the system's disk access, processing speeds, and screen redraws are significantly faster. The moral of this story is that ya gotta play the hardware game, but the resultant increased speed makes it worthwhile.

#### MY TWO CENTS

I've been a SAW user for several years now, and as soon as I got my hands on SAW Plus, there was no turning back. SAW Plus works flawlessly (even on my 486-100 MHz) and is fairly simple to operate. Editlist files that were created in SAW can be imported directly into SAW Plus (but not vice-versa), making it easy to upgrade. IQS has simplified such functions as zoom in/out, amplitude display zoom, and region definition by adding basic keyboard commands, in addition to the traditional mouse buttons. Perhaps they will soon eliminate some of the more complex three-keystroke commands (e.g., Ctrl-Alt-O) in favor of the standard Windows two-button keystrokes (e.g., Ctrl-F, etc.).

I found the gameport switch (which allows Playback Start/Stop and Record punch in/out from a footpedal) is no longer momentary (a bug that needs to be corrected for those of us who built the switch for SAW). IQS will surely address this and other bugs in its upcoming 2.0 version that'll be out by the time you read this (IQS has a policy of offering free updates through their BBS).

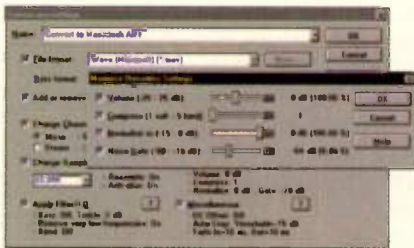
It's obvious that a lot of thought and time went into the creation of this program. The graphic look and layout is far more attractive than most Windows programs, and its real-time processing power is truly impressive. IQS's SAW Plus is reliable, powerful, and chock full 'o tools. When you add automated mixing and multi-soundcard support to the list, the result is a sure-fire winner. —David Miles Huber

**Price: \$999**

Contact: Innovative Quality Software, 4680 South Eastern Ave., Suite D, Las Vegas, NV 89119. Tel: 702-435-9077. WWW: <http://www.iqsoft.com>. BBS: 702-435-7186. CompuServe: GO IQSSUPPORT. Circle EQ free lit. #135.

## Sonic Foundry Batch Converter

The Batch Converter is a plug-in for Sound Forge, a mono or stereo digital audio editor for the PC. The converter



reads Ad Lib .smp, Amiga .svx, Covox .v8, Creative Labs .voc, Digilogic .vox, Gravis .pat, Mac .aif/.snd, MIDI .sds, NeXT/Sun .au/.snd, SampleVision .smp, Sonic Foundry .sfr, Sound Designer 1 .dig/.sd, Sounder/Sound Tool .snd, Microsoft .wav, and raw files, and converts to any of the same file formats. If you're saving as a raw file, choices include PCM (8- or 16-bit, unsigned, signed, or sign bit), G.711 u-Law, or G.711 A-Law; byte order can be Little Endian (as used with Intel processors), or Big Endian (Motorola).

Converted files can also be processed with normalization, compression, noise gating, sample-rate conversion (changes pitch), or resampling (preserves pitch) with optional anti-aliasing, stereo-to-mono/mono-to-stereo conversion, 16-to-8-bit conversion (with optional dithering and rounding), EQ (boost/cut below 100 Hz, boost/cut above 5 kHz, 40 Hz low cut, and single stage parametric), remove DC offset, auto trim silence at the beginning and end of a sample, and fade edges (adds 0-1000 ms fade in/out at a file's beginning and end). Several presets are included to get you started, and you can save your own presets as well.

#### MULTIPLE PROCESSING

If you select multiple processing, the order is optimized for best results (e.g., conversion to 8-bit happens after normalization so it's working with the maximum available level). You can

LEIGHS computers

129 W. Eagle Rd.  
Havertown, Pa. 19083  
(USA) 800-321-6434 (CAN)  
(610-896-2424) FAX- 610-896-4414  
Internet : leighs@ix.netcom.com  
CompuServe: 75213,3615  
WEB PAGE: <http://www.leighs.com>



We are low cost hard disk recording experts!

Digital Audio Card +  
DIGITAL ONLY CARD (SPDIF)

SAMPLITUDE CD RECORDERS

#### Sound Forge

Stereo mastering software w/ 10 band EQ, digital effects, chorus, reverb, distortion, flange - Time compression. & expansion, sample editing via SCSI or Midi SDS, Almost every sound file format supported! Make CD's!

Call for FREE Midi Multimedia catalog.



We ship worldwide !!  
FAX 610-896-4414

Circle 52 on free Info card

## COMING UP IN JUNE EQ 1996

**CLOSE CALL.** Are you looking for a new set of nearfield monitors? Then you have good timing, seeing as EQ will feature its second annual nearfield issue with reviews of many of the top studio contenders. Also: Tips and techniques on getting the most from your monitors

**FOR MORE INFORMATION**  
Kathleen A. Mackay;  
Associate Publisher (ext. 152)  
Advertising Sales:  
Matt Charles (ext. 147),  
Andrea Berrie (ext. 148),  
Christine Cali (ext. 155),  
Pete Seidel (ext. 146)  
Tel: 212-213-3444  
Fax: 212-213-3484



preview up to five different processing options, as well as enter comments about which processes were used. After converting, you can easily compare the original and modified versions.

The Batch processor can add or remove nonaudio information such as loop points, markers, etc. Retaining this information can cause problems, such as writing info to a CD that expects a "pure" WAV file (extraneous data can cause audible glitches). There are also file-management options, such as reset all file parameters, so you can run a second conversion, remove files once they're converted, and extract individual regions from long files for individual processing.

Using the plug-in is easy. It opens from within the Sound Forge Tools menu; you then add as many files as you want to convert, select the various conversion settings, preview, and convert.

One caution: when saving from WAV to AIFF, Mac programs will not recognize the file unless you change the file type from TEXT to AIFF using a program like Resedit or Disktop. This occurs with all PC programs I've used that can save files in AIFF format. Another caution is that loop points are a fairly recent addition to the WAV specification. Batch Converter will retain sample loop points when converting from formats that support loops to WAV, but make sure that the WAV audio program slated to read the file understands loop points.

Overall, the Batch Converter works as advertised. I recently had to convert a number of AIFF samples to WAV, and it simplified my life and saved time. What more can you ask for from a utility program? (*Shortly after writing this review, Sonic Foundry added a program called Alftyper.hqx to its BBS and web site. This allows users to drag from Sound Forge AIFF files into the program, and "types" them so the Mac can recognize them as AIFF files. —Ed.*)

—Craig Anderton

**Price: \$199**

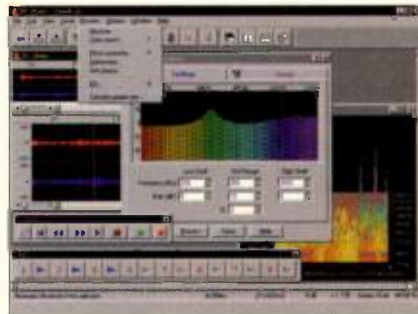
**Contact: Sonic Foundry, 100 South Baldwin Street, Suite 204, Madison, WI 53703; Tel: 608-256-3133; WWW: <http://www.sfoundry.com>. Circle EQ free lit. #136.**

## Steinberg Wavelab

Wavelab, a lightning-fast 2-track digital audio editor, was written with Windows 95/NT 3.51 in mind. Running on a 486DX with 8 MB RAM or better, this is a true 32-bit application that uses virtual memory (file size isn't limited by RAM) and multitasking — you can work on one file while Wavelab is crunching another in the background, or even edit a file while it's playing (or looping).

Wavelab includes a number of very useful features such as built-in batch processing and spectrum analysis. The latter doesn't just look cool; it lets you compare audio qualities of different files. There are also some nice interface tweaks — for example, right-click on a numeral, and a pop-up set of faders appears for fast, but precise, adjustment.

The screen dump shows several Wavelab features. The Frequency Analysis window peeks out of the lower right. The Snaps window stores eight snapshots of different waveform views, so you can do something like



jump from a zoomed-in version of the last 10 milliseconds to a zoomed-out version of the entire waveform. Transport does what you'd expect (although you can't sync to timecode while recording or playing back). The red, black, and blue waveforms are the main editing window and overview; both can be sized and scaled independently. The upper strip of icons handles often-used functions (open file, cut, copy, undo, tile windows, etc.), while the large colorful window shows a graphic representation of EQ (shades of Session 8). The menu being pulled down contains the processing options, which include reverse, time stretch, pitch correction, chorusing, harmo-

nization, and sample-rate conversion.

Another unique Wavelab feature is the ability to create a database for your samples and assign keywords and comments, as well as do searches on specific criteria. It can also create a sort of "shortcut" for identifying samples that are not on the computer, such as on an external CD-ROM. Furthermore, samples can be grouped into specific "projects." This kind of organizational efficiency makes it easy to make sense out of a large sample library.

The Batch Processor is full-featured; you open up a window, add files, then decide which processes you want to add — dynamics, sample-rate conversion, pitch correction, remove DC offset, normalize, invert phase, and so on. You can also set the order in which these are done. If you choose one of the standard process or level menu options (e.g., EQ), most of the time you can choose either the current settings or one of several presets. In fact, presets are used a lot — you can load some of the ones Steinberg has created for specific tasks, or make your own.

The obvious comparison is to Sound Forge. However, the two have very different attitudes. Sound Forge adds sampling and translation applications to digital audio editing, and recognizes and saves a large variety of file formats. It also pays more attention to 8-bit conversion options (of interest to multimedia developers), and has a large number of "musician" effects like vibrato, delay, etc. Wavelab puts its resources into no-holds-barred digital audio editing. It is extremely fast, and the "bells and whistles" — like the database, built-in batch processing, multitasking operation, frequency analysis, unlimited undo/redo, and ability to cut and paste between AIFF and WAV files — are welcome and superbly implemented.

If you want a digital audio editor that really smokes (and particularly if you have an impatient streak), Steinberg's first entry into the Windows 95 is extremely impressive.

—Craig Anderton

**Price: \$399**

**Contact: Steinberg, 9312 Deering Ave., Chatsworth, CA 91311-5857. Tel: 818-993-4091; e-mail: [steinberg@aol.com](mailto:steinberg@aol.com), [71333.2447@compuserve.com](mailto:71333.2447@compuserve.com). Circle EQ free lit. #137.**



# Worth its weight in gold – *and platinum.*

Tony Brown discovers the AT4050 studio microphone.

With 8 gold and 14 platinum records, 41 number-one singles, and 4 Grammy Award winning titles, record producer Tony Brown has a reputation for knowing excellence when he hears it. So it's no surprise that once Tony tried an AT4050 multi-pattern capacitor microphone, he's been using it ever since.

"I use it every session on something," says Tony. "There are several great mics that engineers always like to bring out – and this is one of them."

The Audio-Technica AT4050 delivers supremely transparent and accurate sound without sacrificing warmth and ambiance. The large-diaphragm design utilizes two capacitor elements to provide consistent, superior performance in three switchable polar patterns (cardioid, omnidirectional and figure-of-eight). Transformerless circuitry provides exceptional transient response and clean output even under extremely high SPL conditions.

And while it's certainly *worth* its weight in gold, the rich, versatile performance of the AT4050 is available for much less than \$400 per ounce!

To discover studio microphone excellence for yourself, call, write or fax:

Audio-Technica U.S., Inc.  
1221 Commerce Drive  
Stow, Ohio 44224  
(330) 686-2600  
Fax: (330) 686-0719

U.K.: Audio-Technica Ltd.  
Old Lane, Leeds LS11 8AG  
0113 277 1441  
Fax: 0113 270 4836



**audio-technica**®

Circle 9 on free info card



Microphones  
Signal Processors  
Digital Multitrack  
Mixing Consoles  
MIDI Gear  
Monitors

I NEED MORE GEAR!



**grandma's  
music & sound**

**800-444-5252**

Price Quotes & Information

505-292-0341

Fax 505-293-6184

800 S-T Juan Tabo Blvd NE  
Albuquerque, NM 87123

Circle 43 on free info card

**Clean up  
your ROOM!**



**Synth Driver™**

- Cleans up synthesizer audio wiring
- Eliminates hums & buzzes
- Input tie panel & multichannel balancing amplifier in one
- No sonic degradation
- 6 dB fixed gain
- User selectable grounding

**DCE**

DAVID CARROLL ELECTRONICS, INC  
3219 PIERCE STREET, RICHMOND, CA 94804  
510/528-8054 FAX: 510/526-1982

Circle 25 on free info card

**PG RECORDING:  
WINDOWS 95 IN 1996**

**Creative Input  
TrackManager**

TrackManager is a newly developed, professional tape/track sheet database. Designed for both the Mac and PC/Windows it lets you keep track of all your session archiving when using either ADAT or DA-88 tapes.

Once I got hold of the actual release version, I immediately started archiving the growing pile of ADAT tapes I've been using for a current, personal project. Over a fairly short time, I began to look upon this cool and affordable application as my personal track-sheet secretary.

Quite simply, TrackManager's database structure is divided into three areas: Main List, Credit List and Track Sheet. The Main List displays all of the song and/or project titles contained within the database. It's from here that a specific title is selected. Clicking on the title will call up that song's Credit List, which includes such entry fields as song title, date, artist, client, producer, engineers, sample rate, key signature, tempo, tape format and space for additional comments.

The "Tape Set No.," one of the most important fields, is used to link together all of the songs and tapes that are used within a single session. In addition, a "Locate Points" dialog box lets you enter the names and positions for up to 10 locations within a song. These correspond with the 10 location points found on the ADAT-XT, or could be the location points stored on your BRC remote. Pressing the Track Sheet button calls up a clean-looking track sheet, that can be user-configured as 8, 16, 24 or 32 tracks. Each track contains a track name field

and a scrollable space for miscellaneous comments. Adding more tracks to the sheet can be done by simply selecting the appropriate track number button. It's all fairly straightforward.

TrackManager also includes a number of automated features that makes life a little easier during a session. For example, whenever a song's start and stop times are entered (in either standard or SMPTE format), TrackManager will automatically calculate its total length and enter it into the appropriate time field for you. The folks at Creative Input have also built-in a nifty, little utility that can convert BPM (beats-per-minute) into milliseconds.

I really like the fact that your entire tape filing system can be almost paper-free. All entries can be created, updated and searched from your computer screen. Of course, song list and track sheet data can be printed out at any time. It can even print out ADAT-style VHS cassette labels (both face and spine), using standard Avery labels.

TrackManager's simple "point-n-click" interface has been programmed as a sub-routine to run under Claris's FileMaker Pro software. Those of us who don't have FileMaker can buy a version that's been bundled with a runtime version of the Claris program for \$59.00. A demo disk can be requested by calling 800-839-4678 or downloaded from the program demo section within Craig Anderton's SSS forum on AOL (Keyword: SSS).

—David Miles Huber

**Price: \$29 (for those owning Claris FileMaker Pro software); \$59 (bundled with a runtime version of the Claris program)**

**Contact: Creative Input, 1440 Patton Avenue, San Pedro, CA 90731. Tel: 310-833-5627; e-mail: cre8vinput@aol.com. Circle EQ free lit. #138.**

**TRACKMANAGER SYSTEM REQUIREMENTS**

**Windows**

386SX/20 MHz or faster  
Windows version 3.0 or later/MS-DOS 3.3 or later  
3 MB of disk space  
3-1/2", 1.4 MB high-density disk drive  
4 MB (or more) RAM  
VGA display  
Printer recommended

**Macintosh**

MAC Plus or later  
System 6.0.5 or higher  
Internal/external hard disk w/2 MB of disk space  
1.4 MB SuperDrive  
1 MB (or more) RAM  
Color monitor recommended  
Printer recommended



INTRODUCING

# PAQRAT™

ROGER DEFINED IT  
RANE DESIGNED IT.

Roger Nichols: "I asked my friends at Rane if they could design a box that would let me record two channels of 20-bit audio onto four 16-bit tracks. So they sent me a prototype box called PAQRAT. Now I can easily store lots of 20-bit mixes without having to rent a \$25,000 digital machine that needs \$200 per roll tape"



Record 18 to 24 Bits  
On Your 16-Bit  
Multitrack  
Recorder

**T**he RC 24 Recording Converter, known affectionately as the "PAQRAT", converts two 18-bit to 24-bit digital inputs into two pairs of 16-bit digital tracks—and simultaneously does the reverse!

From home studio to post-production suite, the PAQRAT enables an instantaneous quantum leap in digital capability from 16-bit multitrack recorders:

- Create 20-Bit Masters On Your 16-Bit Recorder
- Back-up Hard Disk Files Onto Affordable Tapes
- Use A 20-Bit ADC And Two 16-bit Tracks For Recording Primary Vocal or Instrument
- Record Full Quality From A 20-Bit Digital Console.

**T**wo RC 24 Versions to Match Your Recording Format: the RC 24A provides the Alesis ADAT interface; the RC 24T provides the Tascam TDIF-1 interface.



**B**ig savings and impressive returns for a surprisingly modest investment. Get the whole "tale" on the PAQRAT from your nearest Rane dealer.



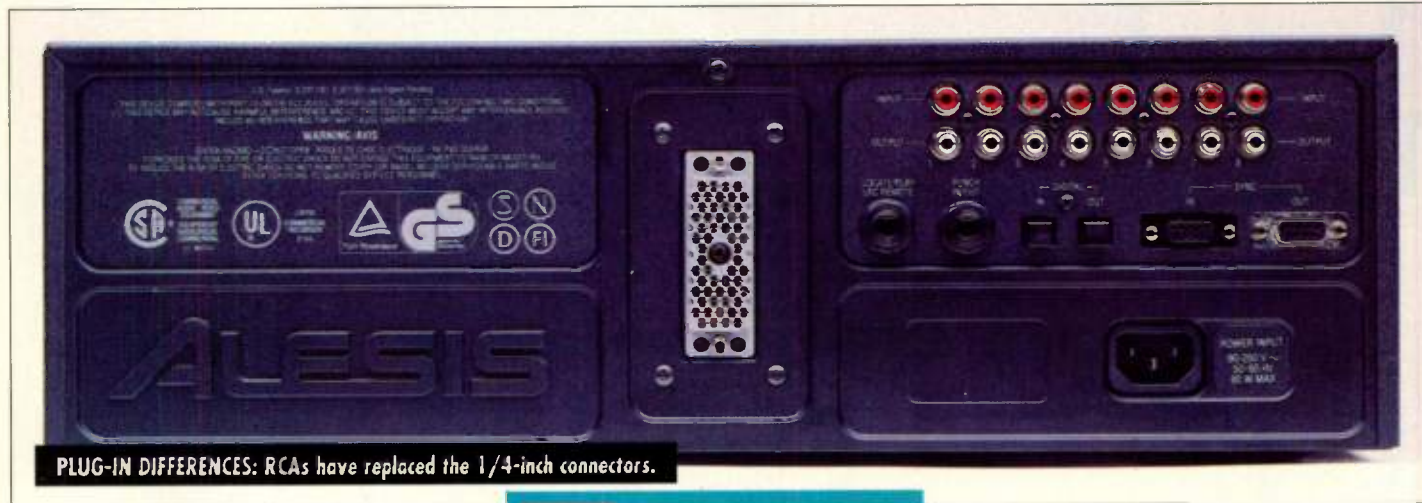


BY EDDIE CILETTI

# Alesis ADAT



FEEL THE DIFFERENCE: New aluminum alloy chassis



PLUG-IN DIFFERENCES: RCAs have replaced the 1/4-inch connectors.

Everyone wants the skinny on the new Alesis ADAT XT. How is it better (or at least different) than the "Original Formula" (OF) ADAT? Let me count the ways...

1. The new chassis is cast from a sturdy aluminum alloy.
2. Large-scale integration has reduced the total number of ICs for increased electronic reliability.
3. A new custom fluorescent display provides more feedback to the user.
4. More buttons for added features, most notably, "Offset," formally available only via BRC.



MANUFACTURER: Alesis, 3630 Holdredge Avenue, Los Angeles, CA 90016. Tel: 310-841-2272

APPLICATION: Digital 8-track recorder.

SUMMARY: The second generation of S-VHS-based multitracking.

STRENGTHS: Robust case, hard- and software refinements.

WEAKNESSES: No remote meter-bridge port.  
PRICE: \$3499 w/LRC Remote and optical cable; BRC: \$1499; sync cables: AC 8-inch cable, \$15.95; LC 30-inch cable, \$19.95; 9C 30-foot BRC cable, \$44.99

EQ FREE LIT. #: 139

5. Larger reel motor shaft — plus enhanced software — make the transport faster, more responsive, and more reliable.

6. More resolution from the A/D/A converters via additional bits and oversampling.

Since nothing is perfect, here are some XT things for future improvements.

1. There is no longer a 9-pin remote meter-bridge port.

2. The 9-pin Sync-In and -Out connectors are very close together, making it a challenge to regularly play



# XT Review

the "machine/room shuffle" and use the screws to hold the cables in place.

3. The 1/4-inch audio connectors have been replaced by RCAs.

4. The audio metering portion of the display is smaller than that of its ADAT OF counterpart.

## HOW DOES IT SOUND?

I have no problem with the sound of digital 8-tracks because I know that the order of importance in a music recording is performance, arrangement, the mic and its placement, the mic preamp, and then the converters. (I would change the order if the recording were strictly live to two tracks.) The sonic characteristics of the XT will be similar to that of the original ADAT — only smoother — because the output is now 8 times oversampled and the 20-bit converters will yield a more accurate 16th bit.

Some folks have pet machines whose "sound" they embrace. Truth be told, if you don't like the sound of the XT, a good stereo A/D/A costs as much or more than the ADAT XT (Clue #1) and the XT, like all digital gear, will reproduce what it is fed as faithfully as it can. If you feed it uninspired, lifeless garbage, it will regurgitate the same (Clue #2).

## HOW DOES IT LOOK?

The ADAT XT has a very "metal" look. The machined front panel is neither black, nor tan, nor beige. It is coated with a rather snappy bluish-gray-over-brushed-aluminum finish. The major transport and record-enable buttons are in familiar places, with 18 more buttons than its predecessor (45 in total). Most of the buttons, with the exception of Record (which is red) are either gray or black with readable white silk-screened text. Two buttons, Edit Value and Format, have blue and red text, respectively. In a room lit for artistic ambiance, those functions can be hard to find.

I think the Fisher-Price color for-

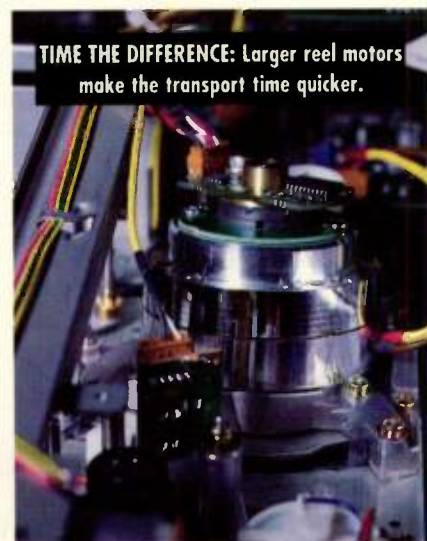
mula should be applied here and in all such equipment. For example, how about using bright colors like yellow, orange, pink, and red with black text? Or rich dark colors like purple, blue, or green with white text? Or Day-glo!

The XT's new housing, though not quite as deep as that of the ADAT OF, is noticeably more rigid and heavier, despite the reduction in size. This was confirmed when I checked the specs (see Table One). Under the hood, the transport seemed larger because everything else had shrunk.

It was at the '95 AES show that I first saw the XT *sans* cover. The cast chassis provides a solid foundation for the transport and will seriously resist rack and road warping; plus, it will increase long-term tape compatibility. The control electronics have been consolidated into fewer chips and the control system now monitors tape dynamics for improved braking.

On the rear panel, the 1/4-inch audio I/O connectors have been replaced by RCA jacks. This is a minor

inconvenience if you have existing cables and can't solder. (Switchcraft, by the way, now makes a gold-plated, easy-to-solder RCA connector that accommodates larger diameter wire plus shrink tubing.) Again, miniaturization distilled three circuit boards —



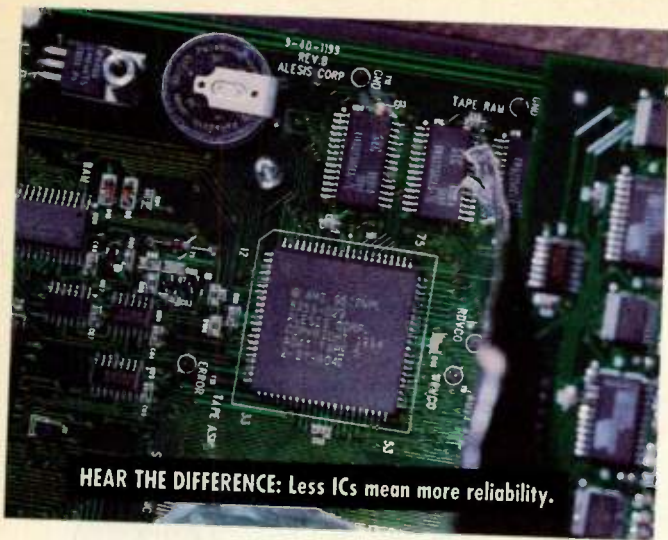
**TIME THE DIFFERENCE:** Larger reel motors make the transport time quicker.



**SEE THE DIFFERENCE:** New display tells you more information.



# Alesis ADAT XT Review



cassette opening that displayed tape position and error mis-sives. Metering, tape position, status and feedback are now integrated into a custom fluorescent display. Power [frequent] users will complain about the small size of the audio metering portion of the display and that the record-enable

Momentary and Continuous Peak Modes, plus a Fine Meter Mode. That last option changes the resolution so that each segment represents 1/2 dB centered at the halfway position (-15 dB). Alesis has unfortunately deleted the remote meter connection on the rear of the machine. I would like to suggest, to either Alesis or any third-party manufacturer, that a signal for remote metering could be derived from and included with an optical-to-copper digital interface.

input, output and A/D/A — to a pair of boards: the A-D-A/RCA I/O board plus the multi-pin ELCO/EDAC balanced interface board.

I was disappointed to see that Alesis had chosen not to upgrade the transport to use separate reel motors. (This will hopefully occur in the next generation of ADAT transport.) Instead, the single-reel motor shaft is now larger in diameter with gnarly teeth for positive traction. The reel drive tire has been changed to a long-lasting space-age material. These changes, plus the rigid chassis, will improve reliability.

## NEW WINDOW

Gone is the small window below the

buttons do not line up with their respective tracks. This could be an acceptable trade-off if you consider some of the new features.

One such new — and much desired — feature is the error-rate display, accessible by simultaneously pressing SET LOCATE and RECORD ENABLE 3. Error-rate mode shrinks the tape position indicator from hours, minutes, seconds and hundredths of seconds to simply minutes and seconds. The four remaining digits then indicate the margin of safety. Typical values are mostly zeroes with occasional single-digit flickers. The maximum number is 6720. (Errors above 1344 cannot be corrected.)

New metering options include

## BABY'S FIRST STEP

Just as a new car has a break-in period, the first road trip for my ADAT XT was to loop the entire length of a ST-120 tape for six continuous hours. Early XT production runs had some casualties, but I was told by Alesis that if the XT survived the first two hours it would likely bring me at least a thousand hours of uninterrupted pleasure. The ADAT XT survived an additional two weeks of torture, including 18 hours of autoplays cycling. So far, so good.

The first tape I played back on the XT had been recorded at 48 kHz. The XT booted up in the 44.1 kHz mode, therefore playing the tape a "bit" slower than I remembered. The XT's 44.1 display icon flashes when a 48 kHz tape is inserted. Unlike its predecessor, ADAT XT's two sample-rate options (44.1 kHz and 48 kHz) are written on the tape during the formatting process. Sample rate is then automatically determined from each tape, but can be overridden.

In the XT, the polarity of the analog signal going to and from tape has been inverted. This change was made so that the signal would be in-phase after using the AI-1 or compatible interface (to S/PDIF or AES/EBU, for example) and subsequent D/A conversions. In the event you are playing either a stereo pair or two identical tracks — one from an OF and the other from an XT — one track will be out-of-phase with the other. (This tracking method is not recommended, but a solution would be to digitally bounce one of the tracks so that both reside on a single tape.)

## NEXT TEST: SYNCHRONIZE 'EM!

My catalog of recorded material (nearly all of it analog) spans 20 years, and much of it can not be played without baking. With one ADAT (OF), I was

### TABLE 1

	ADAT OF	ADAT XT
Record: A to D	16-bit linear audio Delta-Sigma 64x oversampling SCPC**	18-bit linear audio, 128x oversampling, SCPC**
Playback: D to A	18-bit linear, SCPC**	20-bit linear, 8x oversampling SCPC**
Dimensions	5 1/4" x 19" x 14"	5 1/4" x 19" x 11"
Weight	15 pounds	20 pounds

[\*\* Single Converter Per Channel]

### TABLE 2

MODE	ALESIS ADAT OF	ALESIS ADAT XT	FOSTEX RD-8
Unthreaded FF	1:45	1:05	1:50
Threaded FF	4:30	1:13	4:24
Lock-up w/o BRC	Master	(ID #2) 2 seconds	(ID #3) 10 seconds

TABLE TWO: Three ADAT compatibles were tested for speed using an ST-120 tape. Time is in minutes unless indicated. Tapes were wound from beginning to end.



# The 528E Voice Processor

Ten years ago  
we introduced the  
*first* Voice Processor  
to the professional  
audio industry.

Been there, done that.

Today,  
we give you the  
528E - an input channel  
that needs no mixer.

It's the *only* gear  
you need between  
your microphone  
and your recorder.

## Mic Preamp

Direct coupled,  
discrete front-end,  
ultra-low noise.  
Warm, yet transparent.  
The best mic pre  
you'll never hear.

## Downward Expander

Smooth and seamless.  
The "smart gate"  
that won't  
chop-off the  
start or end  
of notes.

## Metering

Three dedicated  
gain reduction  
meters for  
"at-a-glance"  
monitoring.

## Parametric EQ

Three-band, state-variable,  
sweet-sounding, and fully  
parametric. You'd pay  
big bucks for a console  
with EQ this flexible.



## De-Esser

Frequency-variable  
dynamic sibilance  
reduction. Essential for  
that "in your face"  
vocal sound.

## Rear Panel

Jacks provide direct  
access to individual  
processing modules. Use  
patch cords to change  
module order or use each  
on a completely  
separate audio signal.

## Compressor

Ultra-smooth, soft-knee  
dynamics control.  
Interactive release time  
circuitry automatically  
tracks program  
peaks to eliminate  
pumping and breathing.

And it's not just  
for voices.

Hear for yourself.



# Symetrix

Lynnwood, WA, USA

Phone (800) 288-8855/(206) 787-3222  
email 102102.1126@compuserve.com

Circle 78 on free info card



# Alesis ADAT XT Review

able to transfer those tapes, eight tracks at a time, to the digital domain. For this review, I was quite psyched to have access to three ADAT compatibles. Before attempting synchronization, however, a decision had to be made concerning which of the decks (the Alesis XT, the Fostex RD-8, or the ADAT OF) would be the master.

The Alesis XT (Version 1.01) and the Fostex RD-8 (Version 2.00) have many common software features — though the XT is more user friendly.

One of these features is the ability to offset tape timing relative to the sync information coming through the proprietary 9-pin sync port. Like the ADAT OF (software version 4.03), the XT requires the BRC to chase lock via SMPTE timecode. But, unlike its predecessor, the XT has a Tape Offset mode that can be toggled on and off by pressing a similarly named button. (The Offset feature, for example, also allows users to fly-in vocal parts to various sections of a song.) The lack of

a BRC made the choice simple: The ADAT OF became the Master, while the XT and RD-8 became slave machines two and three, respectively.

## SPEED RACER

With the offsets determined for both slave machines, it was indeed a thrill to hear all of those tracks at once. I pressed Locate 0 on the Master and watched each machine race to the downbeat. This is where the XT comes into its own. One of its primary improvements is faster wind speeds. The XT always beat the other machines to the locate point.

Those of you familiar with the ADAT know that it has two winding modes — threaded and unthreaded. Threaded mode keeps the tape wrapped around the heads to reduce the amount of time to Play from Stop. Unthreaded mode (pressing Stop so that its LED blinks) leaves the tape in the cassette shell to increase the fast-wind speed. (See Table Two for the comparison.)

As you can see, the XT will fast wind — in threaded mode — in a quarter of the time of its ancestors. In fact, ADAT XT is so quick to respond, that a DAT-style Cue/Review mode is provided by pressing FF or RW while also pressing Play. This feature, which was also on the original ADAT, is not reflected on the front-panel silk screening and was discovered by accident. I later came across a description in the manual, which, by the way, is thoroughly readable and way above average. Alesis is the rare exception when it comes to providing great documentation for both users and technicians.

Next, I set two locate points, one at the beginning and one at the end of the tune. Auto Play was already engaged on the ADAT OF, so I then pressed Auto 2 > 1. The machines should have continuously relocated and played, but at the end of the tune, the second locate point sent the XT the way of Professor "wrong-way" Peach Fuzz. Instead of rewinding, it took off in the opposite direction and didn't stop until the tape ran out. Unlike other versions of this story, the tape didn't break, but I did have to open the cassette to untangle it from the reel hub. (Alesis feels the above difficulty might not have occurred if the XT had been utilized as the master unit and software 1.03 had been in place.)

An attempt at duplicating the phe-

BROADCAST VIDEO    PRO-AUDIO    MULTIMEDIA    AUDIO VISUAL    INTERFACE    CUSTOM CABLING

**You.**

## POWER TEAM MARKERTEK.

America's Largest Systems & Equipment Catalog.

**312 PAGE CATALOG FREE!**

**REQUEST IT TODAY!**

Featuring Custom Cables • Custom Patch Bays • Custom Patch Panels • Video • Audio Cables • Connectors • Bulk Cable • Patch Cords • Fiber Optics • Switchcraft • Neutrik • In-Line Audio Adapters • Patch Bays • Audio Interface Boxes • Midi Interface • Duct, Reels, Ties, I.D. Supplies, Crimp Tools, Strippers • Tool Kits • Power Cords • Power Centers • Power Inverters • Equipment Racks & Accessories • Telephone Interface • Computer To Video • Character Generators • Teleprompting • Delay Lines • Hum Eliminators • Time Code • Timers • Test Equipment • Signal Generators • Encoders & Decoders • TBC • Stick-Ons • Rack-Ups • Distribution Amps • Audio/Video Switchers • AV Mixers • Audio Distribution • Audio Mixers • Power Amps • PA Speakers & Monitors • Crossovers • Analyzers • EQs • Multi Effects • Psycho Acoustical • Noise Gates • Mic Preamps • Compressors/Limiters • Direct Boxes • Multi-Track Recorders • DAT Recorders • Cassette Decks • Studio Reference Monitors • Microphones & Accessories • Wireless • Mic Stands • Mic Accessories • Headsets & Headphones • Intercoms • Listening Centers & Systems • PA Systems • Lecterns • Audio Cassette Duplication • Cassette Recorders • Sound Systems • TVs • VCRs • Camcorders • Video Printers • Video Tape Duplication • Standards Conversion • TV Mounts • Portable Lights & Batteries • Camcorder Batteries & Chargers • Rack Cases • Equipment Cases • Shooting Supplies • Lighting Equipment • Overhead Projectors • LCD Panels • LCD Projectors • Projection Screens • Wall Rail Systems • Slide Projection • Visual Presentation • Film Projectors • Film-To-Video • Presentation Boards • Easels • Copy Stands • Laminators • Binding Equipment • Labels • Warning Lights & Signs • Music & Video Libraries • Audio & Video Tape • Stock, Storage, Albums, Reels, Cleaners, Demagnetizers, Edit Blocks & Rawinders • High Tech Storage • TV & AV Carts • Furniture • Hand Trucks • Acoustic Foam & Barriers **PLUS LOTS MORE!!!**

**MACKIE**  
**TASCAM**  
**Genelec**  
**SONY**  
**SENNHEISER**  
**audio technical**  
**SHURE**  
**TANNOY**  
**Electro-Voice**  
**TecNec**  
**LEANAHE**  
*Studiomaster*

**PLUS 400 OTHER TOP LINES AT LOW PRO-NET PRICING!**

**WE'RE HOME OF THE UNIQUE & HARD-TO-FIND**

**SALE! PLUS FREE ADHESIVE!**

**MARKERFOAM™ ACOUSTIC FOAM GIANT 54"x54"**

**Immediate Shipping**

2" Reg. \$29.95 Now **\$19.99**  
3" Reg. \$39.95 Now **\$29.99**

**KILL NOISE QUICK!** High performance, full size sheets of super high density Markerfoam. EZ mount. Blue or gray. Super-effective sound absorption for studios. Markerfoam offers best value, looks professional and is proven in studios worldwide. Request Foam-Buyers Guide/Catalog, specs and free samples today. VISA, MC, AMEX, COD, POs, QUANTITY DISCOUNTS.

**MARKERSTIK™** foam adhesive. FREE with any foam purchase in this ad. Limited Offer. A \$5.95 per tube value.

**MARKERTEK BLADE TILES**

**HIGH PERFORMANCE LOW, LOW COST!**

\$3.49 per tile, 16x16x2" America's best acoustic tile value, only from Markertek. Charcoal. Also available 16x16x3" as shown. \$4.49 each.

**MARKERTEK JUMBO SOUND ABSORB BLANKETS**

Heavy duty, 72" x 80" padded blankets absorb sound whenever they're hung or draped. Fabulous for stage, studio and field use. Top professional quality at a super saver price. Weight: 6 lbs. Black. **\$19.99**

**SONEX**

**ALL THE COLORS & SIZES PLUS GREAT PRICES!**

# MARKERTEK®

**VIDEO SUPPLY**

**800-522-2025 • 914-246-3036 • Fax 914-246-1757**  
4 High Street, Saugerties, NY (USA) 12477

Browse Markertek on the World Wide Web: <http://www.markertek.com/>

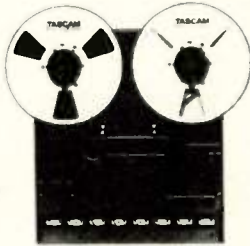
America's Broadcast Supply House.

We're Fast • Friendly • Knowledgeable



# RECORDING EQUIPMENT

—All Major Brands—



## FOR STUDIOS/HOMES CHURCHES/CLUBS

- Reel to Reel Decks (2-4-8-16-24 Track)
- Cassette Decks • Mixing Boards
- Mikes • Studio Monitor Speakers
- Special Effects Units Accessories
- Digital Recording

**TASCAM**  
TEAC Production Products



- **VOLUME DEALER**
- **NEW & USED**
- **E-Z TERMS**
- **ALL MAJOR CREDIT CARDS**
- **PROFESSIONAL ADVICE**

Call for pricing information.

## RHYTHM CITY

1485 NE Expressway  
Atlanta, Georgia, 30329  
1-404-320-SALE • 1-404-320-7253  
Special Pricing for Package Systems.

nomenon yielded a surprise — there was no longer a problem. Don't ya hate when that happens? While looping and trimming offsets, I did discover one condition that caused the XT to miss commands from the master. Programming an offset requires the Edit Value button to be pressed. Leaving this window "open" distracted the XT from receiving a locate command. It did, however, get the signal to play and, because of its new-found agility, it was able to catch up. Closing the Edit Value window solved the quirk. Perhaps the problem I had encountered was caused by a similar condition. [Alesis states: "Software version 1.03 fixes this bug."]

### TIPS

- Exercise new tapes before formatting.
- Record a benchmark tape when the machine is new. Note the error rate on the label and store. Replay when needed to confirm the status of the machine.
- If bizarre problems occur, re-initialize by holding down Record and Play while powering up. Make sure the display says INIT.
- Use only Alesis sync cables or have known good spares on hand.
- Make sure sync cables are dressed away from or are perpendicular to power cables. Do not bundle!
- Know the software version of your machine. Query by pressing Set Locate and Fast Forward. The machine tested for this review was running software version 1.01; machines manufactured after February '96 were shipped with version 1.03. A new version should be available by the time you read this.

### SUMMARY

By itself, the XT is a intelligent tool that helps to minimize distractions during the creative process. If you are building a "house of multiple tracks," it is both foundation and building block. The transport is indeed more responsive, a feature that is truly obvious when compared to the two machines also used during this review. With its tough, tortoise-shell case, you can now confidently take an ADAT XT on the road. At current prices, a digital 8-track was never so close to being yours.

*Eddie Ciletti reminds us to: "Fear not the occasionally quirky software, for it can be rewritten."*

Circle 61 on free info card

GUITARS

BASSES

AMPS

EFFECTS

DRUMS

PERCUSSION

CYMBALS

KEYBOARDS

SOFTWARE

PRO AUDIO

RECORDING

LIGHTING

CASES

ACCESSORIES

CELEBRATING



OF MUSICAL  
EXCELLENCE

**THOROUGHbred**  
MUSIC INC.

The World's Most Dynamic Music Stores!



813-885-9644

IN FLORIDA DIAL (813) 885-9644 OR FAX (813) 881-1896 MAIL ALL CORRESPONDENCE TO PO BOX 8009, TAMPA, FL 33674-8009

VISIT THOROUGHbred MUSIC ON THE WORLD-WIDE WEB AT <http://www.tbred-music.com/net/work>



# If You Need More Power Than This...



## Maybe You Should Run For President

Our new MFA Series of amplifiers deliver the power that digital audio sources demand. Whether used for motion picture sound tracks or live contemporary music, these models faithfully reproduce the extended dynamic range of today's technology. High power, great sound, and a full Five Year Worry Free Warranty. Why buy anything else?

\* 24,000 watts as illustrated: Eight MFA-8000 amplifiers combined, each putting out 1500 watts per channel into a 2 ohm load. Also available: the MFA-6000, with up to 900 watts per channel.

POWER AMPLIFIERS BY **ASHLY**

Ashly Audio Inc., 847 Holt Road, Webster, NY 14580-9103 • Toll Free: 800-828-6308 • TEL: 716-872-0010 • FAX: 716-872-0739 • Canada: Gerraudio Dist. Inc. 416-696-2779  
International Agent: E and E Exports Inc. 714-440-0760 • Internet: <http://www.ashly.com>

**CIRCLE 15 ON FREE INFO CARD**





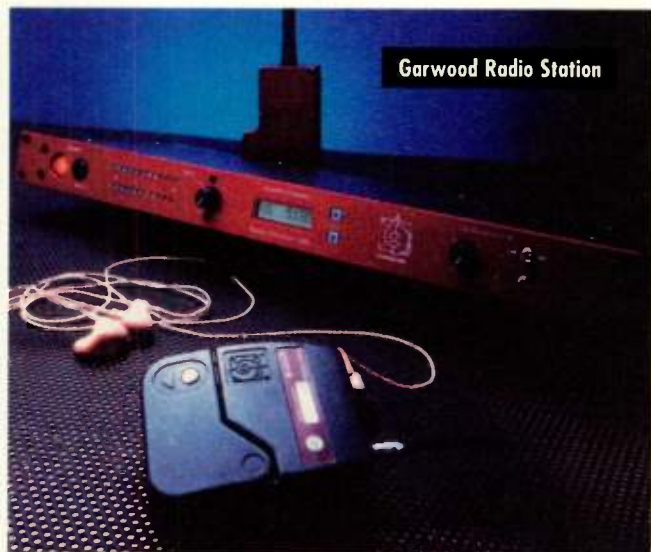
**NEW GEAR PAGE 116**



## **SPECIAL REPORT: WIRELESS SYSTEMS**

THE LATEST NEWS ON EVERYTHING WIRELESS FOR YOUR BAND.  
FROM MICS TO MONITORS, THIS ONE'S GOT IT ALL  
(PICTURED: THE ELTON JOHN BAND. PHOTO COURTESY OF TELEXX.)





## EAR'RY FEELING

**WIRELESS EAR MONITORS ARE NOW AFFORDABLE SOLUTIONS FOR TRAVELING BANDS**

**BY STEVE LA CERRA**

AS LONG AS you have made the decision to go wireless, why not consider taking

your monitors along with you? No, we don't expect you to drag those two-twelves-with-a-horn wedges around on your back, but you can try using personal monitors. Wireless personal monitor systems are popping up faster than you can say "turn that thing down," so now is a good time to look into getting personal.

There are several reasons to consider outfitting

your band with personal monitors. For starters, personal monitors travel with you when you move around the stage, so you are always in the "sweet spot" of your monitor mix regardless of where you are standing. If the entire band makes the commitment to using them, then wedge-type monitors can be eliminated and stage volume will be dramatically reduced. Further, getting rid of the wedges will allow the house engineer more control over the house mix because sound from the wedges won't be leaking into the microphones. While personal monitors are not a

cure for high-volume stage situations, *when used properly*, they can help protect your hearing.

On the flip side, personal monitors require a lot more attention than wedges. Maximum isolation from outside

noise will be attained when the earpieces are custom-molded to a person's ears — this means getting all of the band members to go through the fitting process and have ear molds made. You'll probably want to have a monitor engineer traveling with your band and they'll need to patch a compressor/limiter into each mix to avoid peak-level "accidents" from damaging someone's ears. And there will be a general lack of low frequencies in the entire monitor system. (There are ways around this particular problem. For the complete dope on personal



## SURVIVING THE BATTERY

All wireless systems — from mics to MIDI — have one thing in common: they all use batteries. Fanatical stage techs and musicians will change the battery before every show. (We've even heard of stage techs that put in a new battery for the soundcheck and then change it again for the show.)

Most manufacturers are in agreement that the best choice for your wireless transmitter is an alkaline-type cell, which has longer shelf life and better low-temperature performance than the less expensive "old-fashioned" zinc-carbon battery (the zinc-carbon battery just doesn't cut it for wireless applications). Among touring bands, the particular 9-volt battery of choice for wireless systems seems to be the Procell® made by Duracell. According to Duracell, this battery is the longest-lasting alkaline battery available for wireless communications equipment.

Procells are made to the same technical and dimensional specs as Duracell's CopperTop® battery and last about 25 percent longer than the average alkaline 9-volt. Procells are packaged and distributed for professional use. You will find them available by the case (six boxes of 12) at electronic

supply houses. When purchased in this manner, cost-per-battery comes in at around \$1.60, which beats paying four bucks a pop at a grocery store.

You might be wondering about Nickel Cadmium batteries: although NiCds do offer the advantage of being rechargeable, there is an inherent problem with this type of cell: even when they are new, they don't put out as high of a voltage as an alkaline cell.

Most wireless transmitters have a "low battery" warning light. The problem with using NiCds is that the voltage drain of the NiCd is nonlinear, so the warning light may not come on until after the NiCd voltage has dropped to a point below where the transmitter has already muted. This could leave you on stage with a silent guitar — not very much fun.

Another alternative is the Lithium battery, which has the advantage of a very long shelf life and high reliability. Unfortunately, a single 9-volt lithium battery will set you back by five to seven dollars, and if you do 200 shows a year, this becomes a major expense.

—Steve La Cerra



# MIXDOWN

## TAKE CONTROL AND DISCOVER NEW FRONTIERS

# CLASSIC

# 8



### MIXDOWN CLASSIC 8 - THE LATEST GENERATION OF PROFESSIONAL AUDIO CONSOLES FOR MULTITRACK RECORDING OR LIVE SOUND REINFORCEMENT

Launched in early '88 the Mixdown was followed two years later by the Mixdown Gold with extra features and upgraded spec. Both were critically acclaimed everywhere they landed. That was then. We've now smashed through to a new dimension with the Mixdown Classic 8 - the latest generation of professional audio consoles designed to face the future.

The MIXDOWN CLASSIC 8 offers unsurpassed quality, features and specifications that a few years ago would have been unthinkable at the price! With three models in the range 16, 24 & 32 channel, and with the full width meter bridge, MIDI muting and rackmount EP5 power supply - you're entering into a whole new world of music making.

**METER BRIDGE** - The adjustable meter bridge has a two colour, 12 segment peak reading LED display for every channel and moving coil VU reading meters for the left and right outputs.

**INPUT CHANNELS** - All input channels are crammed full of features including balanced mic and line inputs, inserts, direct outs, +48V, 20dB mic pad, three band EQ with sweep Mid sweep Low & EQ cut, six aux busses, MIDI mute, PFL and smooth 100mm fader.

**OUTPUT SECTION** - The sixteen tape monitors can be used as extra inputs bringing the total number on a 16 channel up to 34. The upper row of inputs even feature two band EQ, PFL, a couple of aux sends and fader reverse. All output groups have insert points. 12 segment bargraphs and 100mm faders. A line up oscillator, stereo return and a built-in talkback mic.

**WHEN YOU NEED TO GET SERIOUS....**



Circle 76 on free info card

Studiomaster Inc. 3941 Miraloma Avenue, Anaheim  
CA92807 USA Tel 714 524 2227 Fax 714 524 5096  
Studiomaster House, Chaul End Lane, Luton, Beds,  
LU14 8E7 UK Tel 01582 570370 Fax 01582 494343



monitors, refer to the January and February 1995 issues of *EQ*).

Personal monitors are no longer the domain of arena- and stadium-touring musicians. Prices are ranging anywhere from \$329 for the Nady E03, through the \$2000 mark for systems from Future Sonics, and beyond — for those of you with really healthy bank accounts. The variation in prices of wireless personal monitors is analogous to that of wireless instrument and microphone systems with one notable exception: some personal monitor systems operate in stereo (naturally, that costs more money).

Most personal monitor systems use either VHF or UHF technology; as of this writing, there are no companies making wearable

monitors that employ Spread Spectrum technology. But we do expect to see monitors employing Spread Spectrum technology as that technology becomes more commonplace in the audio market. (See "State of the Wireless Art" story for more details on Spread Spectrum.)

If you've got some dollars to spend and are looking for a UHF system, there is the Nady SEM 7000 system (\$5995), capable of operating in stereo on one of four user-switchable channels (in the 477 to 600 MHz range). Audio input to the SEM 7000 can be either balanced or unbalanced, and minimum range is said to be 250 feet under adverse conditions.

Garwood's most recent entry to the personal moni-

tor market is the Model LV1. The backpack for this UHF transmitter is about one-third of the weight of the backpack for the company's Radio Station transmitter, and the LV1 can be customized at the factory for use over any frequency ranging from 400 MHz to 900 MHz. The LV1 is capable of running for three hours on a single AA alkaline battery.

In the VHF corner, there is the MX from CMCI, which is a good choice for users that require frequency agility. The MX can be set to broadcast in stereo on any one of 200 channels tunable at the front panel in 200 kHz steps from 174.1 to 214.1 MHz. Also running in the VHF camp is the Aquila Systems WAM 16 VHF. The receiver for the

WAM 16 VHF accepts balance or unbalanced audio input via Neutrik Combo® connectors and can operate over 16 user-switchable channels. The WAM 16 VHF is one of the few systems available that can broadcast in either mono or stereo.

While most of these systems are sold with earpieces (some custom-molded for the user's ears) there is at least one company concentrating on the earpiece aspect alone. Sensaphonics (Chicago, IL) manufactures several different earpieces which can be custom fitted to the user, including the soon-to-be-released (May 1996) ProPhonic 2-way, which has dual-ribbon transducers with a passive crossover — and it all fits in your ear!

EQ

# TUBE SOUND



**MP110 DIRECT DRIVE  
Mic Preamp \$ 230**



**ADB3 Stereo Tube  
Direct Box \$ 200**



**RP220 Stereo Tube  
Mic Preamp \$ 500**

**RP282 Stereo Tube  
Compressor/Limiter  
\$ 600**



The new Bellari tube signal processors are designed for the most demanding studio applications. Compare the sound of the Bellari processors with the "two thousand-dollar plus" units and you'll know. With Bellari, the *only* thing you give up is paying more money. **PRICES SHOWN ARE U.S. RETAIL.**

*Bellari*

5143 South Main Street  
Salt Lake City, UT 84107  
(801) 263-9053 • FAX (801) 263-9068



There Are Several  
\$500. Compressors That Perform  
As Well As The dbx 262.



Unfortunately For Them,  
The dbx 262 Is Less Than \$200.

Save The Planet



It's The Only Market We've Got.

**dbx**  
PROFESSIONAL PRODUCTS

For more information contact us at: (801) 568-7660 Fax (801) 568-7662 dbx 8760 S. Sandy Parkway, Sandy, UT 84070 USA or if you prefer surfing to snailing send e-mail to [customer@dbxpro.com](mailto:customer@dbxpro.com)

© 1994 dbx Professional Products Jensen® and Neutrik® are registered trademarks of Jensen Transformers Inc. and Neutrik USA respectively.

Circle 27 on free info card







Shure UHF System

## STATE OF THE WIRELESS ART

**THE LATEST WORD ON WHAT'S GOING ON IN THE WONDERFUL WORLD OF WIRELESS**  
BY STEVE LA CERRA

WIRELESS AUDIO SYSTEMS are everywhere. At just about any live musical performance you might attend — whether it be in a club, on a concert stage, or on Broadway — you are bound to see at least one or two performers using wireless microphone or instrument systems. And, of course, any daytime talk-show host worth their gossip has a wireless mic for running out into the audience to get some philosophical insight. Wireless technology has developed to a point where users really don't need to know much about the technology behind the black boxes in order to get great results — they can basically just plug and play. And although most musicians will go wireless simply for the mobility factor, there is interesting benefit for gui-

tarists and bassists: since they are no longer physically connected to ground (via their strings), they have less chance of getting electrical shocks due to potential difference between their instrument rigs and their (wired) microphones.

While most musicians associate wireless with handheld microphones and electric guitar and bass, the scope of music-related wireless technology is expanding. There are now several wireless MIDI systems on the market (including the MRX1 and MR2 from Aquila Systems) and the number of companies producing wireless personal monitors is on the increase. What it means for musicians and sound companies is that there are more choices, an increased level of

quality, and a decreased cost factor involved.

### WHAT YOU GET FOR THE MONEY

Like anything in life, when choosing a wireless instrument system, you get what you pay for. But — like most advancing technologies — wireless systems are bringing higher technology down to lower prices. Thanks to wireless pioneers like Samson, wireless systems can now be purchased for street prices under \$200, and while systems in that price range may not offer the state-of-the-art technology, you get more now for that money than even last year.

Although lower-priced systems are usually fixed-channel, they do offer features like a minimum transmission range of 200 to 300 feet (some units claim up to

1,500 feet in line-of-sight), and battery life in the neighborhood of 16 to 20 hours. Many systems in this range have some type of built-in noise reduction for extended dynamic range and a lower noise floor.

One important trend that we are noticing in low-priced wireless is that steel chassis construction of the receiver — which helps to reduce RF interference — is becoming more commonplace. While the low end doesn't offer the ultimate in wireless sound, the quality is high enough for many applications. For a street price around \$250, you can even find one or two systems that actually have true diversity (more on that in a minute).

When you step into the mid-level of wireless microphone and instrument systems (about \$300 to \$650), true diversity becomes a standard feature. You will notice a decrease in the number of "wall warts" and an increase in the number of receivers with internal power supplies. Microphone systems in this range will often have an XLR output on the receiver (as well as a 1/4-inch audio output) and front panel indicators to show the strength of the signal received from the transmitter. Removable antenna, rack-mountable receivers, and improved RF performance all live in the mid-level. Perhaps most importantly, some of the microphone systems in the mid-level offer a choice of mic element such as a Shure SM58 and Beta 58 — and that can be an important option.



Aquila WAM TX16



# Are there flies inside your speakers, or do you need a Furman Iso-Patch™?

Get rid of buzz and hum caused by ground loops  
with the new Furman IP-8 and IP-2!



*Furman IP-8 Isolated Patch Bay*

## The new IT-1220 provides any studio or stage with quiet, balanced power.

The Furman IT-1220 is a rack mount, 20 Amp Balanced Isolation Transformer designed to provide ultra-quiet power to an entire studio.

It can make your audio system dramatically less susceptible to hum pickup, with a typical 10 to 15 dB improvement in noise floor—a result often surpassing that obtainable from complicated star grounding schemes with heavy buss bars and ground rods.

And all you have to do is plug it in.

The back panel of the IT-1220 provides 12 isolated AC outlets for your equipment. The front panel provides two more, plus a three-color, 20-LED voltmeter.

Inside the IT-1220, a specially wound and shielded toroidal isolation transformer delivers perfectly balanced AC power—and very quiet performance from the equipment that's powered by it.

Find out how easy it is to produce with the sound of silence, with the Furman IT-1220.



*IT-1220 20 Amp Balanced Isolation Transformer*

**Y**ou should get a buzz from creating music with your equipment, but not from the equipment.

Of course, any band or studio with a rack full of equipment can be plagued by buzz and hum.

Furman's new Iso-Patch series gives you a solution—by (temporarily or permanently) isolating your rack components from each other to break ground loops, and put an end to buzz and hum.

How does an Iso-Patch work? Simple. Each of its input/output module features a low-distortion isolation transformer, which isolates line level audio signals, breaks ground loops—and puts an end to those annoying noises.

The eight channel IP-8 Iso-Patch Isolated Patch Bay looks and works like an ordinary patch bay with standard, half-normalled 1/4" jacks. The IP-2 is a two-channel version, small enough to fit in any tool kit—and priced so low you can afford more than one.

See the new Iso-Patch series at your dealer today, or call, write or fax us for a free Iso-Patch data sheet and a copy of our catalog.



*IP-2 Dual Isolator*



## **FURMAN**

Furman Sound, Inc. • 30 Rich St. • Greenbrae, CA 94904 USA  
Tel: (415) 927-1225 • Fax: (415) 927-4548

*Furman products are made in the U.S.A.*

Circle 41 on free info card



**MIC AND INSTRUMENT SYSTEMS**

Wireless systems have traditionally broadcast over two bands — VHF and UHF — which are also used for television, radio and other communications purposes such as walkie-talkies and CB radios. But there is a relatively new technology slowly being introduced to the audio market called Spread Spectrum. Already in use for military

applications, Spread Spectrum broadcasts in a frequency range above UHF (as high as 2.4 GHz) — a band that is at this time comparatively empty. The broadcast signal is spread out over a wide frequency range by a technique such as “frequency hopping,” where transmitter and receiver actually change operating frequency while the broadcasting process is happening. This

decreases the average energy of the signal at any one frequency, thus reducing the possibility of interference from any one particular transmitter. At the same time, it becomes possible to increase the number of users operating in a particular band. Spread Spectrum technology is currently being used in systems available from MADAH-Com and the aforementioned Aquila Systems.

Because Spread Spectrum technology is in its infancy in the audio world, the debate continues to rage between VHF and UHF systems, especially since the big news in UHF is that system prices have been dropping (check out the Azden 411 HT, listing for \$895). Although the cost of UHF systems has not dropped to the point of budget VHF systems, UHF prices are easily approaching those of the more advanced VHF systems. The question for the user is, “Which one?”

Unfortunately, there’s no simple answer unless you are restricted to a small budget — in that case you will almost certainly be looking for a VHF system (the Nady 101XL or Samson VLX systems both offer great value for around \$200, street price). But where the budget is higher, say in the \$700 to \$1000 area, UHF or VHF are both realistic possibilities.

**PAPER VS. PRACTICE**

On paper, it looks pretty clear whether a user should choose a UHF or VHF system: the Federal Communications Commission (FCC) allows UHF systems to output higher signal level than VHF (roughly five times as much) and greater occupied bandwidth for UHF channels, resulting in an increased potential for wider frequency response and greater dynamic range. But let’s talk power, shall we?

The power output issue looks like a big deal — greater power has to equal better transmission, right? But remember that we are dealing with microphones and guitar packs that need to be compact, light in weight, easily portable, and usually powered by a small battery. That’s where the power output issue between UHF and VHF goes out the window, because increased

The Azden 311DR is a “true diversity” receiver, containing two complete sets of receiver electronics inside a metal case — unlike many of our competitors who have just 1 receiver with two antennas, in a plastic case. The words “true diversity” can also be used to describe your variety of options when choosing a wireless microphone/transmitter to go with the 311DR. Whether you need an integrated handheld microphone, a lavalier, a headset with boom microphone, an instrument dynamic microphone into a wireless system by snapping it into our exciting 31XT plug-in transmitter, the option is yours, and the performance will be flawless. Available in a choice of 17 VHF frequencies. With all these options, maybe we should call our 311 systems — “maximum diversity!”

**TRUE DIVERSITY RECEIVER 311DR**

**TRUE DIVERSITY**

**AZDEN**

147 New Hyde Park Rd., Franklin Sq., NY 11010  
(516) 328-7500 • FAX (516) 328-7506  
Dist. in Canada by Erikson Pro Audio

Circle 12 on free info card



# WE'VE DISCOVERED THE MISSING LINK IN THE SEARCH FOR NATURAL-SOUNDING COMPRESSION.

## The New AUTOCOM MDX 1200 with Dynamic Enhancement

Compression, particularly when applied heavily, can "dull" the sound of your signal. That's because the lower end of the frequency spectrum dominates the action of any broad-band compressor, causing high frequencies to "disappear."

The new AUTOCOM stereo Compressor/Limiter/Expander/Enhancer has been designed to solve this problem. Our exclusive new dynamic enhancer circuitry restores the *perceived* loss of higher frequencies that occurs during compression, ensuring your mix always retains its original brightness and energy.

Exceptionally versatile by design, the AUTOCOM now also features a unique IRC (Interactive Ratio Control) Downward Expander/Gate which reacts intuitively to the program material to produce an exceptionally natural sound.

Built-in Auto *and* Manual Compression modes give you more options—from "set and forget" to a wide range of fully adjustable Attack and Release times for creative effects. Our unique Wave Adaptive compression circuitry delivers "inaudible" compression every time you use it.

AUTOCOM from Behringer. The dynamic new way to put life back into your music.



**Your Ear Is Our Judge**

For a copy of Behringer's dynamic full-line brochure, please call (516) 364-2244, fax (516) 364-3888 or write Samson Technologies Corp., Box 9031, Syosset, NY 11791-9031.

Behringer is exclusively distributed in the U.S. by Samson Technologies Corp. ©1996 SAMSON

CIRCLE 13 ON FREE INFO CARD





**Guaranteed best prices & selection!**



**Eastcoast  
Music Mall**

*Serving Musicians for over 20 years.*

**Specializing in tube processing!**

**800-901-2001**

*Call for free catalog. The next century starts today!*

Circle 90 on free info card

**Control the WARMTH  
with True Analog™**



The ability to control audio warmth in the studio is priceless...

...Especially when that warmth is based on actual analog tape characteristics. The breakthrough True Analog™ technology not only duplicates these characteristics, it lets you control them. Full Control. Analog Tape Warmth. No Tape Hiss. The AardScope: The most powerful analog processor available!

Aardvarks AD / DA  
A perfect Companion!

Dealer Inquiries Welcome.



Ph 313•665•8899 • Fax 313•665•0694 • 202 E. Washington Ste 306 • Ann Arbor • MI • 48104



broadcast power means decreased battery life. So the amount of broadcast power for a UHF system is a balance between achieving a strong signal and a reasonable battery life.

You really need to look at the practical differences between UHF and VHF. In any given city, the UHF band is generally less crowded than the VHF band and *that* might turn into a performance advantage — less interference means less problems. Also, since the wavelength of a UHF signal is shorter than that of a VHF signal, the antenna size for UHF systems is generally smaller than that of VHF systems.

**BEING AGILE**

The big buzzword in wireless right now is "frequency agility." In a frequency agile wireless system, the broadcast frequency can be changed (usually by the user) to one that is less subject to local interference. For example, the Sennheiser BF1081-U offers 16 user-selectable channels, while the Vega U2020 system has 100 different frequencies. If you are having trouble on a particular channel, no problem — switch channels until you find one that is appropriately interference-free.

Frequency agility is generally associated with UHF systems, and if you plan to use a system on tour, this feature can be really important because you never know what kind of environment you might be performing in. Frequency agile systems are also available from Sony (the WRT-810A), Audio-Technica (the ATW-7174), AKG (the new WMS 300), and Lectrosonics (the UDR200B, which wins the channel race with 256 possible frequencies).

*continued on page 133*



# \$289\*! Are You Outta Your...



\*Suggested manufacturer's USA retail price.

## Not When You Could Pay Over Twice as Much and Get Less

Check It Out! Most competitive studio microphones cost over twice as much as Crown's all-new CM-700 mic. But when it comes to pure sound quality and maximum versatility, the CM-700 is in a class by itself.

Its cardioid, back-electret condenser design, wide range frequency response and high input before overload gives the CM-700 the capability of delivering clean, crisp, intelligible sound in the most demanding situations. Plus, the mic's uniform off-axis response is so smooth that any leakage picked up has little coloration. A 3-position roll-off switch (flat, low-cut, roll-off) makes it ideal for miking everything from the delicate timbre of acoustic instruments and vocals, to the rumbles of a bass guitar. Add on rugged construction, small, unobtrusive

appearance, sleek black styling, gold-plated electrodes and contacts and you've got a mic tailor made for the studio or live performance.

Any way you look at it, the CM-700 is an exceptional performer at an unprecedented price. Naturally, the CM-700 comes with Crown's three-year unconditional warranty. Audition one today and hear for yourself how easy it is to stretch the limits of your performance while leaving your budget intact. See your local Crown dealer or call 1-800-342-6939.



**crown**

Guaranteed Excellence

CIRCLE 15 ON FREE INFO CARD



# NEW GEAR FOR YOUR NEXT GIG



Crest Century LMx

## X FACTOR

The Crest Century LMx is a monitor console that provides 100 percent multimode operation. The 22 output busses on the LMx can each be operated in mono or stereo pair by way of the Global Level/Pan buttons on the corresponding output modules. The output section is comprised of ten dual-group output modules and one stereo L/R output module. Each of the group output modules incorporates a dedicated stereo EQ section with three overlapping swept bands, sweepable high-pass filter, individual balanced insert switches, and summing inputs. The LMx's Dedicated Room Ambience input section feeds two ambience microphones to any or all of the outputs without occupying regular input channels. An internal custom-designed dynamics processor automatically adjusts ambient feed levels. Other features include: built-in mic splitter, eight scene mute groups, a globally-selectable AFL/PFL solo system, comprehensive sub-grouping capabilities, separate pre/post switching for every pair of output sends,

and two separate monitor outputs. For more information, contact Crest Audio, Inc., 100 Eisenhower Drive, Paramus, NJ 07652. Tel: 201-909-8700. Circle EQ free lit. #140.

## FOUR FOR THE ROAD

Celestion has designed its new Road Series speakers to meet



Celestion Road Series

the needs of giggering bands and sound rental companies. The cabinets are made of a proprietary double-skin Polycore material, while they also have large bar handles for easy

lifting. The Road Series has interlocking universal stacking points and exponential or constant directivity horns. Bass drivers utilize Celestion's Flexirol™ surround, while high end on the full-range models is delivered by the 1-inch exit compression

driver combined with the built-in exponential horn. The speakers feature second- and third-order passive crossovers with low-pass components, PolySwitch™

protection circuitry, and Neutrik Speakon and 1/4-inch jack parallel connectors. Celestion's Road Series is comprised of the R1220 (two-way, 12-inch full-range), R1520 (two-way, 15-inch full-range), R1522 (two-way, dual 15-inch full-range), and R1542 (dual 15-inch bass system). For more information, contact Celestion, 89 Doug Brown Way, Holliston, MA 01746. Tel: 508-429-6706. Circle EQ free lit. #141.

## TO THE MAX

The Topaz Maxi 8 console from Soundtracs has been designed specifically for front-of-house applications. The new board can be configured for stage monitor or matrix mixer operation. Available in either 24- or 32-channel versions with up to 28 mono inputs and two stereo inputs (in addition to the four stereo effects

returns), the Maxi 8 provides eight busses, 4-band quasi-parametric EQ, and eight aux sends simultaneously from each channel. For more information, contact Samson Technologies, P.O. Box 9068, Hicksville, NY 11802-



Soundtracs Topaz Maxi 8

9068. Tel: 516-364-2244. Circle EQ free lit. #142.

## YOUR NEXT PROJECT

dbx's line of Project 1 crossovers has just been increased by two. New to the line is the dbx 223 stereo two-way/mono three-way crossover and the dbx 234 stereo three-way/mono four-way crossover. Both units have been designed for touring PA systems and permanent installations. The 223 and 234 feature switches on the rear panel for stereo or mono operation, LF mono sum (for a subwoofer feed) and a range of individual channel crossover frequencies. Recessed 40 Hz low-cut switches on each channel are available to remove unwanted low frequencies. The high- and low-level outputs on each channel have phase-reverse switches that may be internally



dbx 223



# 1200 WATTS, NO WEIGHTING.\*

Take a look at your current rack of power amplifiers, or for that matter, most of the amps at your local dealer. They're using oversized, linear power supplies and circuit topology that was developed from the old transistor application hand books of the early 60's.

Our engineering staff, most of whom have lugged these same overweight power amplifiers on gigs for way too many years, decided it was time to drag power amp technology into the 90's.

The result is our Megatech™ switch mode power supply technology. This is not some fragile, up-graded computer supply either. We developed a proprietary, full bridge, digital power supply utilizing hand wound toroidal transformers, and high speed MOSFET's switching at over 100kHz clock speeds. 200 Volt storage capacitors provide extended duration high current output ensuring maximum performance in even the most demanding applications.

**MTA 1200**  
MEGATECH™ DIGITAL POWER SUPPLY  
CLASS H AUDIO AMPLIFIER

POWER  
0 -



**\$995.00**

Suggested retail price.

Most amplifiers use an inefficient single high voltage supply which is only fully utilized during peak output power. During most of the duty cycle, the extra supply voltage dropped across the output transistors is wasted as excess heat. This reduces the amplifier's ability to perform in extreme conditions, as well as making you pay for (and carry) oversized heatsinks.

The MTA1200's Class H amplifier design enables maximum thermal efficiency by utilizing our Cool Rail™ dual voltage supply technology. Cool Rail™ allows the MTA1200 to run on ±40VDC supply rails for most of the duty cycle, dynamically switching to a high current ±80VDC rail during peak output. Cool Rail's™ benefits to you are lower heat dissipation, compact design, and lower cost.

Our factory computer tests each FR4 fiberglass PCB subassembly. After the top goes on, each MTA1200 is subjected to QC function tests, vibration hardening, burn in, and a critical audio check before shipment. Our final step is an Audio Precision® pedigree, verifying frequency response, THD + N, and power output of each hand crafted amplifier.

**PICK ONE UP AT A ROSS SYSTEMS DEALER  
NEAR YOU.**



\* OK, it does weigh 17 1/2 lbs.  
But check out these specs!

4 Ohm Bridged*	8 Ohm Bridged**	2 Ohm*	4 Ohm**	8 Ohm**
1200 Watts	800 Watts	600 Watts	400 Watts	275 Watts

\*1 kHz, 1% THD, \*\*20Hz - 20 kHz, .05% THD

P.O. BOX 2344 • FT. WORTH, TX 76113 • 817-336-5114

Circle 63 on free info card





**EQ  
LIVE**

reconfigured as mute switches. Both the 223 and 234 feature Linkwitz-Riley 24 dB-per-octave filters, TRS-balanced 1/4-inch jacks, and an internal power supply. Retail prices are \$249.95 and \$299.95, respectively. For more information, contact dbx, 8760 South Sandy Parkway, Sandy, UT 84070. Tel: 801-568-7660. Circle EQ free lit. #143.



Spirit Live 3 Mark II

Plus preamp with gain ranging from -6 to +60 dB. The 8-channel model may be rack mounted, and all frame sizes may be expanded with the addition of an optional 8-

**It's A PLUS**

The Peavey XRD 680 PLUS powered mixer offers 600 watts of total output power for larger room applications. Each channel features effects and monitor sends, gain control, balanced XLR mic and unbalanced 1/4-inch line inputs, and an active 3-band EQ with 15 dB cut/boost. Additionally, there are L/R tape in and out RCA



Peavey XRD 680 PLUS

ments and two stereo inputs for keyboards, CD, or DAT players are also provided. A separate mono bus in the master section can feed extra speaker clusters and separate vocal PAs, or subgroup the left and right busses to a mono master. Available in 8-, 12-, 16-, and 24-channel frame sizes, with mono and stereo inputs offering up to 32 inputs on the 24-channel model, the Live 3 Mark II features Spirit's new UltraMic

channel expander. Additional features include: EQ in/out switch, 18 dB/octave high-pass filter, aux 2 and 3 pre/post switchable from master section, -20 dBv record outputs, +48-volt phantom power (switchable on all mono channels). For more information on the Live 3, contact Spirit by Soundcraft, Inc., 11820 Kemper Road, Auburn, CA 95603. Tel: 916-888-0488. Circle EQ free lit. #144.

jacks, and an effects footswitch jack. For more info, contact Peavey, 711 A Street, Meridian, MS 39301. Tel: 601-483-5365. Circle EQ free lit. #145. **EQ**

**LIVE, FROM SPIRIT**

The Live 3 Mark II from Spirit now features 4-band EQ with two sweepable mids on mono channels and four aux sends. Three of the auxes may be prefade for monitor mixes or postfade for use as effects sends. Two stereo returns for effects or instru-

**Tired of Doing the Cakewalk?**

Musicator Audio combines hard disk recording, MIDI sequencing, and music scoring in a single, elegantly-designed Windows™ program. Where else can you get recordable, real-time control of volume and pan for each audio track? Record and playback up to 16 tracks of audio using a single sound card, or use multiple sound cards simultaneously. View, edit, and mix audio and MIDI tracks side-by-side. Meter the output of each audio track for an accurate mix. Import wave files. Drag and drop them at will. Why bother with inflexible multi-track tape decks or expensive hard disk recorders? Musicator Audio does it all in a creative and easy-to-use environment.

**Does Your Finale Have You on Edge?**

Frustrated with slow programs and steep learning curves? Then Musicator is the answer. Create giant scores and in seconds extract individual parts. Transcribe any tuplet and beam notes any way you want. Add chords, lyrics, and dynamics. Draw in your MIDI controllers and tweak notes on the Piano Roll. Take the robot feel out of your playback. Sync MIDI to SMPTE. You can even export notation to PageMaker™ and other DTP programs. From the makers of Musicator Win and Musicator Intro comes a program that will provide you years of productivity and enjoyment. Musicator products are available at finer music and computer stores everywhere.

For a free brochure, music samples and \$5 demo disk, call us toll-free:

**800-551-4050**

Musicator USA • P.O. Box 16026  
Oakland, CA 94610  
Tel: 510-251-2500, Fax: 510-251-0999  
CompuServe: GO MCATOR  
E-Mail: 74431.40@compuserve.com

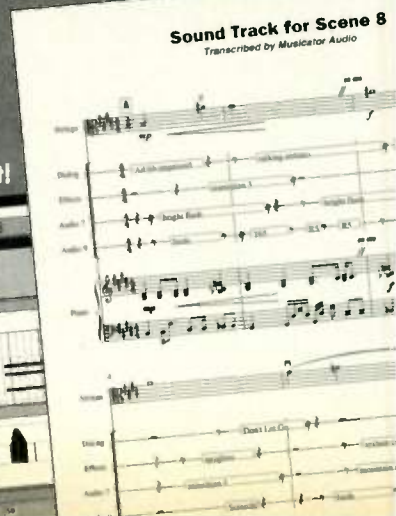
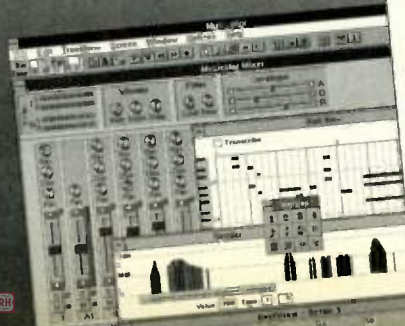
New! Musicator Audio \$399<sup>00</sup>  
Musicator Win \$299<sup>00</sup>  
New! Musicator Intro \$129<sup>00</sup>

Circle 93 on free info card

**Musicator  
AUDIO**

- ▶ 16 Tracks of Hard Disk Recording
- ▶ MIDI Sequencing
- ▶ Music Notation

Dealers - Ask for a free sales kit!





# RE1000

Electro-Voice®

True Condenser Studio Microphone



The Electro-Voice RE1000 is a monumental breakthrough in studio condenser microphone performance and value. Its sound quality and performance rivals many of the world's finest microphones, regardless of price. One listening test will reveal that this serious audio tool belongs in your studio.



**Electro-Voice®**

Electro-Voice, Inc. a MARK IV company  
600 Cecil St. Buchanan, MI 49107  
800/234-6831 616/695-6831  
In Canada: 613/382-2141

Circle 37 on free info card

WRB



# CHARLIE LABS DIGITAR



COMBINING GUITAR with MIDI has always been a problem. MIDI guitars have a hard time tracking your playing, and alternate controllers don't feel all that natural. What's worse, guitar chords tend to have wide, multi-octave voicings that are difficult to execute on keyboards, even if you have fabulous chops.

The Digitar isn't the first attempt to convert notes played on a MIDI keyboard into guitar-type voicings (that honor goes to James Chandler for his KeyFrets software), but is the first to include a physical, six-stringed interface. The string interface, which is about the size of a thick paperback and can be worn on your hips, connects to a heavier control unit via modular telephone cable. The deal is:

1. You play notes into the Digitar's MIDI in, either from a sequencer or with

one hand playing on a keyboard.

2. The Digitar analyzes the chord, then voices these notes as if they'd been played as a chord on the guitar.

3. Strum the interface's velocity-sensitive "strings" to trigger the newly voiced

notes, which then appear at the MIDI out. I obtained the most satisfying results using just my fingers, although flat picks and thumb picks work too.

4. Send these notes to a MIDI sound generator set to a guitar patch, and the results sound surprisingly

like a guitar, providing you've programmed the synth to respond properly (e.g., good dynamics).

You can alternately place the Digitar on your lap à la steel guitar (incidentally, for steel enthusiasts, an "autobend" option applies one of four different preset pitch changes to emulate steel sounds). The Digitar is optimized for chordal picking and strumming, which are the hardest guitar gestures to translate to MIDI; this unit is not intended for single-note leads, except those of the finger-picked variety.

Although the Digitar is a surprisingly capable little sucker, there are a few downers. First, the strings are thick and spaced further apart than regular strings (the combined width is about 1/4-inch wider than average), which takes some getting used to. The second downer is the interface — four 7-segment displays. Functions are identified as codes that are difficult to read when the box is in playing position. Better keep the manual handy, although that's somewhat cruel advice considering that it, too, requires some deciphering. Third, there's no option for Nashville tuning, which would be very appropriate for a box like this. (Fortunately, you can come fairly close by changing the "position" option, where you can jump octaves for some notes by playing across position boundaries on the keyboard.)

On the plus side, since there's no pitch-to-MIDI conversion, you don't have the delay and glitching associated with MIDI guitar. There's also some programmability: eight presets can store the various settings (such as legato on/off, send out a program change when selected, trans-

## ROAD TEST

**MANUFACTURER:** Charlie Lab, distributed by Richard & Co., 444 Airport Blvd., Suite 207, Watsonville, CA 95076. Tel. 408-688-8593.

**APPLICATION:** Convert chords played on a MIDI keyboard or sequencer to guitar voicings.

**SUMMARY:** Greatly increases the realism of synthesized guitar parts played on a MIDI keyboard. fun for songwriting.

**STRENGTHS:** Does what it claims.

**WEAKNESSES:** Takes you a while to figure out how to get it to do what it claims.

**PRICE:** \$449

**EQ FREE LIT. #:** 146

**BY CRAIG ANDERTON**





# Miking your kit is as easy as D1, D2, D3.

Getting your kit to sound great takes effort – we believe that miking it shouldn't. That's why we've created the Audix D-Series. Designed for the serious percussionist, each microphone has unique sonic qualities. It's this uniqueness that insures you'll capture all the snap, sizzle, crash and bottom end your kit has to offer – miking with Audix is as easy as D1, D2, D3.

Unlike some mics that rely on neodymium magnets for high output, the D-Series uses VLM™ (Very Low Mass) technology. An Audix exclusive, VLM is created with a super strong, yet very thin and lightweight diaphragm. The lightness allows quicker response to acoustic impulses for unequalled levels of resolution as well as the ability to handle huge SPL's.

The D1 is ideally suited for snare and smaller high pitched toms. The noise rejecting hypercardioid polar pattern and naturally enhanced presence peak enables the D1 to compliment percussion and mallet instruments.

Because of added warmth to the low end, the D2 is perfect for use on low toms and kick drum. The hypercardioid pattern greatly reduces the chance of feedback during live performance while allowing the lower frequencies to punch through.

The ultra linear frequency response and greater dynamic range of the D3 make it the perfect choice for use in the studio where every nuance of the drums is critical. Extremely compact, the D3's uncolored sound can handle sharp transients without clipping.

All of the D-Series are built for the road as well as the studio. A rugged e-coat finish, durable gold XLR connector and precision tooling milled from a single piece of aluminum put the D-Series in a class of their own.

**Don't buy a mic without trying an Audix.**

## AUDIX

For more information call, 1.800.966.8261 ext. 123

Web Address - <http://www.audixusa.com>

© Audix Corporation 1995. All rights reserved. Audix, the Audix logo, D-Series, D1, D2, D3 and SCX-1 are trademarks of Audix Corporation. All other trademarks are the property of their respective owners. Corporate Headquarters, 9730 SW Hillman Court, Suite 620, Wilsonville, OR 97070 USA. Corporate Sales FAX 714.588.8172.



*We also make a line of professional studio condensers. With interchangeable capsules, different polar patterns, and extremely flat frequency response – the SCX-1 is ideal for overheads and studio recording.*



mit signal to GM/GS-compatible modules between chords to trigger the "fret noise" sound, transpose amount, and many others). Presets are saved within the Digitar, but can't be backed up externally.

MIDI-wise, the Digitar can use up to three channels (send, receive, and fret noise notes). For those who want to play live with a sequenced series of changes and not

have to lock in to a fixed tempo (or for those with zero chops), there's the equivalent of a step time option. You record chords every 1/4 note into a sequencer, then place the clock under control of a bridge-mounted switch on the Digitar. Each time you hit the switch, the sequencer moves along to the next chord.

There are four modes of

operation: rhythm, economy, lead, and "all channels." Rhythm is the standard play-six-strings mode (note that some chords are voiced to play only five strings); economy limits this to four voices for vocally challenged synths. Lead isn't really for what we normally think of as leads, but is a "trap door" for strange chords (the Digitar recognizes 18 standard types,

but not really "out" chords). In lead mode, you can program your own chords by sending the notes of the chord, which get mapped to the same number of strings as there are notes. "All channels" is the Digitar's attempt to monitor MIDI channels 1-9 and 12-14 to determine what's going on melodically so it can generate a suitable accompaniment. Nice concept, but it's too unreliable.

Using the Digitar is straightforward, but there is one important hint: learn to play chords a little ahead of the beat (if you're generating chords from a sequencer, the "track shift" function is ideal). Because of the nature of strumming, the first notes hit ahead of the beat, and the last ones behind the beat. Unless you play a bit ahead, you'll lose the initial notes.

Is the Digitar worth the bucks? If you want to play guitar parts using MIDI sound generators but don't want to play MIDI guitar, this box will up the realism quotient dramatically. Patches that used to be "acceptable" for guitar sound great with this little box; and it excels at strumming, which is where most MIDI guitars are at their worst.

Perhaps, even more importantly, those who write songs on acoustic guitar will love this box if they want to access the wide world of MIDI. You get the same kind of rush you get by strumming a guitar, but you're producing data that can be captured by the sequencer. And you don't really have to pay much attention to what your left hand is doing — even rudimentary chords will work, and the chord stays available for triggering until you hit the next one — so you can really concentrate on the music.

The last word is that the Digitar is a niche product, but if this sounds like your niche, it definitely gets a thumbs up.

# CDs IN 3 WEEKS!

300 CDs \$1,590

with black & white inserts

Includes **FREE** design!



*"The outstanding artwork, friendly staff, great sound quality, and quick turnaround just can't be beat. Disc Makers, you are the best. I will be back."*

— Diana Starr  
Columbia, IL

## Only Disc Makers offers all these benefits:

- FREE Deluxe Graphic Design
- Insert film and printing
- Proof Positive® Reference CD
- Tests and proofs sent via FedEx
- FedEx shipping of finished product at UPS Ground rates
- Major-Label-Quality
- No-Fine-Print Guarantee

Call today for your FREE, 1996 full color catalog:

**1-800-468-9353**

24 HOURS TOLL FREE  
609-663-9030; FAX 609-661-3458  
<http://www.discmakers.com>



**DISC MAKERS**

AMERICA'S #1 MANUFACTURER FOR THE INDEPENDENT MUSIC INDUSTRY



# AD INDEX

PAGE	BRAND	INFO#	PHONE#	PAGE	BRAND	INFO#	PHONE#
114	Aardvark	01	313-665-8899	28-29	Mackie Designs	53	206-487-4333
27	Acoustic Science Corp.	03	503-343-9727	102	Markertek Video Supply	54	800-522-2025
89	AKG	02	818-893-8411	135	Martin Audio Duplication	55	800-553-8906
75, 2-3	Alesis	04, 05	800-5-ALESIS	153	Music Industries Corp.	95	800-225-5689
41	Amek	07	818-508-9788	118	Musicator, Inc.	93	800-551-4050
31	Aphex	08	818-767-2929	16	Nady Systems	56	510-652-2411
104	Ashly Audio, Inc.	15	716-544-5191	146	Oasis Recording	XX	800-697-5734
95	Audio Technica	09	216-686-2600	129	Otari Corporation	97	415-341-5900
121	Audix	10	800-966-8261	59	Panasonic	XX	800-777-1146
10	Avalon Design	11	714-492-2000	34-35	Peavey	58	601-483-5365
112	Azden Corporation	12	516-328-7500	87	PG Music	59	905-528-2368
138-141	B&H Photo	18	212-807-7474	126	PreSonus	96	504-767-7887
45, 54	BBE	91, 14	714-897-6766	9	Quantegy	06	415-367-3809
113, 127	Behringer	13, 16	516-364-2244	47	QSC	66	714-754-6175
134	Bell Electronics	19	903-784-3215	97	Rane Corporation	60	206-355-6000
5	beyerdynamic	21	800-293-4463	103	Rhythm City	61	404-320-7253
18-19	Cakewalk	20	617-926-2480	73	Rockford/Hafler	57	800-366-1619
55	Countryman Associates	23	415-364-9988	24-25	Roland	67	213-685-5141
83	Creamware	24	800-899-1939	108	Rolls Corporation	62	801-263-9053
115	Crown	17	219-294-8200	117	Ross	63	817-336-5114
96	David Carroll Electronics	25	510-528-8054	125	Samick	94	818-964-4700
109	dbx	27	801-568-7660	17	Samson Pro Audio	64	516-364-2244
12-13	Digidesign	26	415-842-7900	155	Sennheiser	70	203-434-9190
42-43, 79	DigiTech	28, 29	801-566-8800	65, 32	Shure Brothers	68, 69	800-25-SHURE
56-57, 122	Disc Makers	32, 22	215-232-4140	53	Sony	XX	800-635-SONY
132	Discount Distributors	33	516-563-8326	132	Sound Deals	71	800-822-6434
7	DOD Electronics	31	801-566-8800	131	Soundcraft	73	818-893-4351
51	E-mu Systems	30	408-438-1921	85	Spirit by Soundcraft	72	818-909-4500
135	Earthdisc	34	800-876-5950	91	Steinberg North America	74	818-993-4091
114	East Coast Music Mall	90	800-901-2001	46	Studio Technologies	XX	708-676-9177
119	Electro-Voice	37	616-695-6831	107	Studiomaster	76	714-524-2227
134	Empire Records	38	716-871-3475	133	Sweetwater Sound	89	219-432-8176
71	Ensoniq	39	215-647-3930	60	Symbolic Sound Corp.	77	217-355-6273
135	Europadisk	40	212-226-4401	101	Symetrix	78	800-288-8855
15, 67	Event Electronics	36, 35	805-962-6926	11	TC Electronic	80	805-373-1828
137	Full Compass	92	800-356-5844	81	Tannoy America	79	519-745-1158
111	Furman Sound	41	415-927-1225	23	TASCAM/TEAC America	81	213-726-0303
134	Geoffrey Daking & Co.	42	302-658-7003	52	The Recording Workshop	82	614-663-2544
96	Grandma's Music & Sound	43	800-444-5252	103	Thoroughbred Music	83	813-238-6485
27	Harris Allied	44	217-222-8200	48-49	TL Audio	84	905-420-3946
55	Illbruck	45	800-662-0032	78	Waves	85	423-588-9307
77	Innovative Quality Software	48	702-435-9077	83	West L.A. Music	86	310-477-1945
88	Interactive Light	49	800-213-3752	14	Whirlwind	87	716-663-8820
134	International Audio	50	708-734-1695				
156	JBL Professional	XX	818-895-8190				
52	JRF Magnetic Sciences	51	201-579-5773				
38-39	KRK	47	714-841-1600				
93	Leigh's Computer	52	215-658-2323				
61	Lexicon	46	617-736-0300				



## Technics SX-WSA1R Sound Module



**MANUFACTURER:** Technics Musical Instruments, One Panasonic Way (1C-8), Secaucus, NJ 07094. Tel: 201-392-6140.

**APPLICATIONS:** All styles of MIDI orchestrations and arrangements.

**SUMMARY:** A solid, general-purpose, multi-timbral, 32 MIDI channel, ROM sound-based programmable synthesis module featuring physical modeling sound architecture.

**STRENGTHS:** Good user interface; 32 MIDI layers; up to 64-note polyphony; superior LCD display permits on-board user programming.

**WEAKNESSES:** Physical modeling architecture as used by factory sounds does not clearly distinguish the sound sets from less sophisticated MIDI modules.

**PRICE:** \$2995; keyboard version, \$3395 **EQ FREE LIT. #:** 147

TECHNICS IS BACK in the electronic music instrument game and they've made an impressive return with a solid, general purpose multi-timbral sound module. I had a chance to take the rack version of this instrument out for a MIDI spin. Except for the lack of an on-board sequencer and some cosmetic differences, the keyboard and rack versions seem to be identical.

The first thing that hits you is a giant (by instrument standards), back-lit LCD panel staring squarely back in your face. The actual information-conveying area is about five inches diagonal, which is a work space a little smaller than a CD jewel box. Since so many instruments

these days have impressive sound capabilities, a lot of the distinction among them comes down to how usable any one instrument might be. This fairly high-resolution interactive display, ringed with soft function buttons, and truly usable interactive software will serve newcomers and pros alike.

The SX-WSA1R has all the expected amenities of a multi-voiced MIDI module. Individual sounds can be played with up to 64-note polyphony; combinations of those sounds can be layered for rich and complex performances; and a multi-timbral mode permits MIDI-based sequenced orchestrations. There is a very com-

plete set of on-board multi-effects for all of the reverberant-chorused-echoed effects necessary. Other special features include two distinct MIDI cable groups that can be routed into the module for a total of 32 separate MIDI layers.

A front-panel, X-Y axis real-time controller, reminiscent of the one used on the Korg Wavestation, can be used in creating or controlling the sounds. The controller, which looks a little like a large black eyeball, sends and responds to MIDI controllers numbers 16 and 17 — just like the Wavestation. Audio outputs are 1/4-inch phone jacks in two assignable stereo pairs. A floppy disk drive is included for backing up and reloading those user RAM-based sound creations. The instrument can also be set up as a General MIDI device. Two banks of factory ROM and two banks of user RAM provide hundreds of instantly available sounds and setups. There apparently will be some add-on sound boards available in the future.

The sound engine of the SX-WSA1R is a combination of some good old ROM sample playback tools combined with the latest hot button architecture: physical modeling. The physical modeling structure, for those of you who haven't had a chance to play with the Yamaha VL instruments or the





Speakers, sub woofers, signal processors and more!



The continuing saga of D.B. Hertz, that retro, kinda 70's kinda guy with a 'tude about Pro Audio and a rep for goin' head-to-head with any and all competition!

I'm back! Jack!



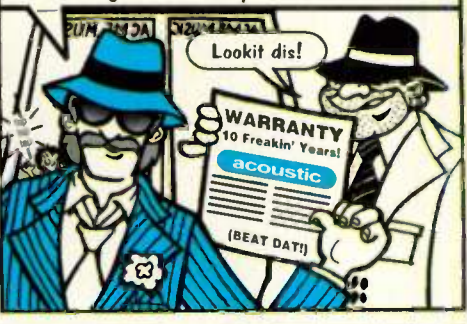
**acoustic**

18521 Railroad St.  
Industry, CA 91748  
818-964-4700

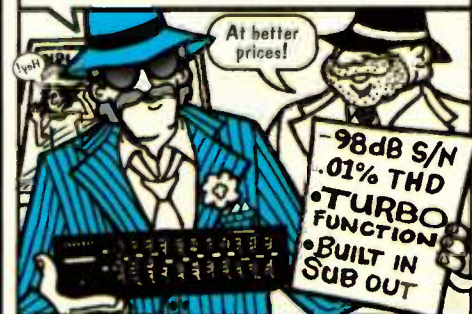
Ya know all about Pro Audio, right? Ya tink ya got all the P.A. stuff ya need, right? Well, tink again. Acoustic's gonna make yer day!



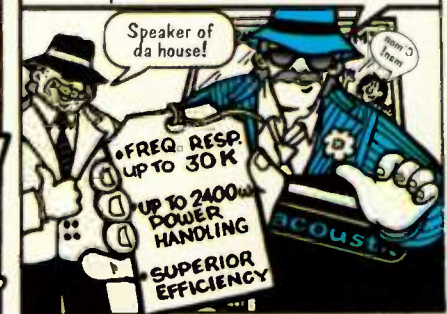
Lookit me here! We're talkin' ultra high-end performance wit a killer 10-year buyer protection plan; da longest, strongest warranty in da bidness!



Check out all deese EQ features here. Deep six da low-end stuff! Compare dis new Acoustic product ta brands like White, Rane or Klark Teknik!



Acoustic's new speakers got da widest frequency response in da histry o' sound reinforcement. Period! Compare 'em ta EV or JBL's best!



So, listen up! Here's whatcha gonna do...Ya gonna pick up da phone, ya gonna call us, an ya gonna make ton 'o cool sounds on Acoustic. It's an 'offa ya can't refuse!



White® is a trademark of White Instruments. Rane® is a trademark of Rane Corp., Klark Teknik® is a trademark of Mark IV Pro Audio, EV® is a trademark of Electro Voice (a Mark IV company), JBL® is a trademark of Harmon International. (An don'tcha fergit it!)

**acoustic**

Sound Reinforcement You Can't Refuse™

18521 Railroad St., City of Industry, CA 91748 818-964-4700

CIRCLE 94 ON FREE INFO CARD



Korg Prophecy, among others, uses powerful computational algorithms to re-create the effects on a raw waveform that an actual physical structure would have in the real world. The SX-WSA1R provides a large number of preconfigured virtual structures that simulate vibrating strings, resonant tubes, and cylinders of various shapes, sizes, and flaring. The resonant structures can be further adjusted and modified from within the editing screens.

Though there is an eventual limit to the user programmability because the basic resonant shapes can only be modified, not created from scratch, full flexibility would be nearly impossible for the average musician to program. And given the tremendous number of modifications to the preconfigured resonators available, even the best programmer will be kept busy for years. The resonators are driven by, you guessed it, drivers that are selected from over 300 ROM samples onboard. From there, sounds are further modified by filters, amplitude modulators, digital effects for each voice, the usual assortment of LFOs and envelope generators, and global DSP effects for the entire instrument.

#### SOUNDING OFF

So, how does it sound? Overall, very good. The factory patches do cover familiar territory — from mapped drumsets, through orchestral colors and elements, and guitars, pianos, percussion, and so on. The sound sets only suffer in that, because we've encountered so many similar sets on other instruments, it's tough for this newcomer to stand above the crowd. The extra points the unit gets for offering physical modeling is slightly offset by competent, but unexceptional, ROM samples. This doesn't give the SX-WSA1R a bad grade at all, because, except for the synthesist who intends to actually program the box himself or herself, the subtle changes in the sound set are still quite subjective. A musician who will be comparing similar, and perhaps less sophisticated multi-timbral modules, still might find other less elegant features on other devices equally attractive.

Everyone always wants to know how the piano patch sounds. Well, it's

*continued on page 151*

# THE ONLY DYNAMICS PROCESSOR YOU WILL EVER NEED!



**The ACP-8 is Under \$99 a Channel!**

- Eight Full Featured Compressor/Limiters
- Eight Full Featured Gates
- Side Chain on Every Channel
- Trigger Inputs on Every Channel
- Balanced/Unbalanced I/O
- Comprehensive Linking Via unique power summing buss

- Takes the place of multiple processors
- Crystal Clear Compression & Gating For Multi-Tracking & Live Sound
- Allows Spectral Processing & Gate Keying Via Separate jacks
- All the dynamics processing you will ever need in 2 rack spaces

Fax (504) 344-8881  
Visit our Web Site:  
<http://www.wja.com/presonus.html>  
E-Mail Us: [presonus@wja.com](mailto:presonus@wja.com)  
In Canada call 1-800-879-6760

The ACP-8  
Shatters  
The Price/  
Performance  
Barrier  
1-800-750-0323

**PreSonus**  
Audio Electronics





**Introductory  
U.S. List Price  
\$2795<sup>00</sup>**

- ▲ Professional 48/24 channel in-line Mixing Console
- ▲ Additional 24 input Mix-B channels, all with full EQ, Level, Pan & Mute
- ▲ Quietest console in its class. Ultra-low noise throughout at -92 dBu (24 channel @ unity gain)\*
- ▲ Extremely high headroom - offering you more dynamics than on any other conventional mixer
- ▲ Ultra-low noise discrete Mic Pre-Amps with +48 V phantom power
- ▲ Not a cheap "British" EQ. Derived from our famous Studio Parametric PEQ 305, our 4 band Channel EQ includes 2 Parametric bands, offering an extremely wide Sweep Range of 50 Hz - 20 kHz!
- ▲ State-of-the-art IC's and highest quality components ensure crystal clear Audio Quality and unmatched Noise Figures
- ▲ High quality Panasonic sealed Rotary Pot controls ensure long life and durability
- ▲ 100 mm high-precision laser-trimmed Panasonic Taper Faders with extra resistance, comparable with those found on massive consoles
- ▲ Up to 6 assignable Aux Send buses, all fully switchable Pre-fader
- ▲ 6 Stereo Aux Returns with multiple routing options
- ▲ 8 Subgroups simultaneously feed 24 Multitrack Outputs
- ▲ +15 dB gain available on all Aux Sends and Returns
- ▲ Balanced Tape In/Out; switchable for -10 dBV or +4 dBu operation
- ▲ Fully extensive Channel, Group and Mix Insert Points
- ▲ Separate Solo In Place and PFL buses available
- ▲ 2TR, Tape Monitoring with multiple routing options
- ▲ 2 separate Headphone Mixes and Talkback facility with multiple routing options
- ▲ Expander Port with Universal Link Facility to any other console
- ▲ 400 W rugged design Power Supply ensuring superior transient response and reliability
- ▲ BNC sockets allow the connection of gooseneck lamps. You can still cut it at 2 am!
- ▲ Meter Bridge available soon at unbelievably low price
- ▲ The next generation - CYBERMIX AutoFader Automation system, and it's coming soon!
- \* Int. +4 dBu RMS figure measured with RMS rectifier 22 Hz - 22 kHz filter

"The Eurodesk means a signal routing flexibility and audio signal quality never before achieved"  
Keyboard Magazine May '95

# Let the world hear how you feel.

The 48/24 Dual-Input EURODESK<sup>®</sup> MX 8000 from Behringer

Producing the finest possible music takes time. You want the creative edge—a special vision that allows your best ideas to make it to the final mix. Because the console is at the heart of your recording, it must work seamlessly alongside you, "feeling" the mix exactly the way you do.

A transparent creative tool between first concept and final expression, the new EURODESK from Behringer gives you the freedom to expand on what you do best—creating new ideas and producing a great mix to let the world hear how you feel.

**For the new Behringer full line brochure, please call 1-800-328-2882 and ask for Behringer Sales.**



Your Ear Is Our Judge

Behringer is exclusively distributed in the U.S. by: Samson Technologies Corp.,

P.O. Box 9031, Syosset, N.Y. 11791-9031  
Tel: 516-364-2244 Fax: 516-364-3888.



**CIRCLE 16 ON FREE INFO CARD**

O  
O  
O  
B  
X  
M  
K  
S  
E  
D  
O  
R  
J  
E



## JACK DOUGLAS

*continued from page 55*

**Must've been a great experience, considering how influenced you were by the *White* album, to suddenly be working with him years later.**

Well, I had worked with him before as an engineer, and he was a friend for many years. And, as a favor to John, I did a lot of Yoko albums, mostly because he was banned from the studio for laughing.

**You mean he didn't take her music seriously?**

Well, he did...but you had to take her super seriously. I mean there was no humor involved here at all, and you probably know that John had quite a sense of humor. For example, a certain yodel that she might do might sound like the words, "Go buy a salami." He'd look at me and of course we'd both end up on the floor. So it wasn't a week into one of the early productions that he was thrown out and pretty much banned for good.

When we were making *Double Fantasy*, I had to have Yoko come in at 11 in the morning and work until 6 PM, and then John came in at 7 PM and we worked until it was time to go home. I would've gotten nothing done if they were there together because he couldn't bear the struggle of her vocal. And he couldn't have her at his sessions because her criticism was sometimes unwarranted and unnecessary and would bring us all down. Luckily, she was usually wiped out by the time 6 PM rolled around and really didn't want to have anything to do with us, so we'd be a rowdy crew from 7:00 on.

**How long did it take to do a typical vocal with John as compared to a typical one with Yoko?**

It would take a whole session to get one vocal with Yoko; I would have to do ten tracks of vocals and then comp them to get one that was in the ballpark.

With John, it was more a matter of how we were going to approach each song. Plus, there's no one in the world that knew how to work a microphone in the studio the way he did. He'd be singing on the back side, the front side; he never ever cut an "s" through a microphone and never needed a pop filter. You never had to use a limiter on him, only for effect in the mix. As long as you gave him a good headset mix, because it had to sound like a record in his headphones, he was amazing.

Whereas with Yoko, she had such a small voice that I had to use so much limiting that her body functions became louder than the vocals. But I knew how to record her because I had so much experience doing it, so we got some good vocals on the album. But it came to such a sad end. We finished it the day he was shot.

**Are there any particular techniques you use in getting sounds or in working with artists? Something that seems to work over and over?**

The trick to working with an artist is to let him realize that you're on his side. I like to work with new artists and new artists have always been suspicious of people that are on the other side of the glass. They feel that in some way or other we're out to get their music and do something to change it. I want to convince an artist that all I want to do is take his music and help him get it on the record so that it is in fact what he wanted to begin with.

New artists especially get very insecure about their own stuff, so it's important that when they hear it back they're confident after we've worked on the material. If I can keep an artist's confidence up in the early part of building a record, that record is going to work. A label signs an artist because they have a sound, and gives them all this money to make a record that sustains that sound and that's what I try to do. The other trick is to try getting it live. **EO**

## ALEX LIFESON

*continued from page 60*

421's were used on the toms. I split the 421's so I would have one 421 on the two top toms and two separate 421's on the two floor toms.

As for the bass, I used a Gallien Kreuger single 15-inch front-loaded cabinet with an SVT head (both on direct), miked with a 421. In retrospect, I think I lost a little of the deep bottom end on the bass sound. Perhaps if I used different mics I could have gotten some of that back. I think I was going for a sound that was a little more "middly" and sat in the track a little more clearly rather than filling that bottom.

### IN THE MIX

When I started the mixing process, I bumped everything over from the ADAT onto 2-inch analog. I hit the tape pretty hard because I thought I

might be able to get a little bit of warmth out of it. When it was all said and done — on Ampex 499 tape with Dolby SR — I didn't really find that much difference between what I had on the ADATs and what I ended up with on analog tape. It's much more convenient to work on Studer multi-track machines. The transports on the ADAT are slow, and going back and forth is a bit of a headache. So that was really the main reason for doing that transfer.

When I went to McClear Pathe to mix, I did the first few mixes through Apogee filters, and maybe I was hitting the Apogee's a little too hard, but I found that it softened the sound and made it kind of "spongy." So I ended up going back and redoing those mixes, and then I started taking mixes out because I wasn't happy with the bottom end, so I went back in once again. I remixed the record a total of three times. I intended to spend about two and a half weeks mixing. I figured that gave me a little bit more than a day per track. I ended up spending a month, and I worked six days a week from 11 AM to 3 AM.

I tried to be very careful with the guitar mixing. If I were to remix the record, I think I would try to find a bit more of a balance between the rhythms that I mixed up front and the leads that I sort of buried. I didn't want the solos to feel like, "Here's the solo — it's in your face." I wanted the sonic impression of it to be tied more deeply into the song and with what's happening with the rhythm track and more knitted with everything that's going on. I don't know if that always works, and maybe I was a little bit oversensitive in downplaying that aspect. Certainly on a song like "Mr. X," I think the main lead guitar line is a little too low in the mix, but you learn from these things. At the same time, when I listen to that song, I find myself leaning forward, and there's this sense of being wrapped around the music when I do that. So, perhaps I did create an impression.

I'd certainly like to do another project like this. Whether it's a Victor project, I won't know until the time comes. I want to keep an open slate and just start on it on the first day and not think about it that much. I'd love to do some soundtrack work and I'd love to do some production. But, since the new Rush record is winding down to an end, and touring always follows, it's going to be quite a while. Maybe. Sleep tight, Victor. **EO**



He had everything he needed to  
become the best in the field...

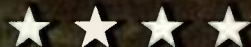
# The Champion's Story

starring  
D.B. POWERS as  
SLUGGER JONES



"I can't use any of my other workstations as a true multitrack replacement—RADAR really works for this...I've pounded on it really hard and it works the way it's supposed to."

—Les Bateman, F/X Studios, Toronto



"I find that RADAR can do everything I need it to do for hard disk recording and editing and it's the best yet as far as user-friendly goes... RADAR's sound quality is as good or better than anything else."

—Cal Harris, Calvin L. Harris & Associates, Inc.,  
Los Angeles



team  
OTARI

★RADAR – WORKS OUT OF THE BOX! ★RE-8 session controller has ★DEDICATED BUTTONS for almost all operations. ★RADAR VIEW allows visual display of audio, metering, time code, track names & project information. Locks to ★SMPTE and MTC with FREE-WHEEL. 24 channel ★DIGITAL I/O with ADATLINK. ★Transfer digitally to/from all popular formats via Otari's Universal Format Converter, the ★UFC-24. Call your Otari dealer or (415) 341-5900 for information. And don't forget to ask for a large poster of this ad!

AN  
**OTARI**  
PRODUCTION

Otari Corporation U.S.A.  
Phone: (415) 341-5900, Fax: (415) 341-7200,  
L.A. Sales: (818) 972-3687, S.E. Sales: (615) 255-6080

Otari Inc. Japan, Phone: (81) 4-2481-8626, Fax: (81) 4-2481-8633

Otari Deutschland GmbH Germany, Phone: (49) 2 59-50861, Fax: (49) 2159-1778

Otari Singapore Pte., Ltd., Phone: (65) 284-7211, Fax: (65) 284-4727



# Old (and New) Reliable

Digital tape users should demand greater reliability from their machines — here's why

BY EDDIE CILETTI



**W**hen I told people that I was reviewing the Alesis ADAT XT (see page 98), potential users responded with great interest. Interestingly though, many "Original Formula" (OF) ADAT power [frequent] users had already formed an opinion — one that made me wish I'd kept silent. Why is it that people who get a great deal always want more? We all wish for our toys to be more affordable — digital 8-tracks are the leading example — so, how much more do you want? Or, more precisely, how much additional would you be willing to pay for extra features, performance, and reliability?

## OVERVIEW

Ten years ago, a new 24-track, 2-inch analog tape recorder ranged in price from about \$35,000 to \$80,000. You could also have built a "modular" ana-

log multitrack system using top-of-the-line, half-inch 8-track machines. At \$5000 per unit, plus \$5000 for a pair of synchronizers, a three-machine system would cost \$20,000 and yield 19.5 usable tracks. (Three tracks would be lost for timecode. The neighboring guard band counts as half a track because only low-frequency information can be recorded without affecting the synchronizing track.)

Without adjusting for inflation, a present-day 24-track, digital-8-track-based system is a better deal. Even when compared to a timecode-equipped stereo DAT machine, a single Alesis XT with a BRC or a TASCAM DA-88 with an SY-88 sync card is also a better deal. Either system is more friendly and both offer six additional tracks. (I feel fairly confident in speculating that there is less demand for a timecode DAT than for a digital 8-track, hence the pricing similarity.)

## AGENDA

We all have agendas, but our goal should be to strive to get greater reliability. It isn't my job to complain, but, rather, it is to inform users on how to recognize the special ingredients required to meet that reliability goal. As consumers, you must tell manufacturers that you are willing to pay for additional performance.

For digital cassette decks — of all formats — the key reliability features should be:

- **Separate Reel Motors (SRM)** mean fewer moving parts to wear out or require adjustment. SRM improve tape handling in all modes, ensuring safer tape travel and increased wind speeds. With SRM, tension on both sides of the capstan can be monitored and optimized so that performance — at any place on the tape — is the same. Some DAT machines use the capstan motor to also move the reel tables. All current digital 8-tracks have a single-reel motor for take-up and supply. More motors = fewer error messages.

- **Optical Mode Sensors (OMS)** minimize the amount of erroneous information recorded from the trans-

port to the system control circuitry, yielding faster, more reliable, multiple-machine lock-ups. (With the exception of the Panasonic SV-3500, every digital cassette deck uses a mechanical switch that's prone to wearing out.) OMS offers improved, consistent, and positive engagement into all transport modes. It also yields less road kill (a.k.a. eaten tape).

- **Numeric Error Rate Indicator (NERI)** information should either be displayed at all times or accessed from a single keystroke of a dedicated and labeled button. If the NERI is not on the "home page," a multisection warning display blinkie should jar the user into action before error concealment is no longer possible. The four-digit system should be standardized among manufacturers. A useful feature would be for the machine to automatically enter into memory the location just before a troubled section of tape. It would then prompt the user to investigate and clone before the problem becomes a lost take.

- **Oscilloscope Interrogation Ports (OIP)** would encourage users to own a 'scope, and would also help them to determine the mechanical compatibility between tape and machine (tape path). For technicians, it would facilitate the task of machine monitoring under real-world conditions — that is, with the cover on. It would also help to standardize the calibration procedure.

## THIRD-PARTY GNUS

When the original ADAT hit the market, lots of things very quickly changed; my business, for starters. Nearly every project studio traded in its 8- or 16-track analog machine for an ADAT. Others waded in calmer waters to see if TASCAM's contribution to the technology wave was worth riding. Meanwhile, the half-inch and one-inch decks ended up in what truly are home studios.

Guess what? Now that the ADAT XT is here, a good percentage of users are likely to trade-up, so expect to see the ADAT OF on the used market. If you're holding on to your ADAT, or are in the market for a used machine



THE ULTIMATE 8-BUS ANALOG CONSOLE BECOMES MANIFEST APRIL 1996

# Ghost

Soundcraft

H A Harman International Company

CIRCLE 73 ON FREE INFO CARD





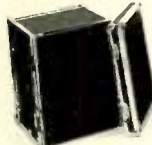
**PROFESSIONAL  
QUALITY  
AT THE RIGHT PRICE**



**Heavy Duty ATA**  
• Custom and stock sizes  
• Quick turn around

**Medium to Heavy Duty  
Keyboard Cases**

• Prices starting at \$126



**Heavy Duty AMP  
and Effect Racks**  
• Prices starting at \$129



**Hardshell Cases**  
Available for:  
guitars racks  
keyboards



**DISCOUNT  
DISTRIBUTORS**

FOR INFORMATION CALL 800-346-4638  
AND FREE BROCHURE (In N.Y.) 516-563-8326

**The Case Specialists**

Circle 33 on free info card

**Sound Deals**

- Digital 8 Track Recorders
  - Mixing Consoles
  - Signal Processors
- Studio Monitors and Amplifiers
- Synthesizers and Samplers
  - Drum Machines
  - PA Systems
  - Microphones
- Computer Software and Hardware
  - Tape and Cabling

*All major brands from A-Z*

250 Old Towne Road  
Birmingham, AL 35216  
205-979-1811 Fax

72662.135 @ Compuserve.Com

**for a sound deal call  
800-822-6434**

Circle 71 on free info card

**WORKSHOP MAINTENANCE**

there are at least three third-party options. Watch for my review of Horizon Music, Inc.'s Input and Output Card Upgrade.

Brian Holling at dBm Electronics in New York City (Tel: 212-629-0326) has created a mechanical reinforcement bar for the ADAT OF that stabilizes the loading mechanism. Tweak heads should also note that there are several quad op amps (not "opals" as a typo suggested in my March '96 column) in the ADAT OF. The quad op amp upgrade plug-in mentioned in my March '96 Maintenance column is also applicable here, though it requires more skill than the Horizon option. (For quad op amp info, contact Everett Carroll at 714-539-7887.)

**BUG REPORT**

I am not a power digital 8-track user, but rather a humble technician who

understands tape machines from behind the front panel. It's important that customers get to really know the features of their digital tape machines. I ask everyone to thoroughly investigate and document problems before reporting them to manufacturers and repair technicians. Only you can determine the original set of circumstances. In the process, you may find that the time taken to investigate a quirk might even reduce the number of operator errors and/or wasted hours on hold waiting for a customer support rep whose time is also being wasted.

*Eddie Ciletti spends his days changing mode switches and nights writing a book about what he does during the day. His e-mail address is: eddieaudio@aol.com.*

**RUMOR BUSTER**

My review of the ADAT XT is not exactly an exclusive, but its timing might actually put me in a good position to play Spin Doctor. Some of you have likely heard rumors about the XT concerning smoke, runaway machines, and slow transports with dim displays. I thought it might be appropriate to address the rumors, considering that, especially via the Internet, stories have a way of traveling 'round the world and returning unrecognized.

As any new product rolls off the assembly line, infant mortality is expected to at first be high. "Do you buy now, or wait?" "Does Alesis deserve to be spanked, or not?" "Are the machines receiving adequate burn-in prior to shipping?" The answers are complex, but my response is to buy now. (If Alesis enjoys being spanked, then maybe...) As for balancing QC time with the importance of getting to market; it will be impossible for users to understand manufacturers without swapping shoes. Competition is fierce in our small, niche jungle. Alesis got a jump start in the digital 8-track business and it wants to maintain its lead. With TASCAM as competition, what would you do?

Would I recommend a DA-88 over an ADAT XT or vice versa? Well, that choice is still yours. Both machines work and both have room for improvement. Either is well suited for long-form recording, such as tracking a rhythm section, and the XT is most definitely an improvement over its predecessor. For overdubbing and mixing, a disk-based system is more appropriate.

Everything will ultimately be captured and manipulated on spinning disks, whether magnetic or optical. Then the choice will be to backup onto another disk or tape. Unless tape transports become more robust, confidence in them will diminish and the new technology will win out. My recommendation? Make two backups on whatever format you choose.

Meanwhile, I believe that Alesis has always maintained an excellent track record for in-warranty customer service.

—EC



# WHY IS SWEETWATER SOUND THE "RIGHT CALL" FOR YOUR MUSIC?

Anyone can sell you boxes. But what's best for you and your music? There's a good reason why Sweetwater has been America's fastest growing music retailer for three straight years. We understand that when you're investing your hard-earned dollars, you want to get exactly what you need, when you need it and within your budget. Why is Sweetwater best equipped to do what's right for you?



## 1 KNOWLEDGEABLE SALES STAFF

Our sales engineers are professionals with serious, real world knowledge of the products we represent. Most have their own studios. Many have spent years as engineers at major studios. We even have a Grammy winner on board. We make it our business to be absolutely sure the product you order is exactly the product you need.

## 2 HUGE IN-STOCK INVENTORY

We stock products from over 100 of the best names in the business like Alesis, Digidesign, Kurzweil, Mackie, Roland and TASCAM, just to name a few. The "other guys" may tell you they can get it fast, but how long will it *really* take? Our giant warehouse is packed with the latest gear, ready to ship right to your door — in most cases the very same day you order!

## 3 PRICES THAT ARE AFFORDABLE

Not only do we have the best selection of the finest products in the entire music industry, but our prices are so affordable, you won't have to take a second job just to start making music!

## 4 OUTSTANDING TECHNICAL SUPPORT

Got a question about a product you've purchased or are thinking about purchasing? Just give us a call! Whether you're a novice or a seasoned pro, our technical support team has the knowledge and experience to answer any question you might have. And no other dealer has anything like our huge, online product database that gives our staff instant access to technical information about thousands of products.

## 5 BUY WITH CONFIDENCE

Because if you're not totally satisfied with any product you purchase from us, we'll work with you to make it right! If you're not happy, *we're* not happy!

## 6 DEPENDABLE ON-TIME DELIVERY

Whether you need it in a week or a day, we have a shipping department that's up to the task. We can have your equipment packaged and shipped out within hours of receiving an order.

We ship via all major carriers. Just tell us when you need it and it'll be there!

## 7 LATEST UP-TO-THE-MINUTE INDUSTRY NEWS

There are new products being released

every day, and you want to know about them. You also want technical information and tips on making the most of your equipment purchase. That's why we're the first major retailer to maintain a full-time presence on the Internet. And why we publish our exclusive, free full color *Sweet Notes* newsletter.

## 8 STATE-OF-THE-ART SERVICE

When your gear isn't working, you want it fixed right the first time. Sweetwater is a factory authorized service center for all the products we sell, with over a dozen highly skilled technicians trained right down to component level repairs. What's more, all the work is done right here on the premises, so your equipment is returned to you the minute it's ready with no delays and no excuses.



## 9 CUSTOM FINANCING PROGRAMS

We accept cash, checks and all major credit cards, but we also offer our own Sweetwater Technology Card, as well as our exclusive new line of credit accounts and leasing plans.

## ADD UP THE VALUE!

Close to 100,000 customers world wide already call us. Shouldn't you be one of them? Call right now and experience the Sweetwater difference!

# 219•432•8176

5335 BASS ROAD • FT. WAYNE, IN 46808 • FAX 219-432-1758  
sales@sweetwater.com <http://www.sweetwater.com>



**CALL NOW! YOU MAY BE PRE-APPROVED FOR A \$10,000 LINE OF CREDIT ACCOUNT!**

CIRCLE 89 ON FREE INFO CARD

THE ULTIMATE  
MUSIC RETAILER!

**Sweetwater**  
SOUND INC.



# EQ SHOPPER

## Sound Advice

Rick Chertoff	Ray Benson
Joan Osborne	Ray Kennedy
William Wittman	Steve Earle
Too Much Joy	Willy DeVille
Cyndi Lauper	The Steve Miller Band
Butch Vig	Asleep At The Wheel
Soul Asylum	John Cale
Garbage	Freedy Johnston
John Siket	Audioforce
Sonic Youth	Millbrook Sound
The Dave Matthews Band	Bearsville Studios
Tom Jung	Justin Niebank
The Roches	Martin Brass
Boonshoft Vintage Rentals	Freddy Jones Band
Mark Egan	Stuart Sullivan
John Scofield	Bob Mould
Royaltone Studios	Appaloosa Sound
Stewart Lerman	Kevin Beamish
Joe Chiccarelli	Dave Thoener
John Agnello	Bon Jovi

### Hear It For Yourself

- TWO 52270 VERTICAL MICPRE/Eq's 4 SPACE ROAD CASE & POWER SUPPLY ..\$2595.00
- TWO 52270 HORIZONTAL MIC PRE/Eq's 19" RACK MOUNT WITH POWER SUPPLY ..\$2495.00

GEOFFREY DAKING & Co. Inc.  
2401 PENNSYLVANIA AVE. SUITE 914  
WILMINGTON, DELAWARE 19806  
800-522-3650  
302-658-7003  
GEOFFDAKE@AOL.COM



CIRCLE 42 ON INFO CARD

## Empire Records

1000 CDs  
\$2275

Includes 70 mm. CD, 20 tracks, 2 color disc, full layout, color separations, full color 4-page insert, full color tray card, jewel box, assembly, and shrinkwrap. Free shipping included! Ask about our cassette packages.

Call toll free for free brochure & sample  
**1-800-305-DISC**  
Fax: (716) 871-9317

2635 Delaware Ave. Buffalo, NY 14216

CIRCLE 38 ON INFO CARD

# all pro audio

Since 1968

GIANT  
INVENTORY  
BEST PRICES  
CALL NOW

Order 1 800 785 3099  
Info 1 903 784 3215  
Fax 1 903 785 2844

A Division of Bell Electronics

CIRCLE 19 ON INFO CARD

REACH THE MOST  
IMPORTANT READERS  
IN THE INDUSTRY!  
ADVERTISE IN

## EQ SHOPPER

Our Shopper Section Gives Manufacturers & Dealers the Opportunity to Expose their Products & Services to Every Recordist, Nationally & Internationally!

The May Issue closes April 1st!!

**DON'T MISS OUT!!**

**CONTACT PETE SEIDEL**  
**212-213-3444 Ext.146**

## TDK PRO SA

C10.....\$.29  
C20.....\$.35  
C30.....\$.41  
C45.....\$.47  
C60.....\$.58  
C90.....\$.75

### • CD REPLICATION

• REAL TIME CASSETTES

### • CD ONE-OFFS

• COMPLETE PACKAGES!!

• MAKIN' COPIES SINCE 1974!

International  
Audio  
847-734-1695



CIRCLE 50 ON INFO CARD



# EQ SHOPPER

## CD & Cassette Prices That Are Down To Earth!

- CD Packages Include:
- Glass Master
  - Full Color 4 Panel Booklet
  - 2 Color on CD Printing
  - Shrink Wrap
  - Jewelbox
  - And Much More . . .

CD's            CASSETTES  
500 - \$1070    500 - \$555  
1000 - \$1635   1000 - \$745

**MASTERING**  
at \$55/hr.



Toll Free  
**1-800-876-5950**  
We Accept VISA/AmEx

CIRCLE 34 ON INFO CARD

## CD - CASSETTE - VINYL LPs

All Manufacturing in Our Plant... Since 1977

### CD & CD-ROM REPLICATION

Quantity	Disk Price (Bulk)	Price Ea.	Set-Up Cost vs Turn-Around-Days			
			3 DAYS	5 DAYS	10 DAYS	15 DAYS
200 to 499	\$ .95	\$1,100	\$850	\$500	\$450	
500 to 999	.90	1,000	775	375	350	
1,000 to 1,999	.80	900	625	200	100	
2,000 to 4,999	.72	725	250	no charge		
5,000 to 25,000	.65	no charge	no charge			

From your Premastered CD-R, replicated CD or 1630 and label film. Prices include 2-color CD label (1-color on 999 or less). Premastering & Packaging are available. Jewel Case & Shrink-Wrap Packaging, S.28; S.25 @ 5,000 & over.

### RETAIL-READY CD PACKAGES with Full Color Graphics

CDs in Jewel Case + Full Color Booklet and Tray Card

	300	500	1,000	2,000	5,000
1-Panel	\$1,627	\$1,748	\$1,903	\$2,893	\$5,943
4-Panel	\$1,957	\$2,078	\$2,233	\$3,353	\$6,643
6-Panel	\$2,387	\$2,508	\$2,663	\$3,873	\$7,093

Includes graphics layout, typesetting, graphics proofs, film and printing for booklet, tray card and 2-color CD label (1-color for 999 or less), replication and packaging in shrink-wrapped jewel case - from your sketch, photos and premastered CD-R.

### NEED CD-AUDIO PREMASTERING?

DAT to Sonic Solutions PMCD Master Disk + Reference Disk for your approval: \$125 to 25 minutes; \$140 to 63 minutes; \$150 to 74 minutes

### RETAIL-READY CASSETTES with Full Color Graphics

Full-Color Standard J-Card, Norelco Box - CHROME!

	500	1,000	2,000	3,000	5,000
to 12 Min.	\$720	\$1,004	\$1,588	\$2,090	\$2,974
13 - 29 Min.	\$750	\$1,071	\$1,714	\$2,267	\$3,247
30 - 49 Min.	\$791	\$1,148	\$1,865	\$2,478	\$3,575

Full-Color O-Card Cassette Single - CHROME!

	500	1,000	2,000	3,000	5,000
to 12 Min.	\$715	\$935	\$1,394	\$1,918	\$2,600
to 29 Min.	\$740	\$979	\$1,476	\$2,033	\$2,778

Includes graphics layout, typesetting, graphics proofs, film, graphics printing, shell printing, test cassette, and shrink-wrapping - from your sketch, photos and master.

### VINYL RECORD PACKAGES

	300	500	1,000	2,000
12" Single (to 14 Min.)	\$795	\$1,015	\$1,285	\$2,195
12" LP (to 26 Min.)	\$895	\$1,115	\$1,385	\$2,295

Includes Direct Metal Mastering, Plating, Test Pressings, Label Typesetting, Label Printing (1 ink color), all-plastic sleeve, collation & cartoning in 50-count boxes. Black Die-cut (hole-in-the-middle) Jackets - 35¢ each.

## EUROPADISK, LTD.

Call for our COMPLETE CATALOG **(800) 455-8555**

75 Varick Street, New York, NY 10013  
Tel (212) 226-4401 • FAX (212) 966-0456

CIRCLE 40 ON INFO CARD

# SATISFACTION GUARANTEED

100%



### COMPACT DISCS

INCLUDES GLASS MASTER/  
SET UP, 2 COLOR CD IMPRINT.  
FULL COLOR 2 PAGE CD BOOK  
& TRAY CARD, PACKAGING

500            \$1295  
1000         \$1795

**1000 C 45 DIGITAL CASSETTES**  
WITH FULL COLOR J-CARD

**\$995**

All prices based upon production ready DAT and plate-ready film. Freight charges may be additional.



1219 Westlake Ave. N. Suite 218-A, Seattle WA 98109

**(206) 285-2642**

**1-(800) 553-8906**

CIRCLE 55 ON FREE INFO CARD

## EQ SHOPPER ORDER FORM

If your advertising budget does not meet your sales goals, then you should be advertising in the **EQ SHOPPER**. The **EQ SHOPPER** is a special advertising section that offers more impact than classifieds at a lower cost than display ads. Simply put, the **EQ SHOPPER** is the most effective way to market your product/service to thousands of project studio owners! To reserve advertising space, just fill out this coupon and send to: **EQ SHOPPER**, 2 Park Avenue, Suite 1820, New York, NY 10016 or fax (212) 213-3484.

For more information, contact:

**Peter Seidel at (212) 213-3444, ext. 146**

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_

Method of Payment:  Check or Money Order

MasterCard  Visa  American Express

Card# \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_



# Mr. Chips, Where Are You?

Watch out — someone may be after your memory

BY MARTIN POLON



Recently, the owner of a small recording company stopped for a sandwich and a beverage at a major U.S. airport. At his side was his trusty Apple Powerbook. A woman sat down at the stool next to him and ordered a bowl of soup. The woman "accidentally" spilled the soup onto the case of the Powerbook. A man who was standing nearby came running over with napkins and began to carefully clean the Powerbook case. The woman apologized profusely and then the man handed up the now cleaned Powerbook. The woman explained that it was her husband who had done the cleaning and that he also had a Powerbook. The two shuffled off and all seemed well. Our hero finished his lunch and hefted his computer case. It was empty.

The airport police were called. The story was told and the officers nodded sympathetically. One officer excused himself and made for the men's restroom. He returned quickly with the Powerbook. It had been left on the sink. It had been forced open with a large screwdriver and the memory chips and the main processor removed. The police said it had happened before and more than once. In the "good old days," the police said, it would have merely been taken. Now, the chips were worth more than the street price for a stolen laptop computer. Unmarked, there was no way to prove the chips had been stolen.

The spread of large memory resident application software and overall demand for large-scale memory on current-generation Macs and PCs has really fueled the worldwide memory chip demand cycle. It is not unusual to find large-scale PCs and Macs used in audio and video postproduction and editing loaded with 500 MB of RAM. New state-of-the-art microprocessors are the other half of the equation, with the 120 MHz to 200 MHz Power PCs and the P-6 Pentiums in short supply as the demand for more powerful computers continues to accelerate.

Not having the priorities or resources to ride out the chip storms, dealing on the chip "gray" or "black" market is a less than desirable option for many manufacturers, but an option never the less. The problem with what one purchasing agent calls "Midnight Electronic Supply," is that the exact status of irregularly purchased chips remains a mystery. Are the chips stolen, or have they been cut out or stolen from products in somebody's studio? Nobody knows for sure but they are all "black gold." No identifying serial numbers are sported by \$500 and \$1000 processor chips and \$3000 memory DIMMs in postproduction PCI Macs.

Chips can be stolen in various ways. Shipments of chips are intercepted and hijacked from delivery trucks, as a ring recently did in California. Others, armed with pistols, shotguns, and automatic weapons actually hijacked chip inventory from a manufacturer's premises. In California's Silicon Valley, armored cars are being used to facilitate chip deliveries. More frequent, and with far less risk, chip boosters remove chips from various premises — often done in such a way as to be virtually invisible to the chip's original owners. These chips end up in a number of different places, including being shipped to China in circumvention of U.S. export restrictions. They sometimes end up in new equipment from small manufacturers and as replacement units from small vendors.

In recording studios, chip thefts generally happen when studio visitors and customers are allowed to roam free. One studio owner commented, "The manager of the group that was recording went

around our 'plant' at night and popped the cover of every machine in the place and took most — though not all — of our RAM. This individual then loaded a RAM doubling application so that it took some time before we figured out what was going on!" It turned out that the thief was so computer savvy that he had modified a copy of a popular RAM extension program with an utility that allowed the extension to double, triple, or even quadruple apparent system RAM via software. He could take 80 percent of the available memory and still leave the machine working — after a fashion. Thieves working in a similar mode can pop the microprocessor in every computer in a recording facility. In a large studio, that can yield twelve or fourteen chips with a street value of \$1800 to \$2000.

What can audio recordists do to protect themselves from such deprivations?

1. There are many reasons to install adequate computer theft protection on all PCs and Macs in a facility, but one is that these devices prevent unauthorized opening of machines to gain access to the chips.

2. Portable computers must be watched at all times. The theft of portable computers has reached the point where in excess of half a million portable computing devices are stolen each year in the U.S.

3. When buying memory or processor upgrades always buy from known sources; e.g., nationwide chains such as Computer City, CompUSA, etc. Always insist on seeing the packaging for the chips you are purchasing if you buy from smaller vendors. Use extreme caution at swap meets and computer fairs. Generally, you are safe buying chips by mail order from ads in an established publication, especially if the advertiser has been in a number of issues. Selling "hot" chips by mail and advertisement makes what was a state crime a Federal offense, and any crook will tell you that the last people they want to have chasing them are the postal inspectors! What you don't want to do is to end up buying black or gray market chips at so-called face value that are anything but new and which could cause performance degradation or total failure in a session at a later date.

EQ



**AMPLIFIERS, RECEIVERS, PRE-AMPS, TUNERS** AB International • Alesis • BGW

• Bogen • Carver • Crown • Electro-Voice • Hafler • QSC • Ramsa •

Stewart • Technics • University **CD PLAYERS, TURNTABLES,**

**CARTRIDGES** Denon • Gemini • Shure • Stanton • Tascam • Teac •



Technics **ELECTRONIC MUSIC** Akai • Alesis • Digidesign • Digital

Audio Labs • JL Cooper • Opcode • Midiman • Music Quest • Passport • Roland •

SAWW • Sound Forge • Steinberg Jones • WAVES **HEADSETS & INTERCOMS**

AKG • Audio-Technica •



• Sony • Telex • Williams Sound

Technica • Beyer-Dynamic • C-Ducer

Electro-Voice • Groove Tube • Microtech

Sennheiser • Shure • Sony • Vega **MIXERS**

Electro-Voice • Fostex • Furman • Gemini • Intelix • Mackie Designs •

Systems • Ramsa • Rane

Spirit Soundtech •

• TOA • University Sound



Beyer • Fostex • Koss • Shure • Sennheiser

**MICROPHONES** AKG • Audix • Audio-

• CAD-Equitek • Countryman • Crown •

Gefell • Ramsa • Samson •

Alesis • Allen-Meath •

Electro-Voice • Fostex • Furman • Gemini • Intelix • Mackie Designs •

Rolls • Samick • Shure • Sony • Soundcraft/

Soundtracs • Stewart • Studiomaster • Tascam

**RECORDERS, DUPLICATORS** Akai • Alesis •

Digidesign • Digital Audio Lab • Fostex • Marantz • Otari • Sony • Tascam • TEAC • Technics

• Telex **SIGNAL PROCESSING** A-B International • Alesis • Aphex •

Ashly • Behringer • BBE • Brooke-Siren • dbx • DOD Digttech • Drawmer

• Electro-Voice • Eventide • Furman • Klark-Teknik • Lexicon • Rane • Sabine • Symetrix •

Tascam • TL-Audio • Valley Audio • White **SPEAKERS & LECTERNS** Alesis •

Anchor • Audix • Bag-End • Electro-Voice • Galaxy • Genelec • JBL • Klipsch • KRK • PAS

• Ramsa • Turbosound • University Sound **TAPE** Ampex

• BASF • CloneTone • DIC • FUJI • Panasonic •

Scotch/3M • TDK **TV/VIDEO** Bogen

• Futurevideo • JVC • Lowel-Light

• Panasonic

• Porta-Brace

• Videonics

• Winstead & More!

**Knowledgeable  
Salespeople, too.**

**Lots of Great Prices On New,  
Demo & Clearance Items!**

**CALL!**



**400+**  
**PRODUCT LINES**

**1-800-356-5844**

(608) 831-7330 • Fax (608) 831-6330

8001 Terrace Ave., Middleton, WI 53562

**FULL COMPASS**

**AUDIO • VIDEO • LIGHTS  
LOW DISCOUNT PRICES EVERY DAY**

**CALL TODAY FOR YOUR  
FULL COMPASS CREDIT CARD!**







# "THE PROFESSIONAL'S SOURCE . . ."

FOR ORDERS CALL: **800-947-5518** OR FAX (24 HOURS): **800-947-9003**  
**212-444-6688** **212-444-5001**

**OVERNIGHT AND RUSH SERVICE AVAILABLE**  
 E-Mail at 76623.570@compuserve.com

## TASCAM 102 mkII / 103 Stereo Mixdown Cassette Decks



Best values for musicians, studio operators and production houses, the 102 mkII and the 103 consistently produce only the highest quality tape recorded output.

**They Feature:**

- 60dB signal-to-noise ratio combines with wide frequency response for high-fidelity sound reproduction on using any type of cassette tape.
- Industry-standard Dolby B/C noise reduction and Dolby HX Pro sound technology extends high frequency performance up to 6kHz and minimizes distortion.
- Advanced bias-sensing electronics automatically chooses optimal recording settings for the type of tape you load in—Normal, Metal, or CrO2.
- Record/Mute autospacer automatically inserts 4 seconds of silence between songs or broadcast segments.
- Multi-function display clearly indicates transport mode, tape counter position, tape type and level indicator.
- Multi-counter with both tape counter and run-time modes.
- Independent L and R stereo level controls and master record level control.

**Tascam 103 Advanced Features:**

- 3-head system allows you to record on a tape and monitor it at the same time, without rewinding.
- MPX filter button eliminates pilot and sub-carrier broadcast tones that can interfere with Dolby noise reduction.

## 202 mkIII Dual Auto Reverse Cassette Deck



The 202 mkIII provides high-fidelity sound reproduction and a wide frequency response, as well as a host of features that help you dub, edit, record or playback onto/from one or two cassettes easily and efficiently.

- Normal speed and high-speed dubbing
- Autospacer automatically inserts 4 seconds of silence between songs or broadcast segments for pro quality tapes
- Incorporates Dolby HX Pro sound technology to extend high frequency performance and minimize distortion on Normal, Metal and CrO2 tape.
- Allows you to quickly and easily create a professional-sounding composite tape from several sources. Functions like Intro Check, Computerized Program Search, Blank Scan and One Program quickly find the beginning of tracks you want.
- Twin two-head cassette decks in a durable rack-mount housing that can be used separately or in tandem during recording and playback for total flexibility.
- Play material on deck 1 while deck 2 records on one or both sides
- Record simultaneously on both decks from an external master
- Playback both sides of one or both decks in a continuous loop up to five times
- Auto Reverse automatically reverses tape direction during playback and record
- Repeat reverses tape and allows infinite looping during playback
- Timer switch for unattended recording/playback (timer required)

## New! 302 Double Auto Reverse Cassette Deck

All the features of the 202 mkIII, the new 302 adds even more recording and playback flexibility. This is because the 302 is actually two fully independent cassette decks. Both decks have their own set of interface connectors, transport control keys and noise reducing functions.

- Auto-reverse capability on both decks
- Individual/simultaneous record capability—both decks
- Independent RCA unbalanced input for each deck
- Cascade and Control I/O let you link up to 10 additional machines for multiple dubbing or long playing record and playback applications

## CD-601 Professional CD Player



Frame-accurate cueing precision, extremely high-fidelity and a small form factor make the CD-601 ideal for post-production applications where sound effects and music are "thrown-in" from compact discs. The CD-601 integrates with most post-production equipment including mixers, video editors and computer studio controllers.

- Balanced XLR and unbalanced RCA outputs
- Precision cueing control and Auto cue
- Linear motor-driven pick-ups eliminate dead air
- Optional RC-601 remote control adds additional features and conveniences
- Optional BU-2 RAM for instant start and seamless loops up to three minutes

## marantz®

### PMD-101/201/221/222/430 Portable Professional Cassette Recorders

The world standard for field recording, the PMD line is also the value leader. They all feature RCA line input/outputs, 1/4-inch headphone jack, built-in speaker, pause control, audible cue and review, tape counter, full auto shut-off and low battery indicator.

General	PMD-101	PMD-201	PMD-221	PMD-222	PMD-430
Speed/Mono Heads	Mono 2	Mono 2	Mono 3	Mono 3	Mono 3
Inputs/Outputs					
Mic Input	1/4-inch	Miniplug	Miniplug	Miniplug	1/4-inch
Condenser Mic	Built-In	Built-In	Built-In	Built-In	—
Remote Jack	—	Yes	Yes	Yes	—
Modular Tel. Jack	—	Yes	Yes	Yes	—
External Speaker Jack	—	Yes	Yes	Yes	—
Record Controls					
VU Meters	—	1	1	1	2 (Illuminated)
2-Speed Recording	Yes	Yes	Yes	Yes	—
Dolby B NR	—	—	—	—	Yes
dbx NR	—	—	—	—	Yes
Mic Attenuation	—	0-10dB, -20dB	0-10dB, -20dB	0-10dB, -20dB	0-15dB, -30dB
Ambient Noise Cont.	—	Yes	Yes	Yes	—
MPX Filter	—	—	—	—	Yes
Manual Level Control	—	Yes	Yes	Yes	—
Limiter	—	Yes	Yes	Yes	—
ALC	Yes	Yes	Yes	Yes	—
Peak Indicator	—	—	Yes	Yes	—
Playback Controls					
Pitch Control	±20%	±20%	±20%	±20%	±6%
Bias Fine Adj.	—	—	—	—	Yes
Tone Control	Yes	Yes	Yes	Yes	—
Half-Speed Playback	Yes	Yes	Yes	Yes	—
Memory Rewind	—	—	Yes	Yes	Yes

- All models except the PMD-430 have 1/2 speed playback/record capability. With 1/2 speed playback, musicians can slow down complicated passages for analysis. And when played back at 1/2 speed, the pitch is lowered by exactly one octave, so the notes are still musically correct—ideal for figuring out complicated solos or picking patterns.
- By recording at 1/2 speed, a three hour meeting can be recorded on a single tape. A built-in microphone and automatic level control make operation simple, and built-in speaker makes transcription convenient.
- 1/2 speed recording is equally ideal for churches, because 90 minutes can be recorded on a single side of tape—no interrupting your recording to flip the tape over. Line inputs make it easy to use and connect to your existing sound system.
- Three standard D cell batteries provide up to 7-1 1/2 hours of operation and the optional RB430 rechargeable battery delivers up to 5-1/2 hours.

## Telex

### ACC2000/4000 Series Cassette Duplicators

Designed for high performance and high production, Telex's ACC Series (ACC2000/ACC4000) and (ACC2000 XL/ACC4000 XL) of expandable duplicators also offer easy maintenance and unsurpassed ease of use. The ACC2000 is a two-channel monaural duplicator, the ACC4000 is a four-channel stereo duplicator. Each produces 3 copies from a cassette master at 16 times normal speed and each can expand up to 27 copy positions (with additional copy modules). With the extra copy modules, you can duplicate up to 27 copies of a C-60 original in less than two minutes. And they copy both sides at once. The XL Series feature "Extended Life" cassette heads for increased performance and wear characteristics. They also offer improvements in wow and flutter, frequency response, signal-to-noise and bias. Additionally the ACC4000 XL allows for either chrome or ferric cassette duplication. XL models are available in stereo (ACC4000 XL) or mono (ACC2000 XL) versions.

Fingerlip Operation	Easy Maintenance
• Individual rotary audio level controls allow for an increase or decrease of audio levels as the master translates to the copies.	• Shined work surface and unique "heads-up" cassette platform allow less oxide build up on the heads and makes cassette loading and unloading much easier.
• Peak reading LED indicators allow quick and accurate monitoring of audio fluctuations.	• Each cassette position has a three point tape guidance system that eliminates skew problems. Plus, when a tape is inserted, each cassette position is activated to prevent unnecessary wear and tear on the tape head mechanism.
• S/E/A or A/B select button let you flip up for duplication of either 1 side or both sides of a cassette at once.	• Audio and bias, along with head adjustments, are made easily from the top of the unit and a switch on the back engages the head and pinch roller for convenient cleaning.
• Stop all tapes instantly at any point during the copy or rewind cycle.	

- Short tape indicators alert you if a tape stops before the original does, identifying incomplete copies caused by jam or short.
  - Automatic or manual selection of rewind and copy operation.
  - Rewinds tapes to the beginning or end automatically (AUTO mode) or manually.
  - An AUTO mode the copy button activates the entire rewind/copy/rewind sequence. In manual it starts copying immediately.
- ACC2000 Mono Master Module:**
- 1/2 track, two-channel monaural duplicator produces 3 copies from a cassette master at 30ips (16X normal speed)
  - Expands up to 27 copy positions by adding ACC2000 copy modules (four positions each)
  - Erase heads in the copy positions automatically erase existing audio as new material is being recorded.
  - Track select, short tape indicators, automatic operation.
  - Includes removable power cord and protective dust cover.
- ACC2000 XL Mono Master Module:**
- Same features as ACC2000, plus—Extended Life cassette heads.
- ACC4000 Stereo Master Module:**
- 1/4 track, four-channel stereo duplicator. Same features as ACC2000 Mono Master Module.
- ACC4000 XL Stereo Master Module:**
- All features as ACC4000, plus—Extended Life cassette heads. Can be configured for chrome or ferric cassette duplication.
- ACC2000 Mono Copy Module:**
- 1/2 track, two-channel monaural copy module.
  - Each module has four copy positions with erase heads and controls for side select.
  - LED display indicates end-of-tape status for each pocket.
  - Includes ribbon cables for connection to ACC2000 master and other copy modules.
  - Includes removable power cord and protective dust cover.
- ACC2000 XL Mono Copy Module:**
- Same features as ACC2000 Copy Module, plus—Extended Life cassette heads. Connects to ACC2000 XL Master Module.
- ACC4000 Stereo Copy Module:**
- 1/4 track four-channel copy module. Has all the features of the ACC2000 Copy Module.
- ACC4000 XL Stereo Copy Module:**
- Same as the ACC4000 Copy Module, plus—Extended Life heads. Configurable for chrome or ferric cassette duplication.

## Copyette EH Series Duplicators

The popular Copyette series produces high quality, low cost cassettes in large quantities at nearly 16 times normal speed. This means you can reproduce both sides of a C-60 tape in less than two minutes. Available in two versions, the Copyettes are capable of duplicating either one cassette or three at a time. In addition each are available in both mono and stereo models. They couldn't be easier to use. You simply insert the cassettes, press the START switch and they do the rest. They rewind all tapes to the beginning, copy, then rewind to the beginning again before stopping. The whole process can be stopped at any time by pressing the CYCLE button. Side Select feature allows you to set them up to copy one side of a tape or both sides at once.

Stereo Copyette 1+2-1	Stereo Copyette 1+2-3
• Weighing only 8 lbs. (3.6 kg), this unit has a durable, impact resistant housing and includes a removable power cord, carrying handle and protective cover. It also has an optical, non-reflective end-of-tape sensing system that provides gentle tape handling. A mono version is also available.	• This duplicator copies both sides of three cassettes at once, yet it's as small as the 1+2-1. It weighs only 12 pounds (5.4 kg) and includes a hard cover to protect the unit while not in use. It uses all DC Servo motors for the ultimate in reliability. A mono

## TASCAM 112 mkII Stereo Cassette Deck



The classic "no frills" production workhorse, the 112 mk II is a 2-head, cost effective deck for musicians and production studios. Extremely rugged and reliable, the 112 mk II is ideal for production mastering and midtown. It also features a parallel port for external control and an optional balanced connector kit means it is flexible enough to integrate into any production studio.

- Utilizes Dolby B or C noise reduction with Dolby HX Pro
- Automatically selects proper bias type, so you get optimal recording & playback response with Normal, Metal or CrO2 tape.
- Gear independent input decks let you dial in stereo VU calibration with one dial. You can also adjust for channel specific calibration.
- Offers two Autospacer buttons and a MEMO III control. These controls allow you to select two points on any tape for one button forward/reverse to wherever the action is. Additionally RTZ (return to zero) quickly spools the tape back to 0000 on the tape counter.
- Rear-mounted RCA input/output jacks for easy connection to high-quality sources
- Optional LA-112 connector provides additional balanced or unbalanced XLR inputs and outputs. Installation is simple and requires no special tools.
- 25-pin D sub connector (parallel port) on the back, links the deck to the optional RC-134 remote control unit or for data start from any mixer that use the same protocol.

## 112R mkII Bi-Directional Stereo Cassette Deck

The 112R mkII is a sonically uncompromising, auto reversing and continuous play cassette deck. It offers the finest independent head auto-reverse design at this price level, plus it has extra dubbing and editing features that make it ideal for long program recording.

- All the features of the 112 mk II plus—**
- Three-head transport with separate high-performance record and playback heads. Manufactured from resilient Cobalt Amorphous materials, the independently-operating heads combine with precision FG servo direct-drive capstan motors to provide the highest standards of reproduction quality and performance.
  - Frequency response is 25 Hz to kHz with less than 1% total harmonic distortion.
  - Equipped with Hysteresis Tension Servo Control (HTSC) the 112R mkII virtually eliminates wow and flutter. HTSC is an advanced servo control system that maintains constant bias tension on the tape all through the reel, combining inconsistencies brought on by extreme temperatures and humidity.
  - Super Acculign Rotating Head System allows recording or playback, tape direction to be changed with one button. A single-screw azimuth adjustment makes it easy to maintain the head alignment after many hours of continuous use.
  - For unattended recording/playback of material that is longer than one side of a tape, there are two features that spare you from constantly attending to the deck.
    - Auto Reverse mode plays or records in both directions before stopping, switching sides on the fly.
    - Continuous Reverse mode allows you to loop the tape during, layback up to 5 times, or record in both directions, without pausing to flip the tape, or re-engage the record mechanism. Both features are accessible from the front panel, with one-button selection.

## 122R mkIII 3-Head Stereo Cassette Deck



The standard for production and broadcast facilities, the 122 mkIII features smooth faultless tape handling mechanisms, a three head transport with high-performance Cobalt Amorphous record/playback heads and precision servo direct-drive capstan motors.

- All the features of the 112R mk II (no reverse of course) plus—**
- XLR balanced and unbalanced RCA inputs and outputs are selectable with the flip of a back-panel switch. There are 1-4-inch inputs on the front panel for simple and direct plug-in of line-level gear
  - MPX filter button eliminates pilot and sub-carrier broadcast tones that can interfere with Dolby noise reduction
  - Bias and level fine tuning for each channel. These tones can be used in conjunction with the one-touch 400 Hz or 10 kHz oscillator adjustment signals to get proper VU calibration before or during each recording session.
  - Record/mute autospacer automatically inserts 4 sec. of silence between songs or broadcast segments for pro quality tapes



# FOR PHOTO & VIDEO



TO INQUIRE ABOUT YOUR ORDER:

800 221-5743 • 212 807-7479

OR FAX 24 HOURS: 212 366-3738

119 WEST 17TH STREET, NEW YORK, N.Y. 10011

Store & Mail Order Hours:

Sun 10-4:45 • Mon & Tues 9-6 • Wed & Thurs 9-7:15 • Fri 9-2 • Sat Closed

EQUIPMENT LEASING AVAILABLE

## BEHRINGER

### MDX 1200 Autocom

- Attack and release times, with Intelligent Program Detection, prevents common adjustment errors.
- Newly-developed, powerful noise gate.
- Switchable soft knee/hard knee characteristics for varied sound pressure levels.
- Bright, illuminated LEDs show gain reduction.

### MDX 2100 Composer

- Integrated auto/manual compressor, expander & peak limiter.
- Compresses "musically" in dynamic range without any audible "pumping" or "breathing".
- Attack & release times are controlled automatically or manually.
- Interactive Gain Control (IGC) combines a clipper and peak limiter for distortion-free limitation on signal peaks.
- Servo-balanced inputs and outputs are switchable between -40dB and -10dB.

## ALESIS

### 3630 Compressor

The 3630 provides two full-featured professional compressor/limiters in one rack space. Ideal for any application from studio recording and mixing to live sound reinforcement and broadcast.

- Dual mono or linkable true stereo operation.
- Choose between RMS and peak compression styles as well as hard knee/soft knee characteristics.
- Dual 12-segment LEDs display gain reduction and input/output levels.
- Each channel's built-in noise gate has an adjustable threshold and close ratio to ensure clean, transparent performance.
- Variable attack and release times and a sidechain function for "ducking" in broadcast applications.

## t.c.electronic

### Wizard M2000

#### Studio Effects Processor

The M2000 features a "Dual Engine" architecture that permits multiple effects and six different routing modes. There are 250 factory programs including reverb, pitch delay, chorus, flang, phase, ambience, EQ, de-essing, compression, limiting, expansion, gating and stereo enhancement. The M2000 also features 20-bit analog conversion, AES/EBU and S/PDIF digital inputs/outputs. "Wizard" help menus, 16-bit dithering tools, Tap and MIDI tempo modes and single page parameter editing.

The array of enhanced pitch shift (up to 8 voices), chorus, and delay effects are characterized by their precision and versatility. Everything from the fine and subtle to the wide and spectacular is handled with equal superiority. The algorithms in the dynamics section (compressor, limiter, expander, gate and de-esser) are unique as stand-alone effects, but are particularly useful in combination with other effects. Those might be de-esser/room, gated hall or compressed pitch. The possibilities are endless.

Tempo Tap function lets you match effects to the beat. Tempo can be adjusted in beats-per-minute and sub-divided any way you like—even in triplets. The tempo can also be read from MIDI.

Preset "Gliding" (morphing) function ensures seamless transition between effects. Very useful in live and mixing situations.

## Symetrix

### 601

#### Digital Voice Processor



- Accepts mic or line level analog signals, converts them to 18 bit-digital and then performs 24-bit digital domain signal processing.
- Processing includes fully parametric shelving EQ, notch/dynamic filtering, de-essing, delay, chorus, gating, expansion, compression, AGC and DC removal.
- Combination of 128 factory presets and 128 non-volatile user programs.

- Has XLR-balanced mic and line inputs, XLR-balanced stereo output, Digital XLR-balanced and S/PDIF (RCA) inputs and outputs. MIDI input/output supports connection to virtually any type of MIDI control device for programming or controlling the 601 in real time.
- Ideal for a variety of recording, broadcast, live sound, and post production applications.

**WE ARE A FULL STOCKING DEALER FOR THE ENTIRE SYMETRIX LINE**

## Fostex

### XR-5/XR-7 Multitrackers

#### XR-5 Features:

- High-speed (3-3/4 ips) four-track (2-tracks simultaneously) recorder with built-in Dolby noise reduction (can be turned off).
- Pitch controller varies the tape speed within a range of  $\pm 12\%$ .
- Punch in/out function makes corrections and phrase insertions when necessary, can be done easily with optional footswitch.
- Four inputs accommodate two microphones in channels one and two. Has convenient insert points for connecting a compressor/limiter and other devices for the mic channels.
- Each channel is equipped with two-point high/low shelving equalizers to help shape the sound, and an AUX send function for processing ambient system effects.
- Trim function lets you switch High/Mid/Low input levels for channels one and two.
- Alternate Mix mode lets you independently select the signal from the input, jack or the tape playback. Prefader effect send, inline monitor & other functions are also possible using this mode.
- Post foldback (monitor) send function routes the foldback signal to the AUX send. When the foldback is activated you can actually mixdown at the same time you add reverb to a tape.

- MID/TAPE multi-mix mode supports MIDI synchronization.
- Together with the Alternate Mix mode the XR-5 can simultaneously mix all MIDI sound source output with tape playback sound and effect output while monitoring!



#### The XR-7 has all the features of the XR-5 plus—

- 6 inputs, plus the ability to record four tracks simultaneously.
- Dolby C noise reduction plus dual speed recording.
- During recording, Channels 5 and 6 are the primary inputs for microphones and acoustic instruments. They have trim controls and mid-sweep EQ. During mixdown, these channels act as the main stereo L/R bus.
- Auto rehearsal mode let's you concentrate on the music instead of the machine.

## TASCAM

### PORTA 03 mkII Ministudio

The easiest way to get into multitrack recording, the PORTA 03 is an extremely economical 4-track recorder that lets you overdub as well as mixdown to standard cassettes.

- 4-track recorder with integrated two channel mixer
- Two 1/4-inch MIC/LINE inputs with trim control
- Extended dynamic range with Dolby B noise reduction
- 3-digit tape counter keeps track where you are on the tape
- Master level control for the entire mix, and the level sent to LINE OUT for stereo mixdown
- Track selector indicates which of the 4 tracks you're recording to

- SAFE selection keeps you from inadvertently recording over tracks you've recorded earlier
- Headphone jack for comfortable monitoring
- RCA output jacks for mixdown to cassette



### PORTA 07 Ministudio

The PORTA 07 packs high-end features into a compact and economical package. Achieves great sound with high speed tape transport, high-low EQ and DBX noise reduction.

- 4-track recorder with integrated four channel mixer
- Two 1/4-inch LINE inputs and two 1/4-inch MIC/LINE inputs with trim control
- Separate high and low EQ for each track provides 10dB of boost or cut.
- dbx noise reduction for improved signal-to-noise ratio.
- Punch-in/out manually or with optional RC-30 footswitch.
- Effects send with stereo return can be applied in varying amounts to all four channels

- "Bounce or ping pong" a submix of multiple mono or stereo tracks onto a single empty track, leaving the original submix tracks free to overdub new material onto. You can even add a "live" track to the submix while you're bouncing down, to squeeze in yet another track.



### 424 mkII Portastudio

The 424 is premium Portastudio that takes multitrack recording to the next level. Features superior audio quality, balanced XLR inputs, enhanced equalization and a big-studio style AUX section.

- All the features of the PORTA 07 plus—
- 4-track recorder with 8-input mixer (4 mono MIC/LINE inputs with 1/4-inch and balanced XLR jacks and 2 stereo inputs with 1/4" jacks.)
- Separate 3-band EQ section for each of the four mono channels with 10dB of boost or cut and sweepable midrange.
- Auto Punch in/out with rehearsal, plus a Repeat switch lets you set up a tape loop that goes over the same area of a tape while you practice your punch-in/out and overdub moves—without committing a single note to tape
- Two independent dedicated AUX sends let you use more effects or use one as tape cue during tracking

- Dual-speeds, logic-controlled tape transport system improves tape handling and sound quality. Select 3-3/4 inch per second HIGH speed for the best possible recording quality or NORMAL 1-7/8 ips speed.
- Monitor output makes it easy to connect an external monitor amplifier without repatching—at mixdown.
- Tape DIRECT OUTS are provided for integration with external mixers.



**MIDI Musicians Take Note**—If you've got MIDI keyboards, drum machines and sound modules in your set up, you can exploit the power of virtual tracking with either the PORTA 07 or 424/464/488 Portastudio. You can use a MIDI synchronizer like the Tascam MTS-30 MIDI-Tape Synchronizer to record (stripe) a code onto track 4 (track 8 with the 488). Just select SYNC mode on the DBX switch and record the tone to tape. After stripping the tape with FSK or Song Position Pointer information, all your MIDI instruments will faithfully follow the tape during playback and recording, even if you slow or speed the tape using the PITCH control. The big benefit is that your MIDI tracks (called virtual tracks) don't actually have to be recorded until final MIXDOWN, giving you lots more unused tracks to record on.

### 464 Portastudio

The functionality of a pro recording studio in a small, lightweight package, the 464 Portastudio is a full-featured eight input, four-track cassette recorder complete with a 12x2 internal mixer and dual buss design that lets you create separate recording and cue mixes.

- All the features of the 424 mk II plus—
- 4-track recorder with 12-input mixer (4 mono MIC/LINE with 1/4-inch and balanced XLR jacks, 4 stereo 1/4" jack pairs)
- Channels 1-4 offer High and Low shelving EQs and a sweepable Mid EQ. Tracks 5-6 and 6-7 have shelving EQ only, while 9-10, 11-12 are best used with input that has its own internal EQ.

### 488 mkII Portastudio

When 4 tracks are just not enough, then you need the perfect creative tool—the 488 mkII Portastudio. The most cost-effective 8-track recorder on the market, the 488 not only offers additional capacity but versatile capability and intuitive operation for easy capturing & manipulation of your ideas. Whether recording acoustic or electronic instruments or vocals, the 488 offers maximum creative freedom to produce your best work. With all the functionality of a professional studio, the 488 may be the ultimate demo recording machine.

#### All the features of the 464 mk II plus—

- Includes phantom power for use with high-quality condenser microphones.
- Built-in mixer features low-noise circuitry, with 12 inputs and 2 group busses. There is a separate input for your stereo master recorder.
- Each of the 8 main input channels includes individual 3-band equalizers. You get Hi and Low shelving EQs, plus a semi-parametric sweepable midrange EQ.
- Unique multi-mix mode with the capability of handling up to 20 inputs at mixdown.

- The only 8-track cassette that offers a servo controlled tape transport complete with electronic braking. Equipped with a high-performance Hysteresis Tension Servo Controlled (HTSC) tape transport, the 488 delivers better sound than the first 8-track reel-to-reel machines.
- HTSC maintains precise and consistent tape tension from the beginning until the end of the tape. It actually dynamically adjusts the back tension on the tape as it moves from one end to the other, allowing precise locating capability.



## ALESIS

### Monitor One

#### Near Field Studio Reference Monitor

Designed by engineers with decades of experience, the award winning Monitor One provides the last critical link in the recording studio's signal chain: giving you an accurate reproduction of what is being recorded.

- Delivers excellent image and transient reproduction, powerful bass, and smooth, extended high frequency detail.
- Exclusive SuperPort speaker venting technology eliminates the "choking" effect of port turbulence for solid high-power bass transients and extended low frequency response.
- Ferrofluid cooled 1" silk-dome driver eliminates the harshness and ear fatigue associated with metal or plastic tweeters, making it easy to mix on for extended periods.
- Monitor One's powerful bass incorporates a proprietary 6.5" low frequency driver with a mineral-filled polypropylene cone and a 1.5" voice coil wound on a high-temperature Kapton former.
- They come in a mirror-image left/right pair covered with a non-slip rubber textured laminate for stable mounting.

### Monitor Two

#### Mid Field Studio Reference Monitor

With much of today's popular music demanding more bass at louder volumes than a small near field monitor can possibly produce—the Monitor Two delivers—at a price no higher than many of these smaller speakers.

- Utilizes a 10" three way speaker design with a unique asymmetrical crossover to maintain the same accurate tonal balance and imaging of the Monitor One—but with a much larger sound field.
- 10" low frequency driver incorporates Alesis' SuperPort speaker technology to provide powerful, extended bass.
- 5" mid frequency driver offers exceptional mid frequency detail
- 1" silk dome high frequency driver delivers a broad but natural frequency response from 40Hz to 18kHz.
- Covered in a non-slip rubber finish, the Monitor Two comes in a mirror imaged pair for mixing accuracy.



## TANNOY

### PBM Series II

#### Reference Monitors

The PBM II Series is the industry standard for reference monitors. They feature advanced technologies such as variable thickness, injection molded cones with nitrile rubber surrounds and the highest quality components including polypropylene capacitors and carefully selected indicators. With a Tannoy monitor system you are assured of absolute fidelity to the source, true dynamic capability and most important, real world accuracy.



#### PBM 5 II

- Custom 5" injection-molded bass driver with a nitrile rubber surround for extended linearity and accurate low frequency reproduction. They are better damped for reduced distortion and exhibit more naturally open and detailed midrange.
- Woofers blend seamlessly with the 1" polyimide soft dome ferro-fluid cooled tweeter providing extended bandwidth for extremely precise sonically-balanced monitoring.
- Designed for nearfield use, the PBM 5 II cabinets are produced from high density media for minimal resonance and features an anti-diffraction radiused front baffle design.

#### PBM 6.5 II

- Transportable and extremely powerful, the PBM 6.5 II is the ideal monitor for almost any project production environment.
- 6.5" low frequency driver and 3/4" tweeter are fed by a completely redesigned hardware hand selected crossover providing uncompromised detail, precise spectral resolution and flat response.
- Fully radiused and ported cabinet design reduces resonance and diffraction while providing deep linear extended bass.

#### PBM 8 II

- High tech 1" soft dome tweeter with unmatched pattern control and enormous dynamic capability. 8" driver is capable of powerful bass extension under extreme SPL demands.
- Hard wired crossover features true bi-wire capability and utilizes the finest high power polypropylene capacitors and components available.
- Full cross-braced matrix metal structure virtually eliminates cabinet resonance as a factor.
- Ensures precise low frequency tuning by incorporating a large diameter port featuring laminar air flow at higher port velocities.





# "THE PROFESSIONAL'S SOURCE"

FOR ORDERS CALL:

OR FAX (24 HOURS):

800-947-5518

800-947-9003

212-444-6688

212-444-5001

**OVERNIGHT AND RUSH SERVICE AVAILABLE**

E-Mail at 76623.570@compuserve.com

## CARVER

### CA-400/CA-900 Stereo Power Amplifiers

Designed from the ground up for fixed installation applications, the CA-400 and CA-900 are manufactured under the most stringent quality control procedures and are backed up with a full five year warranty covering all parts and labor.

- 3-position barrier strip screw terminal inputs can be used with balanced or unbalanced lines
  - Independent CH 1 and CH 2 level controls with 11 detented positions.
  - Dual mono mode for operating both channels with a single mono input.
  - Bridged mono mode for combining the power of both channels into a single higher powered channel.
  - Internally configurable for parallel mono mode, for single channel low impedance operation.
  - Internal jumpers to bypass Left and Right Level Controls.
  - Internal connection points for add-on accessories like the optional Balanced Transformer Kit.
  - Independent CH 1 and CH 2 speaker relays will instantaneously disconnect if fault conditions such as over temperature, short circuit or D.C. offset is detected.
  - Power Ready, Signal Present and Clip/Protect Indicators
- CA-400 features:** 130W per channel into 8 ohms, 200W per channel into 4 ohms.
- CA-900 features:** 325W per channel into 8 ohms, 450W per channel into 4 ohms.

## Stewart

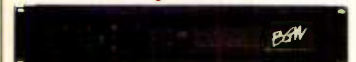
### Power Amplifiers PA-1000 PA-1400 PA-1800



- High frequency switch mode power supply fully charges 120,000 times per second (1000 times faster than most power supplies) requiring far less capacitance for filtering and storage.
  - High speed recharging also reduces power supply "sagging" that affects other designs.
  - Incredibly efficient, 5 PA-1000 or PA-1400's (4 PA-1800's) can be run on one standard 20 amp circuit. No need for staggered turn-on configurations or other preventive measures when using multiple amp set-ups.
  - They produce smooth and uncolored sound, while offering very full detailed low end response and tons of horsepower.
  - Each amp carries a full 5 year warranty on parts and labor
- PA-1000** weighs 9 lbs. is 15" deep and occupies one standard rack space. Delivers 1000 watts into 4Ω when bridged to mono.
- PA-1400** weighs 16 lbs. is 15" deep and takes 2 standard rack spaces. Delivers 1400 watts into 4Ω when bridged to mono.
- PA-1800** weighs 17 lbs. is 17" deep and takes two rack spaces. Delivers 1800 watts into 4Ω when bridged to mono.

## BSW

### Performance Series Amplifiers



#### Performance Series 1 300 Watt Power Amplifier

- Measuring only 3.5 inches high and weighing 26 pounds, the Series 1 delivers more than 150 watts per channel.
- Its welded steel chassis is unbelievably strong while a custom heat sink extension provides exceptional thermal capacity.
- An internal fan provides quiet background noise levels for critical monitoring applications and when pushed hard the cooling system insures continuous cool operation even in the most demanding situations.
- Active balanced inputs with both XLR and 1/4" phone jacks.
- Supplied with quality 5-way binding posts for highly reliable speaker connection.
- Front panel handles are reversible for either rack mount installation or easy handling.
- LEDs are provided for signal presence and clip indication; the detented gain controls have large knobs for easy front panel adjustments.

#### Performance Series 2 600-Watt Power Amplifier

- Same as above except the Series 2 weighs 32 pounds and delivers more than 300 watts per channel.

#### Performance Series 4 1200-Watt Power Amplifier

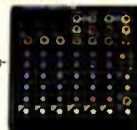
- Same as above except the Series 4 weighs 53 pounds and delivers more than 600 watts per channel.
- Has a switch selectable clipping eliminator that prevents damage to the speakers.

## SAMSON MIXPAD 9

### Ultra-Compact 9-Channel Audio Mixer

A remarkably compact 9-channel mixer, the MIXPAD 9 offers professional audio performance and a wide range of user-intensive features. It boasts low noise and distortion specifications, includes wide-range gain trim controls for both mic and line inputs and provides exceptionally low group delay over the full frequency bandwidth for a more transparent, open sound. It also has a very high low slew rate—usually found only on larger, more expensive mixing consoles—allowing it to react very quickly to transients and maintain a crisp, articulate sound. It offers phantom power (48V) for use with condenser microphones and an in-line power supply eliminates magnetically-induced hum.

- 3 mic/line inputs and 3 stereo channels (total 9 inputs).
- 2 auxiliary sends for effects and two Stereo returns.
- Independent 2-band shelved EQ, pan control for mono channels and balance control for stereo channels.
- Adjustable mic input trims allow use with a wide variety of mics.
- Phantom powered XLR mic input connectors.
- Peak LEDs for left and right main outputs.
- Extremely durable, extruded aluminum chassis.



## MACKIE

### MICRO SERIES 1202-VLZ 12-Channel Ultra-Compact Mic/Line Mixer

Usually the performance and durability of smaller mixers drops in direct proportion to their price. Fortunately, Mackie's fanatical approach to pro sound engineering has resulted in the Micro-Series 1202-VLZ, an affordable small mixer with studio specifications and rugged construction. It delivers no-compromise, non-stop, 24-hour-a-day professional duty in permanent PA applications, TV and radio stations, broadcast studios and editing suites—where nothing must ever go wrong.

- Working S/N ratio of 90dB, distortion below 0.025% across the entire audio spectrum and 428 dB balanced line drivers.
- 4 mono channels with discrete, balanced balanced mic/line inputs and 4 stereo channels (12 inputs total).
- Line inputs and outputs work with any line level, from instrument level, to semi-pro -10dB, to professional +4dB.
- Switchable phantom-powered (48V) inputs for condenser mics.
- Every input channel has a gain control, pan pot, low EQ at 80 Hz, high EQ at 12.5 kHz and two aux sends with 20dB gain.
- Master section includes two stereo returns, headphone level control and metering.
- Sealed rotary pots resist and other contaminants.



### MS1402-VLZ 14 x 2 Compact Mic/Line Mixer

Mackie's fanatical engineers have done it again. Balanced inputs and outputs, 3-band EQ, AFL/PFL and deluxe tape monitor/Control Room feature. Nice long 60mm faders, six studio-quality mic preamps and extra Alt 3-4 stereo bus—less than 1.3 square feet of space.

- Studio grade mic preamps (chs. 1-6) with high headroom, low noise and phantom power. Also incorporate low cut filters to cut mic handling thumps, pops and wind noise. Lets you safely use low shelving EQ on vocals.
- Trim controls (ch. 1-6) with ultra wide range (+10 to -40dB) handle everything from hot digital multitrack leads to whispering lead singers and older, low output keyboards.
- Pan control with constant loudness and high LR attenuation so you can pan hard left or right without bleed-through.
- Two aux sends per channel with 15dB extra gain above Unity.
- 60mm log-taper faders are accurate along their whole length of travel and employ a new long-wearing contact material for longer fader life & upper resistance to dust, smoke etc.
- Control room/phone matrix adds incredible tape monitoring, mixdown and live sound versatility.
- Mute switch routes channel output to extra ALT 3-4 stereo bus. Use it for feeding multitrack recorder channels, creating a sub-group via controlroom/phones matrix, monitoring a signal before bringing it into the main mix or creating a "mix minus".
- Solid steel chassis instead of aluminum or plastic.



The new MS-1202, 1402 and 1604 all include VLZ (Very Low Impedance) circuitry at critical signal path points. Developed for Mackie's acclaimed 8-Bus console series, VLZ effectively reduces thermal noise and minimizes crosstalk by raising current and decreasing resistance.

### CR-1604 VLZ 16-Channel Mic-Line Mixer

The hands-down choice for major touring groups, studio session players, as well as broadcast and sound contracting. The new CR-1604 VLZ features everything you would expect from a larger console, and then some! 24 usable line inputs with special headroom/ultra-low noise Unihiplus circuitry, seven AUX sends, 3-band EQ, constant power pan controls, 10-segment LED output metering and discrete front end phantom-powered mic inputs.

- Lowest noise and highest headroom (90 dB working S/N and 108 dB dynamic range). Many drummers consider it the only mixer capable of handling the attack and transients of acoustic and electronic drums.
- Genuine studio-grade phantom powered, balanced input mic preamps on channels 1-6. All CR-1604 VLZ (and optional XLR10 for ten more) discrete input mic preamp stages incorporate four conjugate-pair, large-emitter geometry transistors. So, whether recording nature sound effects or heavy metal, mixing flutes or kick drums, you get the quietest, cleanest results possible.
- True 4-bus design with channel assigns to 1-2, 3-4 or main L-R.
- 3-Band EQ with mid-frequency sweep and low cut switch.
- AFL/PFL, solo and mute switches with overload and signal present indicators.
- Rear panel features include insert points and 1/4-inch XLR connectors on every channel, as well as RCA tape inputs/outputs.
- New, standard size channel trim pots are found at the top of each channel.
- Rotary input/output "pod" allowing three different positions for set-up.



## TASCAM

### M2600 mkII Series 16/24/32-Channel 8-Bus Mixers

#### LOW NOISE CIRCUITRY

- Combining completely redesigned low noise circuitry with Absolute Sound Transparency™ the M-2600 delivers high-quality, extremely clean sound. No matter how many times your signal goes through the M-2600, it won't be colored or altered. The signal remains as close to the original as possible. The only coloring you hear is what you add with creative EQ and your outboard signal processing gear.
- Double reinforced grounding system eliminates any hum.
- World-class power supply provides higher voltage output for better headroom and higher S/N ratio.

#### PREMIUM QUALITY MIC PRE-AMPS

- The M-2600's mic pre-amps yield an extremely low noise floor, enormous headroom and an extremely flat frequency response. It also increases gain control to an amazing 51dB. Plus, you get phantom power on each channel.
- Accepts balanced or unbalanced 1/4" inputs, and low-impedance XLR jacks. Better still, the TRIM controls operate over a 51dB input range. For the hottest incoming signals, all it takes is a press of the -20 dB PAD button atop each channel strip to bring any signal down to manageable levels. Plug in anything—keyboards, guitars, basses, active or passive microphones, samplers and more.

#### THE BEST AUX SECTION IN THE BUSINESS

Versatile AUX section has 8 sends total, 2 in stereo. Send signal in stereo or mono, pre- or post-fader. Available all at once. Return signal through any of 6 stereo paths.



#### FLEXIBLE EQ SECTION

Bi-directional split EQ means you can use either or both EQ sections in the Monitor or Channel path... or defeat the effect altogether with one bypass button. Other comparably priced mixers will lock the shelving mix into the Monitor path only, limiting your EQ application.

#### ADVANCED SIGNAL ROUTING OPTIONS

Direct channel input switching. Assign to one of eight buses, direct to tape or disk, or to the master stereo bus. Because the group and direct-out jacks are one and the same, you can select either without repatching.

#### ERGONOMY DESIGN

The M-2600 has a big studio feel. All buttons are tightly spring loaded, lock into place and accommodate even the biggest fingers. The faders and knobs have a tight, smooth "expensive" feel and are easy to see, reach and manipulate. Center detents assure zero positions for EQ and PAN knobs. Smooth long throw 100mm faders glide nicely yet allow you to position them securely without fear of accidentally slipping to another position.

## Panasonic SV-3800/SV-4100 Professional DAT Recorders



Designed for professional applications, the SV-3800/SV-4100 have highly accurate and reliable transport systems with search speeds up to 400X normal, and 20-bit D/A converters to satisfy the highest professional expectations both in terms of sound and functionality.

#### SV-3800 Features:

- Recording via analog inputs offers sampling rates of 44.1 or 48kHz. When recording through digital inputs, it automatically clocks to incoming frequencies of 32/44.1 or 48kHz.
- XLR-balanced digital inputs/outputs plus consumer format coaxial and optical inputs/outputs. XLR-balanced analog stereo inputs/outputs. Output level is selectable between +4dB and -10dB. The input level is +4dB.
- Built-in shuttle wheel has two variable speed ranges: 3 to 15x in Play mode and 1/2 to 3x normal speed in Pause mode.
- High speed transport enables searching up to 250x normal speed. Search up to 400x normal speed is possible once the tape has been spanned in Play, FF or REV mode. This ensures access to any point on a two-hour DAT in under 30 seconds.
- Ramped record mute and unmute with three seconds fade-in and five seconds fade-out provides automatic level changes at the start and end of a recording.
- Comprehensive display includes program numbers, absolute time, program time, remaining time and Table of Contents.

**SV-4100 Has all the features of the SV-3800 Plus—** Offers enhanced performance required for professional production, broadcast and live-sound systems. Features such as instant start, external sync capability and enhanced system diagnostics make the SV-4100 the DAT quality standard.

## Fostex D-5 Digital Master Recorder

With professional features and a consumer price tag, the D-5 satisfies a lot of requirements. It records or plays back four hours of music, includes optical and digital input/output, and TOC functions that are as easy to use as a CD player. It's also equipped with basic pro features such as 10 editing function, GPI and XLR connectors and 300X speed locate and search functions.

- Playback/record audio with 32/44.1/48 kHz sampling in SP (standard play) mode. Equipped with LP (long play) mode, it can play/record at 32 kHz up to 4 hrs. on a 120 minute cassette.
- Analog interface includes switchable (+4dB/-10dB) balanced and unbalanced XLR inputs and outputs.
- AES/EBU digital interface (XLR) for professional use and optical (S/PDIF) input/output for consumer/semi-pro connections.
- 5-pin GPI input connector allows Play, Stop & S-ID search to be implemented through commands from an external source.
- Records CD-Q code sync ID, enabling precise music start up. When performing digital signal transfer from CD through its optical input, the D5 precisely records S-IDs according to the track number and index information of the CD-Q code. So even if there is a break in the middle of a song or there isn't a non-recorded section between two songs, you can locate to the S-ID location (eg. beginning of song) precisely.

## D-10 Digital Master Recorder



- Switchable 44.1 and 48kHz sampling frequencies.
- Analog interface includes switchable XLR-balanced (+4dB) and unbalanced RCA (-10dB) inputs and outputs.
- Equipped with and XLR-balanced AES/EBU digital interface and optical (S/PDIF) input/output conforming to IEC consumer.
- Built-in 8MB RAM (4 MB x 2) offers instant start as well as scrubbing at 1st/second accuracy.
- Advanced jog/shuttle for precision cueing and monitoring.
- Auto Cue provides automatic locating to the exact start of audio modulation during ID search and tape loading.
- Universal GPI input/output enables easy and fast assembly editing, based on A-time between a pair of D-10s.
- Switchable 2-position reference level: -12dB/-20dB.
- Start and Skip IDs as well as up to 799 P-IDs can be recorded and played back.
- 10-digit key-pad lets you store and recall 100 cue points.
- Continuous or peak reading level meters can display available headroom with an accuracy of ±0.1 dB.
- Reads and displays A-time or Pro R-time, also provides PCM monitoring.
- Optional 8333 interface card adds timecode and RS-422 (X 2) functionality to the D-10.
- Reads an external timecode and records on the sub-code area.
- Reproduces and outputs the timecode from sub-code area.
- Switchable RS-422 and EBus protocols. Using the EBus, up to 16 D-10s can be daisy chained.



# FOR PHOTO & VIDEO



TO INQUIRE ABOUT YOUR ORDER:

119 WEST 17TH STREET, NEW YORK, N.Y. 10011

800 221-5743 • 212 807-7479

Store & Mail Order Hours:

Sun 10-4:45 • Mon & Tues 9-6 • Wed & Thurs 9-7:15 • Fri 9-2 • Sat Closed

OR FAX 24 HOURS: 212 366-3738

EQUIPMENT LEASING AVAILABLE

## TASCAM

### DA-P1 Portable DAT Recorder

- Rotary two head design and two direct drive motors for the best transport in its class.
- XLR-balanced mic/line inputs (with phantom power) accept signal levels from -60dB to +4dB.
- Analog line inputs & outputs (unbalanced) plus S/PDIF (RCA) digital inputs and outputs enable direct digital transfers.
- Uses next generation A/D & D/A converters for amazing quality.
- Supports 32/44.1/48kHz sample rates & SCMS-free recording.
- Included in its design is a MIC limiter and 20dB pad to achieve the best possible sound without outside disturbances.
- TMS jack & level control to monitor sound with any headphones.
- Built tough, the DA-P1 is housed in a solid, well-constructed hard case. It includes a shoulder belt, AC adapter & 1 battery.



## SONY

### TCD-D8

### DAT Walkman Player/Recorder

- Long Play (LP) mode allows 4 hours of recording/playback of 12-bit audio on a single DAT cassette.
- Equipped with digital coaxial and optical input connector. Also has analog Mic and Line inputs.
- High-speed Automatic Music Sensor search function finds & plays tracks, skips forward or back up to 99 tracks, all at 100x normal speed.
- Digital Volume Limiter System increases listening comfort & sound quality by automatically adjusting for sudden level changes.
- Two-speed cue-review lets you hear sound while player is in fast-wind modes, up to 3x or 25x normal speed.
- LCD display with backlit windows clearly shows recording level, track number, operating status and 4-segment battery indicator, even in low ambient light conditions.
- Optional RM-D3K System Adapter Kit for complete digital interface. It has input/output connectors for both the optical cable & the coaxial cable. Also includes a wireless remote control.



## TCD-D10 PRO II

### Portable DAT Recorder

- Has balanced XLR input, switchable mic (-60dB) or line (+4dB) inputs. A 12-pin digital connector provides interfacing with AES/EBU digital signals of 32/44.1/48 kHz sampling rates.
- Comprehensive self-diagnostics function constantly monitors the rotation of the head drum, capstan and reels. The tape transport mode and load/unload time are continuously checked as well.
- Up to 99 start IDs can be recorded in the subcode area. When the record button is pressed, the start ID is recorded automatically for 9 seconds. During recording, it can also be added manually to any position of the tape. Search for start IDs is 100X normal speed.
- 20-segment digital peak level meters include overload indicators. Closely tracks input signal for accurate level indications. During playback, the date and time of recording is displayed.
- Has a record-level limiter with a fast attack time of 300ms. Mic attenuator prevents distortion by suppressing signal level 20 dB.
- Immediate playback is possible through a built-in speaker.
- Supplied wired remote controller also accepts a mic holder.
- Two mic stand screw adapters are also supplied.
- Supplied NP-22H rechargeable battery provides 1.5 hours of operation. Optional NPA-D10 battery adapter enables 1-hour on AA batt. Supplied ACP-88 AC adapter operates on 100-240V 50/60 Hz.



## HUB

### PORTADAT

### PDR1000/PDR1000TC

### Professional Portable DAT Recorders



- Direct drive transport with 4 heads for confidence monitoring.
- Balanced XLR mic and line analog inputs and two RCA analog line outputs. Digital inputs and outputs include S/PDIF consumer (RCA) and AES/EBU balanced XLR.
- Left/Right channel mic input attenuation selector (0dB - 30dB).
- 48V phantom power, built-in limiter & internal monitor speaker.
- Illuminated LCD display shows clock and counter, peak level metering, margin display, battery status, ID number, tape source status and machine status.
- Supplied Nickel Metal Hydride rechargeable battery powers the PDR1000 for two hours. The battery has no "memory effect" and is charged in two hours with the supplied AC Adapter/charger.

- PDR1000TC Additional Features:**
- In addition to all the features of the PDR1000 recorder, the PDR1000TC is equipped to record, generate and reference to time code in all existing international standards.
  - All standard SMPTE/EBU time codes are supported, including 24, 25, 29.97 (drop frame and non-drop frame) and 30 fps.
  - External synchronization to video, field sync and word sync.

## Roland



## DM-800

### Digital Audio Workstation

The DM-800 is a compact, stand-alone multi-track disk recorder that provides an amazing array of features at an unbelievably low price. Whether for music production, post production or broadcast, the DM-800 will make your work simpler, faster, more productive and more profitable. A full function workstation, the DM-800 performs all digital mixing operations from audio recording, to editing, to track-bouncing, to final mixdown. It fully supports SMPTE and MIDI time codes and also features a built-in Sample Rate Resolver to synchronously lock to any time code.

#### POWERFUL EDITING

- Time compression, pitch compression
- Completely non-destructive cutting, erasing, copying
- Very fast looping for music or ambiance editing
- Scrub preview and preview to, from and thru
- Six levels of waveform zoom
- Optional RS-422 interface (D10-8000) for 9-pin control from video editor

#### FLEXIBLE I/O STRUCTURE

- Full digital patch bay
- Stereo AUX send buss
- Two stereo AUX returns
- Direct channel outs
- Digital stereo input and two digital stereo outputs
- Four balanced analog inputs with gain controls and four balanced analog outputs with option for 4 more

#### FULL AUTOMATION

- Dynamic and snapshot automation of level, pan, 2-band EQ, including frequency select, boost and cut
- Microscope editing of automation data
- Phase level editing of level, crossfade and fade in/out

#### TRIGGER FEATURES:

- Trigger mode to play any combination of 8 tracks for vocal fly ins or sound effects placements
- Advanced trigger mode for live operation with preset or dial up cue of phrases to be played one after another

#### MIDI FEATURES:

- MIDI machine control
- Internal tempo maps
- Accurate editing by bars and beats sub-beats
- MIDI clock and song position pointer output
- 8 MIDI triggers for instant phrase playback
- MIDI trigger of record and punch in/out
- Tempo maps from external sequencers, MIDI or tap input

#### ACCURATE SYNCHRONIZATION

- Frame accurate sync to any time code
- Locks to MTC
- Generates and reads all types of SMPTE, including 24.25, 29.97 (Drop/non-drop) and 30 frames per second
- Incoming SMPTE reshaped to output lock

#### RECORDING OPTIONS

- Records to standard SCSI hard drives
- Up to 24 hours recording time possible
- Uses Magneto Optical or Syquest drives for fast project changeovers
- Optional internal 2.5" Drives for portable operation

#### PROJECT CATALOGING

- Up to 150 projects on line at once
- Easy cataloging of sound effects and projects
- Easy transfer of sounds from one project to another
- File compatible with DM-80

#### HIGH QUALITY SOUND

- Sampling rates of 48/44.1/32 kHz
- 18-Bit A/D and D/A with 128 and 8 times oversampling
- 24-bit internal processing

#### VIDEO OUT

- Composite, S-video, digital RGB output
- All track overview with infinite level of project zoom
- Views of phrase and waveform editing
- Very accurate level meters
- Track status and time location

## ALESIS adat xt

### 8-Track Digital Audio Recorder

An incredibly affordable tool, the new ADAT-XT sets the standard in modular digital multitrack recording. With new features & enhanced capabilities, the ADAT-XT operates up to four times faster than the original ADAT. Offers an intelligent software-controlled tape transport and provides onboard digital editing and flexible automation.

#### Stunning Audio:

- Incorporates ultra-high fidelity 18-bit, 128 X oversampling A/D converters which provide better-than-CD audio quality.
- For outputs, the D/A converters provide 20-bit, 8x oversampling performance for a flatter frequency spectrum, improved phase response and much less low-amplitude distortion
- Frequency response is 20 Hz to 20kHz  $\pm 0.5$ dB, S/N ratio is greater than 92dB, crosstalk between channels is better than -90dB  $\pm 1$ kHz.

#### Flexible Inputs and Outputs:

- Servo-balanced 56-pin ELC connector operates at +4dB for interfacing with consoles with +4 dB balanced/unbalanced inputs/outputs. Also includes unbalanced -10dB inputs/outputs (phono connectors).
- Has an electronic patch bay built-in so it can be used with stereo and 4-bus consoles.
- Multiple Optical Digital I/O can carry up to eight tracks at once completely in the digital domain. The digital I/O combined with the ADAT Synchronization Interface make it completely compatible with any ADAT-format recorder or other devices that use Alesis' proprietary digital protocol.

#### Digital Editor:

- Make flawless copy/paste digital edits between machines or even within a single unit. A new Track Copy feature allows you to make a digital clone of any track (or group of tracks) and copy it to any other track (or group) on the same recorder. This allows you to assemble composite tracks for digital editing.
- Use two or more ADAT-XTs and the Tape Offset feature lets you paste and paste not only from track to track, but from location to location. Tape Offset assembles the elements of a project with a minimum of repetitive over dubbing. It changes the relative tape position of a slave XT to its master, so you can "fly" audio to different locations on each tape.
- Track Delay feature allows you to delay the time reference of a track by up to 170ms. With Track Delay, you can easily change the groove of a tune. Track Delay is individually adjustable on each channel and is excellent for fixing slight timing errors in recorded tracks (player lags behind or rushes the beat). In recordings with multiple microphones, you can time-align each track, precisely compensating for the spacing between mics with accuracy to 0.0001 seconds.



#### Intelligent Transport:

- Rewinds and fast-forwards up to 4X faster than the original ADAT.
- Advanced transport software continuously monitors autolocation performance and the head constantly reads ADAT's built-in sample-accurate time code—even in fast wind modes.
- Newly developed Dynamic Braking software allows the transport to quickly wind to locate points while taking every precaution to treat the tape gently.

#### Onboard Autolocator with Auto Record:

- Onboard 10-point autolocate system provides quick access to multiple tape locations. Four specialized locate points make your recording sessions quicker and easier.
- Auto Play automatically enters Play the moment any autolocation point is reached. Auto Return automatically rewinds at the end of a loop.
- Auto Record function lets you automate punch-in/punch-out times that are accurate to 1/100th of a second.
- Rehearse Mode allows you to enter or exit record modes without actually laying tracks to tape.
- To record on the fly, you can even use the Individual Record Enable buttons to punch in and out of tracks.
- Includes remote control with transport and locate functions, offers a footswitch jack for hands-free punch-in.

#### Optional Accessories:

- BRC Master Remote Control lets you command up to 128 tracks from a single location, with 460 nameable locate points, SMPTE & MIDI synchronization & extensive digital editing power.
- AI-1 Digital Interface offers sample rate and digital format conversion between the ADAT-XT's Optical Digital Interface and AES/EBU and S/PDIF formats.
- AI-2 Synchronization Interface allows synchronization to video and film. The AI-2 offers compatibility with video recorders and editing systems (including TimeLine's Lynx-2 system) and can issue MIDI Time Code and translate MIDI Machine Control commands to the ADAT-XT.

We Are Also Authorized For The Following...



## Digital Multi-Track Recorders

### TASCAM



The first thing you notice about the eight channel DA-88 is the size of the cassette - it's a small Hi-8mm video cassette. You'll also notice the recording time - up to 120 minutes. These are just 2 of the advantages of the DA-88's innovative use of 8mm technology.

- The ATF system ensures that there will be no tracking errors or loss of synchronization. The DA-88 doesn't even have (or need) a tracking adjustment. All eight tracks of audio are perfectly synchronized. What's more, this system guarantees perfect tracking and synchronization between all audio tracks on all cascaded decks - whether you have one deck or sixteen (up to 128 tracks)!
- Incoming audio is digitized by the on-board 16-bit D/A at either 44.1 or 48kHz. The frequency response is flat from 20Hz to 20kHz while the dynamic range exceeds 92dB.
- Execute seamless Punch-ins and Punch-outs. This feature offers programmable digital crossfades, as well as the ability to insert new material accurately into tight spots. You can even delay individual tracks, whether you want to generate special effects or compensate for poor timing.

## FOSTEX RD-8



Based on the S-VHS format, the RD-8 is designed for the home project or professional recording studio. Features include up to 40 minutes of recording time on a single tape, noiseless punch-in/out, selectable sampling frequencies of 44.1 and 48kHz and punch and track delay controls. Systems are expandable from 8 to 128 tracks and there are a wide variety of options available.

- Full transport control is available via the RS-422 port, providing full control right from your video bay. The RD-8 records at either 44.1 or 48kHz and will perform Full-Up and Pull-Down functions for film/video transfers. The Track Slip feature helps maintain perfect sound-to-picture sync and the 8-Channel Optical Digital Interface keeps you in the digital domain.
- The S-VHS transport in the RD-8 was selected because of its proven reliability, rugged construction and superb tape handling capabilities. 8 tracks on S-VHS tape allow much wider track widths than is possible on other digital tape formats.
- With its LCD and 10-digit display panel, the RD-8 is remarkably easy to control. You can readily access 100 locate points, and cross-fade time is fully controlled in machine to machine editing. Table of Contents data can be recorded on tape.
- Since the RD-8 is fully ADAT-compatible, your machine can play tapes made on other compatible machines, and can be controlled by other manufacturers ADAT controllers. Your tapes will also be playable on any other ADAT deck.

## SONY

### PCM-800



Based on the success of Sony's multi-channel DASH-format recorder, the PCM-800 is an affordable and expandable 8-track digital system that employs Hi8 tape technology.

- Combines flawless sound quality, outstanding reliability and professional audio interfacing with AES/EBU digital I/O and XLR analog I/O connections.
- Combines all basic audio functions such as precise auto punch in/out digital cross fade technology, external synchronization with SMPTE/EBU time code and selectable sampling frequencies of 44.1 and 48kHz.
- Also features a shuttle dial for precise tape control, variable speed playback of 6% in 0.1% increments and a flat frequency response from 20Hz to 20kHz.
- Up to 16 PCM-800's can be operated in perfect sync with optional RCC-S1 sync cables, providing up to 128 channels of digital audio recording and reproduction.
- Optional DABK-801 Sync Board provides SMPTE/EBU time code generation and chase synchronization. It can be locked to the incoming time code with subframes accurate offset, which is ideal for audio-follow-video applications.
- The DABK-801 also provides complete video synchronization to external video reference signal.
- Optional RM-D800 provides comprehensive remote control over all functions of the PCM-800. The RM-D800 can control up to six units for up to 48 channels of digital audio.



INFORMATION GUIDES

100,000 copies in print **FREE!**

## GUIDE TO MASTER TAPE PREPARATION

**DISC MAKERS**

Full of tips from the manufacturing side on how to prepare your master for error-free manufacturing.

A must for recording studios and audio professionals.

Call today for your FREE, 1995 full color catalog:  
**1-800-468-9353**  
 24 HOURS TOLL FREE  
 Outside USA call 609-663-9030, FAX 609-661-3458

**DISC MAKERS**  
 AMERICA'S #1 MANUFACTURER FOR THE PROFESSIONAL MUSIC INDUSTRY

TRAINING/TUTORIALS

## Recording Engineer

No experience required!  
**On-the-job-training**  
 in local major Recording Studios  
 Part-time, nights, weekends  
 Free video and brochure tell how  
 Ask about our Record Label!  
**1-800/295-4433**  
<http://www.sna.com/musicbiz>



**THUNDERBIRD RECORDING SCHOOL**  
 Apprentice Style/ Hands-On Training  
 Call for Video and Brochure  
**1-800-914-8004**

SONGWRITERS

**SONGWRITERS!**  
 Have you been searching for these items.....?  
 \*Contracts, Copyrights, Business Books, Blank Cassettes  
 \*Blank, Color & Laser Printed Labels, B&W or Color J-Cards  
 \*8X10 Bio Photos, 100 Qty. Duplication Packages B&W/Color  
 \*Directories for Major Labels, Publishers, Radio Stations, Media  
 \*Artist/Mgr/Producer Contracts, Critique Forms & Post Cards  
 Call Now!.....(800) 487-SPIN "Free Catalog"  
 Songwriter Products Ideas & Necessities

JINGLES

## JINGLE PRODUCTION

Would you like to learn how to get into the Jingle Business?  
 I've been doing it for 17 years. My complete Jingle Course shows you exactly how you can do the same. Part-or-full time. Locally-or nationally. CALL NOW! This information will save you years of trial and error. Make the money you want with your music TODAY. If you are already in the Jingle business. Check out our new syndication division. It's changing the industry.  
 Call 1-800-365-8688 or write to RSM-Direct  
 4542 E.Tropicana #211 - Las Vegas, NV. 89121  
 IN A BIG HURRY? Check out our Webb page  
<http://www.jinglebiz.com>

REPAIR SERVICE

## DAT TECHNIQUES

We repair all pro & consumer models. Fast turn-around at reasonable rates. Your Sony and Panasonic Specialists.  
**1-800-D-TECHNIC/1-800-203-2151**

AUDIO UPGRADES

## LA-2A LA-3A OWNERS

Before you buy a new T4B optical attenuator, have it rebuilt at a fraction of the cost. Also stock OPTO's.  
**ANTHONY DEMARIA LABS**  
**914-256-0032**

## DA88 UPGRADES MIC MODS

Component level upgrades for mixing consoles, tape machines, mics, and all outboard gear. Also, high speed mic preamps. Step up to the 90's and hear what high speed electronics can do for your studio.

## AUDIO UPGRADES

6410 Matilija Ave.  
 Van Nuys, CA. 91401  
 (818) 780-1222 (818) 346-2308 FAX

MICROPHONES



**COLES 4038 RIBBON MICS**  
**THE BEST IN THE WORLD**  
 SALES-SERVICE-PARTS  
 Call Wes Dooley  
 (800) 798-9127 Fax (818) 798-2378  
 1029 N. Allen Avenue Pasadena, CA 91104

SILENT SPEAKER SYSTEMS/DI

**MICRO ROOM - Silent Speaker System**  
 Record guitar or any amplified instrument at any volume... *SILENTLY*. Preserves the sound and response of your amplifier. Complete and ready to use. Includes: Speaker, SM57® and Studiofoam Two Cubic Feet of Fully Equipped Studio Space...\$395  
**CONTACT: Folded Space Technologies**  
 770-427-8288  
 PO Box 801008 Acworth Ga. 30101

EARPIECES

## World's Best EARPIECES!

Only ITE-20 earpieces from CMC! deliver the **ULTIMATE** in extremely high fidelity sound!  
 LIGHTER, MORE COMFORTABLE, LESS VISIBLE AND FAR LESS EXPENSIVE THAN CUSTOM EARMOLDS!  
 ITE-20 earpieces insert directly into your ear for true high fidelity monitoring! **THE BEST** for use with Garwood, Nady and C:MAX in-ear systems 1/8 inch minijack plugs right into CD, DAT, walkman, more! One size fits all-no audiologist or earmolds needed! 22dB attenuation. Preferred around the World! Get the ACKNOWLEDGED BEST IN EARPIECES for just \$279; includes case and xtra tips.

**1-800-381-7972**  
 Sales/Dealer Info **CMC!**  
 Cirilla Maxima Company, Inc.

MAINTENANCE SERVICE

## FACTORY AUTHORIZED SERVICE

- ADAT & RD8 • DA88 & PCM800
- DAT & analog recorders
- mixers & amplifiers
- Keyboards & Samplers

**Leo's** Northern California's one full service pro audio company

V: 510-652-1553 • F: 510-652-6575

## DAT Machine Service

Fast, expert, repairs on all DAT recorder brands and models.  
 Over 2000 machines serviced!  
 Compare our rates!

**Pro Digital Inc. 610.353.2400**

MIKING HARDWARE

The ORIGINAL **Z** IS BACK!

AMPLIFIER MIKING BRACKET  
 FAST, EASY MIC PLACEMENT FOR  
 TOURING AND STUDIO USE!

ONLY \$17.95  
 +\$3.50 S&H



**Z** Right Stuff

1-800-520-4380



EQUIPMENT DEALERS



**BE A PART OF THE LEGEND AT MANNY'S MUSIC**

From Jimi Hendrix to Guns N' Roses, Manny's has been the first choice of legendary musicians for almost 60 years.

Experience the tradition of Manny's legendary service, expertise and extensive equipment selection.

Call 212/869-5172 or write for your FREE product catalog today and become part of THE LEGEND.

(Add \$2.00 shipping and handling outside Continental U.S.)

**Manny's Mailbox Music**

48th Street  
At Your Doorstep  
156 W. 48th Street  
NY, NY 10036

Hours 10:00 a.m. - 6:00 p.m. EST M-F

World's Largest Dealer of Used Musical Equipment!

**USED BY MAIL GEAR**<sup>SM</sup>

A Division of Daddy's Junky Music Stores, Inc.®

Guitars • Amplifiers • Drums • Keyboards  
Recording Gear • P.A. Gear • Accessories  
Pedals & Rack Effects & More!

**OVER 10 000 ITEMS IN STOCK!**

**BUY • TRADE • REPAIR**

CALL 603-894-6492 FAX 603-893-7023  
or mail request to:  
Used Gear By Mail P.O. Box 1018 Salem, NH 03079

**FREE Monthly Catalog!**

Mail, Fax or call today for your FREE subscription

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_ Phone \_\_\_\_\_

When you're in New England, visit us at any of our 14 Daddy's Junky Music Stores!

Boston, MA (617) 247-0909 • Cambridge, MA (617) 497-1556  
Peabody, MA (508) 535-0123 • Dedham, MA (617) 329-9924  
Shrewsbury, MA (508) 797-4421 • Portsmouth, NH (603) 436-1142  
Manchester, NH (603) 669-9346 • Salem, NH (603) 893-6635  
Nashua, NH (603) 888-1160 • Portland, ME (207) 772-3239  
Stamford, CT (203) 975-8020 • Vernon, CT (203) 648-1337  
Hartford, CT (203) 224-4648 • Warwick, RI (401) 823-3239

BROWSE OUR INVENTORY OF USED GEAR ON THE INTERNET! Our address is <http://www.daddys.com>

**SOUND PRODUCTIONS**  
Dallas, Texas

We Sell the **MAJOR BRANDS** of **NEW & USED SOUND EQUIPMENT** as Used by **TOURING SOUND COMPANIES** and **LIVE MUSIC VENUES**

We Have **WHAT YOU WANT** at **DISCOUNT PRICES**

Our **SALES ENGINEERS** are **EXPERIENCED SOUNDMEN** and can **RELATE TO YOUR NEEDS**

If you are a **SOUNDMAN**, get on our **MAILING LIST** for your **SPECIAL DEALS**

**LEASE FINANCING AVAILABLE CALL NOW**



**Sound Productions**

**800-203-5611**

(214) 351-5373 • Fax 214/351-6782  
Web Page: <http://www.soundpro.com>  
E-mail: [sndprodal@aol.com](mailto:sndprodal@aol.com)

**THE SOUNDMAN'S CONNECTION SINCE 1973**

NEW & USED GEAR

**THUNDER & LIGHTING INC.**

**PRO AUDIO AND LIGHTING SUPPLY**

FROM STUDIO TO STAGE...  
WE STOCK OVER 100 LINES

**MAKE THE RIGHT CALL**

TOLL FREE 1-800-333-9383  
(860) 829-0434 Fax (860) 828-0558

SERVING THE PRO AUDIO MARKET OVER 20 YRS. "HONEST ADVICE, BEST SERVICE AND PRICE"

THE BEST MIC & WIRELESS PRICES IN THE U.S.A.  
1000'S IN STOCK! 15 MAJOR LINES

CALL US NOW FOR A LINE CARD AND SALE FLYER. WE BUY AND SELL USED EQUIPMENT TOO!

RECORDERS - STUDIO PROCESSORS - CONSOLES - POWER AMPS - SPEAKER CABS - VINTAGE MICS - LIGHTING WAREHOUSES IN CT. & CA. WE SHIP WORLDWIDE

**CARUSO MUSIC**

SAVE THOUSANDS OF DOLLARS BUYING YOUR NEW & USED EQUIPMENT FROM US

94 STATE STREET • NEW LONDON, CT 06320  
203.442.9600 • 203.442.0463 (FAX)  
[carusomusi@aol.com](mailto:carusomusi@aol.com)  
Caruso Music 74012,664 (Compuserve)

**RICH MUSIC**

Digital Pianos Synthesizers  
Pro Audio Software, etc.

Everything's Big in Texas...  
except our prices

"Before you jump call us last!"

Phone (800) 795-8493  
Fax (817) 898-8659

**Rich Music 1007 Ave. C Denton, TX 76201**

**Don't Get Beat**  
When you need equipment call

**8TH STREET MUSIC**  
(800) 878-8882

Philadelphia's Largest Musical Instrument Dealer!!!

8th Street Music, 1023 Arch St.  
Philadelphia, PA 19107

**ODYSSEY PRO SOUND**

SUPPLYING NEW and USED QUALITY RECORDING EQUIPMENT

Competitive Prices Satisfaction guaranteed

Consoles\*\*\* Tape Machines\*\*\* Outboard  
Microphones\*\*\*Vintage\*\*\*and MORE!

We buy, list, and trade quality audio equipment

CALL FOR CURRENT LISTING

Tel: (508) 744-2001 Fax: (508) 744-7224

MC/VISA Accepted



**LOUDSPEAKER SOFTWARE**

DESIGN LOW-FREQUENCY LOUDSPEAKER ENCLOSURES FAST AND ACCURATELY WITH

# BassBox

BassBox is a low-frequency loudspeaker enclosure design program for personal computers (PCs) running Microsoft® Windows™. It offers professional features at a low price.

**Features:** ♦ Large driver database with thousands of woofers ♦ Easy to use ♦ On-line help ♦ Six graphs ♦ Hi-res mode ♦ Design vented boxes, band-pass boxes, boxes with passive radiators and closed boxes. ♦ Use multiple drivers. ♦ Accepts automobile or listening room interior acoustic response. ♦ Advanced vent calculator. ♦ Advanced box dimension calculator. ♦ Use Three-Size or electro-mechanical parameters. ♦ Use English or metric units ♦ Save and recall designs.

Also Available: X-over passive crossover program for Windows.

**BassBox only \$99.00** plus \$6H

Shipping & Handling: U.S. = \$6, Canada = \$7, Overseas = \$13

© 1996 by Harris Technologies. BassBox is a trademark of Harris Technologies. Other trademarks belong to their respective companies. Computer and speaker logos included with software.

**HARRISTECH**

Harris Technologies Inc, P.O. Box 622, Edwardsburg, MI 49112-0622  
Tel: 616-641-5924 • Fax: 616-641-5738  
E-Mail: 72674.514@compuserve.com

**SOFTWARE**

## FUNKED UP YET?

### THIDDLY.BITS VOLUME 6

# THE FUNK

Licks & Tricks as MIDI Files  
**\$34.95 (PC or Mac)**

Also available:

- Vol One, General Instruments
- Vol Two, Gate Effects
- Vol Three, Electric & Acoustic Guitar (featuring Steve Hackett)
- Vol Four, Drums & Percussion (featuring Bill Bruford)
- Vol Five, Country (featuring Scott Joss)
- World Series Brazilian Rhythms
- Classic Rock & Country Piano from John Rabbit Bundrick

To order, or for catalog, call 408-688-4505. Fax 689-0102  
Twiddly.Bits, from KEYFAX Software  
PO Box 958 Aptos CA 95001-0958

**IT PAYS TO ADVERTISE IN EQ**

**LOUDSPEAKERS**

## SOLEIN SPEAKER COMPONENTS

### CROSSOVER COMPONENTS

**FAST CAPACITORS**  
Metalized Polypropylene (Non Polarized)  
Values from 1.0 nF to 200 nF  
Voltage Rating: 150 VDC - 150 VAC

**SOLEIN INDUCTORS**  
Perfect Lay Hexagonal Winding Air Cored  
Values from 10 mH to 3H mH  
Wire Sizes from #20 AWG to #10 AWG

**HEPTA-LITZ INDUCTORS**  
Seven Strands Litz Wire Constructions  
Values from 10 mH to 30 mH  
Wire sizes from #16 AWG to #12 AWG

**SOLEIN CROSSOVERS**  
Custom Computer Design  
Passive Crossover for Professional, Hi-Fi and Car Hi-Fi. Power up to 1000 Watt!

**CROSSOVER, SPEAKER PARTS**  
Gold Speaker Terminals, Gold Banana Plugs, Gold Binding Posts, Crossover Terminals, Power Resistors, Mylar Capacitors, Plastic Grill Fasteners, Nylon Ty-Wraps, Car Speaker Grills, Misc. Parts

**SOLEIN INC.**  
4470 AVENUE THIBAUT  
ST-HUBERT, QC J3Y 7T9  
CANADA

TÉL: (514) 656-2759  
FAX: (514) 443-4949

Computer Aided Design for enclosure and crossover available to customer  
**CATALOG \$6.00 REFUNDABLE**

**RECHARGEABLE POWER SYSTEMS**

## Extend Power Time - Extend Planet Time

- sealed lead acid batteries available for all portable DAT and analog recorders
- memory-free
- economical
- enviro-friendly
- systems include:
  - two batteries
  - Intelcharger™
  - rugged cases
  - 1 year warranty
- for more info call or write

P.O. Box 956  
Boulder, CO 80306  
email: ecocharge@aol.com

Speak: 303.449.5761  
Fax: 303.449.1545  
Orders: 800.361.5666

**KEYBOARD ACCESSORIES**

**SCSI DRIVES SALES-REPAIRS & UPGRADES**

**CD RECORDERS**

**DIGITAL RECORDING SYSTEMS**

Email: sndlogic@CONNECTnet.com

**TX16W**

**INFO & FREE CATALOG 619-789-6558**

ORDERS: 800-753-6558  
FAX: 619-789-4170  
1125 ELEVENTH ST. MONA, CA 92065

**SOUND LOGIC**

**SOFTWARE MIDI I/F RAM/ROM SAMPLES**

AKA 950 1 MB RAM	174
AKA 51 000 51 100 8MB RAM CARD	474
AKA 501 1 MB RAM EXPANSION CARD	99
ENSONIQ SEQUENCER MEMORY EXPANDER	157
ENSONIQ EPS1 64 2X RAM EXPANDER	194
ENSONIQ EPS & EPS1 64 SCSI I/F	174
YAMAHA TX1 6W1 .5MB RAM CARD	227
YAMAHA SY99 51 2K SRAM CARD	247

**AUDIO SAMPLING CDS**  
Rock/R&B \$47 Classic Synths  
Atmospheric FX & Bizarre

**FREE SHIPPING**

**KEYBOARD PRO AUDIO ACCESSORIES**

**MULTI-MEDIA ACCESSORY**

**NEW!**

## CL6/1800 Midi Lighting Dimmer

- 6 Independent Channels of Dimming
- Responds to Midi Notes and Controllers
- Only \$399.00 US List Price!

Ask about our other Midi products to control Valves, Relays, Servos, Lighting, Analog Keyboards & more!!

**MEDIA**

2461 West 205th Street, B100, Torrance, CA 90501  
Phone: (310) 320-0696  
Fax: (310) 320-0699

Show Control & Multi Media Systems  
Visa, MC, Discover & AmEx. Dealer Inquiries Welcome



ACOUSTIC PANELS

ALL NEW, MUCH IMPROVED  
CLEAR-SONIC PANELS



A tough, light weight,  
and portable solution  
to your loudness problem!  
Now more transparent!

**NEW LOWER PRICES!**

Call for our free brochure!

**ACCUSONICS MFG.**  
**(800)-888-6360**

EVIL TWIN

direct-to-tape vacuum tube instrument interface



eclair engineering (413) 584-6767



Fostex - Multitrackers & DATS  
Behringer - Samson - Zoom  
Roland - Digitech  
"Home Studio Processing"  
Everything Discounted

1-800-535-7699 **Roxy Music**

**Spectral Digital Workstation**

16 trk - Loaded - Less than 1 year old.  
Warranted - Paid 24k, Asking 14k.  
Liquidation - Lots of Stuff!

Phone: 813-747-2282 Fax: 813-748-8436  
Compuserve: 70662,3050

ACOUSTICAL FOAM

Acoustic Foam, Diffusors & Much More!



**New!**

For over 13 years our acoustic foams & sound barriers have been making rooms sound world-class at affordable prices. Well, now we've changed our name & branched out with even more cool stuff that'll help you sound better. **New items: TFusor™ & MiniFusor™** Full Bandwidth Diffusors (you won't believe how good the testing data & prices are!), **LENRD™** Bass Traps, **U-Boat™** Floor Floaters, Active & Passive **Studio Monitors**, **Mic Windscreens**, **NS-10M Tweeter Protectors** & more. Not only that, our new expanded catalog is packed full of even more **great acoustical advice** you can't get anywhere else! The catalog & sample kit are **FREE**, so call us **today**. Your room & wallet will be **very glad** you did!

**Clients: AT&T, NASA, Sony, General Dynamics, Shure, Warner Bros., 20th Cent. Fox, ABC Radio Network, Ensoniq, '96 Democratic Convention, Ford, Hitachi, Dennis DeYoung (Styx), Toshiba, Universal Studios, Maury Povich Show, NPR, Skid Row, Community, US Gov't, Bootsy Collins, Manley Labs, Dick Ervasti (Voice of NFL on Fox), Pat Duke (Voice of McDonalds & Miller Brewing), MTX-Soundcraftsmen, etc... Join 'em!**

**Auralex (formerly USAFoam) ★ 11571 E. 126th Street ★ Fishers, IN 46038**  
**Samples & Questions (317) 842-2600 ★ (800) 95-WEDGE ★ Fax (317) 842-2760**

EQUIPMENT FOR SALE

**STUDIO TECH SUPPLY**

WORLD CLASS QUALITY - COMPETITIVE PRICING  
SALES \* SERVICE \* INSTALLATION \* CONSULTATION \* LEASING

AKG AMETAC API BEHRINGER BEYER B&K BRAINSTORM BRYSTON CALREC CANARE CUTTING WEDGE DDA  
DEMETER DIGIDESIGN DOLBY-PRO DRAWNER DYNAUDIO EQUI-TECH EVENTIDE FOCUSRITE FOSTEX-PRO  
GENELEC HAFLER JOEMEEK K&K LEXICON MACKIE MICROTCH-GEFELL MOGAMI MRL MYTEK NEUTRIK NTI  
OPTIFILE OTARI PRO-CO SONIC SOLUTIONS SONY-PRO SPL SOUNDRAFT SOUNDFIELD STUDIO-TECHNOLOGIES  
SUMMIT-AUDIO TIMELINE TL-AUDIO TUBE-TECH UPTOWN VAC-RAC 4000 Z-SYSTEMS AND MANY MORE

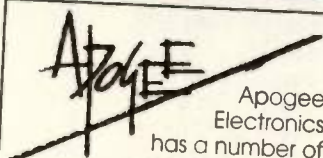
AUTHORIZED SERVICE

AMEK/TAC DDA FOSTEX MACKIE MCI OTARI SOUNDRAFT TASCAM...

9982 MONROE #407 DALLAS, TEXAS 75220

PHONE: (214) 358-0050

FAX: (214) 358-0947



Apogee Electronics has a number of remanufactured AD-500 stereo 18-Bit Analog to Digital converters we have taken in on trade. We are offering these units at a special price of \$1,495 with a one year warranty.

**APOGEE ELECTRONICS**  
Phone (310) 915-1000  
FAX: (310) 391-6262



"The Next Generation of Professional Console Housing"

**ARGOSY**  
INFORMATION: 1(800) 427-5698  
Outside U.S. 314 346-8549, Fax 314 348-2769  
ACI • Rt. 3, Box 4374 A • Osage Beach, MO 65065

**EVEN SMALL ADS WORK!!**



## DUPLICATION/REPLICATION SERVICES

# OASIS™

DUPLICATION  
PRESENTS:

## 3 CRUCIAL STEPS FOR THE SUCCESS OF YOUR CD RELEASE

### 1. Think Backwards--Plan Your Promotion First

What good is a CD release if nobody hears it? Make sure you get your music to radio. Try to get onto a **radio-oriented sampler CD program**, such as the **OASISALTERNATIVE™**, **OASISACOUSTIC™**, **OASISROCK™**, & **OASISJAZZ™** sampler CDs, which go to every radio station in their genres.

Be sure to also take advantage of the inexpensive promotion and distribution opportunities available on the **World Wide Web**. You can set up your own Web "homepage," or you may want to consider joining the Oasis-sponsored **Musicians on the Internet** program, which promotes your CD online & distributes it via the CDnow! superstore.

### 2. Work with a Qualified, Independent Graphic Artist

If you want your product to compete with the major labels, you have to look as good as they do. **One-stop "chop-shop" duplicators who offer one-size-fits-all graphics aren't going to cut it.**

This is your project: you need to sit down and work with your own graphic artist-- **face-to-face**. Resources for finding good graphic artists in your local area include local ad agencies, fellow musicians, or a free referral from the Oasis graphic artist database. (You can e-mail or call Oasis & we'll locate a good graphic artist for you in or near your hometown.)

### 3. Work with a Reputable Duplication Company

Oasis has several worthy competitors, but not all duplicators are reputable. Things to check:

- Financial stability of the company. (Caution: **there has been a recent rash of duplicator bankruptcies.** Make sure your duplicator won't collapse while it has your masters!)
- Is the price too LOW? If a deal seems too good to be true, it probably is.
- Consider the quality of the company's clientele--does it work with professionals--names you recognize? Ask for references.
- Consider how knowledgeable & helpful the company's staff is on the phone: do they know the music business? Are they interested in your project's potential?

If you are in need of CD & cassette duplication, Oasis offers its assistance:

Call or e-mail Oasis (800/697-5734; [oasiscd@clark.net](mailto:oasiscd@clark.net)) for our free materials, including:

- CD logsheet / mastering checklist • art templates • info on our **OASISSAMPLER™** CDs

And check out "A Musician's Guide to CD Manufacturing," <http://www.oasiscd.com>

for a more thorough discussion of the topics we've touched on here.



**LOW Prices!**  
**FREE Brochure!**  
**MAJOR Label Quality!**  
**FRIENDLY Customer Service!**

**Compact Disc & Audio Cassette Production**  
(802)453-3334 FAX (802)453-3343

### CD PRODUCTION / PRE-MASTERING

- **Quick-Turn CD Pressing:** 195 discs in plastic sleeve, 1 color imprint, guaranteed 6 day turn\* **\$995.00**, or the shipping is free!
- **Master CD + 10 Copies:** **\$299.00** w/label
- **PQ'd CDR for CD Pressing,** to 60 min.: **\$75.00**
- **Fulfillment:** Give your demos the maximum delivery impact via discount overnight & 2 day FedEx / Airborne!

For a rate sheet & info, call  
**1-800-352-2964**  
ALPHA MASTER WORKS



\*from time master and art is approved by client.

### THE NAMES YOU KNOW AND TRUST...

#### HIGH BIAS BULK BLANK AUDIO CASSETTES

LENGTH	maxell XL II	BASF CR90 SLIPS WITH SH-ELPS MK-10 SH-ELL
C-10	32 ¢	40 ¢
C-15	36 ¢	42 ¢
C-20	37 ¢	47 ¢
C-30	42 ¢	55 ¢
C-46	55 ¢	70 ¢
C-62	60 ¢	75 ¢
C-80	80 ¢	95 ¢
C-92	85 ¢	97 ¢
C-100	95 ¢	99 ¢

All Lengths Available 1 Min. - 126 Min. 100/MINIMUM

CUSTOM PRINTED LABELS AND J-CARDS  
SOLING EDGE  
NORELCO BINDER  
CRYSTAL POLY BOXES  
CD JEWEL BOXES

EMERY ON CASSETTE FRONT AND BACK  
SHIPPING WRAPPING

COMPLETE PRODUCT LINE FROM  
AMPEX - BASF - TDK - 3M  
SONY - MAXELL

AUDIO VIDEO & DIGITAL PRODUCTS  
DAT'S - CDR'S - A-DAT'S - MOD'S  
HI-8MM - DCCS - MINI DISC

### ...FROM THE COMPANY YOU KNOW & TRUST

764 5th Ave, Brooklyn, NY 11232  
In NYC Tel: (718) 369-8273  
24 Hr Fax: (718) 369-8275



CALL TOLL FREE 1-800-538-2336

### DEAL DIRECT WITH THE FACTORY

Manufacturing Tomorrow's Technology Today



Music, Software, Games, Interactive Multimedia, Education, Entertainment, Databases, Photo CDs, Movies and Karaoke. Mastering and Pre-Mastering, up to 6 color printing, replication, graphics shipping and packaging, and fulfillment.

**WINGS**  
DIGITAL CORPORATION

10 Commercial Street • Hicksville, NY 11801  
Tel. 516-933-2500 • Fax 516-933-2506

Toll Free: 1-800-WINGS41

### Audiomation

#### Compact Disc Cassette Manufacturing

Call us before you order your CDs and Tapes, we will **save** you money.

1-800-375-2060



DUPLICATION/REPLICATION SERVICES

**TOM PARHAM AUDIO**

PRODUCTIONS

**DIGITAL BIN CASSETTE DUPLICATION**

- 100 C-30&1CD REF B&W J-CARDS, BOX & ON SHELL PRINT \$279
- 250 C-30 W/B&W J-CARDS, BOXES & ON SHELL PRINT \$375
- 500 C-30 W/B&W J-CARDS, BOXES & ON SHELL PRINT \$575
- 1000 CDs & 1000 CASSETTES 4 COLOR INSERTS \$3125
- DIGITAL MASTERING SPECIAL 2HRS. W/100 CASSETTES \$425

**FREE J-CARDS**  
WITH ALL CASSETTE ORDERS!

**SONIC SOLUTIONS digalog**  
ABSOLUTELY THE BEST

**1-800-BIN-LOOP**

**COMPACT DISC MANUFACTURING  
CASSETTE MANUFACTURING**

FREE CATALOG  
**800-289-9155**

outside U.S. (516) 244-0800  
<http://www.pb.net/~cemuai>

You'll Hear and Feel the Difference

- CD REPLICATION
- CASSETTE DUPLICATION
- DIGITAL MASTERING
- GRAPHIC DESIGN
- PRINTING
- PACKAGES
- ONE OFF CDs



DEAL FACTORY DIRECT AND SAVE!

**PARADOX SOUND**  
digital mastering

State-of-the-art equipment & talented engineers are only half of what your project needs. Call US to discuss YOUR needs.

FREE BROCHURE 1-800-235-6500 GUARANTEED RESULTS  
Paradox Sound - The studio of choice.

**Good Vibrations—RJR Digital**  
IT'S OUR 20TH ANNIVERSARY!

- Call for best prices & service in the industry. CD and Cassette packages include:
- Mastering • Design • Film & Printing
- Replication • Fabrication
- TOTALLY RETAIL READY!
- Fax On Demand: 1-800-828-6537
- Customer Service: (619) 267-0307
- FAX us at: (619) 267-1339

**WE'LL BEAT ANY PRICE ON CDs**

- QUICK
- BEST QUALITY
- COMPACT DISCS
- DIGITAL CASSETTES
- PERSONALIZED SERVICE
- TOTAL COMPLETE PACKAGES
- LOWEST PRICES, CALL US LAST!

**(813) 446-8273**

**Total Tape Services**  
639 Cleveland St / Clearwater, FL 34615

**EVEN SMALL ADS WORK!!**

**CD'S FAST**

- \*300 CD Special: \$849
- \*500 CD Special: \$999
- \*with client provided CD-R or 1630 and artwork.
- Digital Mastering, CD-Rom & Graphic Design Available

**Silicon Graphics Digital Printing**  
Full color inserts from \$275  
10 Free Posters w/ complete package

Call (800) DIGIDOC  
**DIGIDOC**  
PRODUCTIONS

**• DO IT RIGHT, RIGHT HERE! •**

Deal Direct With The Manufacturer  
For Results You Can Trust!

- RECORD PRESSING / COLOR VINYL
- CD PRESSING / ALL QUANTITIES
- CASSETTE DUPLICATION
- DESIGN / FILM / PRINT
- COMPLETE PACKAGES:

1000 CDs IN JEWEL BOX WITH PRINT - \$1625  
1000 CHROME CASSETTES W/ J-CARD - \$1050  
500 VINYL SINGLES IN DIE-CUT JAX - \$1050

If you can make the music, we can do the rest.  
Rely on the indie experts with major label experience!

For a free catalogue or a custom quote, call:  
**1 • 800 • 869 • 6561**  
ALIGNED AUDIO INCORPORATED

Quality in service to the music industry since 1986.

**\$1465** 1000 CDs w/2-color label, jewel box, booklets and tray cards inserted & wrapped

Featuring High Quality PMCD Mastering by Grammy® Nominated Eng'r David Moody. Numerous major & indie label credits worldwide. Trust our quality service with your next project.

**Digital Mastering • CD-Rs • Real Time Cassettes • CDs • Insert Printing**

**dLAB Studios** Int'l 704/882-6134 Fax 704/882-2063 **1(800) 243-dLAB**

**HIGH-SPEED  
CASSETTE DUPLICATION  
CD REPLICATION  
FAST TURNAROUND**

<p><b>1000 CD's \$1299</b></p> <p>Includes:</p> <ul style="list-style-type: none"> <li>• 2 Color Label Imprint</li> <li>• Jewel Box and Shrinkwrap</li> </ul>	<p><b>1000 Cassettes \$599</b></p> <p>Includes:</p> <ul style="list-style-type: none"> <li>• Bin Loop Master</li> <li>• Test Cassette</li> <li>• Clear Shells</li> <li>• Norelco Box &amp; Shrinkwrap</li> <li>• Imprinted Direct to Shell</li> </ul>
---	---

Bring your own J cards and/or CD Inlays

**DELUXE PACKAGE \$1859**  
1000 CD'S AND 1000 CASSETTES  
PACKAGE INCLUDES  
ALL FEATURES SHOWN ABOVE

**Universal Audio Productions, Inc.**  
15705 Arrow Hwy. Unit 1  
Irvine, CA 91706  
Phone 818.856.8625  
Fax 818.856.1736

**Stepping Stone**  
Killer Prices - Great Service

- 1000 retail - ready CDs: includes color inserts, film seps & basic layout: \$1580
- 1000 CDs in Jewel Box: \$1295
- 1000 bulk CDs: \$890
- We'll save you serious money on larger quantity runs... Call us! We also offer expert graphic services and mastering.
- Retail-ready cassettes w/ color J-card: 1000 qty: \$977 500 qty: \$577

Brochure: call toll free 888-777-DISC  
[www.mv.com/biz/steppingstone](http://www.mv.com/biz/steppingstone)

MASTERING • MANUFACTURING • PRINTING

**DIGI-ROM™**

FOR COMPACT DISCS • CD-ROM  
REAL TIME & HIGH SPEED AUDIO CASSETTES

COMPLETE PACKAGES • COMPETITIVE PRICING  
GRAPHIC DESIGN STUDIO • PERSONALIZED  
EXPERT SERVICE • FAST TURN-AROUND

CALL (800) 815-3444  
(212) 730-2111

130 WEST 42ND STREET • NEW YORK, NY 10036

**DRT Mastering**

You will have the big, high-impact major label sound that sells discs... or the work is free! Custom signal chains. First class results.

Outrageous Replication Prices.  
Free brochure 800-884-2576  
[www.drtmastering.com/biz/drt](http://www.drtmastering.com/biz/drt)

**WHITWATER RECORDING**  
704-274-0956 9 Busbee View Road Asheville, NC 28803

Retail-Ready Packages! Call for the 1995-96 catalog

- 500 CD's B/W \$1389 Full Color \$1689
- 1000 CD's B/W \$1889 Full Color \$2147
- 300 TAPES Full Color \$589.00 Real-Time \$759.00

CD packages include mastering, design, film, label, box, & wrap



**DUPLICATION/REPLICATION SERVICES**

**Duplication Systems**  
**RELIABILITY**  
**DURABILITY**  
**EASE OF USE**  
**marantz**  
 That's what you get with a Marantz duplication system from Full Compass. Marantz has totally integrated real-time analog cassette duplication systems that will be custom designed for you. For complete information and a price that's too low to advertise call Full Compass.

**FULL COMPASS**  
**1-800-356-5844**

**PREMIUM CUSTOM LOADED BULK AUDIO CASSETTES**  
 HIGH BIAS (TYPE II) CASSETTES FOR MASTERING AND/OR ORIGINAL RECORDING  
**TDK PRO SA BULK**  
 UNLABELED AND UNBOXED • MAGNETIC MEDIA CLEAR 5-SCREW SHELLS

Quantity	C-10	C-20	C-30	C-45	C-60	C-90	C-100
25-99	\$0.31	\$0.37	\$0.44	\$0.50	\$0.61	\$0.82	\$0.90
100-999	\$0.28	\$0.34	\$0.40	\$0.46	\$0.55	\$0.77	\$0.90
1000+	\$0.25	\$0.30	\$0.35	\$0.44	\$0.52	\$0.76	\$0.87

**MAXELL XLII BULK**  
 UNLABELED AND UNBOXED • MAGNETIC MEDIA CLEAR 5-SCREW SHELLS

Quantity	C-10	C-20	C-30	C-45	C-60	C-90	C-100
25-99	\$0.32	\$0.37	\$0.42	\$0.54	\$0.61	\$0.83	\$0.90
100-999	\$0.30	\$0.34	\$0.40	\$0.49	\$0.58	\$0.79	\$0.90
1000+	\$0.27	\$0.32	\$0.38	\$0.47	\$0.52	\$0.76	\$0.87

**PREMIUM ROUNDED-EDGE ALL CLEAR NORELCO BOXES ▶ \$0.13 each**  
 12-up labels 30¢ per sheet. 6-up insert cards (J-cards) 30¢ per sheet. All other lengths loaded and priced at next highest length. Loaded precisely to your specifications.

**NOW! RECORDING SYSTEMS, INC.**  
 32 WEST 39TH STREET, 9TH FLOOR, NEW YORK, NY 10018  
 Telephone: 212-768-7800 • 800-859-3579 • Fax 212-768-9740  
 We accept VISA • MasterCard • American Express or UPS COD Cash Only  
 Prices subject to change without prior notice

**CALL FOR FREE FULL LINE A-V CATALOG**  
**WE WILL MATCH ANY ADVERTISED PRICE!**  
**\$50 MINIMUM PRODUCT ORDER**  
(Shipping and handling charges may be added to some specialty prices)

**CD's • CASSETTES**  
**VIDEO**  
**1-800-365-TAPE (8273) • 1000 CD Packages - \$1499!!**

CD's, CD ROM, CD Plus • Complete Graphic Design, Printing and Packaging  
 Direct-from-Digital Real Time & High Speed Cassette Duplication  
 500 CD pkgs. • VHS Hi-Fi Duplication • Blank Tapes & Accessories  
 100% Guaranteed

**Complete State-of-the-Art Manufacturing**

Just about our **FREE FedEx & Fast CD's™**

Free Color Catalog **EMBED PRO** Free Color Catalog

Over a decade serving America & the World  
 40 Gardenville Plaza W • Buffalo, NY 14224 • Phone: (716) 656-1206 • Fax: (716) 656-1300

**PRECISION DIGITAL MASTERING**  
*Sonic Solutions • Automated EQ • No Noise™*  
*Lexicon 20bit ambience enhancements*  
*Apogee 20bit AD/DA converters*  
*UV 22 Super CD™ encoding*  
 Glass master references

**BLACK MOUNTAIN**

**800 398 7770**

**Southern Recording Supplies**  
 Recording & Duplicating Supplies

**AMPEX**  
**3M**  
**maxell®**

- DAT, ADAT, D-88 and Reel to Reel Tape
- Bulk Audio & Video Cassettes and Accessories
- Cassette Duplicators/Pro Sound Equipment

**\*No Minimum Order\***  
 Call For Our Free Catalog  
**Southern Recording Supplies 700 Woodruff Rd. Greenville, SC 29607**  
**1-800-450-8273**

Web Site <http://top.monad.net>  
**CD ONE-OFFS**  
**603 352-3403**  
**74 min** **\$29**  
 CALL FOR YOUR FREE CD KIT  
**BLUE PLANET STUDIO**  
 blue\_planet@top.monad.net

**a+r** Est. 1967  
 Record & Tape Mfg., Inc.  
 902 N. Industrial Blvd.  
 Dallas, TX 75207  
 214-741-2027  
 1-800-527-3472  
 CD's Starting at **\$900<sup>00</sup>**

**VISA/MC ACCEPTED**

**MAJOR LABEL QUALITY & SERVICE**  
 ★ **VINYL PRESSING**  
 SPECIAL RADIO & PROMO PACKAGES  
 ★ **COMPACT DISCS**  
 ★ **CASSETTES**  
**No Hidden Costs!**

**TRANSFER YOUR MUSIC TO CD**  
 1 Off 63 min. \$34.95 S/H \$4.95  
 Send to: DRD,  
 P.O. Box 147 Etna, OH 43028  
 CALL 1-800-867-8918

**USE COLOR...IT WORKS !!**



DUPLICATION/REPLICATION SERVICES

The Complete Guide to Manufacturing Packaging Mastering Compact Discs Cassettes



WE WROTE THE **BOOK**  
CUSTOM CD'S & CASSETTES

No Hassle Free Money Back Guarantee

**WORLD** Priority Service

E Mail wrcusa@aol.com

MAJOR RELEASE QUALITY SINCE 1969

24 Hours

1-800-463-9493



**Complete CD packages!**

Retail ready including full color inserts.

1-800-928-3310

World Audio Video Enterprises

Bar codes, CD Rom, CD R, Mastering, Design and Film services available.

	300	500	1,000
CD's	*975	*1075	*1637
Cassettes	*396	*506	*752

**1000 CD'S**  
as low as  
**\$995.00\***  
Mastering Included

CD LABS will master your music and put it on CD's for the lowest prices in the industry!

We use the finest Master CD writers & software to guarantee you the best quality available and save you hundreds of dollars in mastering fees.

Here's why we're the choice of studio professionals for CD mastering and editing, and quantity CD replication: Same or next day service on Master CD Lowest Mastering Prices in the Industry EQ & Level Correction Service Digital Editing and NoNoise™ Service Low Priced Quantity CD Production

**DELUXE CD PACKAGES**  
500 CD's w/4 page 4 color inserts.....ONLY \$1350  
1000 CD's w/4 page 4 color inserts.....ONLY \$1795

**DELUXE CD/CASSETTE PACKAGES**  
500 ea. w/4 pg 4 color book & J-card...ONLY \$1995  
1000 ea. w/4 pg 4 color book & J-card...ONLY \$2795

THE ABOVE PRICES ALSO INCLUDE DAT TO CD MASTERING w/PG LOG SHEETS, 2 COLOR CD LABEL, CASSETTE LABEL, JEWEL BOXES & 2 MASTER CD'S

\*BULK PACKED W/2 COLOR LABEL also 500 CD'S ONLY \$795  
COMPLETE GRAPHIC DESIGN SERVICE AVAILABLE

CD LABS™

Direct to CD Mastering

12517 CHANDLER BLVD. STE. 107  
NO. HOLLYWOOD, CA. 91607  
(818) 505-9581--(800) 4 CD LABS

28TH ANNIVERSARY  
FREE CATALOG



FROM 1 TO 100 MINUTES  
100 PIECE MINIMUM

CD-RS, HI-8, MINI DISKS, S-VHS  
MASTERING TAPE  
A-DAT, R-DAT, BULK VHS  
PLASTIC REELS, BOXES  
NORELCO, SOFT POLY BOXES  
VIDEO BOXES & SLEEVES  
SINGLE & DOUBLE CD BOX  
DCC, MOD, DDS2 AND MORE

LENGTH	C-10	C-20	C-30	C-40	C-50	C-60	C-70	C-80	C-90
TYPE									
TDK SA	.25	.30	.35	.39	.44	.49	.53	.58	.63
MAXELL XLII	.27	.32	.38	.44	.47	.52	.67	.70	.76
BASF CHROME SUPER	.30	.38	.47	.56	.65	.69	.80	.87	.89

3M  
TDK  
BASF  
AMPEX  
maxell

IN HOUSE DIRECT ON CASSETTE PRINTING  
• CUSTOM PRINTED LABELS & J-CARDS •

IN NYC 718-435-7322 • 800-221-6578 • 24 HOUR FAX 718-853-2589

**REALTIME DAT**  
CASSETTES

No Minimums!  
Shipped in 24 hrs!

30 KABA Decks • Chrome Bias • Imprints  
Professional Graphic Design • Full Color Inserts  
Every Tape Quality Checked! • DAT-to-DAT  
CALL FOR FREE SAMPLES AND BROCHURE

FULL PACKAGE  
100 CD's w/Full Color  
\$245

WINGSPAN  
800-646-6013 ext. 5091

PROGRESSIVE MUSIC STUDIOS

best CD & CASSETTE packages in the Known Universe.....

500 CD's, 4 color inserts from DAT	\$1175.00
1000 "	\$1630.00
500 Cassettes, 4 color Inserts	\$685.00
1000 "	\$985.00

1-800-421-8273



**MEDIAWORKS**  
INTERNATIONAL, INC.  
1719 West End Ave. Ste. 100E  
Nashville, TN 37203

CD, CD ROM, Cassette, Video,  
& Vinyl Disc Manufacturing

Call Today for the **BEST**  
in Quality and Service at  
Competitive Prices

Phone (615) 327-9114  
Fax (615) 327-3438

10 PROMO CD's  
only \$175 (30 min)  
CDR SINGLES  
\$19-\$49

FREE graphic & label!  
**888-367-9242**  
GREEN DOT AUDIO  
Nashville TN

**One Stop**  
Full Service Digital House

- ▲ CD & Cassette Mastering and Replication
- ▲ Digital Audio Post production
- ▲ CEDAR Sonic Restoration



Using Today's Technology  
To Bring Your Project  
To Tomorrow's Standards.

3383F Industrial Blvd. Bethel Park, PA 15102  
Call 1-800-444-DDAI



DUPLICATION/REPLICATION SERVICES

**DIGITAL FORCE™**  
 212 333-5953  
 E-Mail: digitalforce@morebbs.com  
 TOTAL CD, CD ROM  
 & CASSETTE PRODUCTION  
 MASTERING GRAPHIC DESIGN  
 REPLICATION PRINTING  
 PERSONALIZED EXPERT SERVICE PACKAGING  
 The Power of Excellence SM  
 330 WEST 58th ST, NY, NY 10019

**THE BURN HOUSE LTD.**  
 Full featured digital editing and mastering  
  
 CD ONE OFFS UP TO 74 MIN. STARTING @ \$30.  
 RED BOOK READY EDITED UP TO 74 MIN. @ \$45.  
 RED BOOK READY MASTERED UP TO 74 MIN. @ \$70.  
 FOR MORE INFO PHONE (315) 452-1344  
 GUARANTEED 24 HOUR TURNAROUND

**CUSTOM COMPACT DISCS**  
 Affordable single copy CDs starting at \$30.  
 Write, call or fax for information.  
**46 PRODUCTIONS**  
 42W557 Hawk Circle  
 St Charles, IL 60175  
 TEL (800) 850-5423 FAX (800) 203-1725  
 Contact Us On The Internet at FortySixP@aol.com

**C.D. Transfer \$23**  
 5/\$95 (63 mins.) (214) 890-6823  
 10/\$165 same material  
 15/\$255 same material  
 20/\$295 same material  
 Send dat or cass & Money Order to:  
 D.D.A. P.O. Box 763490 Dallas, TX 75376

STORAGE SYSTEMS

America's best disc, tape and component storage system holds all recording formats  
 Free mailorder brochure (please mention EQ magazine)  
 Per Madsen Design (+15) 822-4883  
 P.O. Box 882464  
 San Francisco, CA 94188

COVERS/CASES & RACKS

**OMNIRAX**  
 STUDIO FURNITURE for the discriminating musician  
  
 800-332-3393  
 P.O. BOX 1792 SAUSALITO, CA 94966

**USE COLOR IT WORKS!!**

**Doucet's** *Call for your Project Quotes Today*  
 DIGITAL MASTERING  
 CD-R one-offs • PM-CD's • DATS  
 DIGITAL EDITING/MASTERING AVAILABLE  
 \* 5 CD-R's for \$185.00 \*  
 159 E. Main • Ville Platte, La. 70586  
 318 353-4149 or 800-484-8347 ext 0196 ask for Jay

**Allen Lowe, Archive and Sound Service**  
 1,000 CDs-\$1750 - includes, all mastering, color printing, packaging!  
 Also available: CEDAR sound restoration, LP and 78 transfers  
 Custom CDs from any source or sources:  
 • 1-30 minutes: \$29.95  
 • 30-45 minutes: \$32.95  
 • 45-74 minutes: \$39.95  
 182 Willard St. New Haven, Ct. 06515  
 PHONE: 203-387-0915 FAX: 203-387-0921

**CD RECORDABLES**  
 Starting as low as \$20 per disc!  
 Prices include insert, tray card, disc label, photo &/or logo, 3-4 day turnaround and shipping! Virtually any source!  
 Φ FLUX AUDIO/VIDEO 1.800.423.FLUX

**SINGERS! REMOVE VOCALS**  
 Unlimited, Low Cost, Instantly Available Background Music from Original Standard Recordings! Does Everything Karaoke does... Better and gives you the Thompson Vocal Eliminator™ Free Brochure & Demo Tape - LT Sound Dept EQ-1  
 7988 LT Parkway  
 Lithonia, GA 30058  
 24 Hour Demo/Info Request Line (770) 482-2485 - Ext 28  
 When You Want Something Better Than Karaoke!



NEW PRODUCTS/SERVICES

(410) 882-7011 - 8708 EDGEFIELD RD - BALT. MD 21234  
**Toyz RECORDING STUDIO**  
 SINGLE CDs WITH FULL COLOR DIRECT ON DISC PRINTING  
 ONLY \$32.00 (up to 10 min. from any format)  
 Up to 30 min. - \$38.00  
 Up to 60 min. - \$49.00  
 Up to 74 min. - \$57.00 (D.I.T. 1999)  
 RESISTANT ON MULTIPLE DISCS  
 VHS4 ACCEPTED



EQUALIZER

**The New American Classic**  
 The 52270 Mic Pre/Eq  
 All Discrete & Transformer Balanced  
 Designed & built in the U.S.A. by  
 Geoffrey Daking & Co. Inc.  
 800 522 3650 302 658 7003  
 GeoffDake@AOL.com

See Our Ad on Page 134

UTILITIES

Anderton's Utilities for the Mac

800K disk with "drum loop construction set" MIDI files, test sequences, controller library, AIFF test tones, standard forms, MIDI terminal, much more!  
**\$29.95 ppd**

New Books!

**Multieffects for Musicians**  
 You've paid \$\$ for your multieffects - now get the most out of it with this definitive collection of insider tips. **\$17.95**

**Digital Projects for Musicians**  
 Build a single-board MIDI computer, then plug in different chips to run 20 different projects. "I can't think of a better place [to get a working knowledge of musical electronics]" - Keyboard Magazine. **\$24.95**

**Do-It-Yourself Projects for Guitarists**  
 35 useful, inexpensive projects to help unlock your instrument's potential. "Great stuff from a master DIY'er" - Guitar Player Magazine. **\$19.95**

**"Forward Motion" CD**  
 Now available direct. Rolling Stone said this lush, layered music is "One of those rare instrumental electronic albums that is not mere new age tapioca."  
**\$14.95 ppd.**

**HOW TO ORDER**  
 MONEY BACK IF NOT SATISFIED.  
 Cal res add tax. Send check or money order (add \$3 s/h per book), name, address, and phone to:  
**Craig Anderton**  
 Box 966, Ukiah, CA 95482



## TECHNICS REVIEW

continued from page 126

pretty good. I did A-B comparisons with a few other pianos that I use and it held up well. The basic SX-WSA1R ROM preset Grand sound is warm and rounded compared to one of my most-used piano patches, the Yamaha SY series Dyna Grand, which is rich sounding, but brighter and harder. The SX-WSA1R is similar to the Stereo Piano in the Kurzweil K2000; though the K2000 is a little more authentic in the middle to highest keys, while the SX-WSA1R is a bit stronger in the bottom octaves. The SX-WSA1R is richer and less nasal than the Stereo Piano in the original E-mu Proteus. If I had to give the preset piano sound a general category, I would call its relative mellowness and warmth "Steinway-ish" when compared to the brighter and more cutting tone of an actual Yamaha grand and its electronic cousins (but no, it's definitely not a Steinway-in-a-box, either). Other SX-WSA1R piano patches consist of the usual but well-executed clichés like honky tonks, DX/Rhodes simulations, and some richer layered patches.

Strings, brass, percussive sounds, and analog synth simulations are all solid and workable. The guitar, bagpipes, and other sounds that rely on the physical modeling to achieve their realism are better than non-PM instruments, but not quite in the class of the Yamaha VL-1. (Of course, the VL-1 is considerably more expensive.) Some of the effects patches are of dubious merit. Except for their use in some later-day music concrete compositions or, to some limited degree, dance music, they're really not that special. For example, the helicopter sound has been a tradition since it was included on the Prophet 5 almost 20 years ago. This one certainly sounds better, but it's not good enough to be used in most postproduction work, and it has only limited musical value. I guess with on-board sample ROM space becoming a less-prized commodity I can't argue too much. Still, I would rather have more musically useful sounds instead. Leave the sound effects to the CD-based effects libraries.

There are some outstanding sounds in the SX-WSA1R. The organ sets are terrific with wonderful Leslie simulations. The graphics of drawbars on the LCD screen is not only musically useful, it's just plain fun to use. The star sound is also a standout if you

can find a musical place to use it. Some of the Asian percussion sounds jump right out of the speakers. The rest of the sounds are usable and could find a home in a variety of compositional styles.

The on-board DSP effects are also competent sounding and flexible enough to be used for a variety of styles and musical environments. They can't quite match stand-alone outboard units, but they do compete credibly. A quick check of the audio outputs with a dB meter showed the instrument to be extremely quiet with residual noise low enough for even the most demanding digital project studio.

As to user programming and setup, I've been a dedicated Opcode Galaxy Macintosh sound editor for years, but the SX's on-board firmware and the big, comfortable screen worked just fine for me. I jumped right in without reading the manuals. Most of the system was so intuitive and similar to instruments I've already used that, until I hit the more advanced features, I had no trouble at all. And many of those advanced programming features are deep and musically useful. There are occasional slight inconsistencies in the interface, but they're trivial. Sound design can actually be fun again. Stored sounds are grouped in logical menus and can be accessed and previewed quite easily. That's a real help during a high-pressure studio date.

The SX-WSA1R's list price of \$2995 does place it in the higher-priced range of multi-timbral sound modules. The inclusion of physical modeling architectures and a stand-alone user interface that works well without the necessity of having a computer-based editor, however, makes this a worthwhile instrument for serious synthesists. I think that you'll be pleased with the sounds of the Technics SX-WSA1R. If it matches your budget, you can probably count on the SX-WSA1R for a lot of the meat and potatoes of your MIDI orchestration.

—Larry Fast

Larry Fast is best known for his series of pioneering electronic music albums recorded under the name SYNERGY®. He has worked with Peter Gabriel, as well as with many other top recording artists. He also has composed scores for movies and television and served as music supervisor on feature films. SYNERGY is now associated with Third Contact, an Internet-distributed electronic music label (<http://www.eclipse.net/~synergy/>).

## MI INSIDER

continued from page 46

computer interface and 30 reverb effects.

**ProMix 01 Accessories.** Friend Chip's PDI 2 converts any pair of channels into a stereo digital input, switchable between analog and digital, with a minor PC-board modification and drilling four small holes in the rear panel. The converter accepts S/PDIF and AES/EBU signals and supports any sample rate from 25-50 kHz. Up to four units can be installed for extra inputs. The PDI 44 can connect to the ProMix 01's record out, send 3/4, or monitor out to provide an additional 44.1 kHz digital output. (Friend Chip, Falkentaler Steig 96, 13467 Berlin, Germany. Tel/Fax: 011-49-30-404-2046.)

**Ensoniq MR Workstations.** Ensoniq has attached a keyboard, and more, to its MR Rack synthesizer. Two versions are available: the MR-Workstation (\$2595) with synth-style 61-note keyboard, and the MR-Workstation W/A (\$2995) with a 76-key weighted-action keyboard. New features include an on-board drum machine (separate from the synth engine) with drum machine-style programming; also, "IdeaPad" is constantly recording in the background while you play (keyboard or drum machine), so you don't miss any great ideas. If you come up with something cool, transfer it over to the main 16-track sequencer (with 384 ppq resolution). There's also FlashRAM for storing up to 12 MB of EPS, ASR-10, or WAV format samples in programmable/nonvolatile memory; the MR-W can read and save songs in Standard MIDI File format, and supports the MIDI alternate tunings standard.

**New Guitar Synth.** The Axon NGC-60 is a lower-cost version of the NGC-66. It's more of a preset, set-and-forget type of device than the 66, but also includes a mono audio input so you can play mono lead lines into a synth with no special pickup required. There's also the option to install an internal General MIDI-compatible sound board. In other news, Axon will be offering its own GK-2-compatible hex pickup in early summer.

Musician/author Craig Anderton wishes that life had a quantization option for taking out the rough edges, looping capabilities so you could do things you liked over and over and over again, and, of course, an undo command.



## WIRELESS SYSTEMS

continued from page 114

### INTELLIGENT CHOICES

If your wireless system is going to live in a fixed place such as a church, frequency agility becomes less of an issue. Here's where a high-quality VHF system comes in. A crystal-controlled, fixed-frequency VHF system (such as the beyerdynamic S250) can operate under severely adverse conditions and still maintain stability in transmission. While the specs for a UHF system might show a longer transmission range, keep in mind that most microphone applications won't need a range greater than about 150 feet and that guitar and bass wireless transmitters typically operate within far less of a range than that — about 25 to 50 feet away from the receiver.

The transmission range factor also brings about the issue of whether or not to go for a true diversity receiver. True diversity receivers have two separate RF sections (each with an antenna) tuned to receive the same signal from the transmitter. As the performer moves around the stage, the signal level at each antenna will vary. An internal circuit will compare the level of signal at each RF section, decide which is stronger, and then connect that RF section to the audio section of the receiver. This technique can help maintain quality reception from the largest variety of transmitter locations. Again if the performer is not straying far from the receiver then true diversity may not be a requirement. But in big rooms with long distances between the transmitter and receiver, or rooms that have structures such as metal beams between the transmitter and receiver, true diversity can make a big difference. If you're looking for true diversity on steroids, check out Shure's new UHF system with the U4S receiver. The U4S, which can operate over any one of almost 200 frequencies, incorporates Shure's exclusive MARCAD® diversity technology, which helps keep noise and dropouts to a minimum.

Wireless manufacturers are really getting hip to the fact that performers have varying needs for their voices or their instruments. For example, Telex has recently introduced the FMR-450G (guitar) and FMR-450B (bass) systems that include transmitters especially designed for those instruments. The Telex transmitters even include an

"over modulation" indicator that tells the user when the input to the transmitter is being overloaded by high-output pickups. A gain control is included to trim the input signal down to a level where the transmitter is more happy. And companies like Samson (the Concert Series III) and Ramsa (the WX-RP158) even offer their wireless systems with a choice of microphone elements varying from the Shure SM58 to the Sony ECM-44 to the Audio-Technica ATM75 headset. If all that doesn't satisfy you, there's always The Link from Nady. This clever device is a single-channel VHF transmitter that snaps on to the microphone of your choice, bringing it into the world of wireless.

*Senior editor Steve La Cerra has recently released his first solo album, entitled **One Step at a Time**. For more information, contact the magazine or write to North America Music at P.O. Box 140269, Brooklyn, NY 11214-0269.*

## ACROSS THE BOARD

continued from page 154

With a good data-compression scheme, you should be able to listen to the 16-bit player without any objectionable artifacts tearing your head off. Before listening to HDCD, I expected the encoded CD to not be as good as the straight 16-bit version because of the extra encoded data. They actually did a very good job of hiding the extra bits in a way that was not detectable.

If you play the CD back on an HDCD decoder, you get the full 20-bit signal that was encoded during mastering.

Pacific Microsonics is now shipping the commercial version of the HDCD encoder. Besides having its own A/D converters, it has a digital input for encoding 20-bit information that had previously been recorded. An interesting feature of the HDCD box is that it also has a 88.2 kHz output. You can use the Prism or Rane box to store the 88.2 kHz sampled signal to ADAT or DA-88 and run it back into the HDCD box later when you decide what format you want to release your record in.

### TIME BASE ACCURACY

Almost everybody these days is connect-

ing studios together using satellites, ISDN lines, or EDNet. Phil Ramone used it to hear a session he was producing on the other side of the United States. Mark Knopfler used it for guitar overdubs between Nashville and London.

I wanted to see if two studios could exchange audio that could be locked together with sample accuracy without using the expensive digital links. Usually you need to have some digital connection and timecode reference to be able to send audio from one studio to another, record something, and send it back. Not this time, ISDN-breath.

The cornerstone for this little test is the fact that both studios had a very accurate Atomic Clock providing digital word sync for the recorders. I called up the destination studio on a regular phone. I played back the drum tracks from my tape, mixed them to mono, and patched them into the telephone. At the other end, the engineer recorded the telephone signal onto his Pro Tools. I played the tape again and sent him some guitars and pianos. I played the tape a third time to send the reference vocals. Each track had a click two bars before the solo so that the destination studio could line the tracks up for multi-track playback at his end.

After the Pro Tools tracks were aligned, I listened to an analog phone connection so I could hear the various solo attempts. Solo number five was the keeper. I didn't care that much about the quality of the audio I sent him, as long as it was good enough to overdub to. I did, however, care about the quality of the solo. The engineer at the other end copied the click over to the solo track and then sent it from his computer to my computer via modem. It took 20 minutes to transfer the solo. I imported the solo, lined up the click, and started mixing. The entire operation took about two hours. No satellite, no ISDN, no nothing.

The reason we didn't have to SMPTE lock both studios was the Atomic Clock. In a way, both of us were locked to the Universal word clock, the decay rate of Rubidium. With his machine connected to his clock and my machine connected to my clock, the recordings we made would only drift off by one sample every three months, without being connected.

This method worked so well, that I am going to try to overdub a chainsaw solo played by an Alaskan lumberjack. So, until next month, you'll have to excuse me. I have to phone Nome.

EQ



New  
Unique  
Design!

# QUIK-LOK® COMPUTER/MUSIC MULTI-LEVEL WORKSTATIONS

ARRANGE THESE DESIGNER WORKSTATIONS TO THE  
DESIRED CONFIGURATION FOR MAXIMUM COMFORT AND  
EFFICIENCY IN A MINIMUM AMOUNT OF SPACE!

Designed in Italy  
by  
Mario Malizia



Above:  
**QUIK-LOK® Z-700L BK DUAL SHELF  
WORKSTATION IN BLACK WITH A  
45° LEFT ANGLE RETURN LOWER SHELF.**

- Designed with your vision and comfort in mind.
- Workstations are multi-leveled with a right or left angled return on the lower tabletop. They can be arranged to the desired location and the size of the room.
- Ergonomically designed and rigidly constructed with arc welded heavy duty steel legs and crossbars.
- Shelves made with scratch-resistant 3/4" thick Formica® laminate with rounded corners.
- No center legs to obstruct leg movements.
- Super strong weight capacity will accommodate monitor, keyboard, printer, scanner and other computer accessories.
- Available in black or gray finished steel frames.



Above:  
**TWO QUIK-LOK® COMPUTER WORKSTATIONS  
ARE SHOWN SIDE-BY-SIDE.**

A **Z-700L BK** left angle return unit is positioned next to a **Z-700R BK** right angle return unit with the straight sides butted together.



**Z-700R BK** is the same as Z-700L BK, but with a right angled return lower shelf.



**Z-200 GY** dual shelf model does not have angled returns. Mix and match with right and left components.



**QUIK-LOK® Z-700R BK RIGHT RETURN  
WORKSTATION AND A Z-700L BK LEFT  
RETURN WORKSTATION** are shown with the angled lower shelf returns butted together for a corner arrangement.

See these Computer  
Workstations at any  
QUIK-LOK® dealer or  
write or call for  
color catalog.  
Outside NY call  
toll-free:  
1-800-431-6699



**Z-710** - Optional third bottom shelf for use with the computer workstations.



**Z-100** - Single tier computer stand with central retractable keyboard shelf. Built with "Z" design to provide maximum knee space



**Z-701** - Large work surface with 45° right angle return and two front tiers (one variable in height) and fixed central shelf. "Z" design provides maximum knee space.

**QUIK-LOK®**

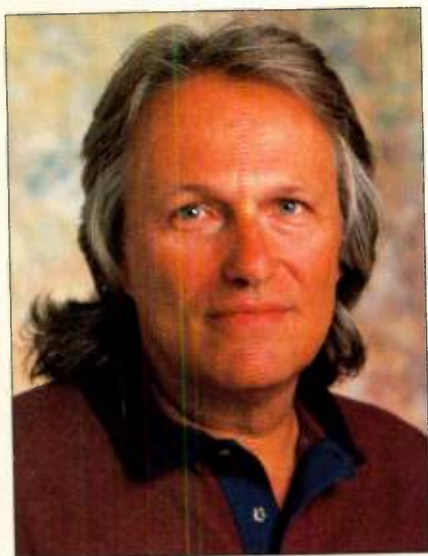
FULL 5-YEAR LIMITED WARRANTY ON ALL QUIK-LOK® COMPUTER WORKSTATIONS

MUSIC INDUSTRIES CORP. 99 Tulip Avenue, Floral Park, New York • (516) 352-4110 • FAX: (516) 352-0754

CIRCLE 95 ON FREE INFO CARD



# The Definition of High



I need a few more bits  
in my life

BY ROGER NICHOLS

**M**y New Year's resolution this year was 24 bits. I doubt if I will be able to attain it. With the release of DVD on the horizon, the storage will allow anyone to store anything. With roughly ten times the storage capacity, you have room to do whatever you want to do. You can store compressed full-length feature films, a whole CD box set on one CD, all of your audio samples for your project studio, and enough X-rated images to last you until you go blind. What we are short on is 24-bit material to store on the new format.

At this point, I want to clarify the 24-bit 96 kHz sample rate playing field a little. All CDs are 16-bit. The data stored on them is 16-bit. The data that comes out of them is 16-bit. The data

that goes onto the premaster CD or the 1630 at the mastering facility is 16-bit. There are, however, ways to increase the resolution of the audio stored in this 16-bit format.

One method of increasing the resolution is by dithering or noise shaping the audio information stored in the 16 bits available. A simplified explanation of dithering is that it adds specialized noise to the lowest bit (way down below where your meters read) in a way that allows you to hear information that is below the threshold of this one bit. Usually, you can get about a bit and a half of extra resolution with this method.

Another method of increasing the resolution is by employing a very sophisticated method of noise shaping to the digital data. This noise shaping, besides increasing the resolution of the smallest bits, mathematically moves the noise to a range of the audio spectrum that is less apparent to the human ear. Noise-shaping processes like Sony Super Bit Map and Apogee UV22 can make you think that you are listening to 18-bit or 18-1/2-bit recordings with only 16 bits of data coming off of the CD.

Both of these processes need to be performed on data that is more than 16 bits to start with. That means that if you are recording live performances to DAT and you are not going to do anything else to the recording, then you should use a converter that has more than 16 bits of resolution and perform the dithering or noise shaping before you store the 16-bit data. Once the data has been stored as 16 bits, you can not get the extra information out of the sound to provide what is necessary for correct dithering or noise shaping.

Most after-market A/D converters over 16 bits provide some type of dithering or noise-shaping algorithms for 16-bit data output. If you see a DAT machine that brags about 20-bit converters with built-in Super Bit Mapping, it will probably sound better than a DAT machine with straight 16-bit converters, but the final storage is the same, 16 bits.

There is one semi-exception to the "you can't get more than 16 bits out of 16 bits" rule that I stated earlier. If you perform some digital mixing, EQ, limiting, compression, add reverb,

or in any way change the 16-bit data, you have generated a signal that contains more than 16 bits of information. Most digital domain processors provide 24-bit or 32-bit internal processing to provide for extra precision during math calculations. The resolution of your data stays at this higher resolution until it comes out of the process. At this point you usually have a choice of how you want to get back to the 16 bits required for CD or DAT storage. Using dithering or noise shaping you can end up with better resolution than just chopping the data off at 16 bits.

The only way to get more than 16 bits worth of information into 16 bits of data is to use some sort of data compression or data encoding where the extra information is hidden in the 16-bit data stream. The more resolution you want to store, the more data compression is necessary to fit the information into the available space. MiniDisc and DCC use data compression to store audio information. This is a "lossey" data compression process with a ratio of 4 or 5:1. All of the data does not come back during the decoding process. That is why these formats do not sound as good as the same material played back from a CD. The perfect data compression should be lossless, where everything you put in comes back out. Lossless compression of audio is possible for small compression ratios, but the process must be in real time to become acceptable to consumers, which can be a very expensive process.

## HAVE YOUR CAKE AND EAT IT TOO

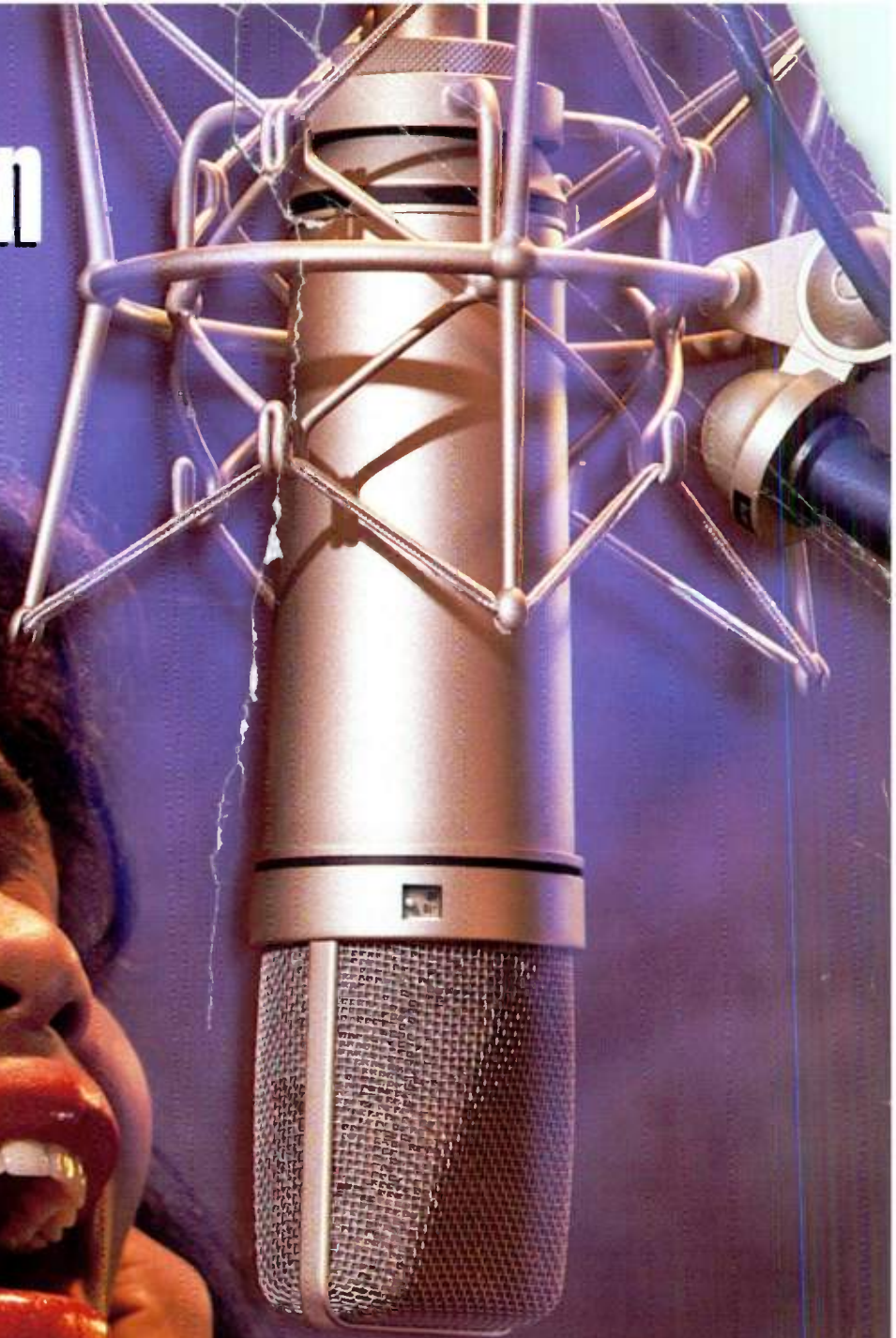
Actually, that phrase should be "Eat Your Cake And Have It Too" to be logically correct, but who's nit picking.

HDCD. There, I said it. There is a big roar about HDCD right now. HDCD is an encoding process. Twenty bits of information is encoded into the 16 bits stored on the CD. You can play back the 16-bit CD on a normal CD player, but to get the benefit of the added resolution, you need a CD player that has an HDCD decoder and 20-bit D/A converters. There are some on the market now and more coming. When you play back the CD on a 16-bit player, you are listening to the raw compressed data.

*continued on page 152*



# Perfection



Every element of your performance is in place.  
This is the take that goes for the platinum.  
When there is no room for compromise, you choose  
Neumann microphones. (Look-alikes just can't cut it.)  
Only Neumann's unique combination of classic  
engineering and advanced technology captures  
the very passion of your performance. Accurately.  
Each and every time. Neumann... the choice of  
those who can hear the difference.



## NeumannUSA

6 Vista Drive • PO Box 987, Old Lyme, CT 06371

Tel: 860.434.5220 • FAX: 860.434.3148

West Coast: Tel: 818.845.8815 • FAX: 818.845.7140

Canada: Tel: 514-426-3013 • FAX: 514-426-3953

Mexico: Tel & FAX: 52-5-639-0956

World Wide Web: <http://www.neumann.com>

**CIRCLE 70 ON FREE INFO CARD**



These ports  
take the heat  
out of our  
new speakers  
so you can  
put it  
into your  
performance.



**H** A Harman International Company

S O U N D   T H A T   C A R R I E S