

2001: A GEAR ODYSSEY • 31 HOTTEST PRODUCTS OF THE YEAR

Electronic Musician®

www.emusician.com

January 2001

2001
EDITORS
CHOICE



INTERTEC /PRIMEDIA Publication

U.S. \$5.95/Canada \$6.95

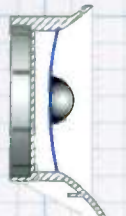


WRX

It looks like a regular system. It sounds like amplified reality.

The technology behind the SR1530 Active 3-Way speaker system and SR-VLZ[®] Pro Series mixers.

Until the SR1530, there's never been a three-way active processed sound reinforcement speaker in this compact, fit-in-a-van size. In fact, as far as



A dedicated horn-loaded 6-inch transducer refines SR1530 midrange

we know, there's never been another compact, active three-way speaker period.

And until the SR24•4-VLZ[®] PRO and 32•4-VLZ[®] PRO, there have never been compact SR mixers with mic preamplifiers this good.

Put them together and you have a new level of sound system accuracy.

If you're the non-verbal, gotta-hear-it-to-believe-it type, audition the SR-VLZ-PRO/SR1530 combo at your nearest Mackie dealer. We think you'll agree that it definitely walks the walk.

If you're more of the tech type, read on while we talk up why this system re-defines how good a medium-sized PA can sound.

It's a three-way, not a two-way system.

Midrange is where fundamental vocal and instrumental frequencies are. A two-way system has to compromise by reproducing this range through a too-big low-frequency transducer and a too-small high frequency transducer.

Our three-way system has a specialized transducer with separate horn that's sized perfectly for handling vocals and instruments.

©2000 Mackie Designs Inc. All Rights Reserved. "Mackie," the "Running Man" figure and VLZ are registered trademarks of Mackie Designs. XDR, RCF Precision and Optimized Wavefront are trademarks of Mackie Designs. "Could I have more of me in the monitor mix?", "I loaded in. YOU' load out." and "Would somebody hose down the drummer." are trademarks of being a musician.

When you listen to the SR1530, you hear the difference right away. Midrange sounds more accurate and natural especially at really high SPLs.

It's internally tri-amplified.

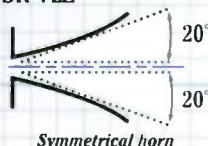
For clear definition, tight transient response and hard-hitting bass, nothing beats application-specific amplifiers for each transducer. Trouble is, until now that's required an outboard electronic crossover, three separate power amps and a lot of speaker cable.

The SR1530 has two 100-watt and one 300-watt internal amps, each optimized for an individual transducer. Moreover, we've built in electronic parametric equalization and time correction for accurate frequency response and phase alignment.

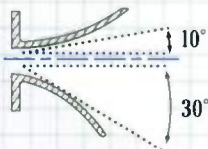
Optimized Wavefront Horn.

Generating accurate high and midrange frequencies is only part of the story. They must be delivered to your audience in the right amounts and in the same place at the same time.

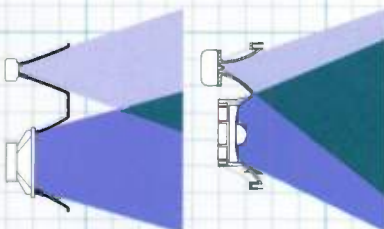
Instead of using separate horns, we created a one-piece 90° x 40° Optimized Wavefront system that combines high and midrange horns. Unlike conventional horns, which are



Symmetrical horn



Asymmetrical Optimized Wavefront™ horn



Conventional horns fire straight out. The quality of sound depends on where you're sitting in the audience.

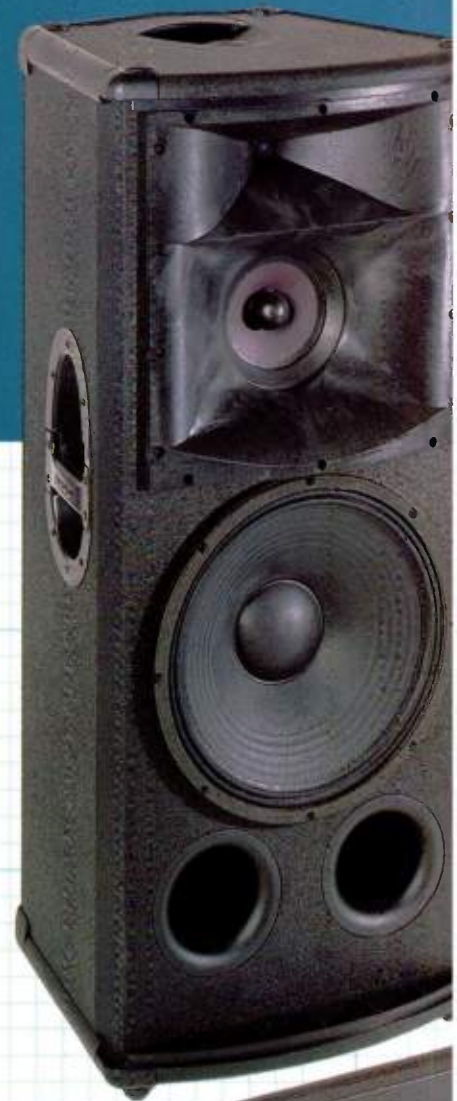
Optimized Wavefront™ system mixes high and midrange output for better detail and vocal intelligibility everywhere.

symmetrical, the high frequency section of the SR1530's horn is shaped so that more of its output is directed down into the 6-inch midrange's dispersion pattern. This creates a focused, single wavefront with excellent phase and power response characteristics. Your whole audience gets even frequency balance, instead of lots of midrange up front and too much high end in the back.

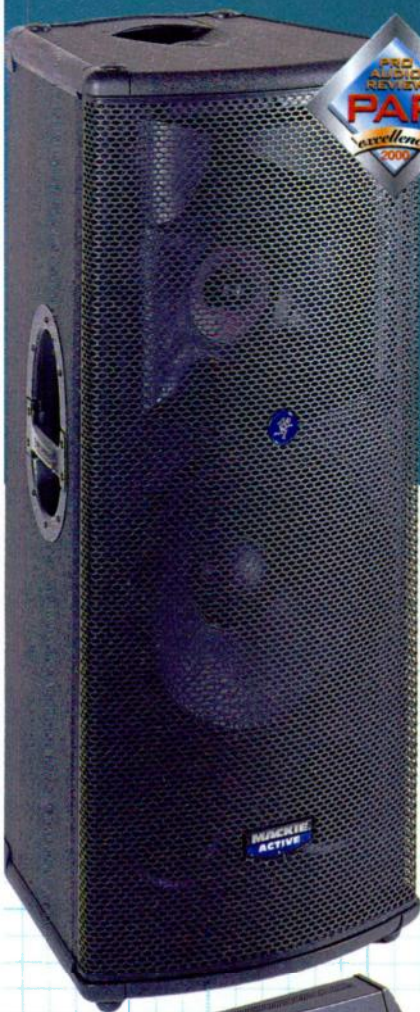
Inside/Outside voice coil.

Because we make our own transducers, we've been able to add technology that gives the SR1530's low frequency transducer (woofer) added thermal protection.

Conventional voice coils have two



32-4
VLZ-PRO
NOW SHIPPING!



forced to expand at the same rate as the wire, relieving stress and preventing separation.



XDR™, the best mic preamps ever offered on a compact SR mixer.

With a speaker system as accurate as the SR1530, you can take maximum advantage of the premium, eXtended Dynamic Range mic preamps on our new SR24•4-VLZ PRO and SR32•4-VLZ PRO sound reinforcement mixers.

We spent over two years creating the first mixer mic preamp with specs that meet or beat those of mega-expensive esoteric outboard microphone preamplifiers. For example 0.0007% Total Harmonic Distortion, and frequency bandwidth from 5Hz to 100kHz ±1dB. At real-world gain settings (0 to +30dB), XDR preamps are capable of extracting more detail and better sound out of any microphone — including the dynamic type often used on stage.

And, as the name implies, XDR mic preamps have extended dynamic range to handle screaming vocalists or close-miked drum kits. Plus a full 60dB of gain to boost weak inputs without adding extra noise.

Even more live sound benefits.

Many conventional mic preamps deliver a different frequency response

when presented with a 50-ohm load than with a 600-ohm load. Our XDR design is *impedance-independent*. In basic terms, this means that no matter what the combined impedance load of the mic and cable are, you'll get the same frequency response at the mixer. And, XDR mic

preamps have the best RFI (radio frequency interference) rejection of any compact mixer brand. So you won't pick up stray signals or background noise when you use long cable runs.

Is your band worth it?

We'll be honest. The SR1530/SR-VLZ PRO speaker/mixer combo isn't the lowest-priced SR system you'll find in a music store (although it's far less money than a comparable tri-amplified passive system). We designed the SR1530 and SR-VLZ PRO Series mixers for musicians who want to sound their best at up to 126dB SPL. If you fit in this category, call toll-free or visit our web site for more info. Or better yet, visit

a Mackie dealer and hear amplified reality.

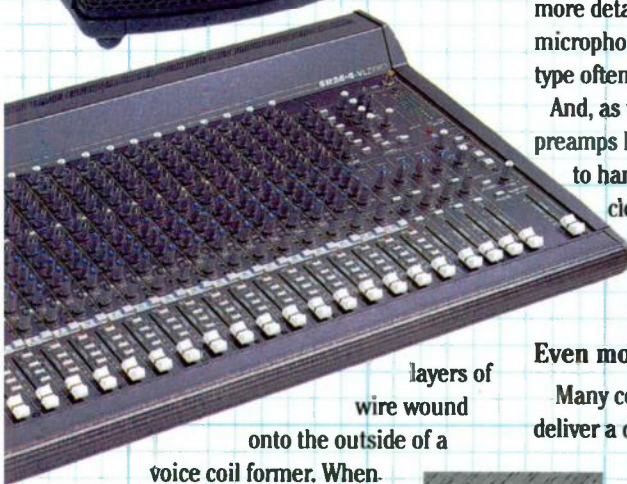
The SR1530 Active 3-Way:

- Linear response from 45Hz to 18kHz
- Total of 500 actual watts RMS

- delivered to internal transducers
- Electronic EQ for flat frequency response
- Time correction for accurate phase alignment
- Optimized Wavefront™ high/mid horn system
- RCF Precision™ transducers: 15-inch LF transducer with Inside/Outside heat-resistant voice coil and high-flux magnetic circuit
- 6-inch horn-loaded midrange
- 1-inch exit HF compression driver
- Trapezoidal Baltic Birch plywood enclosure with rugged molded resin endcaps
- Polymer-coated steel grille
- Weight-balanced with side and top handles for easy carry and set-up

SR24•4-VLZ PRO & SR32•4-VLZ PRO:

- 24•4: 20 mono channels., 2 stereo channels, 20 XDR mic preamps
- 32•4: 28 mono channels, 2 stereo channels, 28 XDR mic preamps
- Both: 4-bus design
- New high-performance 2086 op-amps
- 6 aux sends per channel
- 3-band EQ w/swept mid & low cut filters on mono channels
- 4-band fixed EQ on stereo channels
- Mute, solo, signal present & OL LEDs on every channel
- 4 stereo aux returns with EFX to Monitor feature
- Separate Talk-back section with extra mic preamp
- Double-bussed sub outs for easy studio multi-tracking



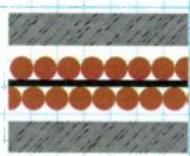
layers of wire wound onto the outside of a

voice coil former. When heat builds up, the wire and former expand at different rates, which can lead to catastrophic failure.

The SR1530's LF transducer voice coil has one layer of wire on the outside and another on the inside. Both make full contact with the air, transferring heat to both surfaces of the surrounding magnet structure. Maximum cooling takes place...and the voice coil former is



Conventional voice coil (Barnus Oritus Potentialis)



Inside/Outside voice coil (Coolas Cucumberous)



www.mackie.com • 800.258.6883

Made by Mackies in Woodville, USA and Reggio Emilia, Italy.



Unit is 19" wide and will not fit in a mixing console.

dbx® the Standard in Professional Signal Processing



It's Time to Change the Channel...

In the digital world, you're only as good as your weakest link or channel. So, why settle for any less than the warmth and integrity offered by the new **dbx 376 Tube Preamp Channel Strip with 96k Digital Outs?** For more than 25 years dbx has been setting the standard, and the 376 is the culmination of those years of innovative success.

With a feature list that includes a vacuum tube preamp section, three-band parametric EQ, compressor and the *real* kickers: built-in De-Essing and AES/EBU and S/PDIF digital outputs, make the 376 an all inclusive Channel Strip toolbox that's just as much at home in a conventional analog mixer application as it is in a state-of-the art digital workstation. With the 376 you can bypass the mixer all together, while producing warm and rich tube mic preamp tones in the digital domain by using dbx's proprietary Type IV™ A/D conversion system. Stop by your local authorized dbx dealer and tune into all that is available on the next channel.

- Tube microphone pre-amp
- De-Esser
- 3-Band Equalizer
- dbx® Compressor
- Type IV™ conversion system
- AES/EBU and S/PDIF digital outputs
- Front panel instrument input
- +48 Volt phantom power
- Selectable dither and noise-shaping algorithm
- Selectable sampling rates (96, 88.2, 48, 44.1kHz)
- 24, 20 and 16 bit wordlengths
- Word clock sync input and output
- Selectable mic/line switch
- 20 dB pad

Tube Preamp Channel Strip w/ Digital Out

376

dbx®

PROFESSIONAL PRODUCTS

H A Harman International Company

For information call: 1-800-777-1363 • Harman Music Group • 8760 South Sandy Parkway • Sandy, Utah 84070 • www.dbxpro.com

15 YEARS
EM
1986 - 2001

FEATURES

46 SCORE WITH QUICKTIME 4

Apple's QuickTime program continues to evolve and become more powerful, giving you all the tools you need to score film soundtracks on your Mac or PC. **EM** takes you through a video-scoring project and examines QuickTime 4's deep feature set.

By Neil Leonard III

62 COVER STORY: 2001 EDITORS' CHOICE AWARDS

Join the celebration as **EM** bestows its highest honor upon last year's 31 hottest products.

By the EM Staff

100 GOOD CONNECTIONS

If you use quality gear but your recordings still don't sound as clean as you expect, maybe your cables are to blame. Here's what you need to know about the different audio cable types, what each type should be used for, and how to coax the best performance from them.

By Jeff Baust

114 PRODUCTION VALUES: THE MAKING OF THE MOON

Find out how Chicago drummer/producer Brian Deck transformed a converted parking garage into a flexible recording space for major-label sessions with supercharged indie band Modest Mouse. Deck shares his tried-and-true recording methods and explains how he made records by making house calls.

By Rick Weldon



114

2001
EDITORS
CHOICE

62

Cover: Illustration by Peter Neumann

DEPARTMENTS

- 8 FRONT PAGE
- 10 MEET THE EDITORS
- 12 LETTERS
- 17 FIFTEEN YEARS AGO IN EM
- 18 WHAT'S NEW
- 32 WEB PAGE
- 38 VINTAGE PAGE
- 204 AD INDEX
- 210 MARKETPLACE
- 215 CLASSIFIEDS

Electronic Musician® (ISSN 0894-4175) is published monthly by Internet Publishing, 6400 Hillside St., #12, Emeryville, CA 94608. © 2001. This is Volume 17, Number 1, January 2001. This issue (17 issues) subscription is \$32, outside the U.S. is \$35. Periodical postage paid at Oakland, CA, and additional mailing offices. Postmaster: postage paid rate along with second-class postage paid at Oakland, CA, and additional mailing offices.

COLUMNS

- 44 PRO/FILE: License to Groove**
An adventurous acid-jazz band owes its career to a PC.
- 130 SQUARE ONE: Who's Driving?**
How audio drivers help your software talk to your hardware.
- 140 WORKING MUSICIAN: Unsigned and Online**
Five artists weigh in on the advantages of e-commerce.
- 226 FINAL MIX: It Ain't Whatcha Do, It's the Way You Do It**
Balancing the fun-to-interest ratio in the personal studio.



REVIEWS

- 146 NEMESYS GigaStudio 160 2.0 (Win)** software sampler
- 158 WAVES L2 Ultramaximizer** mastering limiter/normalizer
- 166 STEINBERG Cubase VST/32 5.0 (Win)** digital audio sequencer
- 174 AKG C 2000 B** small-diaphragm condenser microphone
- 180 IK MULTIMEDIA GrooveMaker 2.0 (Mac/Win/BeOS)**
loop-based music generation software
- 186 APPLIED ACOUSTIC SYSTEMS Tassman 1.2 (Win)** software synthesizer
- 196 QUICK PICKS:** **Big Fish Audio** *Big Beat: Megaton Bomb*, vol. 4 sample CD; **Big Fish Audio** *Wall of Vinyl 3* sample CD; **Prosoniq** *Time Factory* (Mac/Win) time-scaling/pitch-shifting software; **Native Instruments** *B4* 1.0 (Mac/Win) virtual tonewheel organ

Fifteen Candles

Happy birthday to us! *Electronic Musician* turns 15 years old this month—at least, officially. But our story actually started in 1975, with the founding of *Polyphony*, PAiA Electronics' sporadically published tabloid about electronic music and home recording.

Polyphony was redesigned and renamed *Electronic Musician* in 1985, and the two "pilot" issues that constitute vol. 1 were published in June and September of that same year. But PAiA was a manufacturer of music-electronics kits for build-it-yourself hobbyists, not a publishing company, so we were sold to Mix Publications, the publisher of *Mix* magazine. Mix Publications launched us as a monthly magazine starting with the January 1986 issue, which was designated vol. 2, no. 1. That's why this 15th-anniversary issue is vol. 17, not vol. 16. (For more on our history, see the January 1998 "Front Page.")

Now we are 15—where do we go from here? Are we going to redesign everything? Well, no, because we think our current design is strong and vital. But we are making a few tweaks.

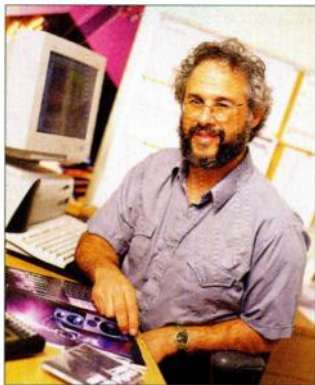
Starting this month, the "Contact Sheet" page is gone. Instead, we are providing the relevant contact information within each article, either in the main text or in special sidebars. In reviews, the sidebars containing the prices, pros and cons, and meters have also been redesigned. The "Web Page" section has been given a facelift as well, and we will take advantage of the new design to expand "Web Page" in the near future.

In celebration of our 15th anniversary, we are creating a new page called "Fifteen Years Ago in EM" (p. 17). Each month for the rest of 2001, I will use that space to briefly reminisce about topics and products we discussed 15 years before, starting with this month's retrospective of the January 1986 issue.

Perhaps the biggest news is that our *Remix* and *Onstage* supplements have been officially launched as monthly magazines. Chris Gill continues as the editor of *Remix*, bringing you the best technical information available for the world of "underground" dance music/electronic production and performance. Mike Levine carries on as the editor of *Onstage*, which has rapidly grown into a vital resource for club and concert musicians. I'll still be editor in chief of *Onstage* and *Remix*, in addition to my more hands-on duties here.

That's not all—not even close. Starting in February, you will see a completely new Web site at the familiar www.emusician.com. Our new site will be part of a larger complex of related sites called www.digitalmediaclick.com. We'll publish more information about this periodically, but the bottom line is that we'll soon have a better Web site with many further improvements to come.

Finally, with the monthly publication of *Onstage*, Barry Cleveland and Mike Levine have moved over to the new magazine full time. To complete the EM staff, we have hired a new associate editor, someone whose work you know well. Geary Yelton has been writing for us for more than 15 years, all the way back to vol. 1, no. 1. For more details about Geary, check out "Meet the Editors" (p. 10). Adding Geary to the team is a big score for us; he was tops on my list of candidates, and we are very lucky to have him.



ANTHONY PIGEON

Electronic Musician®

Editor in Chief Steve Oppenheimer

Managing Editor Patricia Hammond

Technical Editor Scott Wilkinson

Associate Editors Brian Knave, Dennis Miller, Gino Robair, David M. Rubin, Geary Yelton

Assistant Editors Marty Cutler, Matt Gallagher

Copy Editors Erin Hutton, Jennifer Moline, Anne Smith, Mark Smith

Contributing Editors Jeff Burger, Mary Cosola, Peter Drescher, Larry the O, George Petersen

Senior Art Director Dmitry Panich

Art Director Laura Williams

Associate Art Director Karyn Kraft

Graphic Artist Mike Cruz

Informational Graphics Chuck Dahmer

Publisher John Pledger

Associate Publisher Erika Lopez

Eastern Advertising Manager Joe Perry

Northwest Advertising Associate Joanne Zola

Southwest Advertising Associate Mari Stancati

Sales Assistants Kathya Fuentes, Joe Madison

Classifieds/Marketplace Advertising Director

Robin Boyce-Trubitt

Classifieds/Marketplace Sales Associate Kevin Blackford

Classifieds Assistants Monica Cromarty, Diane Williamson-Suber

Marketing Director Christen Pocock

Marketing Manager Chris Wise

Sales Promotions Manager Angela Muller Rehm

Sales Promotions & Events Coordinator Alison Eigel

Sales Promotions Coordinator/Copywriter Starla Estrada

Sales Promotions Art Director Wendy Shiraki

Director of Operations and Manufacturing Anne Letsch

Production Manager Jane Lowe

Advertising Production Coordinator Maria Rodriguez

Production Assistant Chastity Lockett

Computer Systems Coordinator Erik Shank

Group Circulation Director Philip Semler

Circulation Marketing Manager Austin Malcomb

Circulation Fulfillment Coordinator Jef Linson

Circulation Assistant Jeremy Schmidt

Human Resources/Office Manager Julie Nave-Taylor

HR/Office Coordinator Janette Rosbrov

Office Services Coordinator Carla Green

Receptionist Tina Lee Scott

National Editorial, Advertising, and Business Offices

6400 Hollis St., Suite 12, Emeryville, CA 94608

tel. (510) 653-3307; fax (510) 653-5142;

Web www.emusician.com

Subscriptions, Customer Service

PO Box 1929, Marion, OH 43306

tel. (800) 245-2737 or (740) 382-3322

For fastest service, visit our Web site at www.emusician.com.

Back Issues

tel. (877) 296-3125 or (770) 618-0219; fax (770) 618-0947

Intertec Publishing Corporation

9800 Metcalf Ave., Overland Park, KS 66212

Intertec Publishing

Timothy M. Andrews, Chief Executive Officer

Ron Wall, President

John Skeels, President, Corporate Services

John Torrey, Vice President, Entertainment Division

Stephanie Hanaway, Division Director of Marketing

PRIMEDIA Business-to-Business Group

David G. Fern, President and CEO

PRIMEDIA Inc.

Tom Rogers, Chairman and CEO

Charles McCurdy, President

Beverly C. Chell, Vice Chairman

All rights reserved. This publication may not be reproduced or quoted in whole or in part by any means, printed or electronic, without the written permission of the publishers.

POSTMASTER: Send address changes to *Electronic Musician*, PO Box 1929, Marion, OH 43306. Canadian GST #129587951. Canada Post International Publications Mail Product (Canadian Distribution) Sales Agreement No. 9478741

PHOTOCOPIY RIGHTS: Authorization to photocopy items for internal or personal use of specific clients is granted by Intertec Publishing, provided that the base fee of U.S. \$2.25 per copy, plus U.S. \$0.00 per page, is paid directly to Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923 USA. The fee code for users of the Transactional Reporting Service is ISSN 0894-4720/2000 \$2.25 + \$0.00. For those organizations that have been granted a photocopying license by CCC, a separate system of payment has been arranged. Before photocopying items for educational classroom use, please contact CCC at (978) 750-8400. Organizations or individuals with large-quantity photocopy or reprint requirements should contact Reprint Management Services at (717) 338-1900. Microfilm copies of *Electronic Musician* are available by calling Bell & Howell Information and Learning (800) 521-0600 or (313) 761-4700.

Electronic Musician makes its subscriber list available to carefully screened companies that offer products and services that may interest you. Any subscriber who does not want to receive mailings from third-party companies should contact the subscriber service department at (800) 245-2737 (U.S.), (740) 382-3322 (outside U.S.), and we will be pleased to respect your wishes.

INTERTEC PUBLISHING
A PRIMEDIA COMPANY

AMERICAN BUSINESS MEDIA
ABM

Printed in the USA.

Also publishers of *Mix*®, *Onstage*™, and *Remix*™.

BPA
BUSINESS PAPER ASSOCIATION

RFX-32 by E-MU.

Take a giant step into the future of sampling and synthesis with the new RFX-32 digital FX/mixer card for E-MU's E4 Ultra Sampling Synthesizers, and blur the line between MIDI and Audio forever. Transform your sounds at the sample level with 32-bit effects, run external signals through E-MU's patented morphing filters and synthesis architecture, and then blend and modulate them in real-time using your MIDI controller. Take total control of your sound with the RFX-32.

RFX-32 EFFECTS/MIXING SYSTEM FOR E4 ULTRA SAMPLERS

Emulation Transformation

- 16 studio-quality 32-bit stereo effects—large effects polyphony means you can have all those specialty effects as well as plenty of fat reverbs spread across RFX's many mixing busses
- Multiple FX setups and routing configurations—program each sample with its own exact blend of effects (up to 4 stereo sends with amount per voice)
- External signal processing through FX, filter and synthesis architecture—your E4 Ultra becomes a world-class digital effects/filter/mixing system with up to 16 inputs
- Multi-bus resampling—blend external and internal audio with powerful effects to create new samples
- Perfect Live System with instant recall of multiple RFX and MIDI setups—your E4 Ultra becomes the perfect centerpiece of your live and studio rig for mixing, effects and samples
- MIDI synchronization of FX parameters
- Support for new 24-bit analog and ADAT I/O cards

Check out E4 Platinum, E-MU's new flagship Sampling Synthesizer with RFX-32, 24-bit analog & ADAT I/O, 20 GB Hard Drive, 128 voice polyphony, 128 MB of RAM and more.



Upgrade with the RFX-32 today and transform your E4 Ultra into the most powerful music instrument on the planet!

RFX-32
\$795
MSRP

www.emu.com

E-MU®

E-MU
1600 Green Hills Rd.
Scotts Valley, CA 95067
tel. 831.438.1921

Dennis Miller

Dennis Miller was appointed associate editor in 1997 after writing reviews for the magazine for nearly ten years. His specialties include digital audio, sound synthesis, and music composition. Dennis received his doctorate in composition from Columbia University in 1981 and is currently an associate professor at Northeastern University in Boston, where he heads the music-technology program and chairs the Multimedia Studies Steering Committee. His works have been performed at concerts and festivals throughout the world, and his music appears on Opus One Records and the *Frog Peak Collaborative* CD, among others. His works are available at www.casdn.neu.edu/~dmiller.



BRUCE HAMILTON

Gino Robair

Associate Editor **Gino Robair** comes from a long line of musicians hailing from Northern Italy, Hungary, and Bukovina. Trained primarily as a classical percussionist, Gino has played theremin, percussion, keyboards, and bowed Styrofoam on numerous commercials and film projects. As a composer and sound designer, Gino has worked in a wide variety of media, from Shakespearean theater and Indonesian gamelan to modern dance and MTV. His favorite gig (besides editing here, of course) was as music director for CBS's animated television series *The Twisted Tales of Felix the Cat*. He also wrote *Making the Ultimate Demo*, published by artistpro.com. Gino's editorial expertise includes hard disk recording, analog studio technology, and Web audio. Gino edits "Web Page," our column devoted to Internet audio.



K. PERRY

David Rubin

David Rubin has been an associate editor since 1997. He wrote *The Audible Macintosh* and cowrote *The Audible PC*. His most recent book is *The Desktop Musician*, published by McGraw-Hill. His feature articles and reviews have appeared in numerous computer- and music-related magazines. David holds a master's degree from the University of Northern Colorado in music theory and composition, two bachelor's degrees in music, and a certificate from the Grove School of Music. His orchestral works have been performed by the Denver Symphony Orchestra, and his film scores include the soundtrack for the Roger Corman movie *Wizards of the Lost Kingdom II* starring David Carradine. He was also the primary sound designer for *Project S.P.A.C.E.*, an interactive multimedia presentation by JPL/NASA.



EM ARCHIVE

Brian Knave

Associate Editor **Brian Knave** specializes in microphone technology, processors, consoles, and reference monitors. He covers the "Recording Musician" column as well as other recording application-oriented pieces. Known as the "Knave of Arts," Brian is a poet, musician, songwriter, recording engineer/producer, and music instructor. He earned a bachelor's degree in English from East Tennessee State University and a master's degree in creative writing from the University of California. He also studied tabla at the Ali Akbar College of Music and drums at the Percussion Institute of Technology. A veteran performer, Brian has been in countless bands touring the United States and overseas, and has played with many artists, including Norton Buffalo, John Tchicai, Paul McCandless, and Ronnie Prophet. Brian co-owns and operates Moptop Records, a children's music label, as well as a busy project studio.



GASPARD BANGUEE

Marty Cutler

Assistant editor **Marty Cutler's** music experiences range from playing with Hazel Dickens and the Twyla Tharpe Dance Company to membership in the Ex-Tractors, a short-lived band that featured members of Steps Ahead and the Brecker Brothers. As a MIDI and sound-design consultant, Marty has provided sounds for Korg, Silicon Graphics, the late Tito Puente, and others. Well known for his jazz-tinged banjo playing and experiments with MIDI guitar, Marty cowrote the book *MIDI for Guitarists* (Amsco) and produced and sequenced the music for PG Music's *The Bluegrass Band* software. In addition to his other writing and editing duties, he is responsible for our "What's New" column.



JUDITH SAGAMI

Scott Wilkinson

Technical Editor **Scott Wilkinson** has been a student of music and physics throughout his life, earning degrees in both fields, and he has enjoyed a long and productive career as an editor and author for many magazines and Web sites in the electronic-music and consumer-electronics industries. In addition, he is the author of two books: *Anatomy of a Home Studio*, published by artistpro.com, and *Tuning In: Microtonality in Electronic Music*, published by Hal Leonard. A professional musician for 30 years, Scott has played wind instruments in such diverse ensembles as the Los Angeles Chamber Orchestra, Full Faith & Credit Big Band, and the Flying Karamazov Brothers. He also coproduced, engineered, and performed on *Living Through History*, an album of topical songs and parodies by his wife, singer/songwriter and *EM* and *Onstage* author Joanna Cazden.



ED COLVER

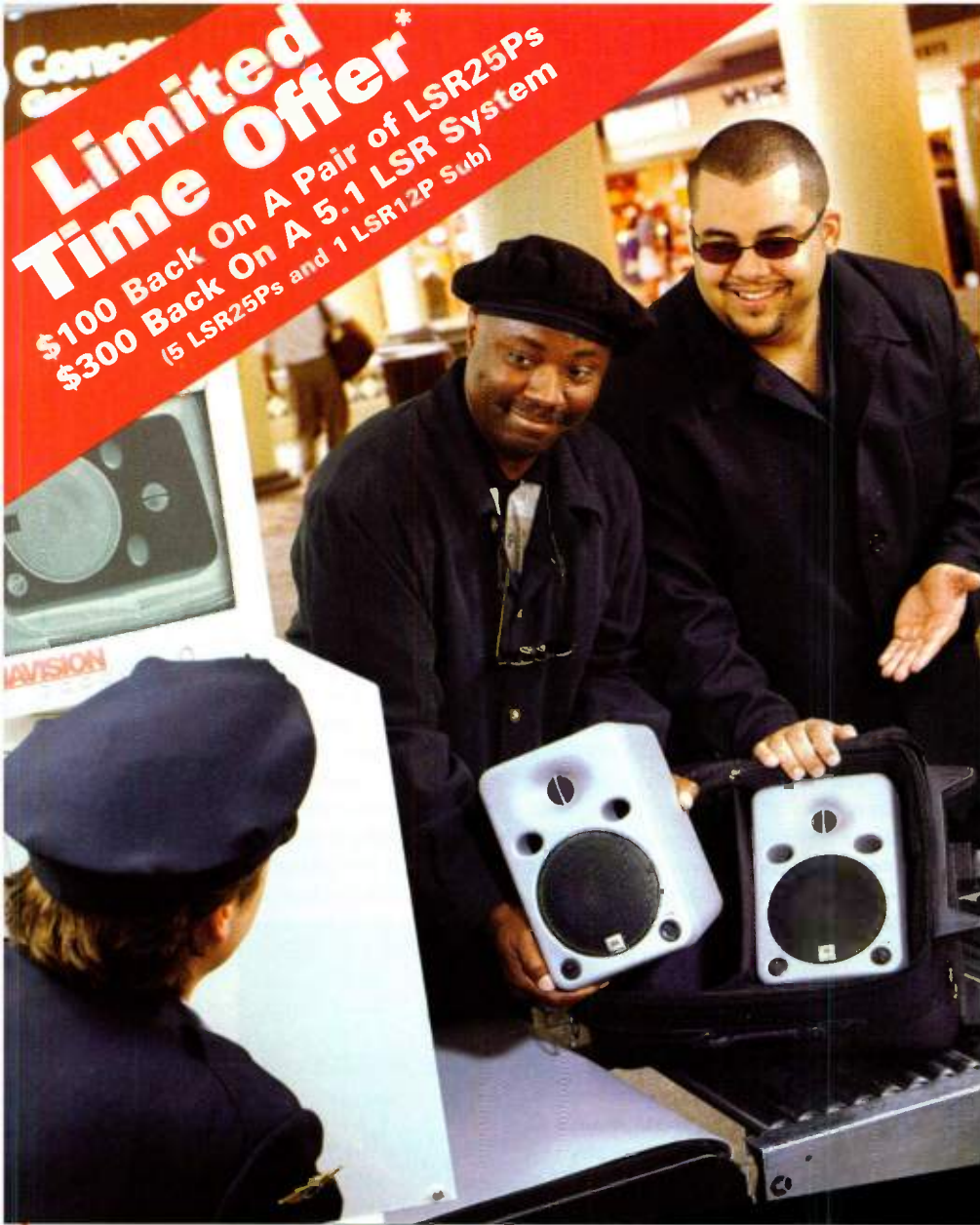
Geary Yelton

New associate editor **Geary Yelton** has written product reviews and feature articles since the magazine's first issue in June 1985. Specializing in synthesizers, sampling, and music software, he was technical director of two of Atlanta's first large-scale, professional MIDI and sampling facilities in the 1980s. His experience includes sound design for corporate clients such as Dupont, Hitachi, and Delta Airlines, and he has recorded albums ranging from Bach interpretations to Latin dance and Christmas music. Geary taught advanced experimental sound at the Atlanta College of Art; authored the books *Music and the Macintosh* and *The Rock Synthesizer Manual*; and was editor and coauthor of *The Musical PC*. He majored in English and music at Western Carolina University and lives in Charlotte, North Carolina.



EM ARCHIVE

Limited Time Offer*
\$100 Back On A Pair of LSR25Ps
\$300 Back On A 5.1 LSR System
(5 LSR25Ps and 1 LSR12P Sub)



WHEN L.W.
 RAN INTO S.P.
 AT JFK, THEIR
 THX[®] APPROVED
LSR25Ps
 GAVE FLIGHT
 TO NEW
 CREATIVITY.

As you can see, the all-new THX[®] Approved LSR25P powered monitors are really taking off. That's because key industry professionals are discovering one very simple



A talented musician, successful composer and recognized producer, Lenny White is considered one of music's real innovators. He's played with such greats as Miles Davis, Chick Corea and Stanley Clark, and has also collaborated on some of the most recognized and influential music of the past three decades, including the new CD *On the One*, with Sammy Peralta.

and indisputable fact: the LSR25P consistently outperforms any other monitor in its class. As a result, it's gaining popularity in all critical monitoring applications, from digital workstations and near field stereo to 5.1 mixing. In fact, the LSR25P is as comfortable on the road as it is on the meter bridge.

Every LSR25P incorporates JBL's revolutionary Linear Spatial Reference (LSR) performance characteristics, assuring a mix that sounds consistent from room to room. What's more, the two-way 5.25", bi-amplified LSR25P



Sammy Peralta loves music. That pure and simple fact comes through strikingly clear as he sits at his keyboard tinkering with half-written tunes. Sammy's background includes work with talents including Tito Puente and Willie Bermudez. "I have to be careful because I can get so lost in the music, I sometimes forget I have a family that would like a little of my attent on too".

also features 150 watts of linear power as well as purpose-built transducers with JBL's most current thinking and designs. This last point has earned the entire LSR family of monitors continual critical acclaim for more than three years.

One last point: Sammy Peralta's new CD *On the One* featuring Lenny White was mixed entirely with LSR monitors.

LSR.

For More Information:
www.jblpro.com/lrrebate11



H A Harman International Company

© 2000 JBL Professional

*Offer valid 11/1/2000 thru 2/28/2001. At participating dealers only.

Everything you need for computer recording.



Omni
studio
studio

Except the Coffee.

Everyone is looking for the right solution for computer-based recording: a system that not only sounds good but also deals with the unexpected hassles that can come with the territory. You need more than a soundcard with mic pre's, you need something that actually helps you make music.

That's why we made the **Omni Studio**. The Omni emulates a "split console" mixer design, making it capable of adapting to many studio scenarios and providing solutions that would usually require a lot of gear.

Now with the **Omni Studio** you can:

- Utilize 6 ins/6 outs to the PCI card and an **additional 8 inputs** to the mixer section
- Record/monitor at 24 bit/96kHz with **no latency**
- **Insert compressors** on your mics
- **Buss** to outboard FX or submixers
- **Mix** to DAT/CD burner and cassette
- **Monitor** your MIDI gear in playback and record
- Track with **2 headphones** and/or monitors
- **Forget about your gear** and just make music

The **Omni Studio** includes a **Delta 66** soundcard and the **Omni i/O** Integrated Desktop Audio Station, and is compatible with Mac and PC, **Logic™**, **Cubase™**, **Cakewalk™**, **Digital Performer™**, **Vegas™**, **Gigasampler™** and everything else. Espresso machine not included.

Omni i/O is also available separately for use with Delta 66 and Delta 44 cards. Coming soon: Omni Universal Compatibility Cable for adapting the Omni i/O to any soundcard.



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

● LETTERS

Rico—Apple's new G4 Cube is indeed a technological marvel. Standing about as tall as a toaster oven, this Lucite-encased box is fast and nearly silent. But an internal fan is not the only thing missing from the compact CPU. As you noticed, the Cube also lacks internal slots, a SCSI port, and a floppy drive. Without an internal slot, you can't use card-dependent digital audio systems like Mark of the Unicorn's 2408 or Digidesign's Digi 001, and without a SCSI port you can't plug in a super-fast external SCSI drive. But that doesn't mean the Cube

has no potential for music production; au contraire!

Apple's migration to USB and FireWire technologies is starting to pay off as growing numbers of manufacturers join the cross-platform USB/FireWire bandwagon. Finding a high-quality MIDI interface is a piece of cake: Mark of the Unicorn (www.motu.com), Emagic (www.emagic.de), and Midiman (www.midiman.net) all sell USB MIDI interfaces. And most hard-drive companies offer FireWire drives that outperform SCSI drives.

Recording digital audio, however, may

pose some restrictions depending on your needs. Although FireWire audio interfaces are not yet available, USB audio devices are plentiful, and many include features such as MIDI and S/PDIF I/O.

Unfortunately, USB's bandwidth is not sufficient for full-scale multichannel recording and playback. Driver issues can also contribute to the problem. As a result, the majority of USB audio interfaces only allow 2-channel recording and playback, so if you need to record your band live with a roomful of mics and then output everything to a multichannel recorder, you're probably out of luck.

However, many people get along nicely by recording two channels at a time, mixing and processing multiple tracks with software, and outputting the result as a stereo master. If that works for you, check out the wide range of products from Roland ED (www.edirol.com), Event Electronics (www.event1.com), Swisssonics (www.swissonic.com), Ego-Sys (www.egosys.net), and Tascam (www.tascam.com).—David Rubin

ERROR LOG

November 2000, "Vintage Page," p. 38: The summary information given about the Moog Music Minimoog was incorrect; it actually applied to the Roland Juno-106, the subject of EM's October 2000 "Vintage Page." Many eagle-eyed readers—including a very puzzled Dr. Moog—noticed the errant entry. The glitch occurred during the production stage; author Julian Colbeck did not take leave of his senses. Here is the correct information:

- Moog Minimoog
- Produced: 1971-1982
- Made in: United States
- Designed by: Bob Moog, Jim Scott, Bill Hemsath
- Number produced: 13,000
- Synthesis system: Analog, subtractive synthesis
- Price new: \$1,495
- Today's prices:
 - Like new \$1,200
 - Like, it's okay for its age \$1,000
 - Like hell \$800

WE WELCOME YOUR FEEDBACK.

Address correspondence and e-mail to "Letters," Electronic Musician, 6400 Hollis St., Suite 12, Emeryville, CA 94608 or to emeditorial@intertec.com. Letters may be edited for space and clarity.

Planet Waves Instrument Cables
The Difference is Sound

24-karat gold-plated plugs with 8 compression springs ensure positive connection into standard 1/4" (6.35mm) jacks, eliminating annoying static.

Copper cylinder surrounds the soldering points, and a rigid, high-impact polymer is directly molded over the cylinder, creating an indestructible inner-core with 100% shielding coverage.

Soft, flexible polymer is overmolded throughout the plug to provide an ergonomically shaped housing that offers unmatched strain relief.

Double-sided metalized polyester foil inner shield for 100% shielding coverage.

Color-coded O-rings allow for easy identification when multiple cables are plugged into sound reinforcement equipment. 4 pair supplied with each cable.

Red color plug with speaker icon must be plugged into amplifier.

Purple color plug with guitar icon must be plugged into instrument.

Ultra-fine, stranded, premium quality copper conductors offer low impedance with maximum flexibility.

Inner conductor insulation made from foamed polyethylene offers lower loss and capacitance.

Outer conductor insulation made from conductive PUC virtually eliminates triboelectric (handling) noise.

Heavy-duty, plated, copper-braided shield offers 95% shield coverage.

Extra-heavy flexible polymer outer jacket is durable and abrasion resistant.

Lifetime Warranty

Patent Pending

PLANET WAVES
by D'Addario

ISO 9001
REGISTERED COMPANY

J. D'Addario & Company, Inc. • PO Box 290, Farmingdale, New York 11735 USA
E-Mail: mail@planet-waves.com • www.planet-waves.com

FIFTEEN YEARS AGO IN EM

Electronic Musician first appeared in 1985, and the two issues published that year constitute vol. 1. Thus, the January 1986 issue that marked the beginning of EM's monthly publication was actually vol. 2, no. 1.

The January 1986 cover featured Hollywood sound-design wizard Frank Serafine. Oddly, Serafine was not interviewed in the issue, but he did coauthor (with Rick Schwartz) a review of Passport Designs' *MIDI/8 plus* sequencing software for the Apple II and Commodore 64 computers.

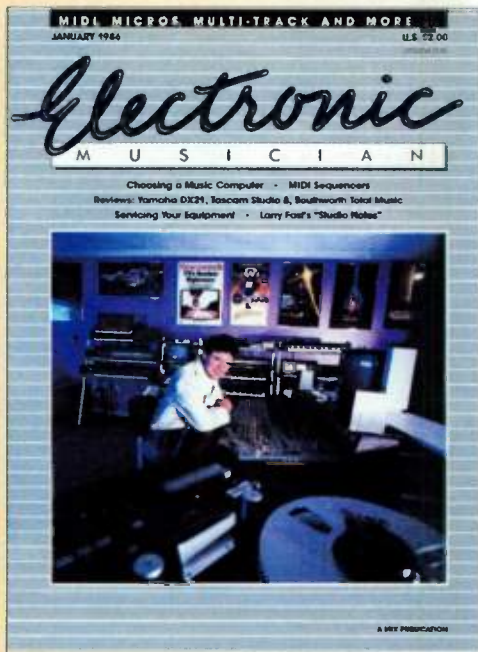
Sequencers, MIDI interfaces, tape decks, and FM synths were very much on our minds in January 1986. In addition to the Passport sequencer, we reviewed the Yamaha DX21 FM synth; Tascam's Studio 8 8-track, 1/4-inch tape deck; and Southworth Systems' soon-to-be-notorious *Total Music* sequencer for the Mac. Our "Current Events" section—later renamed "What's New"—introduced Syntech's DX/TX (FM synth) editing software for the Commodore 64 and IBM PC; Yamaha's FM synthesis-based YPR-6 and YPR-8 electric pianos; JLC Cooper's Expression Plus 8-channel, MIDI-controlled VCA box; and the OP-4001 PC MIDI interface from Octave-Plateau (later renamed Voyetra). We also covered a new audio-editing program called *Sound Designer*, from a little company named Digidesign. Maybe you've heard of it.

The issue offered a variety of features and columns. Passport founder Dave Kusek instructed us on how to choose a computer for musicmaking, while Terry Fryer offered fresh sequencing ideas. Don Slepian's "Video Focus" column supplied tips on video production, while Alan Gary Campbell's "Service Clinic" column explained how to find a good service tech. Larry Fast's "Studio Notes" column discussed his trans-Atlantic collaboration with Peter Gabriel, which involved shipping reels of analog tape striped with time code and communicating not only by phone but also by e-mail—uncommon in 1985.

In its early years, EM specialized in publishing do-it-yourself (DIY) gear-construction projects. We presented three in January 1986. In those days, synth-program data was stored on cassette tape, but the synths' cassette interfaces could be flaky, so we provided modifications. Membrane switches were popular, thanks to the Yamaha DX7, but they didn't give you tactile feedback, which could be a hassle on a dark stage, so we published a way to emboss keypads on them. We also published the first in a series of Thomas Henry articles on designing your own computer interfaces.

There was more, but that's a fair sampling. Not a bad start for a new magazine on a low budget!

—Steve Oppenheimer



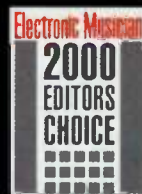
ROYER RIBBONS
hearing things the way you do



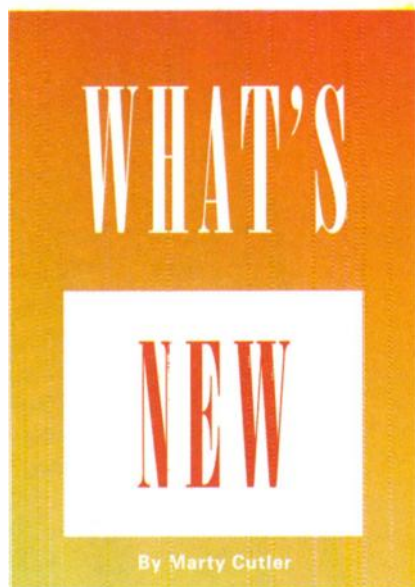
www.royerlabs.com

"God, I love these (expressive deleted) things!!!" —Ed Cherney (Grammy winner, Rolling Stones, Eric Clapton, Bonnie Raitt)

"I just had seven R-121's up on the Academy Awards, then used them all on a Quincy Jones big band session—Royer mics are one of the very best things to happen to recording in years."—Tommy Vicari (Grammy & Emmy Award winner, Quincy Jones, George Duke, Gino Vannelli)



(818) 760-8472
Burbank, Ca.



▲ SOUND BURST FX4U

Windows users with VST-compatible host software will want to check out Sound Burst's *Fx4u* (\$69 per volume; \$179 bundled), a three-volume collection of VST effects plug-ins. Each volume gives you four different plug-ins.

Volume 1 offers *Master Chorus*, a ten-voice chorus; *Screamer*, a four-band distortion plug-in; *Sync Delay*, a tempo-synchronizable stereo delay; and *Retro Filter*, which has four types of resonant filters.

In volume 2, you get *Mega Filter*, which has ten different filters with LFOs and an envelope generator; *Phoner*, a speaker simulator; *Granulator*, a granular-synthesis processor; and *Metaphaser*, a 16-stage phase shifter.

Volume 3 offers *Rotovibe*, a vibrato and tremolo simulator, along with the *Protocomp* compressor plug-in, the *Quick Gate* noise gate, and the *Extreme Flanger* for simulating anything from classic tape-flange effects to modern digital flangers.

In addition to VST-compatible host software, you'll need at least a Pentium II/200 MHz PC, 32 MB of RAM, and Windows 95 or 98. Sound Burst by C.R.I.M.; tel. 39-11-650-1307; e-mail info@soundburst.com; Web www.soundburst.com.

▼ SHURE KSM44

The latest addition to Shure's line of studio microphones is the KSM44 large-diaphragm, externally biased condenser mic (\$1,340). The KSM44 is a multipattern mic that is intended for recording vocals, but its capacity for high sound-pressure levels makes it a possible choice for recording drums and guitar amps as well.

The KSM44's Class A, transformerless preamp circuitry not only eliminates crossover distortion, it also improves linearity across its 20 Hz to 20 kHz frequency range. The two externally biased, 1-inch gold diaphragms provide extended low-end frequency response. The dual diaphragms are very thin (2.5 micrometers) to ensure accurate sound



reproduction. Shure claims a 7 dB self-noise spec.

For minimizing mechanical noise and proximity effect, the KSM44 offers a low-frequency rolloff filter with three settings: flat (no rolloff), 6 dB/octave below 115 Hz, and 18 dB/octave below 80 Hz.

The KSM44 is internally shock-mounted and has a champagne-finish, die-cast zinc housing. The grille is made from hardened, low-carbon steel to protect the capsules from damage. Each mic comes with a locking aluminum carrying case; a patented Shure-Lock elastic-suspension, external shock mount; a swivel mount; and a velveteen pouch.

Shure; tel. (800) 25-SHURE or (847) 866-2200; e-mail info@shure.com; Web www.shure.com.

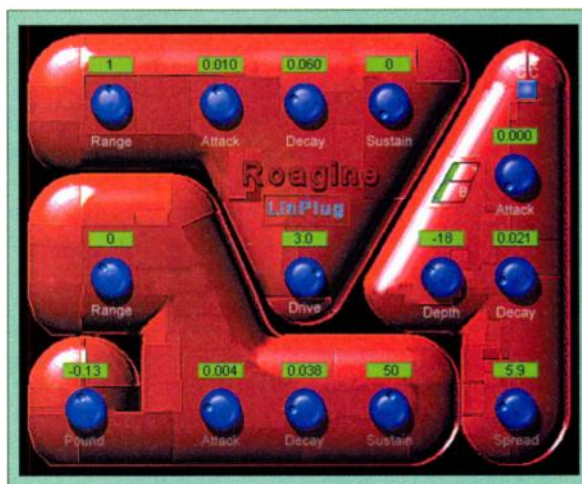
▶ LINPLUG ROAGINE

LinPlug's *Roagine* (\$25) is a VST Instrument plug-in for Windows that is geared toward percussion and bass sounds. LinPlug is not revealing the details of *Roagine's* synthesis method; we only know that it is not a sample-playback synth and it doesn't use an analog-modeling engine. It lacks filters, and you can't select waveforms.

The synth features three sections: Timbre, Amplitude, and Pitch. The Timbre and Amplitude sections have attack, decay, and sustain envelope adjustments, and the Pitch section offers attack and decay controls. All time-based parameters are displayed in milliseconds.

You can control all parameters with MIDI Control Change messages. *Roagine* offers 15 parameters; 14 of these animate sounds in real time, and the remaining

parameter is for assigning MIDI CC messages. To assign a parameter to a CC message, you click on a parameter you'd like to control, click on the CC field, send



a message from your controller's knob or fader, and you're done.

Minimum requirements are a Pentium II/266 MHz PC, Windows 95 or better, and VST-compatible host software. LinPlug; e-mail support@linplug.de; Web www.linplug.de.



YOUR SOURCE FOR: RECORDING MONITORS GUITARS KEYBOARDS AMPLIFIERS PRO AUDIO AND MORE

We want to help you have fun making music!

Nothing feels better than having a fine-tuned studio that responds instantly to your every creative whim. We know. We've helped over 200,000 musicians and audio professionals build recording and PA systems specifically focused around their needs. You see, we're not in the business of pushing boxes out the door. We go the extra mile with professional advice and informative publications to make sure that your gear is the best possible solution for your situation.

800.222.4700
www.sweetwater.com



Give us a call today and find out how fun making music can really be.

Sweetwater
music technology direct

(219) 432-8176 • FAX (219) 432-1758 • sales@sweetwater.com • 5335 Bass Road • Fort Wayne, IN 46808



▶ **EARTHWORKS 1024**

Earthworks' 1024 four-channel microphone preamp (\$3,500) offers no bells and whistles such as pads and filters, but the company promises ruler-flat frequency response from 2 Hz to 100 kHz (± 0.1 dB), distortion of less than 0.0001 percent, and equivalent input noise of -140 dBV at 40 dB gain.

Each channel has a front-panel knob that provides stepped control of gain from 5 to 60 dB, in 5 dB increments.



Continuously variable knobs for each channel allow 20 dB of gain reduction, and the attenuated signals are routed to separate outputs. A clipping LED warns of imminent overloads at 10 percent below clipping. Other features include a phantom-power switch with an LED status indicator, a phase-reverse switch,

and a standby switch for each channel.

On the unit's rear, each channel has a transformerless XLR input (pin 2 hot), an XLR stepped output, and a $\frac{1}{4}$ -inch TRS jack for the variable output. The unit has an internal AC power supply. Earthworks; tel. (603) 654-6427; e-mail earthwks@jlc.net; Web www.earthwks.com.

▼ **ALESIS A6 ANDROMEDA**

Alesis's A6 Andromeda (\$3,499) is a throwback to the glory days of digitally programmable analog subtractive synthesizers. A Motorola Coldfire processor governs its voltage-controlled oscillators, filter, and amplifier.

The Andromeda is 16-voice polyphonic and 16-channel multitimbral. You get two oscillators and a suboscillator per voice



and a choice of sine, square, triangle, sawtooth up, and sawtooth down waveforms. You can use a hard or soft oscillator sync on each voice. The three LFOs offer a choice of six waveforms,

dynamic waveshaping of the square and triangle waveforms, free-running or triggered modes, sync to MIDI Clock, and a ramped delay.

Each voice has two analog filters: one is a 12 dB/octave, resonant, two-pole, multimode filter patterned after the Oberheim SEM; the other is a 24 dB/octave, resonant, four-pole, lowpass filter in the style of early Moog synthesizers.

You get three seven-stage, three-level envelope generators per voice. For more interesting or more natural envelopes, you can select one of nine different slopes, including exponential types, and you can adjust the curve for each envelope stage.

You can loop envelope segments and sync to MIDI Clock. You can choose AR, ASR, or traditional ADSR envelopes.

Andromeda's effects processor offers digital reverb, chorus, echo algorithms, and an analog distortion circuit to add a

little crunch. You can route an external audio signal through the filters by way of three unbalanced $\frac{1}{4}$ -inch inputs. One input allows you to gang all 16 filters together to create multiple band-pass filter sounds. The other two inputs route the signal through synth voices 15 and 16.

Andromeda has 16 mono outputs on eight $\frac{1}{4}$ -inch TRS jacks and stereo main outputs on unbalanced $\frac{1}{4}$ -inch jacks. You also get two unbalanced $\frac{1}{4}$ -inch, polyphonic auxiliary outputs; a $\frac{1}{4}$ -inch stereo headphone jack; MIDI In, Out, and Thru; and CV and trigger inputs.

Most of the 72 knobs and 144 buttons are dedicated real-time controls. The arpeggiator and analog-style step sequencer can slave to MIDI Clock.

Andromeda holds 256 program presets, 128 user slots, and 128 multitimbral user Mixes. Alesis Corporation; tel. (800) 525-3747 or (310) 255-3400; e-mail info@alesis.com; Web www.alesis.com.

▼ **NOVATION SUPERNOVA II RACK**

Novation's Supernova II Rack analog-modeling synth (\$2,299) retains the features of the company's Supernova II keyboards and adds faster response, more powerful DSP, and more polyphony (up to 24 voices without optional voice-expansion cards).

A single voice can use up to eight FM or ring-modulation algorithms. You get independent modulation-matrix control of FM parameters for each oscillator. A new Unison mode piles available voices onto a single patch, creating obese sounds at the press of a button. New Slewing modes control how quickly the

LFO cycles between values, thereby altering LFO waveform shape.

You get two separate filter blocks, which can be used in parallel or in series, and each filter can have a different cut-off frequency. A 42-band vocoder, a spectrum analyzer, and new ensemble and rotary effects have been added to the array of signal processing.

If you want to process external audio through the synthesizer, you can use the unit's two $\frac{1}{4}$ -inch TRS analog inputs. Input gain is adjustable from mic level to 4 dBm through the internal software, and you can route input

to the oscillator section or just the effects.

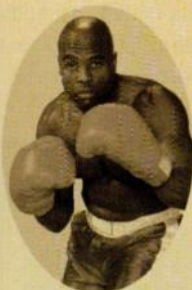
All Supernova II units have eight unbalanced $\frac{1}{4}$ -inch outputs; an optional card can add ADAT and optical S/PDIF input and output (price TBA). Optional voice expander cards are also available (\$499 for 12 voices; \$699 for 24 voices). Novation USA; tel. (800) NOVATION or (888) 782-3166; e-mail salesusa@novationusa.com; Web www.novationusa.com.



THE NEW BLOOD

TRITON OPTIONS UPSTART CONTENDERS

HEAVYWEIGHT

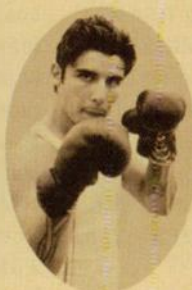


DSP MOSS SYNTH

EXB-MOSS ADDS A SIX VOICE DSP SYNTH ENGINE, THE SAME AS OUR RENOWNED Z1 AND TRINITY V3.

- 13 SYNTHESIS ALGORITHMS
- BOTH PHYSICAL MODELING & DIGITAL SYNTHESIS
- UP TO 6-PART MULTI-TIMBRAL
- 128 NEW PROGRAMS/64 COMBIS

WELTERWEIGHT



FUTURE LOOP CONSTRUCTION

EXB-PCM03 PROVIDES 16MB OF CUT-UP DRUM LOOPS WITH INDEPENDENT CONTROL OF TEMPO AND PITCH.

- 275 MULTISAMPLES, 1324 DRUM SAMPLES
- 18 SONGS / MUSICAL STYLES
- 728 RPPR PATTERNS FOR TRIGGERING LOOPS DIRECTLY FROM THE KEYBOARD

MIDDLEWEIGHT



PIANOS/CLASSIC KEYBOARDS

EXB-PCM01 FEATURES 16MB OF SUPERBLY SAMPLED KEYBOARD INSTRUMENTS.

- 32 MULTISAMPLES
- ACOUSTIC AND ELECTRIC PIANOS, CLAVS, ORGANS AND MORE
- 128 PROGRAMS/128 COMBIS

BANTAMWEIGHT



DANCE EXTREME

EXB-PCM04 DELIVERS 16MB OF SOUNDS THAT ARE PERFECT FOR DANCE/TECHNO MUSIC.

- 202 MULTISAMPLES, 454 DRUM SAMPLES
- SYNTH BASSES, LEAD, PADS & ONE-SHOT SAMPLES
- 128 PROGRAMS/128 COMBIS

CRUISERWEIGHT



STUDIO ESSENTIALS

EXB-PCM02 CONTAINS 16MB OF ACOUSTIC INSTRUMENTS AND VOCALS.

- 39 MULTISAMPLES
- STEREO STRINGS & BRASS, SOLO BRASS & WINDS, GOSPEL VOCALS, ETHNIC PLUCKED SOUNDS
- 128 PROGRAMS/128 COMBIS

GOLDEN GLOVES



VINTAGE ARCHIVES

EXB-PCM05 GIVES YOU 16MB OF CLASSIC SYNTH AND KEYBOARD SOUNDS.

- 158 MULTISAMPLES, 56 DRUM SAMPLES
- VINTAGE AMERICAN AND JAPANESE ANALOG SYNTHS, DRUM MACHINES & TAPE-BASED KEYBOARDS
- 128 PROGRAMS/128 COMBIS

READY FOR THE BIG TIME

KORG

©2000 KORG USA. FOR THE KORG DEALER NEAREST YOU: (800) 335-0000. FOR MORE INFO VIA FAXBACK: (631) 393-8500, DOC# 3504. WWW.KORG.COM

WRH

REV UP ▲▲▲▲

TASCAM

Tascam's *MX-OS* version 2.0 software for its MX-2424 hard disk recorder adds 24-bit, 96 kHz playback and recording capability as well as file-transfer and file-management improvements. You can also record a dozen 24-bit tracks at 96 kHz or 24 tracks at 48 kHz. You can transfer audio files through the MX-2424's Ethernet port. *MX-OS* 2.0 also adds compatibility with the Macintosh HFS+ drive format, letting you use larger drive sizes. You can download the software from Tascam's Web site. Tascam; tel. (323) 726-0303; Web www.tascam.com.

▼ CODA MUSIC TECHNOLOGY

Coda's flagship music-notation software receives a major upgrade with *Finale 2001* (\$149.95 upgrade from Mac/Win versions of *Finale 98* or earlier; \$79.95 upgrade from *Finale 2000*; academic version \$545; theological version \$275). Among its new features are automatic Web publishing, pitch-to-MIDI conversion, and the ability to convert scanned music into notation.

New Web-publishing features include a Save as Web Page command and a command that automatically posts your score at Finale Showcase, a community for sharing music files at Coda's Web site. You can also automatically post your music at Net4Music,

which can provide royalties for any copies sold.

The MicNotator feature offers monophonic pitch-to-MIDI conversion. The program comes bundled with Musitek's *Midiscan* music-scanning OCR software, which can scan up to 16 staves of music and automatically convert them to a *Finale* file. Other new features include an expanded setup wizard for default key and time signatures, initial tempo marking, pickup measures, and a new selection tool.

Mac users can use any Power Mac with Mac OS 7.61 or better and 16 MB of free RAM. Windows users need at least a 486DX/66 MHz PC with Windows 95 or later (including Windows NT) and 16 MB RAM. Coda Music Technology; tel. (800) 843-2066 or (952) 937-9611; e-mail finalesales@codamusic.com; Web www.codamusic.com.

► CYCLING '74

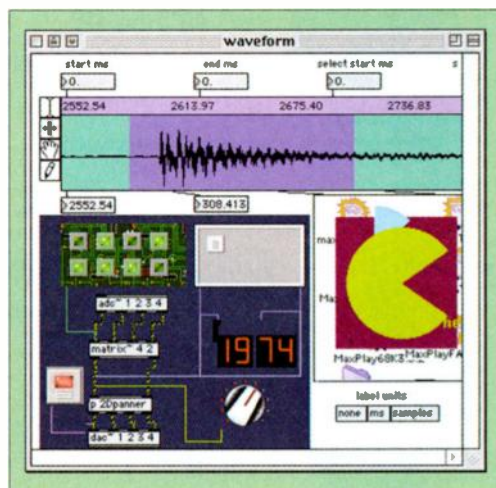
Cycling '74's *Max* 4.0 (\$395; \$50 upgrade) and *MSP* 2.0 (\$295; \$100 upgrade) provide a host of new programming objects, features, and user-interface and performance improvements.

All of the time-related *Max* and *MSP* objects maintain timing information in floating-point format. The accuracy of scheduling events depends on the number of samples processed at once—more samples means less accuracy—and you can choose to give MIDI events a higher priority over audio processing.

New *Max* objects include buttons and knobs with customizable pictures, text-edit fields, and a Universal object that lets you send messages by class (useful for panic buttons, for example). A Gestalt object gives a report of Mac OS system features. You can group related radio buttons or check boxes.

MSP now offers 512 virtual channels of I/O that are dynamically remapped to audio device channels. You can control and allocate *MSP*'s CPU usage, and dynamically loaded audio drivers offer support for Sound Manager, ASIO, ReWire, DirectConnect, and VST plug-ins, among others.

New *MSP* objects include an audio-rate sequencer that allows you to change the audio playback rate; a



spectral-processing manager that performs windowing, overlap, and FFTs; and a Waveform-display user interface that works with sample buffers. You can now design filters graphically with the Filtergraph object, and the Stutter object provides granular synthesis.

An improved *MSP* buffer object now reads and writes WAV, AIFF, AU, and raw audio files at resolutions from 8 to 64 bits. A new Sfplay object gives you varispeed playback and forward and backward cues, and reads multiple file formats and bit depths.

Both programs will run on any Power Macintosh, but a PPC 604 or faster is suggested for audio processing. *MSP* performance is improved, with optimization for the G4 Velocity Engine. Cycling '74; tel. (415) 621-5743; e-mail info@cyclings74.com; Web www.cyclings74.com.



GIGASTUDIO™

Innovate. Never Imitate.



"Unless you explore it, emotionally you cannot understand how revolutionary GigaStudio is. I never have to worry about having enough space for my samples, and the low pass filters and crossfades are done right – natural and transparent – they really work. Nemesys has built a classic."

Hans Zimmer

Academy Award® Winning Composer



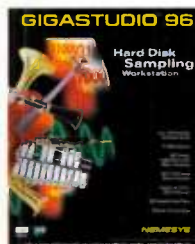
Sample Outside the Box.

Patented Hard Disk Based Sampling Technology, 160 Voice Polyphony (all disk based), Multimode Resonant Filters with External Q and Fc, DSP Station™ 32 Bit Zero Latency Effects, 32 Channel 32 Bus Digital Mixing with Automation, QuickSound™ Database, Dimension Articulation Switching/Crossfading



MEDIA VENTURES

"Academy Award" is a registered trademark and service mark of the Academy of Motion Picture Arts and Sciences



www.nemesysmusic.com • 1.877.NEMESYS

NEMESYS™

The connection between the dream



and the reality.



XV-88 128-Voice Weighted-Key Synthesizer

You hear it in your head. Every sound. Every note. Now there's an easy way to get exactly what you've imagined without compromise. Introducing the XV-88: Roland's first synthesizer with 88 precision hammer-action keys that feel just like the real thing, combined with the new XV synth engine for power like you've never had before. 128 voices, true stereo waveforms per tone, super expandability, expressive Matrix Control, Roland's innovative Patch Finder, a host of new studio-quality effects and a lot more. This is it. The expandable performance instrument created to take you places you've only dreamed about.



 Roland®

KEY CHANGES

Shure is recalling all model E1 Earphones shipped between September 22 and October 22, 2000. A total of 68 units are affected out of 1,379 shipped during that time. Apart from a potential reduction in sound quality, it is possible that the acoustic damper component could fall into the user's ear. You can find more information at www.shure.com, or send e-mail to recall@shure.com. . . . A fully functional, native version of Digidesign's *Pro Tools LE 5.0.1* is available as a free download at www.digidesign.com. The free version is limited to eight audio channels and two I/O channels, using Wave drivers (Windows) and Sound Manager (Mac). . . . Sonic Implants has released its sample library in Akai, Kurzweil, and GigaSampler formats. . . . Sampleheads now offers online delivery of its entire sample library at www.sampleheads.com. Sounds are available in Sound-Font format, and other formats will be available in the future. . . . Lexicon is shipping the Macintosh version of its Core2 Desktop Audio System. . . . BIAS has announced that its *Peak* waveform editing software and its *Deck* multitrack recording application will be available for BeOS on the PC. The two programs are also being rewritten for Mac OS X. . . . Alesis has released version 3.0 software for the ADAT M20 modular digital multitrack recorder. Enhancements include faster lockup time and improved diagnostic capabilities. You can download the ADAT M20 software at www.alesis.com.

▼ RHIZOMATIC SOFTWARE ABSYNTH

Rhizomatic Software's *Absynth* (\$150) for the Macintosh synthesizer combines subtractive synthesis, waveshaping, FM, AM, and ring modulation. It also lets you draw oscillator and LFO waveforms to create unique sounds.

Absynth allows you to patch multiple synthesis modules together. You get six oscillators per voice, eight filter types, three ring modulators, a waveshaper, and a delay processor.

With *Absynth's* waveform editor, you can design your own waveforms, which then can be used by the oscillators, LFOs, and waveshaper. The waveform editor provides two modes for waveform creation: Draw mode allows freehand drawing, and Spectrum mode lets you trim individual harmonics levels. Within the waveform editor, you can filter, mix, frequency modulate, and "fractalize" waveforms before they reach the filter and amplifier. Fractalize takes the original waveform, makes two small copies of it, then two smaller copies of the copies, and so on; it then mixes everything together to produce a new composite waveform. While you edit the waveforms, the results are continuously updated so that you can monitor your changes.

The envelope generators go well beyond traditional ADSR settings, offering up to 68 breakpoints per envelope. You can loop envelopes for cyclic rhythms. The Envelopes Editor window

shows multiple envelopes simultaneously, allowing detailed coordination of changes over time.

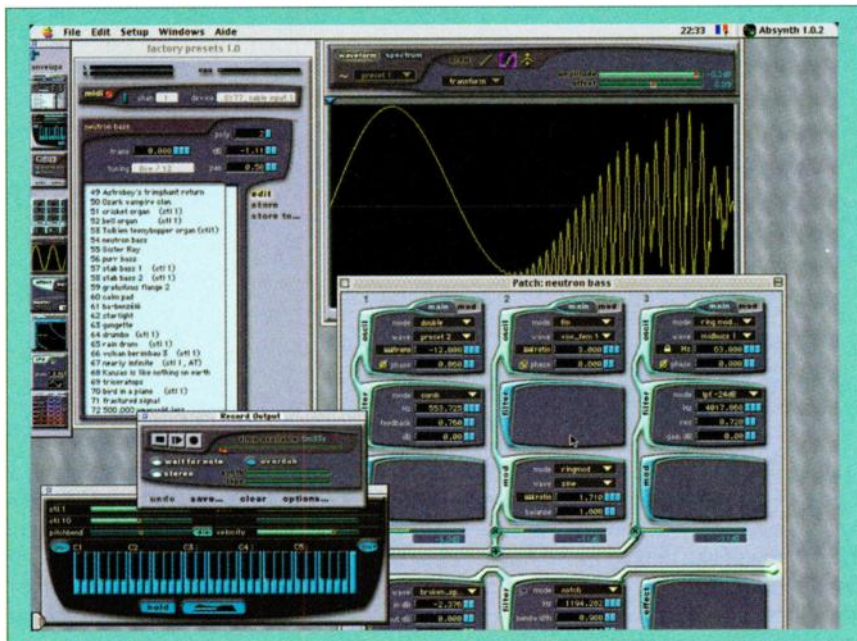
Delay effects are modulated; delay times can be as short as a single sample or up to ten seconds long. Modulation of delay parameters is flexible: for example, you can run six parallel delay lines and modulate them with LFOs for flange effects.

LFOs can modulate pitch, amplitude, filter frequency, FM depth, pan, and delay time. Besides custom waveforms, LFOs can use sample-and-hold and conventional analog-type waveforms, such as square and sawtooth waves.

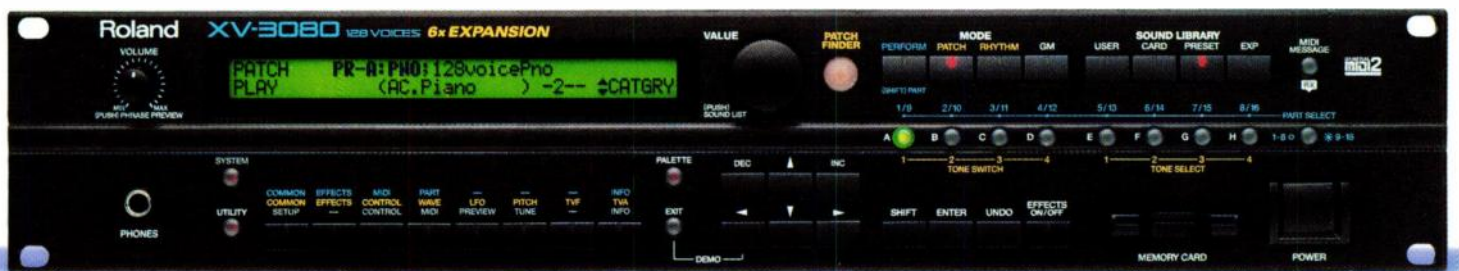
Absynth is no slouch at expressive MIDI parameter control. You can modulate parameters using practically any continuous controller, including Aftertouch, Control Change messages, Velocity, and note number. You can even program a different (and discontinuous) modulation value for every note. Pitch Bend range can be up to ± 6 octaves.

Absynth is not multitimbral. However, the software provides a Record window with overdub capabilities for layering new performances onto previously recorded passes held in RAM. You can render its output to an AIFF file.

To run *Absynth*, you'll need at least a PPC 603/100 MHz with 16 MB RAM; Mac OS 8.0 or later; Sound Manager; and OMS 2.0 or later. Rhizomatic Software; tel. 33-1-4859-0418; e-mail info@absyn.com; Web www.absyn.com.



Another way to get there.



XV-3080 128-Voice Synthesizer Module

Get the sound without the space. Introducing Roland's XV-3080 128-Voice Synthesizer Module. This synth has the sonic power of the XV-88 128-Voice Expandable Synthesizer, all in a 2U rack. Built around the best-sounding, most expressive and expandable new synthesizer architecture in Roland history. Now if you dream it, you can hear it.



 Roland®

www.rolandus.com Faxback information: (323) 890-3780 XV-3080 doc #10420.
Specifications and appearance are subject to change without notice.

SOUND ADVICE ▲▲▲▲



▲ GMEDIA

Gmedia's *Acoustic Swing and Shuffle Grooves* (\$49.95) features a collection of audio grooves, MIDI loops, and individual hits on a single CD-ROM. You can use entire audio loops or have the MIDI files trigger the individual drum hits provided on the CD. The audio files are presented in a variety of audio formats, including WAV, AIFF, and SoundFont. The MIDI loops were recorded with Roland V-Drums.

The loops, grooves, and fills cover a wide range of styles patterned after the music of Bernard Purdie, Jeff Porcaro, Eric Benet, and Erykah Badu. The audio was recorded at Helio-centric Studios in Great Britain, using the same 1950s tube-powered mixing console employed by Bob Marley, Roxy Music, and Paul Weller. Gmedia Technology; tel. 44-1491-57-7147; Web www.gmedia.com/gforce.

SONIC FOUNDRY

Sonic Foundry has released two collections of loops for use with its *Acid* digital audio sequencer.

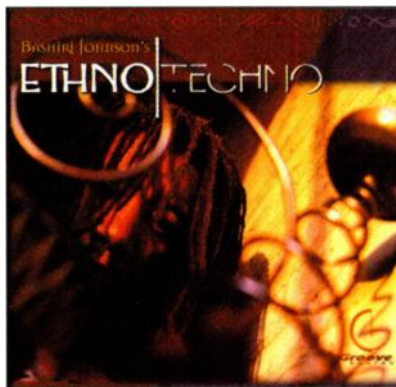
Karl Perazzo—a vocalist, percussionist, and writer on Santana's *Supernatural* album—arranged, produced, and performed the percussion tracks on *Acid Latin 2.0* (\$47.99). Perazzo performs in a host of Latin music styles, including cumbia, salsa, and slow ballads. *Acid Latin* gives you more than 600 royalty-free loops, with arrangements that include per-

cussion, drums, horns, keyboards, and guitars.

Acid Techno 2.0 (\$47.99) offers 600 loops, including heavy beats, percussion, vinyl, scratching, synths, and pads. Stylistically, sounds run the gamut of European-influenced techno music. As with all *Acid* loops, you can click and drag loops into *Acid* to mix and match styles, tempos, and pitch with other grooves. Sonic Foundry; tel. (800) 577-6642 or (608) 256-3133; e-mail customerservice@sonicfoundry.com; Web www.sonicfoundry.com.

▼ ILIO ENTERTAINMENTS

Unusual sound sources such as Kissing Fish, salad bowls, springs, plastic toys, and Styrofoam combine with drum kits, congas, surdos,



koras, and mbira on Bashiri Johnson's *Ethno-Techno* (Akai, E-mu, Roland, or Kurzweil CD-ROM \$299; audio CD \$129). Produced by Eric Persing, *Ethno-Techno* is a new entry in Ilio's Groove Control sample CD series. A majority of the tracks were recorded at Donald Fagen's River Sound studio in New York.

The Groove Control feature—which was codeveloped by Ilio and Spectra-sonics—allows the user to rearrange the tempo, feel, dynamics, mix, and even the pitch of individual loop elements. As with other Groove Control CDs, *Ethno-Techno* offers theme and

variation on grooves, including fills, wet and dry remixes, and large and small mixes with a varying number of elements.

In addition to Johnson, *Ethno-Techno* musicians include Papa B. Susso (kora), Vinny Adams (drums and percussion), and Zeleka Jenkins (mbira). Ilio Entertainments; tel. (800) 747-4546 or (818) 707-7222; e-mail ilioinfo@ilio.com; Web www.ilio.com.

▼ SONIC REALITY

With *American Heartland* from Sonic Reality (Akai, E-mu, Kurzweil, Roland, or SampleCell CD-ROM \$199), the focus is on playable multi-sampled musical instruments. Nonetheless, the producers couldn't resist recording riffs and phrases to provide a bit of idiomatic flavor to the collection.

Instruments that are typically used in American "roots" music abound. Along with several drum kits and electric basses, you can find Dobros, banjos, harmonicas, dulcimers, pedal steel guitars, and more. Some instruments have layers that utilize Velocity and other MIDI messages for variations. For example, you get a multisampled Taylor acoustic guitar with Velocity-switching between finger-plucked and picked samples; fiddle samples use up and down bowing articulations. Ilio Entertainments (distributor); tel. (800) 747-4546 or (818) 707-7222; e-mail sales@sonicreality.com; Web www.sonicreality.com.



Digital *Pro* Sound

your premiere online
audio resource!



www.digitalmedianet.com

Making sound better for
audio professionals
everywhere,
everyday.

www.DigitalProSound.com
A Member of the Digital Media Net Community

By Roger Maycock



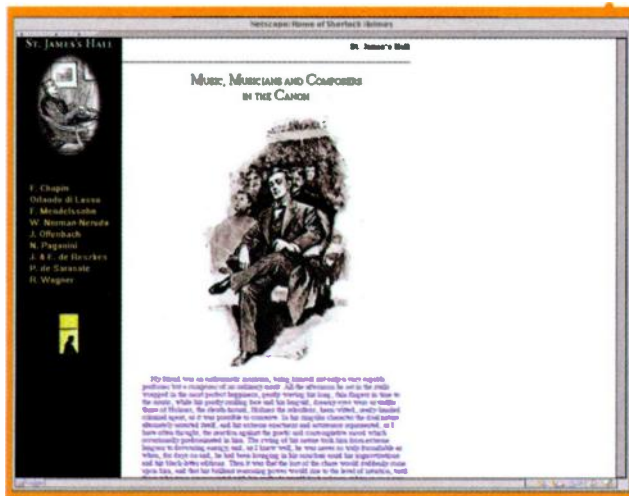
WEB SITE OF THE MONTH

As any fan of Sherlock Holmes knows, the great detective was an avid music enthusiast. Throughout Sir Arthur Conan Doyle's 60 Holmesian mysteries (referred to by the cognoscenti as the Canon), you'll find numerous references to composers and performers that the eccentric and erudite Victorian sleuth found appealing.

For example, we learn in *Bruce-Partington Plans* that Holmes was a noted expert on the polyphonic motets of Orlando di Lasso. In *The Red-Headed League*, Holmes and Dr. Watson rush to hear Spanish composer and violin virtuoso Pablo de Sarasate. The grandiloquent gumshoe himself was no slouch when it came to playing the violin. On several occasions he played pieces by Mendelssohn and Offenbach while in the midst of his crime-solving escapades.

If you'd like to learn more about Sherlock Holmes and his musical tastes, check out David Soucek's St. James's Hall Web page (www.bakerstreet221b.de/midi.htm). The site offers quotes from the Holmesian stories that include musical references. The text is followed by downloadable General MIDI files of the specific pieces mentioned in the stories or works by the composers whose names are sprinkled throughout the adventures.

—David Rubin



DOTDOTDOT.COM

Robot Software (www.robotsoftware.co.uk) provides a selection of inexpensive shareware and freeware programs for experimental computer music making on the Macintosh. The shareware Oscillator Music Machine is a real-time generative music application that lets you choose between multiple waveforms, play multiple tracks (each with independent tempo controls), and define the articulation patterns for your creations. Additional shareware applications include the Cellular Grid Machine and the Random Music Machine. MIDI Music Machine, Alien Attack Mayhem, and Nervous Squares are among the company's freeware offerings. . . . Specializing in audio-related technologies, **Human Machine Interfaces** (www.humanmachine.com) has released *InMotion 3D Audio Producer* (\$249.95). Ideal for sound effects work, the Windows application enhances your existing material by applying motion paths and 3D effects to expand the sound field. The application works with sampling frequencies up to 44.1 kHz and can withstand the effects of MP3 and RealAudio data compression, making it ideal for adding depth to computer game soundtracks, streaming audio, computer multimedia, and audio postproduction scores. Musicians will appreciate the application's ability to create moving sound, room ambience, and the illusion of distance. Demos are available for download. . . . If you're a fan of the electronic sounds of the late '60s and early '70s, you are probably familiar with the enigmatic voice of Britain's synth toy, the Stylophone. Used on hit records by David Bowie and Rick Wakeman, the instrument's organlike timbre is once again in fashion. The

Official Dübreq Stylophone Collectors Website (www.stylophone.freemove.co.uk) is a rich online resource for fans of the instrument. In addition to the requisite historical and collector information, the site includes interviews with famous players, a Stylophone discography, and many links, including one to a VST 2.0 plug-in version of the instrument that responds to MIDI Velocity data (unlike the original).



DOWNLOAD OF THE MONTH

Every once in a while, you come across a plug-in so cool you can't pass it up. Such is the case with neXoft Software's *LoopAZoid* 1.1 (www.loopazoid.com). *LoopAZoid* is a 48-channel, VST drum-sample player that features a whopping 64 stereo voices. The



plug-in sports one of the best-looking interfaces around: a 48-pad drum machine in a high-tech rack-mount control surface. Best of all, *LoopAZoid* is freeware, and is available for Mac and PC.

LoopAZoid is rich in features. The plug-in provides eight mono outputs (configurable as four stereo outputs) and has three mute groups. You can play samples forward or in reverse. You select forward and reverse root notes from a piano roll rather than MIDI note numbers, making the plug-in easy to use.

Samples are chosen with a file selection box. You can import 8- and 16-bit uncompressed files in WAV and AIFF formats, and drum kits can be exported. *LoopAZoid* uses Patch and Bank nomenclature and you can store all drum kits as standard VST plug-in patches (*.fxp or *.fxb). The plug-in works with sample-accurate timing and lets you set up and store as many as 909 kits.

To run *LoopAZoid*, you need a VST 2.0-compatible host application and a 300 MHz or faster processor. You'll also want plenty of RAM—*LoopAZoid* requires a minimum of 64 MB on a PC and 96 MB on a Mac.



WEBCAST

Activebass.com (www.activebass.com) offers bass players online lessons, product information, news, band-member classifieds, articles, and discussion groups. What makes Activebass.com particularly interesting, however, is its instruction facilities. The site provides

free interactive bass lessons (with music playback) at beginning, intermediate, and advanced levels. Lessons range all the way from instrument tuning for beginners to J. S. Bach's Prelude no. 1 in C Major for more skilled players.

Tools displayed across the bottom of the page define the music examples' playback parameters. You control the playback tempo, select the sound of the instrument (acoustic, slap, and fretless bass samples), click on the metronome to turn it on or off, and choose whether to loop the example. In addition, you can take advantage of a mute button, a

separate metronome click, and a tuning fork for practicing, as well as a button for e-mailing the Web page to your friends.

The notation used throughout the site is tablature, a horizontal representation of the fretboard that indicates fingerings. For players new to tablature, there is a section about reading this form of notation.

Activebass.com contains a large number of scales that you can use for warm-up exercises or to improve your theory chops. The site also includes a search engine that allows you to scan its pages by artist and song. Each song example defaults to a single playback pass. However, you can shorten and loop phrases (for example, you can repeat 4 bars of a 6-bar phrase) as needed.



I'M LISTENING.™



© 2000 S3's Rio Davidson



Rio
riohome.com

24 TRACK COMPLETE SYSTEM

AWARD WINNING SOUND

24 -7 RELIABILITY

EASY TO USE

\$4995*

- Fully compatible with RADAR I and RADAR II
- 192kHz recording engine
- Integrated 100-BaseT Ethernet for networking
- Optional full-function, professional remote controllers
- No external computer required
- Graphic user interface and wave-form display
- Dual platform, real-time BeOS® operating system
- Integrated digital I/O
- Control RADAR 24® from your MAC® or PC
- Machine control (9-pin serial and MIDI)
- DVD-RAM or tape back-up options available
- Full timecode sync (SMPTE, EBU and MIDI)
- RADAR 24® is Soundmaster® compatible
- More options available online @ www.recordingtheworld.com



RADAR

T W E N T Y → F O U R



Available today starting at

\$4,995*

Get more information or buy online
at www.recordingtheworld.com
or call 1 800 776-1356

*RADAR 24 shown with optional 24-track
console and 24x4 monitor

The Way it iZ

The people at iZ Technology invented, developed and have always manufactured the RADAR® product line.

RADAR® was launched in 1992 by our team at iZ and was later distributed by Otari® Corporation. Now, Otari®'s distribution license has expired.

Our first goal iZ to have a direct relationship with RADAR® users worldwide. We are a group of professionals who have been devoted to RADAR® since we pioneered 24 track digital recording. We are committed to providing RADAR® users with a support structure that we believe will become legendary.

By adopting an industry leading direct sales, e-business model, we can now offer the award winning RADAR® 24's unequalled sound quality, reliability and ease of use for only \$4,995. This price includes the worlds first multi-track 192kHz recording engine, an enhanced graphics interface and the revolutionary BeOs® operating system.

Our award winning, third generation RADAR® 24, is a manifestation of our ongoing passion to create visionary audio products.

iZ
technology
izcorp.com

Yamaha DX7

Produced: 1983–87

Made in: Japan

Designed by: John Chowning (FM), Phil Nishimoto, Hans Yamada, Karl Hirano, P. Koeko

Number produced: 160,000

Synthesis system: digital FM

Price new: \$1,895

<i>Today's prices:</i>	<i>Like new</i>	<i>\$425</i>
	<i>Like, it's okay for its age</i>	<i>\$350</i>
	<i>Like hell</i>	<i>\$200</i>

The defining synthesizer of the 1980s, the DX7's story began in the late 1960s with experiments by John Chowning, a young electronic-music composition teacher at California's Stanford University. Chowning discovered that he could produce musically complex—and harmonically interesting—results with high-speed vibratos by modulating one sine wave with another. Thus the seeds of modern frequency-modulation (FM) synthesis were sown.

Chowning then approached Stanford's Office of Technology Licensing with his discoveries. After other American and European manufacturers turned them down, they finally convinced organ-specialist Yamaha to take out a year's exclusive option on FM.

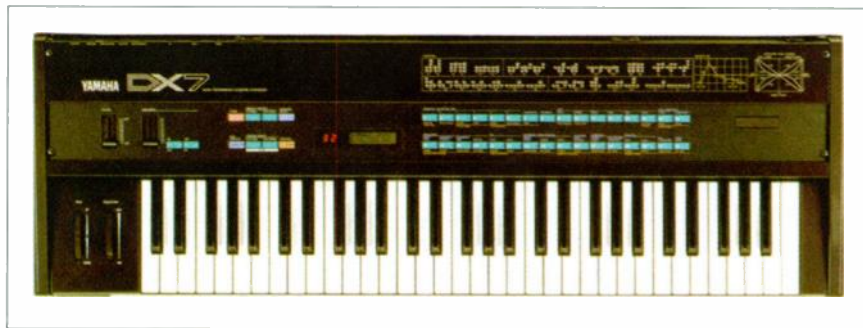
Chowning's FM theories manifest themselves in the DX7 as a series of *operators* (which you can think of as oscillators) that can be harnessed in a number of different configurations, or *algorithms*. The operators are all sine waves, and each operator can be a carrier wave (sound source) or a modulator wave, depending upon the operator's position or relationship in a particular algorithm. The DX7 can use six operators per voice; most DX-series instruments offer only four operators. (If you want to climb inside FM, check out *FM Theory and Applications*, a scholarly tome by Chowning and Dave Bristow.)

Complex? Of course. Conservatively, 155,000 of the instrument's 160,000 owners have been content to play the presets, credit for which goes to Dave Bristow, formerly of Yamaha U.K. and now with Creative Labs; and Gary Leuenberger of Leuenberger Yamaha in San Francisco. This team extracted every ounce of sonic potential from the DX7, with programs ranging from a classic Fender Rhodes emulation that entered synth folklore as "DX piano," to the sonorous collection of fretted and fretless basses, hand percussion, bells, marimbas, ripping brass, and sound effects.

The path from FM theory to the DX7 was long. The first FM instrument was the GS1 in 1981. Then, in 1983, the DX7 swept into the music stores and instantly consigned every other synth to the history books. The monaural, 16-voice polyphonic DX7 quickly became known for its unintuitive programming system and revolutionary digital sounds, especially the in-your-face, glassy, electric-piano program. Well-known users included Tony Banks, Karl Bartos of Kraftwerk, Depeche Mode, Brian Eno, Herbie Hancock, Kitaro, Talking Heads, U2, and Vangelis.

Not an object of beauty, the DX7 panel features squishy membrane switches and a minuscule display. A collection of algorithm diagrams runs along the top of the panel, so you can see the type of sound you are likely to produce using different configurations. An envelope generator and a keyboard level-scaling graphic are perched on the end.

As hot as the DX7 was in the 1980s, it was deeply out of fashion by the mid-'90s. Arguably, Yamaha unwisely splashed about terms like "operator" and "algorithm"



With 160,000 units sold, the DX7 was the first superstar synthesizer. Its subsequent fall from grace was universal and dramatic, but a modest comeback seems in the cards as new-look versions of FM gain ground.

Finally, a machine that does everything
but deliver your demo to the A&R guys.



MasterLink ML-9600™. Think of it as a complete mastering house in a box. The ultimate do-it-yourself mixing and mastering system, with features like advanced 24-bit/96kHz hard-disk recording. Built-in editing and finishing tools. And the ability to burn your choice of industry-standard Red Book or state-of-the-art CD24™ formats. Whether you're cutting a new demo, or releasing your latest hot tracks to your adoring fans. And all wrapped up in one hot little package – yet priced so low, the question isn't whether you can afford it – but how can you possibly go on living without one? So don't wait. Call 800-5-ALESIS or visit www.alesis.com today. Or better yet, just get off your musically inclined little butt and buy one. After all, it's only your career we're talking about here.

ALESIS

SL-990 BUY STUDIOLOGIC GET FREE QUIKLOK®

FREE QUIKLOK "X" STAND

retail value \$89.99

There's never been a better time to buy a pro StudioLogic 88-note keyboard controller. From now until January 31, 2001 you can get a **FREE Quik-Lok "X" stand** when you buy either the SL-880 or SL-990 controller by Fatar. Just clip our coupon from the back of the magazine, complete the information and return it to us along with a copy of your sales receipt. It's that simple. Need to find your nearest StudioLogic dealer? Call us. 1-800-431-6699

All coupons for the free QuikLok "X" Stand must be received at Music Industries Corporation by January 31, 2001. Music Industries reserves the right to make substitutions for the stand shown. To find your nearest StudioLogic dealer, contact a Music Industries sales representative at 1-800-431-6699.

SL-880 **STUDIOLOGIC**

TO QUALIFY FOR THIS STUDIOLOGIC OFFER, SALES RECEIPTS MUST BE DATED 11/01/00-01/31/01

FREE QUIKLOK "X" STAND or "Discovering Keyboards" software for PC users

retail value \$49.99

There's never been a better time to buy a StudioLogic keyboard. From now until January 31, 2001 you can get a **FREE Quik-Lok "X" stand or Voyetra's "Discovery Keyboards" software for PC users** when you buy the SL-161, CMS-161, or CMK-49 keyboard controller by Fatar. Just clip our coupon from the back of the magazine, complete the information and return it to us along with a copy of your sales receipt. It's that simple. Need to find your nearest StudioLogic dealer? Call us. 1-800-431-6699

All coupons for the free QuikLok "X" Stand and Voyetra's "Discovering Keyboards" software must be received at Music Industries Corporation by January 31, 2001. Music Industries reserves the right to make substitutions for the premiums offered. To find your nearest StudioLogic dealer, contact a Music Industries sales representative at 1-800-431-6699.

STUDIOLOGIC

DX SUPPORT

An entire third-party industry grew up on the DX7's back. Most notable and long-lasting was Grey Matter Response's E upgrade kit, which bolsters the program tally to 320, each program complete with dedicated function parameters. The upgrade improved the MIDI implementation to include Local On/Off, full 16-channel access, and wide-ranging MIDI filtering. It also added some simple tone controls and permitted patch layering.

Group Center's DX Super Max, a similarly user-installable mod, beefed up the program count to 256 and offered patch layering, function programming, and a superb arpeggiator.

Today, Dave Benson's DX7 Page (<ftp://byrd.math.uga.edu/pub/html/dx7.html>) is a gold mine of information on DX7 patches, troubleshooting tips, and tech manual downloads.

when "oscillator," "voice," or "shape" might have been less intimidating. The company also failed to provide sufficient documentation and a user-friendly interface. With no onboard effects, a quirky MIDI implementation, and a sound that was ultimately (and ironically) judged to be too flat and lifeless, the DX7 could not withstand the onslaught of multifaceted, sample-based workstations such as the Korg M1.

Nevertheless, Yamaha milked the channel with one DX spin-off after another, including the stereo DX7II. In fact, the company never abandoned FM technology, using it in SY synths and digital pianos. Toes were dipped back into the water in 1999 with the FS1r synth module, and Yamaha could be poised for a re-evaluation of FM synthesis. FM is mighty deep; when you add effects, more complex waveforms as operators, sophisticated MIDI, and real-time control, the technology still has lots of life in it.

Julian Colbeck has toured everywhere from Tokyo to São Paulo with artists as varied as ABWH/Yes, Steve Hackett, John Miles, and Charlie.

Your computer

Your mixer

Your card

Introducing WaveCenter/PCI

OK, you see what's happening: digital mixers are looking pretty cool. After all, they've got incredible sonics, built-in effects, and the automation capabilities you could only dream about before. But if you hook that puppy up to the NoiseRacket analog soundcard that came with your computer, you're right back in **** ville. (Rhymes with "Snapville.")

Here's a better idea: keep it digital with our new WaveCenter/PCI card. It has all the connections you need to integrate your digital mixer into your computer-based studio. Transfer up to 10 channels of digital audio simultaneously using ADAT lightpipe and S/PDIF, with 24-bit resolution on all channels. Use one of the built-in MIDI ports for mixer automation, and the other to connect your synthesizers.

Built from the same technological foundation that's made our Dakota card the leading digital I/O and MIDI solution for the PC, WaveCenter/PCI provides all the connections you need to integrate your PC or Mac with your digital mixer.

The perfect partner for your digital mixer

- 8 channels of ADAT optical I/O
- Stereo S/PDIF (coax or optical)
- High performance 2x2 MIDI interface
- Works with both Windows and Macintosh computers
- Fast PCI bus interface
- Direct interface for Nemesys GigaSampler software
- 24-bit resolution on all channels
- Includes Cool Edit Pro SE for out-of-the box multitrack recording
- ASIO drivers for PC and Mac

Amazing price: \$389!

Check it out online:
www.frontierdesign.com

Compatible with your favorite recording software



30-day money-back GUARANTEE

TO ORDER or FIND OUT MORE
800.928.3236
outside USA 603.448.6283
www.frontierdesign.com



FRONTIER
DESIGN GROUP

WaveCenter/PCI and Dakota are trademarks of Frontier Design Group, LLC. All other trademarks and registered trademarks are the property of their respective holders.

Miroslav Vitous Symphonic Orchestra

ILIO now proudly distributes this world-renowned collection, featuring a masterful blend of String Ensembles, Solo Instruments, Brass, Winds and Orchestral Percussion, all performed, recorded and programmed to perfection. These powerful sounds have become the benchmark for all orchestral libraries, having received scores of rave reviews from the world's brightest critics. Find out why for yourself!

"Nothing could have prepared me for the sound I heard as I began to play. It felt for all the world as if my fingers were being led from one key to the next as I played. The sounds were vibrant and bright, dry and ready." —Proler

CD-ROM prices range from \$349 to \$3899
Akai, Roland, Emu EOS, Kurzweil, SampleCell, Gigasampler

SAMPLIFY.

Sounds that soar.

Programming that's precise.

If you just want sounds,
you can go most anywhere.

If you want unique, inspired
and totally professional
sounds, there's just one place.

ILIO makes and sells
exceptional sample libraries,
recorded in the world's best
rooms, and programmed by
musicians obsessed with
getting it right.

So why mess around with
your music?

Call us...
Or check us out online
www.ilio.com

Ethno Techno

NEW



Presenting a **Groove Masterpiece** from world famous drummer/percussionist **Bashiri Johnson** and producer **Eric Persing**. Ethno Techno is a new kind of groove library, with sounds that are organic, metallic, deep and glassy. The grooves were created using a mixture of radical, welded instruments, some "junk" percussion, and more traditional skins and sticks. The instruments were played live by Bashiri and friends (including a member of STOMP) with an emphasis on modern dance/pop and urban styles. Persing then used these raw materials to create the remixes, flowing with spacious ambience, round impacts, and laid-back to aggressive feels.

Mixes, Elements and Remixes, all **Groove Control** activated, which means you can instantly adjust the tempo, feel, pattern and mix of every groove using your existing sampler and sequencer. It's so easy! Multisample one-shot menu too. Don't miss it!

"Bash is the man. I highly recommend Ethno Techno for those who don't have access to the man himself." —David Morales, Grammy nominated artist/remixer/DJ

CD-Audio 2-disc set (without Groove Control) \$129

CD-ROM multi-disc set (with Groove Control) \$299
Includes sampler CD-ROMs and Data CD
Roland, Akai/Emu, Kurzweil

TranceFusion

Swirls, sweeps, textures and delirium!

A bottomless well for remixers, electronic gurus and scorers, this disc features huge, evolving swishes and glides perfect for transitioning from one groove to the next. Tons of climbers, noise and percussion sweeps, and spectral effects ranging from 3 to 30 seconds long! You'll also get thick lasers and stabs, trippy arpeggios, unheard-of textures, lunacy and vocal madness. "This is a product whose time has come... awesome... TranceFusion's creators certainly knew what they were doing..." —KEYBOARD 10 of 10 rating. **Key Buy Winner!**

CD-Audio \$99
CD-ROM \$199 (includes Audio CD)
Akai/Emu/Kurzweil, Roland, SampleCell



Skippy's Big Bad Beats

From producer/programmer **John "Skippy" Lehmkuhl**, one of the true gurus of groove, comes an explosion of unique, hi-fi, funkified drum loops. Skippy uses his wacky imagination to create **hip hop, trip hop, and dance** grooves that come in a variety of flavors, including smaller mixes, no-kick, no-snare, and even breakdown versions! Plus, this library is entirely **Groove Control** activated, meaning you can load any of these grooves into your sampler and have completely **Independent control** over **tempo, pitch**, and even the **feel** of the grooves, using just your sequencer and sampler.

★★★★ "If you're looking for some very 'now' sounding loops... Big Bad Beats will not only deliver, but might even represent the future of the sample CD." —SOUND ON SOUND

CD-Audio (without Groove Control) \$99
CD-ROM (with Groove Control) \$199
Includes sampler CD-ROM and Audio/Data CD
Roland, Akai/Emu, Kurzweil



Hot Steel Blues

From the producer of Fingerstyles comes a hot new library, full of sizzling electric and acoustic guitar riffs. You'll find over 800 phrases divided into Patterns, Melodies and Endings and arranged into Construction Kits that can be assembled and mixed to create complete, seamless tracks. Both "plugged" and "unplugged" styles traverse the entire Blues genre, from Waters to Clapton.

Guitars include vintage Gibsons, Fenders, Martin, Lap and Upright Sides. Great playing, recorded to ILIO spec! Put the sauce of real guitar in your remixes and tracks!

CD-Audio \$99
CD-ROM \$199 (includes Audio CD)
Akai/Emu, Roland, Kurzweil



Virtuoso Strings

The Virtuoso Series Strings by Kirk Hunter has already become a classic. Recorded in LA by top musicians, it offers a variety of articulations previously unavailable, like **grace-note slides and repeated notes**. Plus various vibrato styles, a true **Sordini, hard and soft attacks, half and whole step trills** and much more! It features Violins with 24, 8, 2 players, and solo, Violas with 16 players, Cellos with 10, 6, 2 players or solo, and Basses with 5 players. A whole new category of string library!

"These are the smoothest and most ambient sampled strings I've ever heard! The programming is really creative. I can now finally get some really expressive performances from a string sample library!" —David Newman, Academy Award Nominated Composer

CD-ROM Multi-Disc Set \$995
Akai, Roland, SampleCell, Kurzweil, Emu EOS



Interactive Drum Kits

All Acoustic Drum Kits with a mega multi-sampling of kicks, snares, toms, hats and cymbals, from old Ludwig®, and Gretch® sets to new top of the line Pearl®, and Drum Workshop® kits. All hits (no loops). These are extremely realistic drums that you can whack from your keyboard or with your drum pad/triggers. The vintage and custom kits were performed by some of the world's top session drummers. Interchangeable snare programs feature 20 to 50 hits per snare for realism from center, to edge, to rim!

CD-ROM \$199
Akai, Roland, Emu EOS, Kurzweil, SampleCell



Vintage Timetraveler

This disc is packed with the coolest vintage sounds from the 60s, 70s and 80s. Features B3 Organs, Distorted Leslie Organs, Vox Continental, Farfisa, Optigan, Orchestron, Mellotron, Novatron, Chamberlins, Wurliizers®, Rhodes®, RMI, Planet, Clavinet, Arps, Moogs, Prophets, Jupiters, PPG, OSCar, Gleeaman, Modular Synths. Plus, Vibrato Fuzz Guitar Stack, Talk Box Guitar, Various Guitar FX, Ricky 4001 Bass, Fender 62 P-Bass, Hofner "Beetle" Bass, Vintage Acoustic Drum Kits, Classic Drum Machines, more.

"...remarkable..." —KEYBOARD

CD-ROM \$199
Akai, Roland, Emu EOS, Kurzweil, SampleCell





Distorted Reality 2 "Darkness & Light"

The completely new adventure in sonic dementia from producer

Eric Persing is here at last! DR2 was created with the very latest in sonic sculpturing technology. Spinning metallic textures, singing oceans, vast amounts of unique loops (50-480 BPM!), impacts, pads, subsonic low-end and the

many joys of feedback only begin to describe the wonderful noises in this collection. If you are a fan of volume 1, your sonic arsenal is simply incomplete without "Darkness & Light."

"Spectrasonics had a lot to live up to with DR2, and they didn't disappoint!"
—KEYBOARD **Awarded Key Buy!**

★★★★ — SOUND ON SOUND

CD-Audio \$99

CD-ROM \$199

Roland, Akai/Emu, SampleCell, Kurzweil

Hans Zimmer Guitars Volume 2

This brilliant follow-up to Volume 1 raises the bar in recording, sampling and programming techniques, perfected by veteran sound designer, Bob Daspit. These instruments feature velocity switching for both up and down slides, and an intuitive new method for controlling vibrato with dynamics. It's beautifully

programmed and a thrill to play. Volume 2 features Jazz Hollowbody Guitar, Lap Steel Slide Guitar, Electric Baritone, Flamenco Nylon, and a killer new Steel String Acoustic. Plus, check out the rare Middle Eastern, South American and other world instruments like the Charango, Mandolin, Cavaquinho, Cuatro, Oud, Saz, Electric Sitar, Cumbus, and Yayli Tambur. All are amazingly captured in this stunning new release!

★★★★ "... a must-have disc for anyone needing first-class plucked instrument sounds... this collection deserves all five stars."
— SOUND ON SOUND

CD-Audio \$ 99

CD-ROM \$299

Roland, Akai/Emu, Kurzweil, SampleCell

Bizarre Guitar

Sound designer Eric Persing and guitarist Peter Maunu blaze a new trail of sound design via guitar. It features the extreme contrasts of breathtakingly beautiful **ambience beds** and **searing harmonic slashes**, bowed guitar, **strange funk** and **unsettling washes**. Created with tape loop techniques, e-bow, the Roland VG-8, and cutting edge signal

processing tricks, you won't believe your ears. The CD-ROM version includes selected Groove Control™ loops.

"... The range of sonic ideas is vast... brings to mind the dreamlike soundscapes of Fripp and Eno... an audio addict's dream come true."
— KEYBOARD

"... meticulous attention to detail... perfectly suited to ambient and film music... Bizarre Guitar will appeal to those who like Distorted Reality, providing a wealth of strange and beautiful sounds."
— SOUND ON SOUND

CD-Audio \$99

CD-ROM \$199

Includes sampler CD-ROM and Audio/Data CD
Roland, Akai/Emu, Kurzweil, SampleCell

Retro Funk

Spectrasonics takes Retro into the future! Producer Eric Persing has created a collection of Classic 'ive drumming with serious feel, vintage sonic and a huge variety of original drum grooves and fills from four incredible drummers! These authentic sounding loops are ultra-flexible, bringing that magic "vibe" to any modern track. And with

Groove Control, the grooves are at your command, effortlessly blending their timing and human feel to match your music.

Intros, Fills, Breakdowns and Variations are provided along with separate Claps, Cymbals and funky live Percussion loops too!

★★★★ "... amazingly useful... infectiously musical... a fantastically wide range of drum sounds... amazingly light and powerful... 'must sample' sound quality... one of the best!"
— SOUND ON SOUND

CD-Audio (without Groove Control™) \$99

CD-ROM (with Groove Control) \$199

Includes sampler CD-ROM and Audio/Data CD
Roland, Akai/Emu, Kurzweil



Burning Grooves

Finally, a drum library that delivers maximum impact. Killer kits & blazing live grooves laid down by L.A. flame-thrower **Abe Laboriel Jr.** (k.d. Lang, Seal, Jeff Beck), with creative remixes by producer Eric Persing. If you're looking for attitude,

search no further! ★★★★★ "A slammin' combination of drum kits & loops... Sizzling cymbals & punchy drums... Expressive & realistic kits... killer beats... rock-solid playing... Excellent."
—KEYBOARD

"The quality of both the playing & recording is first class... Impressive!"
—SOUND ON SOUND

★★★★ — ELECTRONIC MUSICIAN

CD-Audio \$99 (grooves only)

CD-ROM \$199

(grooves and kits)
Roland, Akai/Emu, Kurzweil, SampleCell

Liquid Grooves

Now, more "liquid" than ever! The unique and inspiring grooves from the timeless library "Liquid Grooves" are now available in a Groove Control™ version. This revolutionary new method allows you to mix and match grooves in any tempo, and will follow tempo changes from your sequencer! Groove Control also allows you to change the pattern, feel and pitch of the rhythms to your music. Imagine being able to tune the

Wavedrum™ grooves to the key of your song in real-time, without changing the rhythm! Program your own original patterns and fills with the same sounds and mixes from this library!

★★★★ "The standard of the sounds and their rhythmic content can't be praised enough, and making all this available in the Groove Control format has extended their usefulness enormously."
— SOUND ON SOUND

CD-Audio (without Groove Control™) \$99

CD-ROM (with Groove Control) \$199

Includes sampler CD-ROM and Data CD
Roland, Akai/Emu, Kurzweil

Call about our special Upgrade price!



Bass Legends

Marcus Miller, John Patitucci & Abraham Laboriel present their coveted electric and acoustic basses & grooves on this critically-acclaimed 650 meg collection.

TRIPLE ★★★★★ review "... a truckload of great multisampled basses ... Definitely put this one on your list of must-haves!"
—KEYBOARD

"... superb... well organized, exquisitely recorded, and brilliantly performed."
—ELECTRONIC MUSICIAN

CD-Audio \$99 (grooves only)

CD-ROM \$299 (basses and grooves)

Roland, Akai/Emu, SampleCell, Kurzweil

Symphony of Voices

A massive FOUR CD-ROM SET, which includes a variety of multisamples, phrases & fx from some of the world's most prestigious singers

• **The London Choral.** 80 voice choir with multisamples and fx
• **English Boys' Choir.** solo and ensemble

multisamples and phrases
• **Classical Soloists**
Operatic tenor and soprano phrases and expressive multisamples of each soloist
• **Gregorian Men's Choir**
Multisamples and ancient Chants
• **Lush Multitracked Pop Stacks**
"Enya-esque" pads

"... simply stunning... without a doubt the ultimate library of choral samples."
—KEYBOARD 10 of 10 rating. **Awarded Key Buy.**

★★★★ "... the definitive vocal sampling work."
—SOUND ON SOUND

CD-ROM \$499 4-disc set
Roland, Akai/Emu, Kurzweil, SampleCell



T-Racks

PUT THE "ANALOG" BACK INTO YOUR DIGITAL MIXES.

Introducing T-RACKS, an amazing software processor built with actual physical models of tube circuitry.

- Mastering software with 3 dedicated analog processors
- State-of-the-art six band parametric equalizer
- Classic stereo tube compressor/leveler with stereo enhancer
- Multiband master stereo limiter
- Physical modeling with true tube emulation
- High quality, real time preview and processing
- 32 bit floating point resolution
- Analog, easy to use interface
- Fade-in/fade-out/song markers
- Snapshots and presets
- Mac/PC, supports WAV, AIFF, SDII
- Compatible with all popular audio cards (Digital I/O suggested for even better quality)

"It's impressive to find a digital program that does such a good job of providing analog warmth and punch. A very well thought out product." — Ric Wilson, Grammy winning mastering engineer.

"Not only the best digital compressor I've ever used, but one of the best compressors period! The Stereo Enhancement is outstanding. The real strength of this product is how musical it is." — Eric Persing, Sound Designer, Spectrasonics



800.747.4546

www.ilio.com

More great products from

ILIO



ILIO Entertainments

PO Box 6211 • Malibu, CA 90265

tel. 818.707.7222 • fax. 818.707.8552

GET A FREE CATALOG AND DEMO CD!

License to Groove

The Mind Club of Sacramento, California, has a musical style that descends from Medeski, Martin, and Wood; John Scofield; and the Meters. The band's debut album, *Spygroovin'* (Fang Boy Records, 2000), evokes Scofield's 1998 album *A Go Go*. It also celebrates spy thrillers of the 1960s and 1970s, such as the BBC TV cult classic, *The Avengers*. Founder Greg Williams describes The Mind Club's music as "acid jazz/groove rock with elements of ambient dance music, modern and minimalist classical music, and instrumental surf rock."

The band—consisting of Williams (guitar), Scott Reams (keyboards and saxophone), Dave Garrity (bass), Creed Maggiora (drums), and Mario Sebastian (percussion)—is busy performing at nightclubs in Northern California. *Spygroovin'* is not a document of the band's work; rather, the band is a manifestation of the album's music. "Part of the inception of the band was my early experiments with computer recording, forming a band around some of the stuff that I was writing," says Williams, who at the time was working towards his bachelor's degree at California State University, Sacramento.

Sonic Foundry's *Acid* lured Williams into the world of desktop music. "*Acid* was pretty much the first piece of software I started using," he says. "Before that, I was just a four-track guy." He composed basic tracks using *Acid*, Spectrasonics' *Liquid Grooves* and *RetroFunk* sample CDs, and drum samples that he downloaded from the Internet. "Typically, I would have an idea for a melody and a groove, and start from the ground up using *Acid* as a sketch pad, and then record [those ideas] into Cakewalk [*Pro Audio 9*]," Williams says. He used an Alesis QS6.1 synthesizer to create MIDI tracks in *Pro Audio*. Maggiora played drum grooves on the QS6.1 and he also helped arrange drum tracks.

After creating the arrangements in Cakewalk's *Pro Audio*, Williams enlisted his musician friends to

Amid a true Acid test, The Mind Club pieces together its vision.



replace many of the MIDI parts he composed. "Everybody's parts were better than mine, so we rerecorded parts that the other players had created to get more of a group vibe. We would learn the song and make adjustments.

"The entire thing was recorded in one bedroom of a house," Williams says. "The system is set up around a Pentium III 450 [MHz] with 128 MB of RAM and a 13-gig hard drive. I use the Sound Blaster Live card that you can get for \$40. All of the guitars were done direct through my Line 6 Pod." Williams processed his guitars through two Electro-Harmonix effects units—a Micro Synthesizer and an Electric Mistress flanger—to achieve his preferred lo-fi sound. He captured live performances with an Audio-Technica AT4033A cardioid condenser mic and an A.R.T. Tube

MP mic preamp, which he plugged into his sound card.

Spygroovin' took nine months to complete, "an obscene amount of time to create that kind of organic human groove as a result of cutting and pasting different parts," Williams says. "As a composer, I'm drawn towards minimalism and a trancelike feel in the music." To keep the grooves sounding fresh, Williams says that he "used layers of percussion, [plug-in] effects, and volume to create variation without disturbing the groove."

Williams and Reams shared engineering and troubleshooting duties, using Reams' Waves' *Native Gold Bundle* plug-ins to apply the finishing touches. "I don't even own a mixer,"

Williams says. "I mixed it all in Cakewalk with a mouse. Friends ask me, 'How can I record my band's music like that?' I tell them, 'If you're a person who leaves projects unfinished, it's never going to happen, because this type of thing takes so long. But the rewards are great.'"

For more information, contact Fang Boy Records; e-mail gwilliams@csus.edu; Web www.themindclub.com.



Spygroovin'/The Mind Club

Burn Your Own CDs

Yamaha A-series samplers are the only ones that can be hooked directly to a CD recorder so you can easily create native format CD-ROMs or burn your own audio CDs - complete with DSP processing.

A Universe of Sounds

Both new Yamaha samplers come bundled with 9 CD-ROMs loaded with studio quality sounds. And, since you can never have enough, both have a built-in SCSI interface and compatibility with Akai, E-mu, Roland, AIFF, and WAV CD-ROMs. No sampler on the market has that kind of total compatibility.

Mo' Better FX

A-series samplers have more effects and more effects blocks. The 96 different effects, on both the A4000 and A5000, is 25 more than the nearest competition. Actually, rivals in the A4000's price range don't even come with effects!

Killer Specs

The A5000 features 126 note polyphony and 6 effects blocks. The A4000 sports 64 note polyphony and 3 effects blocks. Both can be expanded up to 128 MB of RAM and have 16 different filter types, EQs for each sample, MIDI synched LFOS and so many MIDI controls, they equal dedicated keyboard synths.



The New Yamaha A-Series vs. Akai®, E-mu® and Roland®. The Real Winner In This Competition Is You.



Whether you're a dance remix producer who wants to take advantage of all the cool loop-based features like BPM Time Stretching, Beat Remix and Loop Divide, or a studio player or producer who needs access to a huge library of top-quality instrumental sounds, the new A-series samplers come with everything you need. And at \$1595 MSRP for the A4000 and \$2295 MSRP for the A5000, their price performance is unbeatable.

So before you go out and buy one of the competitors' products, you owe it to yourself to try the newest and best sampler line up on the market. We're confident that once you compare us to the competition, you'll realize Yamaha samplers are the clear winners. And so are you.

Manufacturer's Suggested Retail Price

New Third Party Releases!

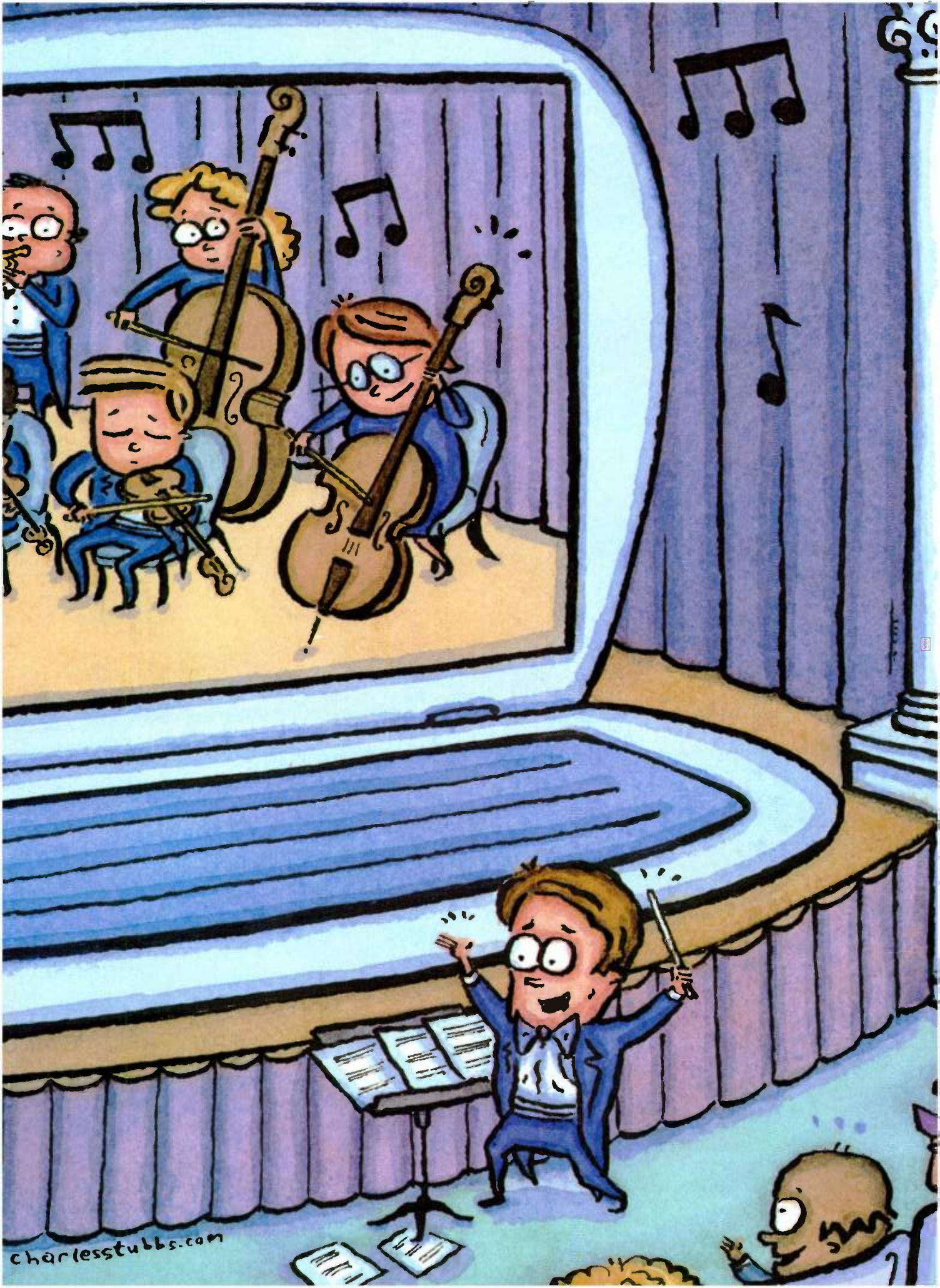
East/West • Bob Clearmountain Drums I, Percussive Adventures, Quantum Guitars. *Sampleheads* • Peter Erskine-Living Drums, The Will Lee Bass Library, Whole Lotta Country. *Q Up Arts* • Ambient Realms, Dream Experience, Voices of Native America I. *Ilio/Sonic Reality* • Vintage Time Traveler, Concert Grand Pianos, Interactive String Section, American Heartland. *Big Fish* • Prosonus Orchestral Collection, Vintage Keyboards, Roots of South America.

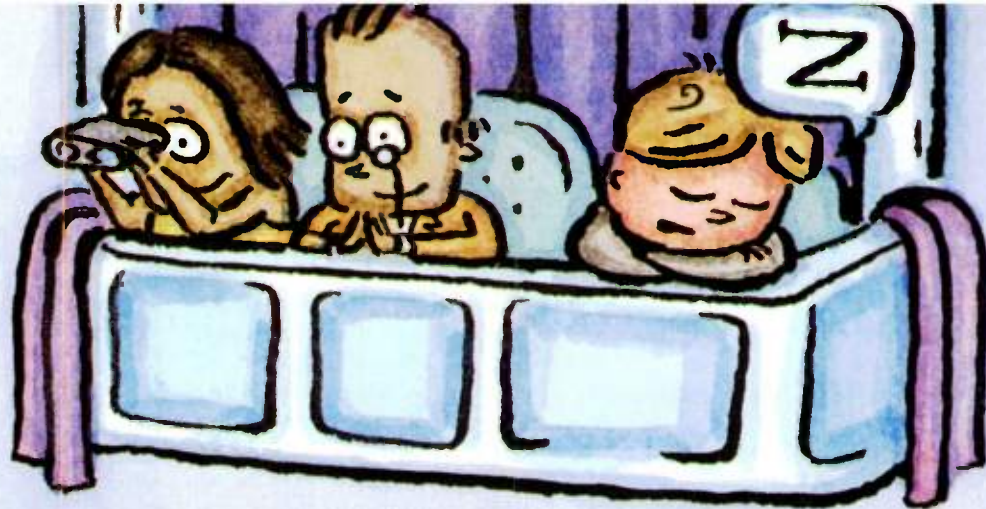
Check The Third Party For Release Date Details.



Call (800) 932-0001 ext. 642 for literature. ©2000 Yamaha Corporation of America, Digital Musical Instrument Department, P.O. Box 6600, Buena Park, CA 90622-6600 www.yamaha.com

All trademarks are property of their respective companies.





Score with QuickTime 4

Most professional sequencers feature the ability to display digital video with synchronized sounds and music. This lets composers and sound designers take advantage of a wide range of familiar audio tools for projects that require scoring to picture. The video format used with these high-end sequencers is almost always QuickTime, because it is by far the most powerful, flexible, and ubiquitous engine for delivering multimedia content to desktops and the Internet.

According to Apple, QuickTime 4 has been downloaded more than 50 million times and is installed on more than 100 million machines. Because the software incorporates streaming and compression technologies, it is practically the de facto industry standard for digital movies on the Web.

By Neil Leonard III

Learn the art of
film scoring with
QuickTime movies.

Cross-platform portability is one of QuickTime's greatest strengths. It works on any PowerMac running Mac OS 7.5 or better, where it is implemented as a set of OS extensions. On PCs, the system consists of dynamically linked libraries and requires a Pentium processor, Windows 95 or later, a Sound Blaster-compatible sound card, and Microsoft's DirectDraw and DirectSound. You can control QuickTime with Java applets, making it an ideal platform for delivering audio and video to interactive Web sites.

So, if you aspire to be the next John Williams but don't have the backing of a Hollywood movie studio, you might try writing scores for QuickTime video clips first (see Fig. 1). You can use the same techniques as the big shots to produce a film score that is locked to picture yet is small enough to be posted on the Web. Aside from your desktop MIDI studio, all you need is *QuickTime Pro* to get started.



available to download from the Web—everything from dancing babies to Hollywood movie trailers.

When my Berklee students express an interest in writing for picture, I always recommend that they first put together a 1- to 2-minute demo that shows off their best work. It's best to start with a short but strong portfolio piece, rather than a longer sequence that may end up seeming incomplete or weak in areas. After knocking your audience dead with a hard-hitting opener, you can present a more involved piece that is 4 to 5 minutes long.

Ideally, you should tell a story with your score, support the video images, or fill in parts of a narrative with background ambience. It is particularly exciting and challenging to score a clip that moves through several different moods or invokes a variety of psychological states. To produce this effect, you must vary tempo, dynamics, and tone colors to create music that dramatically underscores the action onscreen. The point is to demonstrate your ability to skillfully tailor engaging musical scores to a director's vision.



FIG. 2: Apple's *QuickTime Player* application offers a variety of tools for creating and editing video clips and soundtracks.

motion, full-color digital video places enormous demands on a computer's processing power, much more so than digital audio. Red Book audio (16-bit, 44.1 kHz, stereo) requires about 10 MB of storage for each minute of sound, whereas broadcast-quality video demands a whopping 36 MB for each second. That's an awful lot of data for the average desktop machine to move continuously from disk to video RAM.

You must cut the video bandwidth down to a reasonable rate (say, a few hundred kilobytes per second) if you want to use a video clip with your sequencer. This prevents excessive disk reads of enormous files, and it significantly reduces the load on your computer's CPU, which must simultaneously run MIDI, audio, and QuickTime. Moreover, it must process everything smoothly and in sync. Fortunately, the *Pro* version of *QuickTime Player* provides many features specifically designed to create high-quality, low-bandwidth versions of QuickTime movies for reference and for posting on the Web.

You can squeeze a movie down in many ways, though each degrades the quality to a certain extent. You can remove unused data, reduce the frame size, decrease the graphics bit

QuickTime is available as a free download from Apple's Web site (www.apple.com/quicktime). The latest version, 4.1.2, installs the required system extensions, *QuickTime Player* (see Fig. 2), and an encrypted version of *QuickTime Pro*. You must unlock the *Pro* software with a code purchased from Apple for \$29.99, which enables the Save and Export features in the *QuickTime Player* application. You can then create a video clip, write a music score for it, and export a high-quality, low-bandwidth movie for Web distribution.

VIDEO CLIPPING

The best way to begin is by developing your writing chops on short video clips, which you can acquire in various ways. If your computer system has an analog or digital video input, you can capture video segments from a VCR or DV camera. In addition, a variety of shareware utilities (called *rippers*) let you import video directly to your hard disk from an internal DVD player. Of course, a great many QuickTime movies are

BANDWIDTH BLUES

After you select a video clip to score, you should make a low-resolution reference version of it to use with your sequencer. Displaying full-screen, full-

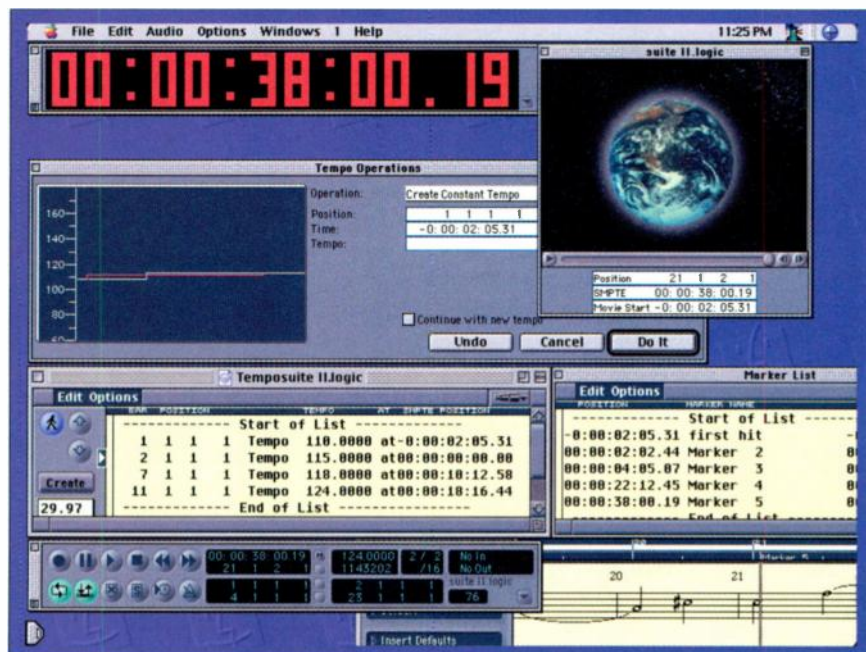


FIG. 1: Emagic's *Logic Audio* is one of several pro-level sequencers that let you synchronize QuickTime movies with music tracks.

VIENNESE TWINS

**C3000B
STUDIO MIC**



**C3000B
STAGE MIC**



ONE MICROPHONE • MULTIPLE PERSONALITIES

The New
C3000B

FOR STUDIO OR STAGE



A Harman International Company



there is one). Go to the Edit menu and select Delete Tracks; if a Sound Track is present, delete it to create a "silent movie."

You can also edit out unwanted video, such as leading and trailing footage or glitched frames and scenes. Select a region of the video for editing by positioning the triangles underneath the progress bar in the *QuickTime Player* window (see Fig. 2). You can also hold the Shift key and drag the cursor across the bar itself. The selected area becomes highlighted, so you can cut, copy, or paste the video to suit your needs.

When the clip is down to its bare essentials, select Save As from the File menu. You will be asked whether you want to Save Normally or Make Movie Self-Contained. The first option creates a "pointer" file that contains information about the movie and the edits you made, but lacks the actual video data. This allows for efficient file storage, because you could conceivably have multiple movie versions based on the same video images. For this situation, however, you want to apply the changes you made to the data (cutting out the unused parts), so choose the Self-Contained option. This creates a flat file that includes all the necessary data in one bundle. This format is cross-platform compatible and Windows friendly.

SHRINKING THE VIDEO

Now that your clip is in its final edited form, use the Export command in the File menu to produce a new low-bandwidth video clip for your sequencer. The Export dialog box provides access to a variety of output parameters that control *QuickTime Player's* extensive file conversion and compression features. For example, you can export a QuickTime movie as an AVI file for Windows or as a digital video stream, and you can export the soundtrack as an AIFF or WAV file at various sampling rates and resolutions. For this situation, select Movie to QuickTime Movie, because you want to end up with an MOV file.

Click on the Options button in the Export dialog box to open the Movie Settings dialog

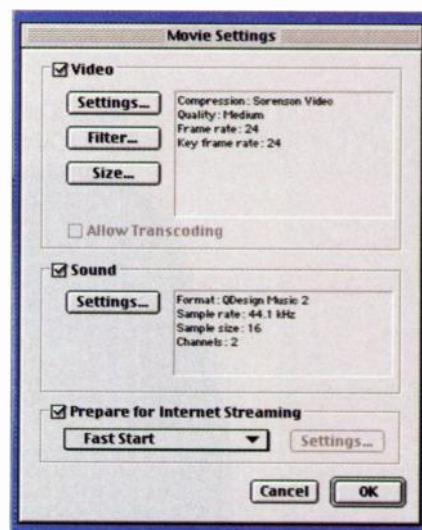


FIG. 4: The Movie Settings dialog box provides access to a number of video and soundtrack parameters.

box (see Fig. 4). The Video and Sound settings displayed on the right do not necessarily represent the current movie format; they're simply suggested values for export. In the Video section, click on the Settings button to open the Video Compression dialog box, which lets you choose from a number of bit-squashing algorithms. Use Apple's standard Video codec for now, because it quickly encodes the data.

You can try the Sorenson Video compression scheme if you prefer; it's one of the most efficient in terms of file size and online transfer time. But be aware that it requires an enormous amount of computational power. The version that ships with *QuickTime Player* can take as long as 30 minutes to encode a single minute of 240×180 , 30 fps video on a reasonably speedy machine. Sorenson sells a *Pro* version of its encoder, however, that is much faster and provides access to a number of additional processing parameters.

Regardless of which compression scheme you choose, set the Frames Per Second field to the original frame rate. (Refer to the Frame Rate from the Get Info dialog box for this number.) Leave the other parameters at their suggested values. Now go back to the Movie Settings dialog box and click on the Size button in the Video section to open the Export Size Settings panel. Set the frame size to 160×120 or 240×180 , particularly if you intend to work at 30 fps, because this has a minimum

depth, and apply various compression algorithms.

First, take a look at what you're starting with: Open your video clip with *QuickTime Player* and choose Get Info from the Movie menu. This opens a small window that presents a lot of detailed information about the movie and provides access to useful parameters. A pop-up menu in the upper left corner lists the tracks associated with the movie. In the upper right corner, another pop-up menu lets you view the parameters relevant to each type of track. The Movie option displays general performance data and copyright information. The Video Track option displays information about your clip's screen size, color depth, frame rate, duration, bandwidth, compression, and other important details. The Sound Track option displays several important parameters such as sample rate, resolution, duration, compression scheme, and volume settings (see Fig. 3).

PREPPING THE VIDEO

To reduce your video clip's size and bandwidth, you should first remove unwanted data. Because you'll be writing your own score, you don't need to keep the original soundtrack (if

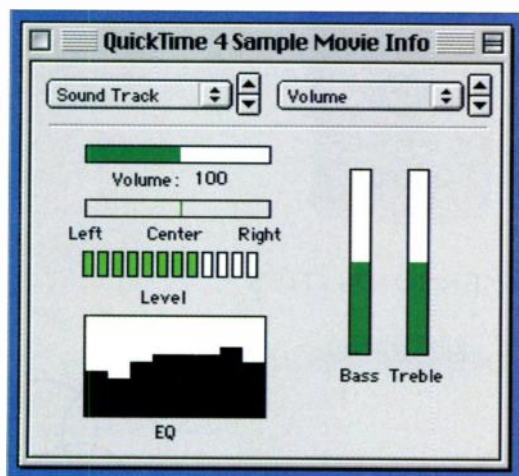


FIG. 3: The Sound Track option in the Get Info dialog box lets you set a number of audio parameters such as volume, panning, and EQ.

A wall of sound is good. A world of sound is better.



Instant Access to the Sounds You Need.

Welcome to Sonomic. A whole world of **sound FX** and **samples** delivered online – right into your studio. All digital, searchable and downloadable in seconds. Take a minute. Find out how easy it is to select exactly the right sound – without running around. Visit www.sonomic.com and come see us at NAMM.



our partners:

©2000 Sonomic, Inc. All rights reserved. 1-877-SONOMIC

TITUS

digital sounds

99 excess

numerical sound

CLACK!



GA

DOUG BECK MUSIC

WRB

What is the resolution of EGO·SYS for the NEW YEAR ?

Thank you for all the attention you have given to us. All of EGOSYS staffs greet Happy New Year to valuable customers and promise to produce what the users need most for the music production.



GIGASation - Turn your computer into an 8 channel out Giga byte sized sampler. Supporting GSI/F and ASIO drivers for instantaneous audio output. Bundled with Gigasampler SE, GigaPiano and GM500 sound set CDs.



Audioterminal 010 - Universal digital format converter / interface. Unite incompatible digital audio devices with Audioterminal 010. Provides ADAT, TDIF, R-BUS and S/PDIF digital connectors in one unit. Additional MIDI I/O supplied and an add-on Sound Card enables analog monitoring.



Look ahead and get geared with top-notch digital audio devices from EGO SYS. With the drawing of new era, EGO SYS introduces new products initiated from advanced idea.

Unifying digital audio format converter/interface audioterminal 010 will lead you to new possibility of digital audio working environment. Variable MDRs now can understand each other. At last you can choose the devices at your own needs not by the types of digital connectors

Software synthesizer technology gets more advanced and they now can even beat the quality of hardware based synth sound. GIGASation is the perfect device for this purpose. provides 8 channels of output along with one S/PDIF Coaxial digital output. It is designed to draw maximized performance from Gigasampler by employing GSI/F driver. Also, ASIO driver supporting make possible to use numerous VST instruments.

EGO·SYS

Distributed by **THINKWARE**
egosys@thinkware.com

Distributor & Techsupport in U.S. egosys@tracertek.com
 **Tracer Technologies, Inc.**

Tel : 1 - 717 - 843 - 5833
Toll Free : 1 - 888 - 8 - TRACER
Fax : 1 - 717 - 843 - 2264

Quest for the Best D.A.S.

Optimized for

- Listening MP3 at higher quality
- Delivering true 5.1 channel DVD surround sound
- Playing Virtual synthesizers
- Broadcasting on Internet
- Home Studio (recording, editing, mixing)

"Next step in digital audio system, First step into professional hard disk recording."

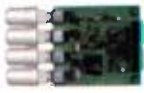


MAYA

- Low-latency audio card
- Ideal for Virtual Synthesizers
- ASIO2.0 Driver, GSIF Driver
- Mic Preamp with Phantom Power Supply
- Digital output for Mastering



Professional quality PCI digital audio card - MAYA
 AUDIOTRAK introduces MAYA: A classic audio card featuring superb compatibility with recording software and virtual synthesizers. All the functions you need from a conventional sound card plus what you want from a serious music production environment. MAYA provides analog 2in/2out ports, S/PDIF Optical digital output and MIC In with Phantom power supply. More and more PC users are looking for a better quality audio card for every day use in their computer system and while music production is getting more popular and affordable, MAYA is the perfect solution for the needs of professionals in the market with ASIO 2.0, Gigasampler, Directsound and MME drivers.

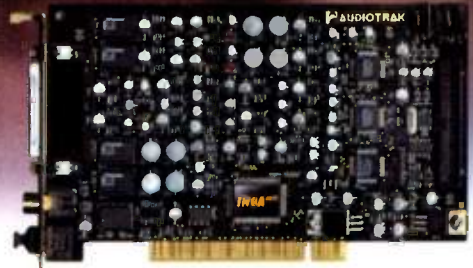


Miditrak2120
 2In / 2Out Optional MIDI Interface can be connected to MAYA(INCA88) internally without consuming additional slot.



INCA⁸⁸

- 8 in 8 out Full Duplex
- Dual headphone outputs
- Instantaneous virtual instrument playing
- Fantastic software bundle
- Recording to MD, DAT, CD recorder via digital output



8 in 8 out INCA88 with Cubasis VST and Gigasampler LE !!
 Revealing a powerful digital audio card with analog 8 In / 8 Out capabilities of its breakout box for convenient connection. Multi-channel I/O capability is only one of its stunning features. Dual MIC Preamps and dual headphone amps are employed to provide live recording sessions without the need of an external mixer. S/PDIF Coaxial & Optical digital output ports make it possible to transfer stereo mixed signal to the final mastering media - DAT, CD-ROM, MD and etc. INCA88 Special Introductory Package will lead you into the world of hard disk recording with all the elements you ever wanted.

* AUDIOTRAK is the new 'name', introducing professional featured equipment at affordable price.



Small in size yet, powerful digital amplifier
 Promising clear sound quality
 High efficiency / Low power consuming
 Easy Installation

from Audio card →

Speakers ←



CARDamp

- Output : 20Watts X 2
- THD : less than 0.05 %
- Frequency Response : 15 Hz~ 50kHz
- Efficiency : 85 %
- RCA type input (L/R) - gets the signal from audio card
- 1/4" phone jack type output (L/R) - sends the signal to the monitor speakers

* You must use 300W or higher computer power supply to use Cardamp in your system.

YOUR IDEAL SOLUTION

AUDIOTRAK.NET



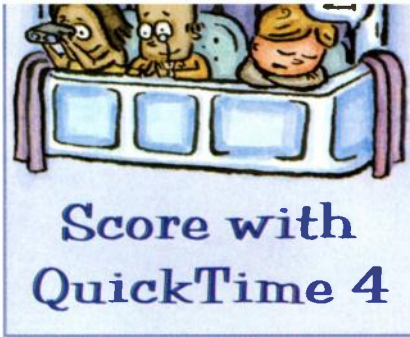
www.audio-magic.com



computers for:
musicians
producers
composers
engineers
remixers
DJs



1.877.252.7047



burden on most machines. If you have a speedy CPU and a big monitor, you can try using the 320 x 240 resolution for better clarity, but remember that QuickTime will not solely compete for processor time.

In general, the object is to decrease your clip's bandwidth to a point where the QuickTime, MIDI, and audio drivers run smoothly and synchronously. When you've squeezed the clip as much as you can, click on Save to apply the changes. The final QuickTime movie should be appreciably smaller than the original, and the required bandwidth should be greatly reduced.

OPEN THE WINDOW

After you import the video clip into your sequencer, create a MIDI tempo map. This lets you determine how many music measures are required for each section of the clip that needs to be scored. Although the names and locations within the programs may vary, the basic commands and their uses are similar for most sequencers, so I'll describe the process in general terms.

When you import the QuickTime movie to your sequencer, it typically appears in a dedicated "floating" window that is always visible—a useful feature if you only have a single monitor. The sequencer's transport controls are usually linked to the movie window so that the audio track and the video images are always locked in sync. The window size varies depending on what you focus on and how much onscreen real estate is available. It's a good idea to keep the movie in the upper right corner (see Fig. 5).

Next, you should display the SMPTE time in a separate window using big bold numbers. That makes visibility and editing easier. You might also need to set the frame rate

of your sequencer to match that of the QuickTime movie. If your original clip was recorded at a low rate, such as 10, 12, or 15 frames per second, set the sequencer's rate to some multiple of that number, for example 24 or 30 fps. This does not affect the frame rate of your final exported movie because the setting is only used for recording audio and MIDI.

ON YOUR MARK

The next step is to mark the frames where you want the music to change or align to specific beats. For example, if you want the suspense music to start when the villain opens a door, mark the shot of the doorknob turning. If you want a character to tiptoe in time to the soundtrack (like Wile E. Coyote), mark the footsteps. The commands for doing that vary from sequencer to sequencer, but the principle remains essentially the same.

Set a marker at your video clip's first frame and name it something meaningful like "start." Then scroll through the movie and add markers for each of your selected cues. You should be able to edit the names and the SMPTE times of the markers graphically (or delete the markers altogether) on a timeline display or by typing items into a list. The sequencer automatically keeps track of the cue points so that they're numbered in the correct order. Once everything is set up properly, lock the markers in place so tempo changes in the MIDI score don't alter the SMPTE positions of the cues.

The marker list provides a convenient and efficient mechanism for positioning the movie and the music. Selecting adjacent markers can bracket your video clip's region between cues.

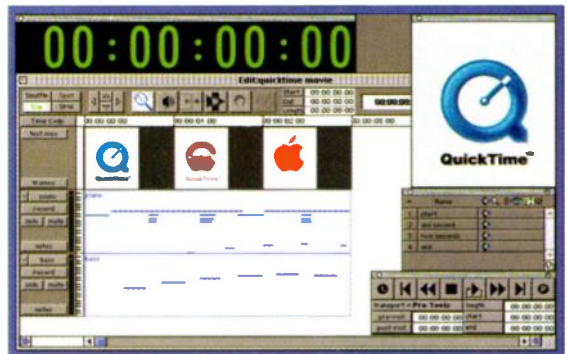


FIG. 5: Digidesign's Pro Tools software, shown here, makes it easy to set up and view cue points.



It's not just an upgrade, it's a new way to think about music notation.

Introducing Finale 2001 millennium edition.



Imagine what music notation could be:

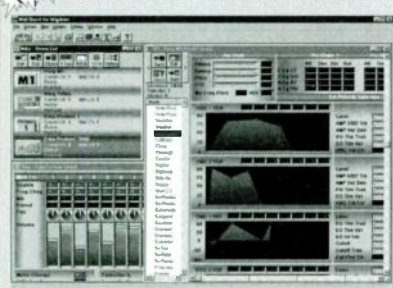
- Automatic web publishing, distribution and sales.
- MIDISCAN[®] technology included.
- Microphone-to-score note entry.
- Incredibly easy to use.
- For a free product demo and a dealer near you, go to www.codamusic.com or call 1-800-843-2066.

Finale. The world's best-selling music notation software.

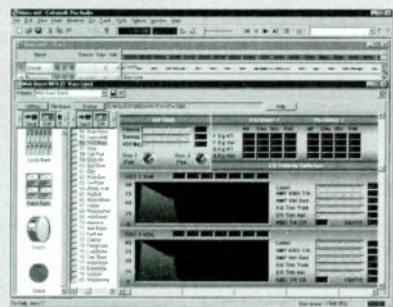


Midi Quest v8.0

UNIVERSAL EDITOR/LIBRARIAN
FOR WINDOWS 98/95/NT4/2000/ME

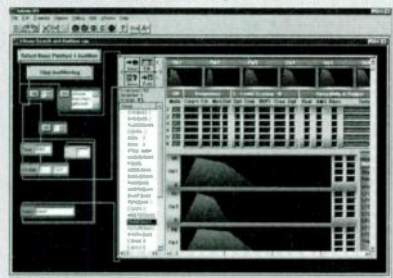


Midi Quest v8.0 Universal Editor/Librarian comes loaded with over 50 major new program enhancements and support for over 400 instruments, with more on the way. New features include: Cakewalk MFX, Cubase VST, and Infinity plugins, fully configurable editor backgrounds, Cakewalk V9.0 Patch Name support, over 65,000 patches and much more...



Cakewalk MFX and Cubase VST Plugins

Check out Midi Quest v8.0, the only Editor/Librarian to integrate directly into your Cakewalk or Cubase VST sequencer! Forget switching back and forth between programs, now you can do all of your SysX editing, auditioning, and organization in the program where you create your music.



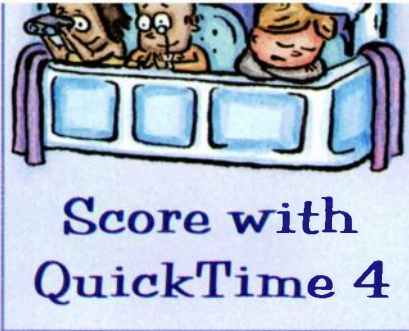
Midi Quest v8.0 Plugin for Infinity

With Infinity, Sound Quest's Graphic MIDI Control program, Midi Quest becomes the first, and only, fully automatable editor/librarian. With Infinity, you can control virtually every aspect of Midi Quest v8.0. The example above finds every bass patch in a library and automatically auditions each of them. You can also simultaneously edit parameters on two or more instruments to create effects such as synchronized envelope editing. Try doing that with any other software.

Sound Quest Inc.

Email: sales@squest.com
US: (800) 667-3998
Phone: (250) 478-9935

<http://www.squest.com>



Score with QuickTime 4

Leave the marker list open, along with the video and SMPTE windows, because you will refer to them frequently when setting up the MIDI tempos in your score (see Fig. 1).

GET SET

Tempos are stored in a special track, as defined by the MIDI Specification. Using the Tempo track, you must next create a tempo-change MIDI event for each cue that you marked. To start, click on the first marker; this moves the song position pointer and sets the SMPTE numbers to the first cue in the audio, video, and MIDI windows.

Select your score's region between the current cue and the next one. Then tell the program how many bars and beats you want that region to contain (for example, 16 bars of 4/4 with the first beat of the 17th bar landing exactly on the next cue). Finally, have the sequencer calculate the tempo required to place 16 bars between the two marked SMPTE times.

Most sequencers have a variety of tools for creating tempo maps, letting

you program quick changes, accelerandos, and ritards with frame-accurate timing. As long as the markers are locked to specific frames in the movie, you can change the number of beats between cues as needed to produce the desired musical effect. The computer recalculates the tempo settings automatically.

GO FOR IT

Now comes the hard part: actually writing the music. The art and science of composing compelling film scores is outside this article's scope, but the important thing to consider is how the tempo map you've already created affects your themes and phrases. The point of the operation is to produce a musical flow from one cue to the next, whether smooth or abrupt, that supports and enhances the images' emotional character.

You should use the myriad sequencing tools at your disposal to record the MIDI and audio portions of your score. It doesn't really matter if you enter the data in step mode, cut and paste from previously produced sequences, or record live to a MIDI metronome, because the tempo map keeps the bars and beats in sync with your video clip's cues. What does matter is the final format you use to export the score from your sequencer.

If your score relies on samplers, on-board synthesizers, or live recordings of

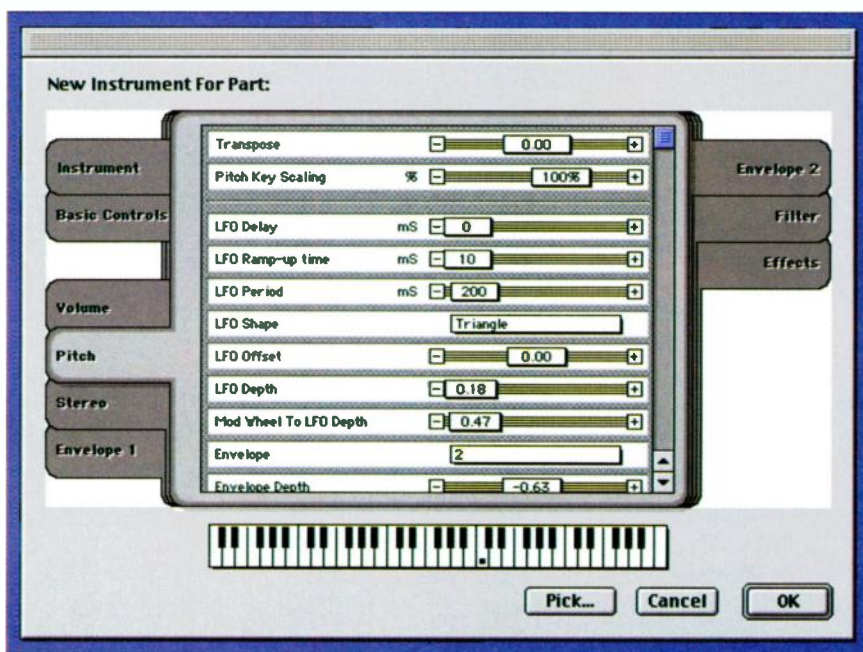


FIG. 6: QuickTime 4 offers a surprising level of control of its QuickTime Musical Instruments.

Big Fish Audio

Check out these new Sounds...



\$99⁹⁵
Audio
Includes
wav/Acid
CD-ROM

New

SloFunk
Now you can funk up your R&B mix with a little nastiness from the veterans of live funk: the funkmasterz of *Freaky Jazzy Funky & Phatter Phunkier*. *SloFunk* takes you on a trip to the slower side of funk with construction kits, loops, sounds, guitars, bass, keys & piles more all at 50-120 bpm. It's time to dim the lights and pop the top off, 'cause there's some gear waiting for you in the next room.



bigfishaudio.com



\$99⁹⁵
Audio

New

Off the Hook
Turn off that ringer and throw on these smooth sounds from your homies who know. *Big Fish* presents the smoothest, the sexiest, the absolute sweetest R&B grooves ever. Don't bother lookin' around anymore, this joint is packed! The hottest tracks with today's vibe—just like you like it and made by professionals who know what's what!



bigfishaudio.com



\$99⁹⁵
Audio
Includes Tc
wav/Acid
CD-ROM

New

Abstract Hip Hop
Prepare yourself for the deepest, most diverse Hip Hop CD on the market. Brand new from the producers of *Strictly Hip Hop*, *Strictly RnB*, *Vinylistics* & *XTFiles* of Hip Hop. Deep, groovy, dubby, smooth and jazzy construction kits, beats & breaks, sounds, vocals, drums, guitars, bass, FX & all the Hip Hop and R&B add-ons that will make the real difference!



bigfishaudio.com



\$99⁹⁵
Audio

New

Helter Skelter
Do you crave the *Zombie*, or the likes *NIN* & *Manson*? The tortured waveforms of crucified synths splattering over thrusting dark guitars? *Helter Skelter*. Explore the 21st century hybrid of Rock, Industrial, Goth, Hip Hop, Techno & Metal with the hardest construction kits, loops, FX, noise, guitar & more!



bigfishaudio.com



\$99⁹⁵
Audio

New

Breakbeat 2
All new, all fresh, all never-before-heard breaks for you beat-hedz & funkmasters! Extended breaks with variations & hits! If you're looking for the sound of a drum machine, look elsewhere; but if you want only hot, greasy honey-suckin' beats... you know who to call! "Breakbeat 2 is loaded with beats as fresh as your grandma's apple pie and greasy as your grandpa's toupee." 4.5 out of 5 - *Remix*



bigfishaudio.com



\$299⁹⁵
Akai \$1000
4 CD-ROM Set

New

Virtual Analog
Four CDs packed with patches from the best sounding synths available! CD 1-Waldorf™ Q, CD 2-Yamaha™ ANIX, CD 3-Clavia™ NordLead, CD 4-Novation™ Nova. Each CD-ROM is full of carefully multisampled patches in leads, bass, pads, sweeps, keys, synths, attacks, effects & more! From analog to digital, it really is the best of both worlds!



bigfishaudio.com



\$99⁹⁵
Audio

New

Cut'n It Up
From the highly acclaimed producer of *Wall of Vinyl* & *Loopzilla Underground*, *Cut'n It Up* is jammed full of construction kits, beats, new drum sounds, stabs, guitars, bass, keys & some wicked scratching! This is the stuff you've been cut'n through all your old records looking for, but all 100% original & license-free! Put away your *SL-1200* and grab your *MPC*!



bigfishaudio.com



\$99⁹⁵
Audio

New

Fear - Pod 2
As if *Pod* wasn't frightening enough, prepare yourself for *Volume 2... Fear*. These sounds are not for the faint of heart. More events, loops and atmospheres with horrifying dark undertones. This is sound design at its best, but with a very dark feel of weirdness perfect for scoring, adding strange FX and tightening up electronic music madness.



bigfishaudio.com



\$299⁹⁵
Tc wav/Acid
10 CD-ROM
Set

New

Xclusive WAV.Xtension
Get your hands on this Limited Edition Wave Bundle Package! Available only for a short time, this is the biggest collection of sounds & Wave ROMs ever! 10 WAV CD ROMs with over 17,000 loops & samples!!! - filled with ALL the classic sounds from *X-Static Goldmine 1-2-3-4-5*, *XTFiles* of *House*, *Techno*, *Jungle*, *HipHop* and *XTortion*! Don't delay! Only available while supplies ast!



bigfishaudio.com

For the Hottest new releases and the World's largest selection of sample CDs, check us out...
On the Web. At a store near you.



Discounted/free shipping, mp3 demos and secure ordering are available at bigfishaudio.com. See us on the web for a complete listing and fast service.

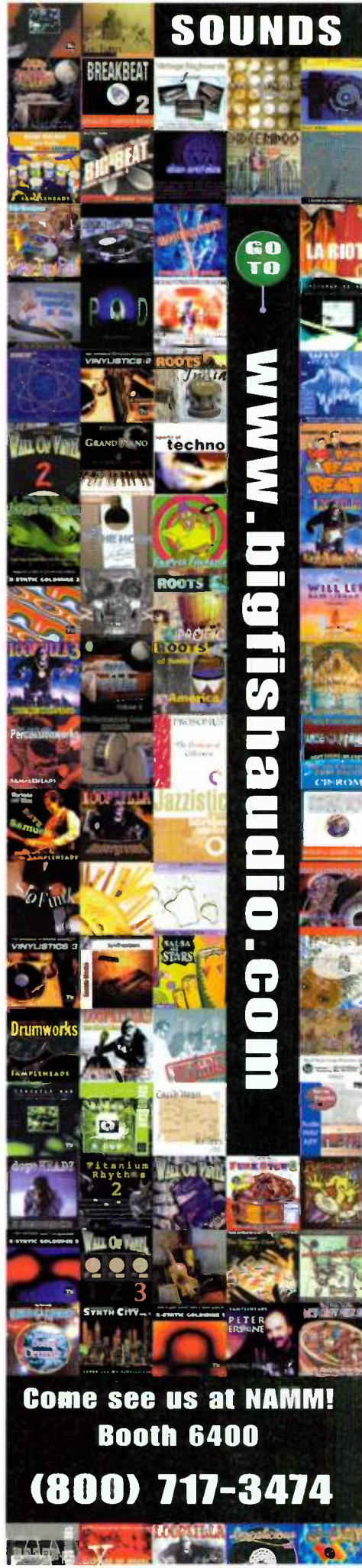


200 Locations, call for one near you.

Sampler Sampler 6™
The *Sampler Sampler™* is free with any purchase or just \$19.95 applicable to any future purchase.



Call for a Free Catalog.



GO TO

WWW.BIGFISHAUDIO.COM

Come see us at NAMM!
Booth 6400
(800) 717-3474

Buy gear here
www.rocknrhythm.com

Recording • Music software • Keyboards • Microphones • Guitars • Pro audio

1-888-348-5003
rnrem@wwandbw.com



musicians and vocalists, you have to mix and master to a digital audio file format such as WAV, AIFF, or SDII. You can then import the file as a soundtrack into your QuickTime movie and compress it using a variety of algorithms. However, if you want to post your movie on the Internet, you might consider writing exclusively for General MIDI instrumentation. Not only will the resulting movie score be miniscule (offering quick and easy downloads from the Web), but you can take advantage of QuickTime's built-in MIDI synthesizer.

GETTING SOFT

The QuickTime Music Architecture is designed to play high-quality, low-bandwidth versions of General MIDI files by rendering sequences of notes into digital audio using a built-in sampled instrument library. Because the synthesizer is completely defined in software, the music will sound as intended on any Mac or PC. It is also frequently used by browsers to play MIDI files from the Web.

Apple licensed a 2 MB wavetable library from Roland for the QuickTime Musical Instrument set. Based on samples from the Roland Sound Canvas (the de facto standard for General MIDI sounds), the QuickTime library includes the regulation 128 instruments plus seven different drum kits and more than 100 additional patches from Roland's GS extension to the General MIDI Specification.

Polyphony is limited only by CPU power, and you can include multiple MIDI files in a single movie. QuickTime 4 supports stereo samples and even lets users reassign patch controllers, modify envelopes, and include custom samples for musical instruments and sound effects (see Fig. 6). Overall, it is a powerful, efficient, and flexible synthesizer that can provide composers with a fairly wide audio palette.

PUTTING IT TOGETHER

Once you create a killer musical score for your clip and you have the final

MIDI or audio file mixed and mastered, combine the soundtrack and the QuickTime movie into a single file. Some sequencers insert the audio into the clip automatically, but *QuickTime Player* also allows you to add audio layers.

Open your audio file with *QuickTime Player* and choose Select All from the Edit menu. Copy the Sound Track, then open your video clip and position the diamond slider (which is on the progress bar) to the first frame. Hold the Option key down while you select the Edit menu and the usual Paste command is relabeled Add. This "merges" the soundtrack with the video, rather than "inserts" the audio over blank space. (You can also use the key combination Option+Command+V.)

Next, select the Save As command and choose the Make Movie Self-Contained option. The file should now be the size of your video clip plus the audio file and might be quite large if you used a CD-quality, 16-bit, 44.1 kHz, stereo soundtrack. This isn't necessarily a big problem if you plan to distribute your clip on CD-ROM, but the final file should be as small as possible for low-bandwidth delivery on the Internet. Fortunately, QuickTime uses some amazing audio compression schemes to facilitate posting movies on the Web.

THE BIG SQUEEZE

The QDesign Music Codec 2 (QDMC2) is QuickTime's flagship audio compression algorithm and can provide astonishing compression ratios (as much as 50:1) while retaining a great deal of the original audio quality. The resulting movie's audio bandwidth can be small enough for streaming on the Internet (even at 28.8 Kbps modem speeds), and the sound quality is usually better than comparable MP3 files. QDMC2 is a perceptual codec that uses psychoacoustic principles to achieve dramatic results.

To apply the audio compression, choose Export from the File menu as you did when preparing the low-bandwidth video clip. Select Movie to QuickTime Movie as the Export type and click on Options. The dialog box should look familiar, but this time, click on the Settings button in the Sound section to open a menu of audio compression algorithms. Select the

Get In. Get Out. Take Control. Introducing the US-428.

There are a bunch of ways to get audio in and out of your USB-equipped Mac® or PC. Here's the best one: the US-428™ Digital Audio Workstation Controller by TASCAM and Frontier Design Group. If you're into computer-based audio and MIDI recording, the US-428 offers a very affordable way to interface your music and your computer while providing complete hands-on creative control of your audio software, using real faders and knobs. So if you're looking for the ultimate plug-and-play solution for computers and music, here's everything you need...in a cool blue box from the world leader in recording technology.

- PC and Mac compatibility via USB interface
- Works with major DAW applications
- Supports unlimited banks of eight faders
- Dedicated EQ, Aux Sends and Pan controllers
- Professional 24-bit D/A and A/D converters
- Records four audio inputs at once
- Includes Steinberg's Cubasis VST™ Audio Recording/MIDI Sequencing software*
- Easy to use: no opening the computer, no sound card to install

US-428 DIGITAL AUDIO WORKSTATION CONTROLLER



Two 1/4" inputs, switchable from instrument (guitar) to line level

Two balanced 1/4" TRS inputs

Stereo phono (RCA) outputs, headphone output

Two balanced XLR mic inputs

USB port; Mac & PC compatible

SIPDIF digital input and output

32 channel MIDI In, 32 channel MIDI Out

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

*Cubasis VST for Macintosh available later this year
All copyrights are the property of their respective holders

TASCAM US-428 by
FRONTIER
DESIGN GROUP

TASCAM.
a whole world of recording



HATS OFF TO OUR 31 FAVORITE

2001
EDITORS
CHOICE

BY THE EM STAFF

PRODUCTS OF THE PAST YEAR.

Every year at this time, **EM** editor in chief Steve O considers quitting his job and doing something simpler and less controversial, such as running for Congress, operating a terrorist group, or leading an extreme religious cult. Being a politician, a gunman, or a self-styled prophet just has to be easier and safer (if less honest) than leading the effort to choose the winners of the **EM** Editors' Choice Awards. Safer? Well, consider the many fine products that didn't win, and imagine their creators' frustration. That's why the editors usually sit with their backs to a wall when dining out this time of year.

Fortunately, in the end, we always have a full slate of worthy winners, and the ninth annual **EM** Editors' Choice Awards is no exception. We awarded 31 prizes in 29 categories, twice suffering the agony of an unbreakable tie.

To be eligible, products must have shipped to consumers between October 1, 1999, and October 1, 2000. We make a few exceptions for products that shipped just before October 1999 and arrived too late to test for last year's awards. However, we allow no such slack if we believe that a manufacturer intentionally delayed sending a review unit, as happens occasionally. We give awards to software upgrades only if we think they offer major and signifi-

cant improvements over the previous version.

To be eligible for an award, products must have been field-tested by **EM** editors, authors, and a select group of trusted colleagues who have proven technical backgrounds and extensive recording experience. Approximately 25 experts (including the editors of *Onstage*, *Remix*, and *Mix* magazines) contributed to this year's award-selection process, but all final decisions were made by **EM**'s technical editors: Steve O, Marty Cutler, Brian Knave, Dennis Miller, Gino Robair, David Rubin, and Scott Wilkinson.

Although most categories are the same as in previous years, we simply dispensed with a category if we were not overwhelmed by the current candidates. In the same spirit, we created new categories if we felt the need, or we morphed an old category into a new form; for instance, this year's broader Mastering Recorder category replaces our awards for DAT machines and standalone CD-Rs. We hate ties, and in most cases we managed to avoid them, but we gave in twice this year—the DSP Plug-in and Most Innovative Product awards—when even Steve O's "gun-to-your-head" approach failed to produce a single winner.

And now, without further ado, we are pleased to announce the 2001 Editors' Choice award winners!



Ancillary Hardware

BIG BRIAR

CP-251 CONTROL PROCESSOR (\$299)

If you want to integrate several analog synthesizers or other devices that you can manipulate using control voltages, Big Briar's CP-251 Control Processor is virtually a must-have. In fact, we wonder why such a thing was never marketed 15 or 20 years ago.

The CP-251 lets you route control voltage and provides additional modulation sources, such as sample and hold and an LFO. It brings synthesizer-like control to a wide variety of voltage-controlled gear.

The unit features an onboard CV mixer that accepts four CV signals at once. Two of these four inputs deliver +5V to the ring for use with expression pedals; the other two supply -5V to the tip for most other common CV needs. The mixer provides two outputs, one of which is 180 degrees out of phase relative to the other.

Four multiple jacks let you route a single control source to three destinations. You can also route two signals through a pair of attenuators, each having its own input and output; this lets you adjust the CV input's amplitude with the twist of a knob.

The CP-251 offers several onboard modulators. A lag processor with an attack/release envelope generator lets you reshape the control-signal waveform. An LFO that has two output jacks is provided; one output emits a square wave and the other a triangle wave. Grab the LFO knob or plug in an expression pedal, and you can sweep the LFO frequency from 0.2 to 50 Hz. A white-noise generator serves as an audio source or a randomized control signal. The sample-and-hold circuit is great for producing stepped control waveforms; patching in white noise randomizes sample-and-hold effects. This is big fun when controlling pitch or filter frequencies. For kinder, gentler modulation, a second sample-and-hold output sends a smoothed version of the waveform.

The CP-251 brilliantly borrows from the modular analog synthesis tradition and provides enormous



flexibility in reshaping modulation. If a device that modulates modulators seems a bit abstract, just connect the CP-251 to a signal processor or two, plug in your guitar, and have fun!

Ancillary Software

EXPANSION

VST-DX ADAPTER 2.1 (Win; \$60)

Although we'd never say that Mac users have all the fun, the Mac has an edge on the PC in certain categories. One of those is the ability to use VST plug-in effects: the plug-in standard on the PC is DirectX, and only a few Windows programs can use the many excellent VST plug-ins on the market.

FXpansion's *VST-DX Adapter* utility changes all that by converting VST plug-ins into DirectX format, giving PC users access to the same tools their



Mac counterparts have enjoyed for some time. As long as your audio software supports DirectX format, as most do, you can enhance your audio toolbox with dozens of free and commercial VST plug-ins.

VST-DX Adapter is mostly transparent to the user. There are no fancy bells or whistles here; just a straightforward, hard-working tool to do an important job. After installing the program, you'll see *VST-DX Adapter* listed in your software's DirectX plug-in menu. Just click on *Adapter*, and when its screen appears, load any of the VST plug-ins you have on your system. Don't worry about adding latency to the effects-processing chain; *Adapter* doesn't affect timing.

VST-DX Adapter is also available in a free version that has fewer features. You won't find MIDI automation or VST Instrument support in the free version, for example. But whichever version you use, this excellent utility will open the door to the world of VST plug-ins for every PC user.

Audio Card

DIGIGRAM VXPOCKET (Mac/Win; \$729)

Using a notebook computer as a digital audio workstation has long been a dream for virtually all musicians who want to travel with their studio. Unfortunately, this dream has been deferred due to a shortage of I/O options. Digigram's easily installable VXpocket PC (PCMCIA) card changes all that for owners of Macintosh and Windows notebook computers, offering 16- or 24-bit, full-duplex, stereo recording capability at up to 48 kHz.

BEFORE YOU BUY A CD RECORDER



CHECK ITS PROFESSIONAL CREDENTIALS

CDR-W33
CDR-W66



Even among professional CD recorders, the Sony CDR-W33 and CDR-W66 stand apart. Three DSP functions fine-tune your sources.* There's a limiter with adjustable ratio. A 3-band EQ. And Super Bit Mapping® circuitry that captures near 20-bit quality on industry-standard 16-bit compact discs. Conveniences include wired or wireless remote operation and even a PC keyboard input for CD TEXT™ entry. Sony's 24-bit A/D and D/A converters help maintain resolution.

The CDR-W33 uses standard unbalanced analog audio, SPDIF and optical digital I/O.

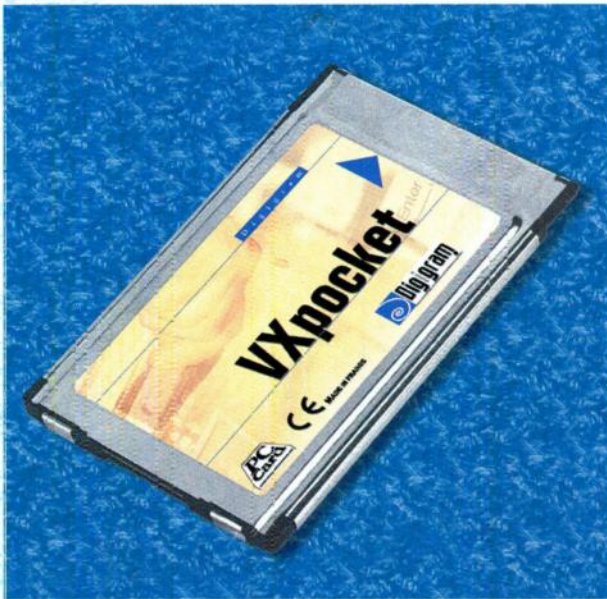
The CDR-W66 (not shown) adds balanced XLR analog and AES/EBU digital I/O plus 2X speed duplication with a second CDR-W66.

The Sony CDR-W33 and CDR-W66 deliver the design and operational capabilities that professional applications require. And you get every last bit of performance without spending your every last dime. To find out more, call 1-800-472-SONY, ext. CDR.

*Analog sources only on CDR-W33.

SONY

1-800-472-SONY ext. CDR
www.sony.com/proaudio



The VXpocket doesn't need a bulky breakout box: its I/O is on a 15-pin connector that attaches to the card. Its analog inputs and outputs are on two pairs of balanced XLR jacks, and S/PDIF I/O is on RCA coax connectors. A handy mixer applet lets you adjust the overall gain and switch between line and mic levels.

The card ships with Sound Manager and ASIO drivers for the Mac and with Wave and ASIO drivers for Windows. Installing the card and its drivers was a breeze, and our reviewer was recording in two minutes. Recording a CD through the VXpocket's analog inputs at 24-bit resolution yielded quiet and uncolored digital audio that was virtually indistinguishable from the source material.

At the time of our review, Digigram was readying the release of a version 2 upgrade for the VXpocket that adds LTC SMPTE input for synchronized recording. Version 2 is now shipping, and owners of the original version need only to spring for an input cable, because the original VXpocket has built-in support for time code. If you have been longing to convert your laptop computer into a digital audio workstation, Digigram's VXpocket is a convenient and elegant way to do it.

Audio-Editing Software

STEINBERG

WAVELAB 3.0 (Win; \$599)

Steinberg's *WaveLab* entered the world a few years back as a simple, well-designed, 2-track audio editor for Windows. By version 2.0, the program matured into a more sophisticated editor packed with an assortment of cool-looking hardware-style plug-ins. *WaveLab* 3.0 retains many of its predecessor's features, including support for 24-bit, 96 kHz files; support for WAV, AIFF, AU, MP3, and other formats; real-time 32-bit floating-point processing; audio scrubbing; batch

processing with VST and DirectX plug-ins; CD burning; and sampler support.

Despite the similarities, however, *WaveLab* 3.0 represents a quantum leap beyond earlier versions: Steinberg added a ton of powerful features, improved performance, and transformed the whole program into a hybrid 2-track/multitrack editing system. With the addition of the Audio Montage window, *WaveLab* lets you assemble multitrack compositions by arranging audio clips in a user-friendly, nondestructive environment.

Without resorting to keyboard commands, you can quickly combine clips, create cross-fades, generate volume and pan curves using rubber-band-style envelopes, and apply up to ten VST plug-in effects. Best of all, these features were added to the program without sacrificing *WaveLab*'s intuitive user interface, with its thoughtful layout and excellent use of color. As we pointed out in our feature story on Windows audio editors (see "Making Tracks" in the April 2000 issue of *EM*), "*WaveLab*'s user interface boasts a level of flexibility and versatility that is seldom seen in audio software."

Versatility is the key word with *WaveLab* 3.0. For example, if your mouse has a scroll wheel, *WaveLab* lets you use it to navigate through waveform displays, zoom in and out horizontally or vertically, change values in edit fields, and adjust the master volume faders. The program also offers a bucketful of sophisticated editing tools for surgically altering waveforms, designing sounds, mastering audio for CDs, and preparing broadcast and multimedia soundtracks. The package includes noise reduction, time stretching, pitch shifting, harmonization, SMPTE time-code support, a Marker toolbar, high-quality VU meters, a 600-page printed manual, and the best-looking 3-D FFT display on the market.

We could go on, but you get the idea. *WaveLab* 3.0 has "winner" written all over it.



SeaSound

24 bit/96kHz Computer recording solutions that sound as good as they look.

Solo

Solo EX \$849.95



- Great Mic Pre-amps with Phantom Power & Inserts
- Pre-amps specifically designed for guitar or bass
- Line Inputs for keyboards
- Includes Mac & PC compatible PCI card
- 24-bit/96kHz A/D D/A converters
- Clip lights & VU meters for perfect level
- MIDI In & Out
- Zero Latency Monitor Mixer (No virtual mixer needed)
- Control Room outputs
- Loud headphone amps



Soloist \$499.95



Solo Expander \$429.95

Optional Solo Expander expands Solo EX & Soloist for 8x8 operation

The SeaSound Solo EX and the Soloist digital audio recording interfaces are the easiest way to record music on your computer.

SeaSound products offer superb Tom Oberheim designed microphone preamps with phantom power, great sounding instrument preamps for guitar & bass, inserts, line inputs and a ZERO LATENCY monitor mixer. The Solo EX and Soloist are completely integrated environments replacing: a mixer, a 24-bit/96kHz sound card, professional mic preamps, direct boxes, headphone amps, a standard MIDI interface, as well as the numerous cables you'd need to hook all that to your computer. In addition to ASIO 2, EASI, Sound Manager, WAV and Direct Sound drivers, SeaSound products come with Steinberg's Cubasis VST and Sonic Foundry's Acid Rock. The result is audibly superior to any other way of getting your music into, and out of a computer.

Paul Chiten
Composer, Producer
Credits: Dawson's Creek Columbia/Tristar/Warner Brothers
Coming To America Paramount
Witness Paramount and many others
"The SeaSound SOLO EX gives me the quality and performance I need in working with digital audio. The convenient rack mount unit has features that are extremely accessible -Master, Control Room, and Headphone outputs. The mic preamps sound wonderful! The SeaSound SOLO EX is a great piece of gear."



Tom Size
Producer Mastering Engineer
Credits: Aerosmith, Steve, Miller, Mr. Big, Gregg Rolie,
Paul Gilbert with Racer X
"The SeaSound Solo EX has proven to be a great tool in the studio. Not only to record performances directly in the computer but also to use it as an A to D on the output of an analog desk. The converters are some of the best I have worked with at any price, preserving every detail of the mix. The Solo EX is a must have for today's recording studios."



Kerry Livgren
Composer, Guitar, Keyboards for Kansas
Currently a solo artist on Numevox Records
"I'm doing most of my tracking these days with the Solo. The [built-in] mixer, preamps, and monitor system allow me to work without using a mixing console. And, having real controls on the box makes it much easier to use than software-controlled systems. The Solo is convenient and sounds great."





DAW Control Surface

ROLAND ED

U-8 USB DIGITAL STUDIO (Win; \$649)

Like so many other areas of technology, studio gear is getting smaller and smaller. But who would have thought that you could pack so much power into a device as compact as Roland ED's U-8 USB Digital Studio? This system combines audio and MIDI I/O with built-in effects and connects to your PC through the ubiquitous USB bus. The system offers a wizard-like EZ Recording feature that makes the recording process nearly foolproof, and it has enough inputs to support almost any type of device you might want to connect to it.

The U-8's nine faders give you a flexible way to control all your recording and mixing moves; mixing with this surface sure beats using a mouse! The dedicated transport controls and scroll wheel provide a far more pleasurable experience than constant clicking with a little rodent. The box contains everything you need: the lightweight and slim U-8, a USB cable, a startup manual, and a copy of the customized digital audio sequencing software you've chosen (several options are available). The unit also ships with a standalone tuning application, which is a nice bonus, especially if you play guitar.

The U-8's onscreen Mixer window gives you numerous routing and mixing options and lets you adjust the levels of incoming audio and existing audio tracks. It also provides access to the Effects screen, where you can edit effects, save presets, and map the unit's physical controls to various effects parameters. Though the U-8 doesn't support audio in any format better than CD quality, it does offer both analog and digital (optical) audio I/O, so you'll have no trouble getting sound to or from anywhere you want. Though the unit is best suited for use with the optimized software that accompanies it, the technical manual provides enough information to let you tweak your own software for use with the U-8.

Whether you're a budding desktop musician looking for a compact system or a professional in need of an auxiliary audio and MIDI interface, the U-8 is a great solution for your needs.



Digital Audio Sequencer

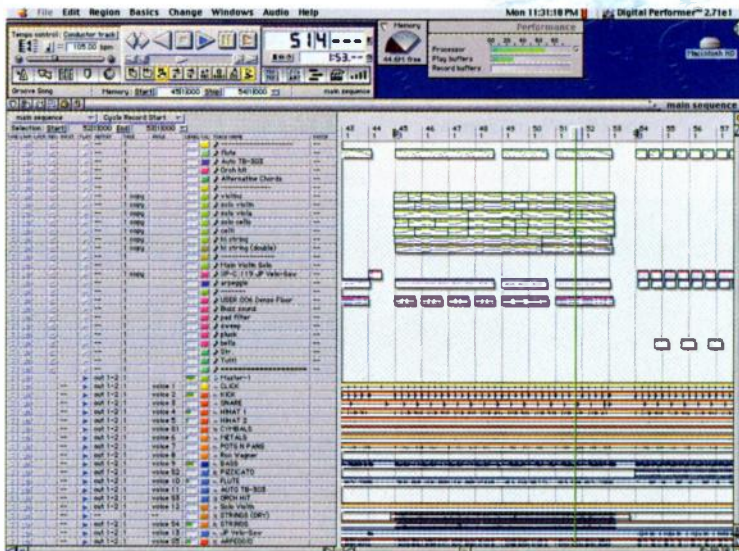
MARK OF THE UNICORN

DIGITAL PERFORMER 2.7 (Mac; \$795)

Boy oh boy, do we hate this category! It's not that we hate digital audio sequencers; in fact, we love them. We hate the category because it's always so hard to pick a winner.

A good sequencer is the heart and soul of many a desktop studio, and personal preferences inevitably play a big role in choosing a favorite. This year's top vote getters—Emagic's *Logic Audio Platinum 4.5* (Mac/Win), Steinberg's *Cubase VST/32 5.0* (Win), and MOTU's *Digital Performer 2.7* (Mac)—are all powerful, mature programs with amazing depth and mind-boggling feature sets.

Our first instinct was to run in the other direction and not give an award, but on further reflection, we felt that we couldn't wimp out. So we put on our



MIDI pith helmets and cautiously entered the software savanna on a quest to bag a winner. After much careful consideration, we emerged with a winner. Although all three programs introduced significant upgrades, *Digital Performer 2.7* generated the greatest enthusiasm from the greatest number of judges—and for good reason.

Version 2.7 adds substantial features to a program already lauded for its well-designed and elegant user interface. For example, the new multitrack Drum Editor window provides graphic drum-machine-style composing and editing with four different view modes and unparalleled control over a range of parameters. MOTU also added three new effects to the program's excellent collection of plug-ins: a multimode filter, a stereo delay, and a ring modulator. Moreover, all of *Digital Performer's* plug-in effects can be fully automated with 32-bit, floating-point, sample-accurate control. The program supports beat/tempo-based automation (so effects changes can happen in time with the music) and also provides real-time MIDI control and sidechain input control over effects parameters.

Fairchild™ Model 660 Compressor

Classic Sound.

Re-introducing the undisputed champion in price, weight and performance: the \$35,000, 100-pound, Fairchild compressor.

Bomb Factory's no-compromise replica captures every detail of this studio classic.

Reasonable Price.

But unlike the original, our version is affordable enough that actual musicians can afford to own one. \$399 US MSRP

Run a dozen at once—even in stereo—using any Pro Tools® or MOTU system.



Serious Tools.



No Muss. No Fuss.

Like most studio classics, the Pultec EQ offers incredible sound and great ease of use. Grab a knob, give it a twist, and it just sounds great. Every time.

It's What It Is.

Use Bomb Factory's amazing digital replica anywhere you'd use the original: on individual tracks, critical vocals, or even across a stereo mix for mastering applications. \$399 US MSRP

Pultec EQP-1A Program Equalizer



Visit www.bombfactory.com for free trial versions



If timing is everything, MOTU is definitely on top. First it introduced MIDI Time Stamping technology, which boasts a MIDI timing accuracy of well within a millisecond when you combine *Digital Performer* with one of MOTU's USB MIDI interfaces. In version 2.7, the company gave its flagship program an adjustable display/edit resolution of up to 10,000 ppqn with an internal resolution of about 2 trillion ppqn. Film composers will love *Digital Performer*'s new Find Tempo feature: you set up a hits master list and weight the hits by importance, and the program calculates the best tempo to catch the greatest number of critical hits.

Other new features deserve special mention. For example, *Digital Performer* now offers exceptional support for Mackie's HUI control surface. The program also added several enhancements to its audio-editing capabilities, including graphic time stretching, scrubbing while trimming, multiple punch-in/out recording, cycle recording, and ReWire support.

The competition was brutal this year, but when we took a close look, *Digital Performer*'s blend of sophistication, power, and innovation really knocked our socks off. This is one tough program to beat.

DSP Plug-In

WAVE MECHANICS SPEED 1.0 (Mac/Win; \$495)

WAVES C4 (Mac/Win; Native \$400; TDM \$800)

This category is always competitive because new DSP plug-ins sprout like grass in the spring. This year, we considered fine offerings from TC Works, Antares, FXpansion, Ultrafunk, and several other companies. We ended up with a tie between Wave Mechanics' *Speed* and Waves' *C4*. We argued with each other, we pleaded, we threatened, we tried bribes, but when we flipped a coin and it landed on its edge, we surrendered to the inevitable.

Wave Mechanics' *Speed* for AudioSuite came out on top because it employs high-quality time compression in creative and useful ways, yet it's easy to use. *Speed*'s user interface makes it simple to process speed and pitch simultaneously and independently: the Speed knob adjusts the tempo, and the Pitch knob changes the pitch in semitones or cents. You can audition your edit before finalizing it. After setting the parameters, you simply click on the Process button and let *Speed* do its thing.

One of *Speed*'s great beauties is its ability to perform time-compression chores. Calculator mode lets you alter time and pitch by percentages, and in Length mode you can select an ideal audio-file region and use its length to make other regions conform to



the same time frame. Perhaps *Speed*'s most intriguing feature is Graphical mode. Here, you are presented with an overview of the audio file and two color-coded lines representing speed or pitch. Grabbing either line creates a handle that you can drag to change tempo or pitch. Drag a point on the time line, and you have accelerando without pitch change. Creating a pitch envelope independent of tempo is equally simple.

Clicking on any handle brings up a field where you can type a precise value for fine-tuning your edits.

Speed's combination of elegance, ease of use, and just plain usefulness made it a winner.

At the same time, Waves' *C4* really caught our attention with its very impressive combination of professional-level audio quality and extreme flexibility. Available for Mac VST, MAS, RTAS, TDM, and AudioSuite, and for Windows DirectX, *C4* goes far beyond the prosaic one-trick-pony compressor/limiter plug-ins that we see so often. It's a true multiband processor, offering four independent bands of compression, expansion, and parametric EQ.

In essence, Waves combined four of its renowned Renaissance Compressors into a single window to provide 4-band upward and downward expansion, limiting, and compression, along with dynamic and



standard EQ. Best of all, you can perform these processes independently or simultaneously with complete control over each band's crossover points, gain, and frequency range. Unlike single-band compressors that react to peaks in the bass line by compressing the whole mix, *C4* lets you precisely tailor the processing to solve your specific mixing and mastering problems: compress the bass, expand the midrange, and EQ the high-end all at once, and preview the changes as you make them.

We found that *C4* is exceptionally good at tightening low frequencies, such as kick drum and bass guitar; de-essing vocals; and adding high-end gloss to vocal harmonies. It also works well for noise

TRIPLE • POWER

TOP END PROCESSORS YOU CAN AFFORD!

M•ONE DUAL EFFECTS PROCESSOR

DUAL EFFECTS PROCESSOR

The M-One comes with Dual Engine structure enabling you to run two of the best sounding reverbs or other quality effects simultaneously without compromising

sound. The M-One gives you a wide range of high quality reverbs from the classic Halls and Rooms to new and grainy snare reverbs such as Live and Plate.

TC Electronic's M-ONE and D-TWO are very powerful yet affordable new multi-effects units from one of the most highly respected names in signal processing. I highly recommend the M-ONE and D-TWO.
Mike Collins - Electronic Musician (US)

M-ONE FEATURES

- 20 incredible TC effects e.g. Reverb, Chorus, Tremolo, Pitch, Delay and Dynamics
- Analog-style User Interface
- 100 Factory/100 User presets
- Dual-Engine design
- 24 bit A/D-D/A converters
- S/PDIF digital I/O, 44.1-48kHz
- 1/4" Jacks - Dual I/O

RHYTHM TAP FEATURE

TC introduces the truly musical RhythmTap feature: Not only tempo, but actual rhythm patterns can be tapped directly - or quantized according to a specific tempo and subdivision. The delays and rhythm patterns can be up to 10 seconds each. Control the exact number of repeats with Absolute Repeat Control.

D-TWO MAIN FEATURES

- Multi-tap Rhythm Delay
- Absolute Repeat Control
- Up to 10 seconds of Delay
- 50 Factory/100 User presets
- 24 bit A/D-D/A converters
- S/PDIF digital I/O, 44.1-48kHz
- 1/4" Jacks - Dual I/O

D•TWO MULTITAP RHYTHM DELAY

A studio effects processor dedicated solely to providing digital delay is a rare thing in this age of all-singing, all-dancing multi-effects units. In the D-TWO, TC have produced a very attractive delay unit that sounds exemplary and offers some unique features as well as all of the expected ones.
Paul White - Sound On Sound (UK)

TRIPLE • C COMPRESSION MEANS EXPRESSION

THE ONLY INSERT COMPRESSOR YOU WILL EVER NEED !

TRIPLE•C can deal with virtually any given source material. The three Compression techniques combined with an analog style user interface, presets and full MIDI automation make TRIPLE•C the most versatile and ergonomic Compressor on the market. Insert TRIPLE•C on a single channel or on a Sub group and achieve comprehensive results.

MULTI-BAND COMPRESSION

Multi-band Compression allows TRIPLE•C to spectrally Compress your source material in three bands independently.

ENVELOPE COMPRESSION

Alter the dynamic envelope of the incoming source by changing the Attack and Release gain.

TRIPLE•C is available in both
Single and Stereo channel versions.

FULL-BAND COMPRESSION

TRIPLE•C simulates the best from the analog world's compressors and allows you to achieve full-band Compression sound instantly.

50 Factory presets + 100 User presets.
24-bit digital In/Out.

YES! I'd love to have a FREE DEMO CD inc. M•ONE, D•TWO & TRIPLE•C material

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Country: _____

Phone: _____

E-mail: _____

t.c. electronic
ULTIMATE SOUND MACHINES

TC ELECTRONIC INC. • 742-A HAMPSHIRE ROAD •
WESTLAKE VILLAGE • CA 91361 USA •
T (800) 482 6032 • [FAX] (805) 379 2648
INFOUS@TCELECTRONIC.COM • WWW.TCELECTRONIC.COM



reduction, such as removing hiss and hum. What's more, the dynamic, parametric EQ doesn't just boost or cut a range of frequencies all the time by the same amount. Instead, it functions like a compressor, adjusting the EQ in response to the input signal. That lets you do things like make the high-end brighter as the signal gets quieter or EQ the bass only on peaks above a certain threshold. Of course, you can also use *C4* as a static EQ.

One of the features we like most about *C4* is its innovative DynamicLine graphic display, which shows the actual gain changes as an EQ display with select-and-drag capability. Waves combined the gain-reduction metering with the crossover display to show exactly how the settings affect the audio.

C4 is an impressive desktop studio tool. Its phase-compensated crossover and 48-bit internal processing yield excellent results without coloring the sound. With its well-designed user interface and big bag of processing tricks, *C4* easily deserves its share of this award.

Dynamics Processors (hardware)

WAVES L2 ULTRAMAXIMIZER (\$2,395)

For years, mastering engineers relied on computer-based mastering compressors to maximize a mix's overall level. That gives a song destined for radio a competitive level by sending the hottest possible signal to the mastering device to take advantage of the CD's 16-bit capacity. Of the various software solutions, Waves' *L1 Ultramaximizer* is an established favorite. In 2000, Waves released its first hardware device, the *L2 Ultramaximizer*, and a praiseworthy entry it is, too (for a review of the *L2*, see p. 158 in this issue).

Like its software sibling, the *L2* performs limiting and normalization without adding coloration. Thanks to Waves' Increased Digital Resolution (IDR) technology, the *L2* provides dithering for word-length reduction without audible artifacts, while at the same time bringing low-level information (for example, reverb tails and the room sound) forward in the mix. Unlike the file-based *L1*, the *L2* lets you work in real time, which makes the *L2* handy for any situation that requires limiting to avoid digital overs, such as recording rough mixes to DAT or CD-R.

Besides the convenience of real-time processing, the *L2* offers individual input level control over each channel, 48-bit internal processing, and support for sampling rates up to 96 kHz and word lengths up to 24 bits. Waves put

high quality 24-bit converters in the *L2*, with XLR and 1/4-inch jacks for analog I/O and standard AES/EBU and S/PDIF digital I/O. You can use both digital outputs simultaneously, letting you master two devices at once. Despite the professional features, however, it's easy to set up and use the *L2*. Every parameter is available on the front panel, so you don't have to wade through pages and menus.

Granted, the *L2*'s power and transparency don't come cheap. But if you want to fortify your mixes with enough power to compete in the big leagues, the *L2* is worth the investment.

Effects Processor, Analog (hardware)

METASONIX

TS-21 HELLFIRE MODULATOR (\$749)

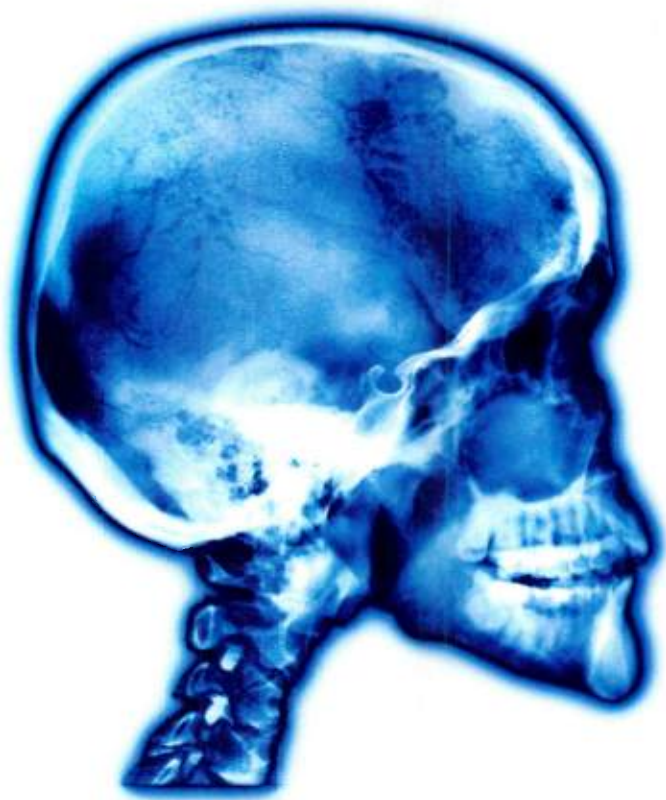
The TS-21 Hellfire Modulator harks back to electronic music's roots. This handcrafted, fully analog tube effects processor uses wave-shaping techniques to distort audio signals. The TS-21 has five vacuum tubes and works best with triangular, sawtooth, and square waves ranging from 10 mV to 10V peak to peak. It was designed to use with modular analog synthesizers, and you can set the TS-21 into self-oscillation and use it as a sound generator. The tubes run at a conservative level, which keeps the noise floor to a minimum and the operating temperature down, even after hours of use.

The first stage in the signal path is a pentode tube preamp with an externally controlled VCA for modifying the audio signal's volume contour. Next, the signal travels through a pulse-width modulator and a sheet-beam modulator, both adding considerable nonlinear distortion as they make the signal fold over on itself. An LFO at the end of the signal path gives you stereo panning at the output, with independent control over each channel's pan rate.

The TS-21 is so volatile that you must take great care when adjusting the front-panel controls; even the slightest movement can cause substantial changes in the signal: turn a knob too quickly, and you may miss something interesting.



All the hardware you need.



Winner of the Electronic Musician Award „Editors Choice 2000“

All the software you need.

Reaktor is a modular sound design studio. The virtual production environment for unique instruments and sound ideas. Reaktor's library contains everything you need, from small components up to complete synthesizers, samplers, effects, sequencers and drum machines. The Reaktor audio engine has full MIDI control and delivers professional sound quality – live and in the virtual studio.

- ▶ fully modular structure
- ▶ professional sound quality
- ▶ comprehensive instrument and sound library
- ▶ exceptional MIDI timing, minimal latency
- ▶ functions stand-alone and as a plug-in

"REAKTOR is one of the most powerful new programs to hit the scene in years."

Len Sasso, Electronic Musician 09/00



For Mac™ OS and Windows®

\$ 499





It's refreshing to find a tube distortion device designed with audiophile sensibilities. If you're looking for something to give your guitar unlimited sustain, you'll have to go elsewhere. The TS-21 was designed with more unusual goals in mind.

Effects Processor, Digital (hardware)

LEXICON MPX 500 (\$599)

Lexicon's MPX 500 fills the price and feature gap between the stellar MPX 1, which snagged an Editors' Choice award in 1998, and the entry-level MPX 100, which, at \$299, is arguably the best bargain found in a hardware multi-effects processor. The new machine had to be very good to win this award over hot competition. The TC Electronic M-1 and D-2 gave the MPX 500 a particularly tough run for the gold, but in the end, we couldn't resist the variety and quality of effects Lexicon delivered, especially for such a modest price.

Like its MPX cousins, the MPX 500 derives its power from Lexicon's proprietary Lexichip. It boasts 24-bit digital converters and 24-bit internal processing. Like the MPX 100, the MPX 500's focus remains on presets. What pushes the MPX 500 into the next class is its user interface, which includes a well-organized LCD, a generous editing allowance, and an ability to store up to 30 user programs.

Four dedicated Edit buttons offer easy access to as many as 16 editable parameters per program. A variety of global parameters are available, including Output Level, Input Source, Clock Source (internal 44.1 or 48 kHz, or external S/PDIF), and modes such as Mix, Bypass, Tempo, Program Load, and Digital Output. (You can set the latter to allow independent use of the MPX 500's A/D converter.) The unit also provides a Tap Tempo button, footswitch jack, extensive MIDI implementation (including a Learn mode), and a full bag of I/O options. If you need icing on that cake, you'll be happy to learn that the MPX 500 boasts a built-in power supply rather than a pesky wall wart.

The MPX 500's killer sound and its wealth of useful presets cinch the deal. The unit's 240 programs (including several true stereo effects) are organized logically by type into 25 banks; you can call up any two of the programs simultaneously and position them in one of four routing configurations. Our reviewer—who owns an MPX 1—was happy with nearly all the presets, and

was downright thrilled with several of them. He especially liked the tremolo effects—but then, he's a guitarist, so what can you expect?

Effects Processor, Software (standalone)

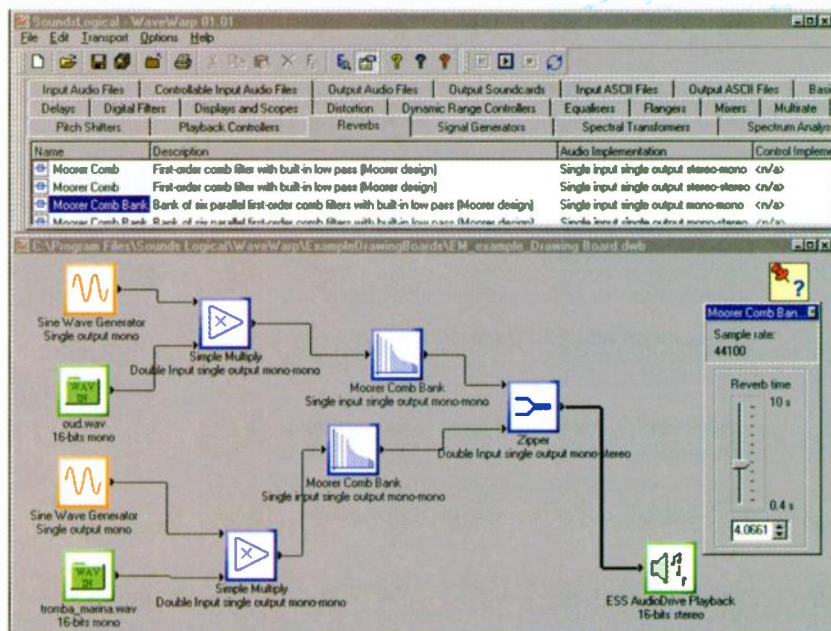
SOUNDS LOGICAL

WAVEWARP 1.2 (Win; \$199)

We haven't seen many new standalone effects processors this year; most new effects-processing programs are plug-ins. But one program gives new meaning to the term *effects processor*: Sounds Logical's *WaveWarp* is not just a standalone effects processor, it's an entire processor-construction kit.

WaveWarp's toolkit includes more than 200 components with which you can build an endless number of signal-processing routines. Not happy with your audio editor's reverb? Build your own with the numerous filters and delays. Looking to re-create that classic Hendrix distortion? Grab one of the many wave shapers, and you'll be off to a good start. You'll also find phasers, flangers, pitch shifters, and dynamics processors, along with a massive number of analysis tools to keep you informed about what shape your audio is in.

But that's not the end of *WaveWarp's* capabilities. Among its many tricks, here's one of our favorites: you can process live audio so that it plays backward in near-real time. (To achieve this, you need a slight buffering of the data, so there's a very slight amount of latency.) To give your sounds that perfect "splice and dice" effect, load up one of the several sound-file



NO LIMITS



DO AWAY WITH BOUNDARIES AND LIMITATIONS.

SPARK II for Mac takes signal processing to a new dimension with its freely adjustable FXmatrix size. Imagine a setup with 8 parallel paths of signal processors, with 10 or more Plug-Ins in each stream. Why only imagine? With **SPARK II** you can do it.

Work without limitations: **SPARK II** has a powerful new processing engine, optimized to provide you with lightning fast edits, unlimited undos and sample rates of up to 192 kHz!

Also new: Two realtime Analyzer Views and a Touch Wah Plug-In, bringing the total of included TC-quality Plug-Ins up to 22. Impressive, but only the beginning! No other application supplies you with this kind of powerful signal processing from Synthesis to FX - it's all there and completely open to VST/MAS (XL version with additionally TDM support and audio restoration features).

SPARK Version II takes you to a new level with even more power, speed and flexibility!

NEW IN 2.0

- Power: Sizable FXmatrix •
- Speed: Fast Virtual File Engine •
- Tools: 2 Analyzer Views •
- Fun: Touch Wah Plug-In •



DOWNLOAD YOUR FREE DEMO!

www.tcworks.de

US & CANADA: TC ELECTRONIC INC. • 805.373.1828 • CALIFORNIA • US@TCWORKS.DE



Our reviewer loved the 4047 on virtually every source, including male and female vocals, acoustic guitar, trumpet, trombone, tuba, flute, saxophone, and percussion. He was blown away to find that it compared very closely to his best studio mic, the venerable AKG Tube. Indeed, he was so impressed by the 4047 that he ended up buying two of them for his commercial studio. You can't ask for a better endorsement than that.

Microphone (more than \$1,000)

BALTIC LATVIAN UNIVERSAL ELECTRONICS

DRAGONFLY (\$1,095)

In case you haven't heard the buzz, a Dragonfly could be headed your way—that is, if you're in the market for a premium-quality microphone that won't set you back more than a few car payments. Devoted EM readers may recall that Baltic Latvian Universal Electronics (BLUE) got our Editors' Choice thumbs-up last year for its sleek Blueberry microphone. Well, hang on to your mic cables, because BLUE did it again—and this time with a much more versatile mic at a lower price.

The stylish and aptly named Dragonfly is a dream come true for personal-studio connoisseurs. We're talking old-world, hand-built craftsmanship and Class A, transformerless F.E.T. electronics. The hip design features an integral swivel/shock-mount that makes for quick setup, and the unique, spherical capsule assembly can rotate nearly 360 degrees in either direction, providing easy positioning tweaks even after the mic is locked into place. Professional engineers, too, will love the Dragonfly, if only for its great sound, excellent transient response, and remarkably low (7 dBA) self-noise.

As large-diaphragm condensers go, the Dragonfly is flatter and smoother than most, with a largely uncolored, unhyped sound. Yet the sound has a slight "tube-y" quality. Only in the upper frequencies (10 to 15 kHz) is any boosting evident, resulting in exquisitely airy highs, great detail, and an accurate overall response. That, combined with the mic's

exceptional transient response, makes the Dragonfly an excellent choice for a wide range of instruments, including drums and percussion, acoustic guitar, electric-guitar and bass-guitar cabinets, and saxophones. Though it has plenty of presence, the Dragonfly's lack of boosting in the 5 kHz region renders it somewhat less seductive sounding on vocals than certain other, more hyped mics. But even here it performs very admirably.

If you're looking for versatility, superb sound, first-rate construction, and snazzy yet practical styling, the Dragonfly delivers that and more at a very reasonable price.

MIDI Controller

NEARFIELD MULTIMEDIA

MARIMBA LUMINA (\$3,500)

In the past, Don Buchla created a number of instruments that have performance capabilities beyond that of mainstream controllers. His latest creation, the Marimba Lumina (manufactured and distributed by Nearfield Multimedia), continues this trend. Its interface is familiar but strange, yet it offers a welcome challenge to the adventurous musician.

At first glance, the Marimba Lumina resembles a traditional 3½-octave mallet controller. However, the instrument transcends this conventional interface by using radio sensors in the bars, pads, and strips that sense tuned circuitry embedded in each of the four color-coded foam mallets. This radio-frequency antenna technology lets the Marimba Lumina track each of the mallets independently and gives the performer a wide range of control options.

For example, you can program the Marimba Lumina to sustain a note when a mallet is held down on the bar, in the same way a note is sustained on a keyboard. You can map the location where you strike the bar and the subsequent movement of the mallet (for example, sliding it up or down the bar) to control any parameter. One of the factory presets lets you open and close a filter by sliding a mallet along a bar. However, you could program this same gesture to send note messages

from a user-defined tuning table, for instance. If you set the instrument's sensitivity to a high enough value, you can trigger notes merely by moving the mallets within the proximity of the bars.

Among the list of user-definable parameters are keymaps, Velocity maps, tuning tables, and transposition options. You can send continuous controller data on two different channels, with the option of inverting the data values in one of the channels. The Marimba Lumina comes with a built-in Yamaha DB51 XG synthesizer, so it's ready to play right out of the box.



JOEMEEK

If you haven't tried
the new Joemeek Channels,
you haven't got a Q!

Joemeek set the standards
for "vintage" retro recording

designs by offering quality
and value. No other direct

recording channel can match
the silky smooth colored

sound of Joemeek. While other
units claim to reproduce colored

"vintage" sound, wouldn't you
rather own the one that does.

got meek?



VC3Q Mic-Pre, Compressor & EQ \$399.99



VC6Q Mic-Pre, Compressor & EQ \$599.99



VC1Q Transformer Mic Pre, Compressor,
Enhancer, De-esser & EQ \$799.99



VC2 Dual Line Amp Transformer Mic-Pre, Compressor,
Enhancer & Tube Output Amplifier \$1,999.99



VC7 Dual Channel Mic-Pre with impedance matching
& selectable Hi-Pass filters \$1,299.99



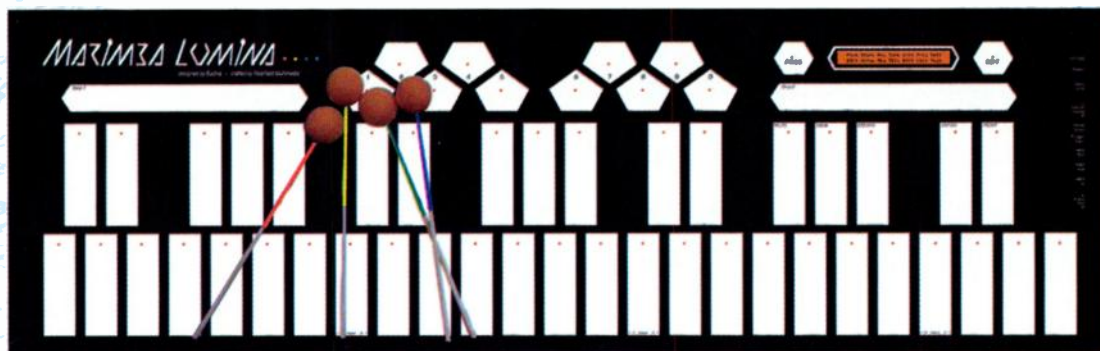
VC5 Bitchen 2-Channel EQ
with "vintage" tortoiseshell dials \$399.99

Distributed by

PMI Audio Group

23773 Madison Street · Torrance, California 90505
Toll Free (877)563-6335 · Facsimile (310)373-4714

joemeek.com



The Marimba Lumina's feature set seems exotic at first. However, it was designed to give musicians the flexibility to explore new ways of music making, which is a noble attribute for an instrument designed for the 21st century.

Modular Hard Disk Recorder

TASCAM MX-2424 (\$3,999)

This year's winner in the modular hard disk recorder category was a shoo-in. Okay, it was almost the only candidate in that category, but we wouldn't give an award at all if we didn't feel it was deserved. The Tascam MX-2424 is the first 24-bit, 24-track standalone HDR to fall within the budget of the personal-studio owner. Until recently, a comparable HDR would have set you back three to five times as much.

The MX-2424 has all of the features you would expect on a fully professional recorder. There are 999 virtual tracks, 100 levels of undo/redo, and 99 locate points. Two record modes—destructive (TL-Tape) and nondestructive—are available, as well as editing essentials such as cut, copy, paste, loop, and rehearse. In addition, TL-Tape mode lets you save recorded tracks as Sound Designer II files, so you can export them to any compatible DAW.

The MX-2424 performs real-time sample-rate conversion and offers a wide variety of I/O, clock, and sync options, so you can use it in almost any recording environment. The unit comes with a 9.1 GB drive and a front-loading drive bay for an optional SCSI hard drive, DVD-RAM device, or Travan tape-backup system. The recorder also is bundled with *ViewNet*, a cross-platform application that gives you

computer-keyboard control over editing, naming, and virtual-track features and offers file-management functions. The machine records at up to 48 kHz, but future upgrades will support 88.2 and 96 kHz sampling and add a *ViewNet* waveform editor.

The MX-2424's list price doesn't include the necessary 24-channel I/O modules required for multitrack recording. These will set you back anywhere from \$499 for the ADAT Optical I/O module to \$1,699 for the analog I/O module. So it's more realistic to think of this as at least a \$5,700 purchase. Another option, the RC-2424 (\$1,499), gives you transport-control functions as well as access to features that are otherwise inaccessible from the front panel.

But even with these additions, the MX-2424 is priced well below comparable high-resolution HDRs. Once configured, the MX-2424 puts high-resolution sound quality and professional recording features at your fingertips.

Monitor Speaker

HAFLER M5 (\$299 each)

Hafler's stunning TRM8 powered monitor was an Editors' Choice award winner in 1998; this past year, Hafler found the sweet spot again with the much smaller—and more passive—M5. Despite their diminutive dimensions, the M5s possess several of the same qualities that we love about the TRM8s, including accurate response, excellent imaging, great depth of field, and first-rate construction. Also like the TRM8s, the M5s proved remarkably nonfatiguing, even after all-day monitoring sessions.

The two models share a proprietary waveguide design—that thing around the tweeter—that widens the sweet spot and helps establish the "phantom" center image. Other features include optical-protection circuitry for the tweeter and a switch that lets you reduce the tweeter's level by 3 dB—located, handily, on the front panel, where you can switch it and listen at the same time.

With 5-inch woofers, the



Play on a Higher Plane



Level the playing field. Own high performance audio crammed with the latest in engineering excellence, wired with high-end components & ultra fine features that shatter the price/performance barrier. Transform your musical performance to tape, your hard drive, in concert, or over the net with some of the coolest audio gear on the planet!

M80

The Ultimate Plug-in.



- Transformer coupled input stage
- Class A Discrete Input Buffers
- Dual Servo Gain Stage
- Auxiliary Bus Input
- Mix Bus Assignment for Multiple Mic/Instrument Stereo Imaging
- Unique IDSS Control for adjusting Harmonic Distortion
- Servo Balanced Send & Return on each channel
- Instrument DI on every channel

The Perfect Gift for your favorite pair of microphones

MP20



- Transformer coupled input stage
- Class A Discrete Input Buffer
- Dual Servo Gain Stage
- XLR Balanced Output on each channel
- Assignable Stereo Mix Bus for accurate Mic/Instrument Stereo Imaging
- Separate direct outputs for each channel
- IDSS Control for adjusting Harmonic Distortion
- Full Scale Meters and +28dBu Headroom



Blue Tube

Kill the chill of digital



- Dual Servo Gain Stage
- Neutrik® Combo connectors
- Two Eight-Segment LED Meters
- XLR Balanced & 1/4" Unbalanced Outputs
- Stereo Tube Mic Preamplifier Using a 12Ax7 Tube and Dual Servo Gain Stages
- 2 XLR Inputs and 2 High Z Instrument Inputs on Front Panel via combo connectors
- 48V Phantom Power for condenser Microphones
- -20dB pad and Polarity Reverse on each channel

7257 Florida Blvd., Baton Rouge, LA 70806 USA

Ph: 225.216.7887 Fax: 225.926.8347

www.presonus.com

PreSonus
[audio electronics]



M5s are a bit weak in bass reproduction (low-frequency response is rated at 70 dB), so a subwoofer is recommended if you intend to make these your sole monitors for critical mixing applications. But the M5s don't employ smoke-and-mirrors schemes to try and overcompensate for the laws of physics, like some small monitors we've heard. Of course, their compactness makes them ideal for professional monitoring in tight spaces, and the magnetically shielded woofers ensure worry-free use when the M5s are positioned close to computer monitors.

But don't make the mistake of thinking of these monitors as "multi-media speakers"—at least not in the usual sense of the phrase. The M5s are professional-quality monitors all the way. And with 100W RMS and 200W peak-power ratings, they pack quite a wallop, too.



single, user-specified key and tempo. Furthermore, it includes a Groove control that, in theory, adds or removes swing in a sampled rhythm. You can tweak these functions using the dedicated front-panel controls or through MIDI. This makes the VP-9000 a great device for both studio use and live remixing.

Several other features and extras further sweeten the deal. The VP-9000 has a 250 MB Zip drive and reads AIFF, WAV, Roland S-700, and Akai S1000 files, so it's easy to swap samples between it and other devices. The unit has independent, simultaneously available multi-effects (including COSM guitar-amp modeling), chorus, and reverb processors. To top it all off,

Roland bundles a waveform editor with a full complement of editing functions, such as cut, copy, paste, and normalize.

Although it doesn't come cheap, the VariPhrase enables you to do useful and creative things not possible with other hardware devices. That makes it a winner in our book.

To understand our next winner in this category, reach over and touch your mouse pad. Go ahead, do it. Dig all five fingers into its cushy, padded surface and imagine that each finger is sending unique controller data in real time. This is what it's like to use the MTC Express from Tactex.

The touch-sensitive pad on the MTC Express is made from *smart fabric*, a wear-resistant material developed by the Canadian Space Agency that tracks the location and pressure of five contact points simultaneously. The pad has a positional resolution of 100 dpi and can measure 256 levels of pressure. This gives you a level of gestural subtlety that exceeds MIDI's bandwidth limits.

Here's how it works: an LED generates a measured amount of light, which is sent down a set of fiber-optic cables to an array of tiny pressure sensors called *taxels*. Taxels restrict the flow of light based on how much pressure is exerted on them. When you press

Most Innovative Product

ROLAND VP-9000 VARIPHASE PROCESSOR (\$3,295)

TACTEX MTC EXPRESS MIDI CONTROLLER (\$495)

When it came time to select the Most Innovative Product, we found ourselves with a tie between two very different devices: a hardware-based processor that gives you unprecedented real-time control over samples; and a futuristic, multidimensional control surface.

Roland's VP-9000 VariPhrase Processor is the first hardware device to give you independent control over the pitch, speed, and formant of a sample. For instance, it lets you repitch portions of a sample without affecting the sample's length or alter the sample's time without changing its pitch or resonant characteristics. The Formant function is particularly interesting because it controls the resonant characteristics of a sound. You can use it to transform the gender of a vocal sample or the spectral content of an instrument.

Another important feature of the VP-9000 is its ability to sync a number of unrelated loops to a



FOSTEX

What more do you need?



VF-16

16-Track Digital Power Tool

Use Your Digital Power Tool To:

Lay down Basic Tracks • Overdub Instruments and Vocals • Access Virtual Tracks for Multiple Takes
Waveform Editing for Flawless Performances
MIDI Lock-up to your favorite Sequencer or Keyboard • Mix everything and enjoy! Do all this on a high capacity hard drive with full 16 bit CD quality recording/32 bit processing

All for less than \$1400.00 MSRP.

Now isn't that all you really need?



Key Features

- Full digital 16-track recording/playback
- SCSI port as standard for backup
- WAV file exchange
- High Capacity Hard Drive included
- Simultaneous 8-track recording (16 tracks when using ADAT™ optical)
- Assignable channel compression & Master Compressor
- 3-band EQ on all 16 channels & master 3-band EQ
- 99 mix scene memory
- Two built-in digital multi-effects using acclaimed Fostex ASP technology



on the pad, each affected taxel returns a reduced amount of light to a light sensor, which in turn instructs the unit's CPU that an amount of pressure z was exerted at location $x-y$. Certainly the technology is innovative enough.

But this isn't just about technology for technology's sake; the MTC Express has plenty of practical uses. You can use it to change multiple MIDI-controllable parameters simultaneously with the touch of a finger, which offers endless possibilities. For instance, you could have big fun using the Tactex pad to control the many parameters of Kurzweil's K2600, Lexicon's MPX 500, Yamaha's A5000, or Steinberg's PPG Wave 2.V—or a combination of these products.

The unit attaches to a PC's DB9 port or a Mac's serial port, and ships with a cross-platform application-programming interface (API) and an external object for users of Cycling '74's *Max* and *MSP*. A collection of *Max* and *MSP* patches is available free from the Tactex Controls Web site. It's obvious that Tactex has delivered a highly innovative product—and has done so under pressure.

Notation Software

CODA MUSIC TECHNOLOGY

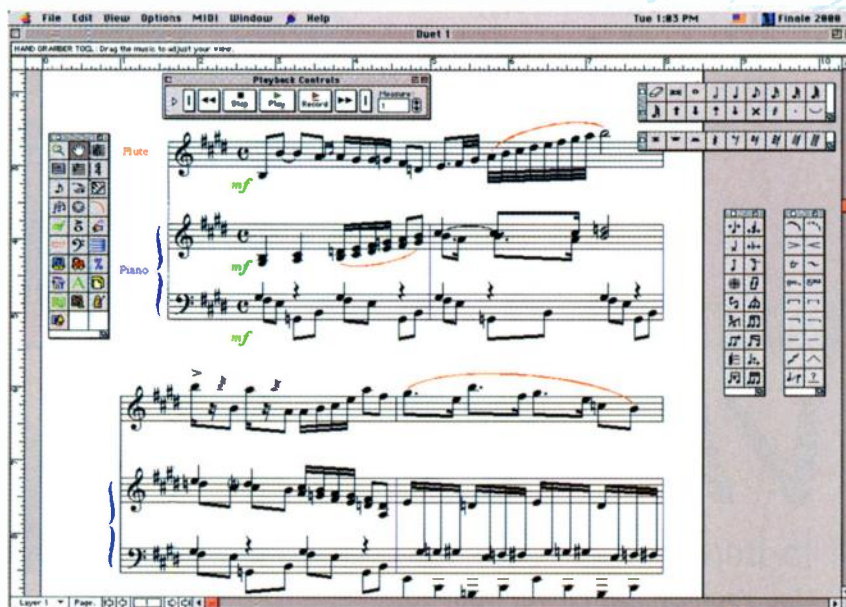
FINALE 2000 (Mac/Win; \$545)

Finale has long been the perennial favorite notation program of film and TV composers, music copyists, educators, commercial arrangers, and publishers. You can sum up the secret to its continued popularity in a single word: *power*. Surrounded by a growing field of competitors, *Finale* has retained a loyal following of dedicated users by

offering a wide assortment of high-end tools and features unavailable elsewhere. In fact, *Finale's* great versatility continues to make it the benchmark for musicians seeking true publisher-quality printed output.

To mark its tenth anniversary, Coda introduced *Finale 2000*, which adds a number of important enhancements to the program. For example, it's now a breeze to get started on a score. A new Setup Wizard lets you choose instruments from a list, and then it automatically creates a blank score with the proper staves, clefs, names, and transpositions. It's very cool, but if you prefer, you can start from one of *Finale's* more than 40 templates for band, orchestral, and vocal scores. Coda also made the program more accessible in other ways. Novices will especially appreciate the printed step-by-step tutorials, and the *Finale* CD-ROM includes several excellent QuickStart videos that demonstrate the program's main features.

In spite of boasting some of the best-looking printed output on the market, *Finale* has once again raised the bar as it enters the new millennium. *Finale 2000* features Maestro, a complete new music font that was meticulously designed by Coda in consultation with European music publishers. In addition, the program employs



a sophisticated new spacing algorithm that incorporates the Fibonacci series. The result is a highly refined, publisher-quality appearance that rivals the best engraved music. At the other end of the spectrum, *Finale 2000* still offers its Jazz font, a handwritten-style font popular with commercial arrangers and session players. In fact, *Finale 2000* is one of the few notation programs that supports a wide range of third-party alternate fonts. *Finale* also supports third-party plug-ins and comes with more than 40 plug-ins that perform tasks like creating piano reductions

Just released from
maximum security. Røde
NT1000^{FET} and NTK^{VALVE}
studio condenser
microphones.

See the new Røde line up on day
release at the NAMM* show in
Anaheim from January 18 to 21.
Available in store from February 15.
Ask your dealer for details.



RØDE
MICROPHONES

* Booth Number E 1363

PO BOX 3101, 5 AVERILL STREET RHODES NSW 2138 AUSTRALIA PH. 61 2 8765 9333 FAX. 61 2 8765 5444 www.rodemicrophones.com NT1000



of orchestral scores, adjusting split points in piano music, checking instrument ranges, and creating tablature.

Although we reviewed *Finale 2000* less than a year ago, Coda has already released *Finale 2001*, which adds several notable features. Among the list are new Internet publishing and distribution capabilities, integrated music-scanning technology, an expanded Setup Wizard, and the ability to transcribe melodies from a microphone input.

Finale's great use of color, extensive editing capabilities, comprehensive documentation, and unparalleled feature set make this cross-platform powerhouse a sure-fire winner in a field of noteworthy competitors.

Portable Digital Studio

KORG D16 (\$2,395)

The D16 packs a host of features into a small package, sounds great, and is easy to learn. Small and light (just 4.4 pounds), it's extremely easy to tote to a gig or session. That's a hard combination to beat.

You can record up to 16 tracks of uncompressed 24- or 16-bit, 44.1 kHz audio. Choosing 24-bit recording will halve the number of available tracks to eight, but if you used up your full complement of tracks, you can free some up by bouncing everything to virtual tracks (eight per track) or overwriting a pair of existing tracks. Want to try that mixdown again? The D16 has up to 99 levels of undo.

You get eight balanced analog line-level inputs with dedicated trim controls. Two of these inputs can accept either XLR or 1/4-inch cables. There's also a dedicated 1/4-inch guitar input—a nice amenity for guitarists—and a built-in microphone for slating. Of course, you have stereo S/PDIF I/O, and both the D/A and A/D converters can do sample-rate conversion.

The editable multi-effects processor sounds great and offers everything from meat-and-potatoes dynamics processing, reverb, chorus, and EQ to wah wah (auto- or pedal-controlled), amp and vinyl simulation, Doppler



effects, and ring modulation. You also get effects tailored for mixdown, including multiband dynamics processing. You even receive 215 built-in, high-quality rhythm patterns that you can arrange drum-machine-style.

The MIDI implementation is about as much as you can ask for on a portable unit. The D16 can send and receive MTC, MIDI Machine Control, and continuous controllers, so using it for dynamic mixing automation is a cinch. The unit also supports scene automation through MIDI Program Changes.

The D16 works just fine as a standalone unit, but it's simple to bring your computer into the act. The D16 can save and load WAV files to and from a FAT 16-format hard disk and can also load WAV files from CD. The D16 also supports several common CD-R and CD-RW drives for backing up data or Red Book audio.

Obviously, the D16 has plenty of features, but so do its rivals. What it came down to for us was the unit's combination of sound quality, ease of use, and compactness.



Preamp (less than \$1,000)

PRESONUS BLUE TUBE (\$199)

PreSonus is known for offering quality gear at low prices, but the really cool thing is that the company manages to consistently hit low price points for its premium products (such as the MP20 mic preamp, which picked up an EM Editors' Choice award last year) and for those designed more with the novice or budget recordist in mind.

In the amazingly affordable category ("It's the price, stupid!") is the Blue Tube, a half-rackspace, stereo mic/instrument preamp with features galore—not the least of which is a tube circuit with independent drive controls for dialing in tube distortion to taste. The mic preamps share a Sovtek 12AX7 tube and feature dual-servo gain stages, meaning no capacitors. Each channel provides a handy Neutrik combo connector on the front panel that accepts either XLR or 1/4-inch inputs (for mic or DI), as well as phantom power, a 20 dB pad, polarity reversal, and 8-segment output meters. In addition, the rear panel supplies 1/2-inch and XLR outputs for each channel.

We won't fudge by suggesting that this is the quietest preamp we've heard. But considering its price and feature set, we predict the Blue Tube will prove hard to beat. It's great as a quick distortion box for electric guitars or for fattening up digital samples or keyboards, and our reviewer liked being



AKG®

NEW
C2000B

**Austrian brilliance
at a lower price.**

**What all studio
mics aspire to be.**

The new C2000B side address condenser microphone gives you large diaphragm clarity at a price that can only be categorized as amazing. See your local AKG retailer to hear what we mean.



C2000B

AKG Acoustics, U.S. • 1449 Donelson Pike • Nashville, TN 37217 • Phone: (615) 360-0499
Fax: (615) 360-0275 • E-mail: akgusa@harman.com • www.akg-acoustics.com

A Harman International Company



able to dial in a bit of tube warmth when recording stereo direct to DAT. To top it off, the Blue Tube is sturdily constructed and even kind of cute. Let us know if you hear of a better value in tube-based, stereo mic preamps.

Preamp (more than \$1,000)

LANGEVIN DUAL VOCAL COMBO (\$2,000)

Premium mic preamps are key ingredients in superlative recordings, and it's no secret that Manley Laboratories makes some of the finest. But until the Dual Vocal Combo (DVC) hit the street, not many people at the personal-studio level could entertain thoughts of owning a voice processor hand-built by the esteemed Manley Labs. (Units bearing the Manley Laboratories imprint are tube models, whereas Manley uses the Langevin name—which it has owned since the early 1990s—to designate its line of solid-state products.)

What makes the DVC so irresistible? Pretty much everything about it: the look, the build, the sound, the features—this box gets it right at nearly every turn. The unit employs a minimalist, all-discrete, Class A circuit design with custom-wound transformers on the mic inputs. Each mic channel provides 45 dB of clean, ultraquiet gain; phantom power (with locking switches); a wonderfully smooth and transparent electro-optical limiter; and some of the sweetest-sounding low- and high-shelving EQ we've heard. The limiter section provides independent, hard-wired bypasses; a Link switch for stereo operation; and two Sifam VU meters that can be independently switched to monitor gain reduction or output levels. Each channel has a direct input, and you'll find two TRS inputs on the rear panel for independent access to the limiter section. About the only features we pined for were phase-reversal switches.

Sonically, the DVC gets our highest marks (except for the DI section, which is a tad noisy). Our hard-to-please reviewer described the sound as "tightly focused and highly detailed" with "excellent tonal balance," and he praised the unit for helping him deliver some of his best-recorded tracks to date. Not only is the DVC a prime piece of audio real estate, it's also a lovely sight to behold.

Indeed, three members of our extended family (including the reviewer and one in-house editor) have already purchased DVCs, and others are saving their dollars. Among the die-hard recordists here at **EM** (we record, therefore we exist), no hardware processor stirred up quite as much excitement last year.

Sampler (hardware module)

YAMAHA A5000 (\$2,295)

Is it a sampler, a synth, or a remix tool? The Yamaha A5000's strong feature set makes it a great candidate for all these applications. First, of course, this is a sampler, and mighty good one. The 126-voice polyphonic, 32-part multitimbral device comes with 128 MB of sample RAM—more than enough for most purposes—and supports Yamaha SCSI CD-R drives, so you can create your own sample CDs. The unit's consecutive-sampling feature greatly simplifies the task of multisampling musical instruments by automatically recording and mapping samples.

Like several previous and current Editors' Choice award winners (such as the E-mu E4XT Ultra, last year's winner in this category), the A5000 blurs the distinction between samplers and synthesizers. Its



deep synthesis architecture sports three envelope generators and an LFO per sample. At the program level, additional LFOs include a programmable, stepped waveform with depth, slope, and duration parameters for each step. Apply steps to oscillator frequency, and you have a reasonable simulation of old-style analog step sequencing.

Furthermore, the A5000 delivers nine different smooth-sounding multimode filters, and you can configure them as dual filters. You also get six independent stereo-effects processors that deliver effects ranging from conventional to downright bizarre. You can arrange the six processors in series, parallel, or combinations of the two for complex animation.

Remixers will appreciate the Loop Divide feature which creates beat-based slices from sampled groove. If you can find inspiration in a toss of the dice, the Loop Remix feature has five preset and five user algorithms for randomly rearranging loop segments. If you find a reshuffled groove you like, you can save it as a sample.

The A5000 is also no slouch when it comes to MIDI implementation; you can even assign discrete MIDI Channels at the sample level. Of course, you can synchronize effects and any program's LFO to MIDI Clock for tempo-based fun.

All in all, the combination of sampling, sound design, and remix options made the A5000 the sampler module to beat in 2000.





*bias*PEAK™ is the award winning audio recording, sample editing, mastering, and distribution software for Macintosh®.

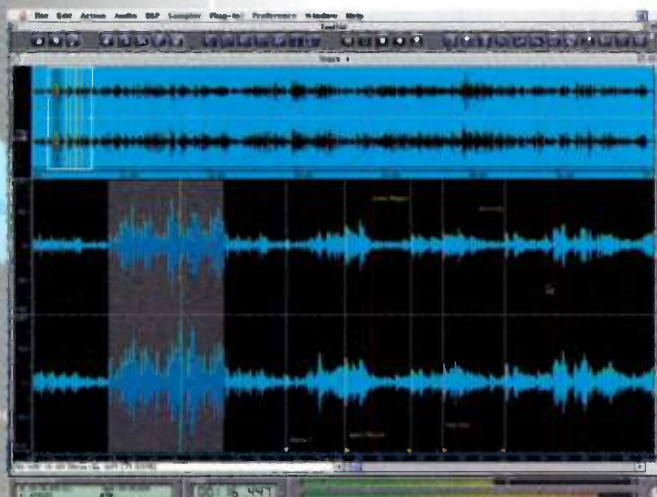
You probably own multitrack recording software and a sampler or two. Our new release, *bias*PEAK 2.5 VST integrates easily and inspires boundless creativity. You can even use it exclusively as your audio software. It also provides the sparkling finish you demand.



Quickly and easily.

So if you produce audio for video, TV, film, games, the web or great hordes of frenzied, dancing humans, then get *bias*PEAK 2.5 VST and you will have time (and probably \$'s) to groove right along with everyone else.

Visit our web site for details on *bias*PEAK 2.5 VST. We also have demos to download and brochures for you to ponder. Check with your favorite dealer.



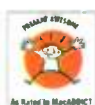
Contact us at www.bias-inc.com or call: 1 800 775-BIAS.



berkeley integrated audio software

"Everything you own should be this good."

VST is a Trademark of Steinberg Soft- und Hardware GmbH. All other logos and trademarks are property of their respective owners. We hope they appreciate the free plug.



These folks loved us, hope you will too!



Sampler (software, standalone)

NEMESYS GIGASTUDIO 160 2.0 (Win; \$699)

When *GigaSampler* made its debut a couple of years ago, it raised more than a few eyebrows. The original hard-disk-based software turned a garden-variety PC into a monster sampler. Unhindered by the limitations of available RAM, *GigaSampler* could play loop-free, multisampled instruments of gargantuan size. Never satisfied, NemeSys has continued to tinker with its techno-wonder, and this past year it introduced its next big evolutionary step: *GigaStudio 160*. And what a step it is!

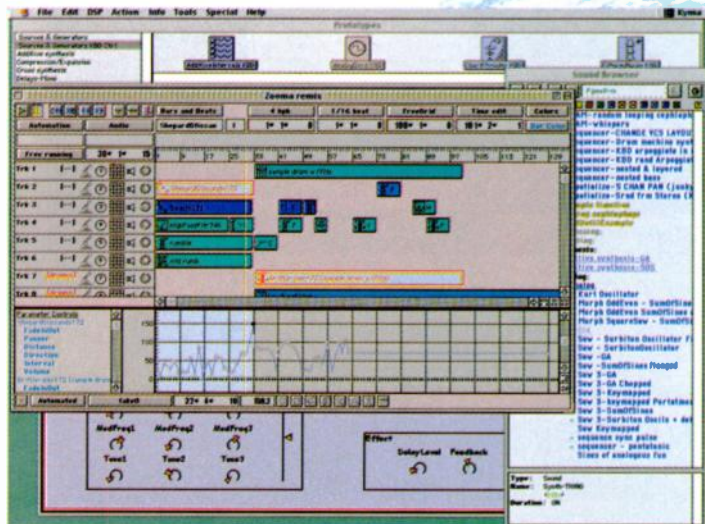
GigaStudio 160 supports 24-bit, 96 kHz audio, and if you have a multiport MIDI interface, you can pump 64 MIDI channels through the program's four independent ports. What's more, *GigaStudio* provides a whopping 160-note polyphony, with a high-end system. That's pretty impressive, but it's really just the start. NemeSys has also improved its state-of-the-art kernel-mode GSIF driver software to provide MIDI-to-audio latencies of less than 10 ms. When we first reviewed *GigaSampler* in 1999, only two sound cards supported the GSIF driver. By the time we reviewed *GigaStudio* (see p. 146 in this issue), that number had ballooned to 44, and it's still growing.

Aside from improvements under the hood, *GigaStudio* has also acquired a completely new graphical user interface, which includes a powerful, interactive QuickSound section for organizing, locating, and previewing samples and WAV files. Type in a few descriptive words, and the program searches your hard drive for the most likely matches. *GigaStudio*'s support for 100Base-T networks means you can actually locate and play samples and instruments from remote drives as well.

GigaStudio's other enhancements include a new 32-bit, 32-channel mixer and a DSP section that offers a collection of built-in, high-quality, zero-latency effects such as reverb, chorus, flange, delay, EQ, and auto pan. Of course, you can automate and save your real-time mixes and effects settings. In addition, the improved Instrument Editor offers some impressive

sound-design tools, such as multiple envelopes and crossfades, multimode resonant filters, and LFOs.

GigaStudio boasts many other powerful features, but we simply can't list them all here. With its unrivaled set of capabilities, *GigaStudio* will change the way many people think about sampling.



Sound-Design Workstation

SYMBOLIC SOUND

KYMA 5.0 (Mac/Win; \$3,300)

We've watched Symbolic Sound's Kyma system develop into an incredibly powerful sound-design workstation over the years, but version 5.0 really puts it over the top. There are so many new and enhanced features that we have to wonder whether there's anything this system can't do!

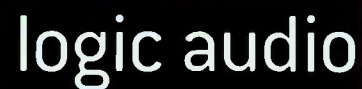
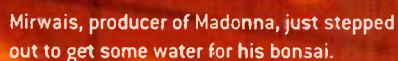
Using the new Timeline, for example, you can build complex sequences of single or multilayered sound-generating or processing functions. The system could transform from an FM synth into a sampler, then into an effects processor, either under your control or completely unattended. You can draw control values

for any of the system's parameters directly in the Timeline and route the outputs of the Timeline's numerous tracks to any of up to eight discrete audio outputs.

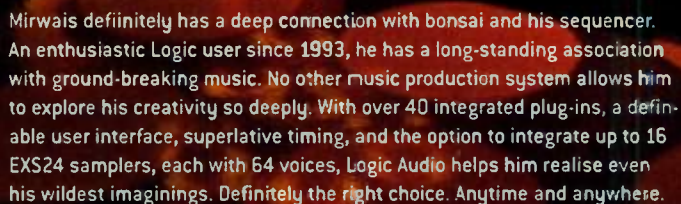
It's easy to find your way around because the new Sound Browser displays all the sounds and patches you've saved, no matter where they are on your computer. You can preview sounds and processes from within the Sound Browser without even loading them into the system, and if you're working with a sample and want to try out numerous transformations, just assign the sample to the Default Sound and scroll through the list of different effects to hear how each one sounds.

The new release also features many new categories of sound-processing prototypes, and all of the functions have been organized into more logical groups. Spectral processors,



The emagic logo is located in the top right corner of the advertisement. It consists of the word "emagic" in a lowercase, sans-serif font, with a blue horizontal line above the letters "i" and "c".The "logic audio" logo is positioned in the top right area, below the emagic logo. It features the words "logic audio" in a white, lowercase, sans-serif font against a dark blue background.The text "Music Production Software" is located in the top right corner, below the "logic audio" logo. It is written in a white, sans-serif font on a blue background.A white-bordered text box containing the text "Mirwais, producer of Madonna, just stepped out to get some water for his bonsai." is located in the upper middle section of the advertisement. A thin white line extends from the bottom of this box down to the "Definitely Deep" headline.

Definitely Deep

A white-bordered text box containing a paragraph about Mirwais is located in the bottom left section of the advertisement. The text describes his long-standing use of Logic Audio software since 1993 and highlights its features like integrated plug-ins, a definable user interface, and EXS24 samplers.

Technology with Soul.



fairly basic waveforms that were organized into tables, which it scanned over time to produce evolving, evocative timbres. (The Korg Wavestation is based on a similar concept.) The Wave 2.3 also had envelopes and filters in the signal path and was noted for the characteristic aliasing it produced.

Like the hardware synth, each of *PPG Wave 2.V*'s 32 wavetables contains 64 waveforms. You can modify most characteristics of a sound—such as where the playback will start in the table—as the sound plays. Onscreen knobs are available to tweak the parameter values, but you can also map MIDI controller messages to parameters for vastly more powerful real-time manipulations. Modulation routings are numerous, and the addition of graphic envelopes in the virtual version makes it a tweeker's dream. If you have the CPU horsepower, you can run up to eight instances of the plug-in simultaneously. Like any VST Instrument, the audio output of the virtual *Wave 2.V* can be routed through the VST mixer, where you can treat it like any other audio source in the mix.

So forget about scanning the auctions and advertisements for that rare and expensive piece of PPG hardware. Just pick up a copy of *PPG Wave 2.V* and click your way to a world of fluttering, shimmering, and sweeping sounds.

Synthesizer (software, standalone)

APPLIED ACOUSTICS SYSTEMS

TASSMAN 1.2 (Win; \$395)

An impressive number of new software synthesizers appeared in the past year, but one soft synth stands out from the rest: AAS's *Tassman*, which offers one of the most unusual ways to generate sounds that you're



THE WINNING MANUFACTURERS

Alesis Corporation tel. (800) 525-3747 or (310) 255-3400; e-mail info@alesis.com; Web www.alesis.com

Applied Acoustics Systems tel. (888) 441-8277 or (514) 871-4963; e-mail info@applied-acoustics.com; Web www.applied-acoustics.com

Audio-Technica U.S., Inc. tel. (330) 686-2600; e-mail pro@atus.com; Web www.audio-technica.com

Baltic Latvian Universal Electronics (BLUE) tel. (818) 986-BLUE; e-mail blue@bluemic.com; Web www.bluemic.com

Big Briar, Inc. tel. (800) 948-1990 or (828) 251-0090; e-mail info@bigbriar.com; Web www.bigbriar.com

Coda Music Technology tel. (800) 843-2066 or (612) 937-9703; e-mail finalesales@codamusic.com; Web www.codamusic.com

Digigram, Inc. tel. (703) 875-9100; e-mail input@digigram.com; Web www.digigram.com

FXpansion tel. 44-0-7808-157-967; e-mail info@fxpansion.com; Web www.fxpansion.com

Hafler tel. (888) HAFLE11 or (480) 967-3565; e-mail sales@hafler.com; Web www.hafler.com

Korg USA, Inc. tel. (516) 333-9100; Web www.korg.com

Kurzweil Music Systems, Inc./Young Chang tel. (800) 421-9846 or (253) 589-3200; Web www.kurzweilmusicsystems.com

Lexicon, Inc. tel. (781) 280-0300; e-mail info@lexicon.com; Web www.lexicon.com

Manley Laboratories (Langevin) tel. (909) 627-4256; e-mail emanley@manleylabs.com; Web www.manleylabs.com

Mark of the Unicorn, Inc. (MOTU) tel. (617) 576-2760; e-mail info@motu.com; Web www.motu.com

Metasonix e-mail synth@metasonix.com; Web www.metasonix.com

Nearfield Multimedia tel. (310) 518-4277; e-mail multimedia@nearfield.com; Web www.multimedia.nearfield.com

NemeSys Music Technology tel. (877) NEMESYS or (512) 219-9181; e-mail info@nemesysmusic.com; Web www.nemesysmusic.com

PreSonus Audio Electronic tel. (800) 750-0323 or (225) 216-7887; e-mail presonus@presonus.com; Web www.presonus.com

Roland ED/Edirol Corporation North America (distributor) tel. (800) 380-2580 or (360) 332-4211; e-mail edirol@edirol.com; Web www.edirol.com

Roland Corporation U.S. tel. (323) 890-3700; Web www.rolandus.com

Sounds Logical e-mail info@soundslogical.com; Web www.soundslogical.com

Steinberg North America tel. (818) 678-5100; e-mail info@steinberg-na.com; Web www.steinberg-na.com

Symbolic Sound Corp. (Kyma) tel. (217) 355-6273; e-mail info-kyma@symbolicsound.com; Web www.symbolicsound.com

Tactex tel. (250) 480-1132; e-mail sales@tactex.com; Web www.tactex.com

Tascam tel. (323) 726-0303; Web www.tascam.com

Wave Mechanics tel. (877) COOL-EFX or (973) 746-9417; e-mail info@wavemechanics.com; Web www.wavemechanics.com

Waves tel. (865) 546-6115; e-mail sales@waves.com; Web www.waves.com

Yamaha Corporation of America tel. (714) 522-9011; e-mail info@yamaha.com; Web www.yamaha.com or www.yamahasyth.com

You'll find endless features and more than forty cool effects in every box of Cool Edit Pro!



Musician tested-
industry approved!

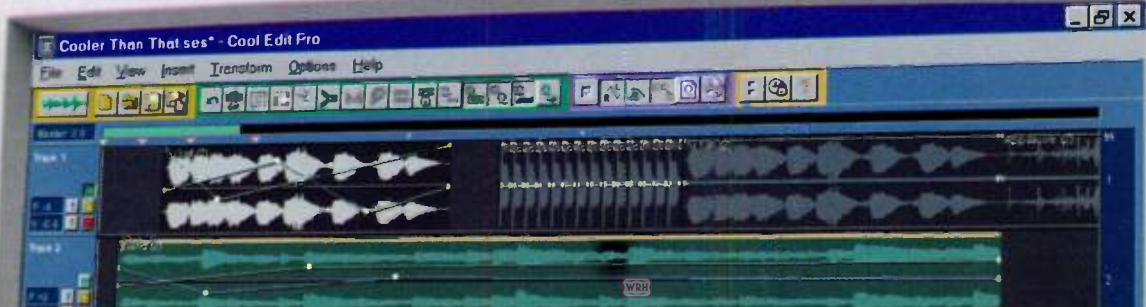


Cool Edit Facts	
Serving Size: 1 box Cool Edit Pro	
Tracks	64
Effects	40+
Resolution	24/96
Max. Res.	32/10MHz!
Optional en/decoder	MP3
DirectX™ support	100%
Crash recovery	100%
Tech support	100%
Coolness	100%

P.O. Box 62255
Phoenix, AZ 85082 USA
cepro@syntrillium.com
1-888-941-7100
(toll-free sales, USA and Canada)
tel: +1-480-941-4327
fax: +1-480-941-8170



WWW.COOLEEDIT.COM





likely to find. *Tassman* (see review on p. 186 of this issue) uses physical modeling to create the sounds of both acoustic and electronic instruments and offers a large library of models for your sonic designs.

In that library, you'll find bows, beams, bells, strings, membranes, and more, all of which you can combine and configure into any type of virtual instrument. You can change the characteristics of your instrument as it is playing; for example, you can alter a mallet's strength as it hits a string or change a mouthpiece's shape as you "blow" into a recorder. You can also map an instrument's parameters to any number of MIDI Control Change messages or customize the appearance of your devices in numerous ways. *Tassman* also offers numerous effects and has more than enough VCOs, VCAs, and envelope generators to build traditional analog-synth models.

Like other modular-synth builders, *Tassman* provides a Construction window in which you wire together the software's various modules. To build a synth, select a module in the Library window, click in the Construction window where you want the module to appear, then patch the various inputs and outputs of the modules you're using. Once you've created an instrument in *Builder*, you switch to *Player* to hear how it sounds. Of course, the more you know about how instruments actually work, the quicker you'll be able to build convincing simulations of instruments. But even with no background in acoustics, you can use the numerous examples as starting points, and, of course, experimentation is half the fun!

Tassman lets you record the output of your instruments directly to disk, and you can also load a WAV file off your drive and play it back straight or processed along with your synthetic designs. Although we wish the software had a single, integrated screen for building virtual instruments and for performing them, we can live with the few extra keystrokes needed to try out our designs because the modules just sound so darn good. We'd also like to see the latency lowered a bit, which apparently is also a top priority for the developer. The tutorials are among the best we've seen, and the Web site features new patches every time we look.

With the forthcoming release of a VST plug-in version of *Tassman*, you'll have even more ways to use this excellent program, which we think is among the most distinctive sound-design resources around today.

Synthesizer/Sampler (keyboard)

KURZWEIL K2600 (88-key \$6,820; 76-key \$6,256)

Kurzweil has earned a reputation for making ongoing and significant evolutionary enhancements to its products, and the K2600 is a perfect case in point. At first glance, you'll wonder what makes the new instrument different from its immediate predecessor, the K2500. Indeed, the changes are less dramatic than the differences between the K2000 and K2500, but they are noteworthy nevertheless.

The K2600's circuit boards were redesigned from

THE AWARD WINNERS IN REVIEW

Most of our award-winning products have been evaluated in EM, either in reviews or in face-off/roundup-type features. A few reviews are still in progress, but our tests are either completed or far enough under way for us to feel confident about our conclusions.

An article title enclosed in quotes indicates that the product was covered in a feature rather than in a review. All other entries indicate reviews of the award-winning version.

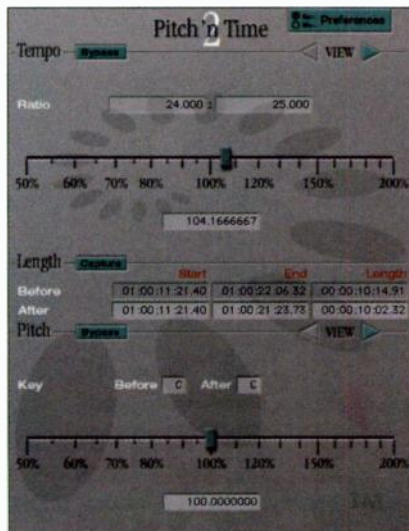
All published articles—with the exception of those in the February 2001 issue—are available for download from the Article Archives section of the EM Web site, www.emusician.com. The February issue will be available online next month.

Alesis Masterlink ML-9600	September 2000
Applied Acoustics Systems <i>Tassman</i> 1.2 (Win)	January 2001
Audio-Technica AT4047/SV	March 2000
Baltic Latvian Universal Electronics Dragonfly	September 2000
Big Briar CP-251 Control Processor	In progress
Coda Music Technology <i>Finale</i> 2000 (Mac/Win)	February 2000
Digigram VXpocket (Mac/Win)	July 2000
FXpansion <i>VST-DX Adapter</i> 2.1 (Win)	December 2000
Haffer M5	November 2000
Korg D16	July 2000
Korg MS2000R	August 2000
Kurzweil K2600	In progress
Langevin Dual Vocal Combo	November 2000
Lexicon MPX 500	May 2000
Mark of the Unicorn <i>Digital Performer</i> 2.7 (Mac)	October 2000
Metasonix TS-21 Hellfire Modulator	November 2000
Nearfield Multimedia Marimba Lumina	June 2000
NemeSys <i>GigaStudio</i> 160 (Win)	January 2001
PreSonus Blue Tube	In progress
Roland ED U-8 USB Digital Studio	September 2000
Roland VP-9000	In progress
Sounds Logical <i>WaveWarp</i> 1.2 (Win)	June 2000
Steinberg <i>PPG Wave</i> 2.V (Mac/Win)	February 2001
Steinberg <i>WaveLab</i> 3.0 (Win)	February 2001
Symbolic Sound <i>Kyma</i> 5.0 (Mac/Win)	In progress
Tactex MTC Express	"The Outer Limits" August 2000
Tascam MX-2424	December 2000
Wave Mechanics <i>Speed</i> 1.0 (Mac/Win)	December 2000
Waves <i>C4</i> (Mac/Win)	February 2001
Waves L2 Ultramaximizer	January 2001
Yamaha A5000	October 2000

All Your Time-Stretching and Pitch-Shifting Dreams Have Just Come True...

A new version, more features, now for Mac *AND* Windows

Pitch 'n Time, originally released in December 1999 by Serato Audio Research, has already been described as the best pitch and tempo control tool on the market today. It has received rave reviews from a number of pro audio magazines and was recently nominated for the 2000 Mix Technical Excellence & Creativity award.



With the release of version 2.0, we at Imaginary Gadgets have built on that tradition of excellence to deliver a

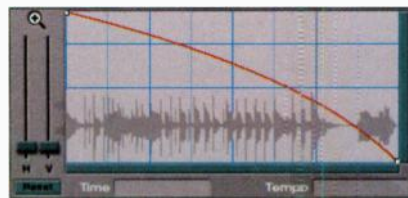
product which incorporates exactly what you have been wishing for.

Introduced in this release is an impressive array of new features including multi-channel mode, waveform overviews, tempo mapping, time morphing and pitch mapping which together make Pitch 'n Time 2.0 an essential tool for your collection.

New in Version 2.0

Multi-Channel Mode allows you to process up to 48 tracks together while maintaining their original phase coherency.

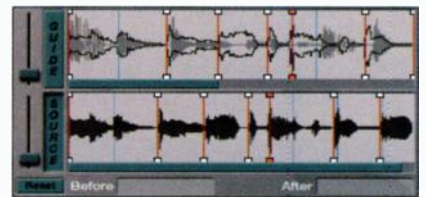
Waveform Overviews mean that each of your graphical editing portals has its own preview. You can actually see the effects of your tempo map as it is applied directly to the waveform.



Tempo Mapping gives you the power to create variable tempo ramps and

changes over the length of your sample.

Pitch Mapping allows you to create amazing pitch-bends and record-scratching effects by drawing your pitch change right on top of the waveform.



Time Morphing, this simple yet powerful feature lets you synchronize arbitrary cue points: simply move them where you want them to go in the output, and Pitch 'n Time warps the timebase as required!



Pitch 'n Time is powered by
serato
intelligent sound

Download your free 15-day trial of Pitch 'n Time

www.pitchntime.com/demo



www.pitchntime.com

Pitch 'n Time
Version 2.0



scratch to increase the signal-to-noise ratio and double the Flash ROM, which holds the user-installable operating-system software. The analog outputs are now balanced on 1/2-inch TRS connectors.

Kurzweil's KDFX effects and 4 MB stereo-piano ROM are standard in the K2600 (they were optional in the K2500), and there are now four slots for optional waveform ROM blocks instead of two. Interestingly, the K2600 uses the same basic waveform ROM as the K2500, but it includes entirely new programs and setups—and plenty of them. The KDS digital-audio option is available for both the K2500 and K2600, but whereas the K2500 accommodates eight output channels only, the K2600's KDS provides eight channels of input and output.

Among the major new software features is Live

Mode, which lets you process incoming audio through the instrument's V.A.S.T. and KDFX sections. Vocoder mode does just what its name implies, and RAM Tracks lets you record audio tracks in a MIDI sequence, much as you can in a digital audio sequencer, except that the recording is RAM-based rather than going directly to hard disk. Triple Mode is an extremely cool feature that provides many new V.A.S.T. algorithms and DSP blocks for each of three layers within a program, and the layers can be chained in various serial configurations, which opens up whole new worlds of sonic possibilities.

The K2600 represents a major upgrade to an already incredibly comprehensive and powerful keyboard instrument. Giving it this award was one of our easiest choices this year. 🌟

a bright idea just got brighter.

The new PLP-Series power conditioner/light modules provide all the functionality of our top-selling PL-PLUS power conditioner in four brilliant colors. The translucent front panel gives your rack a unique, outstanding appearance while providing the power conditioning and surge protection features you need.

Purify your power! See your Furman dealer for more information.



**Now
Shipping!**

FURMAN

Products for Audio, Video
and Computer Professionals

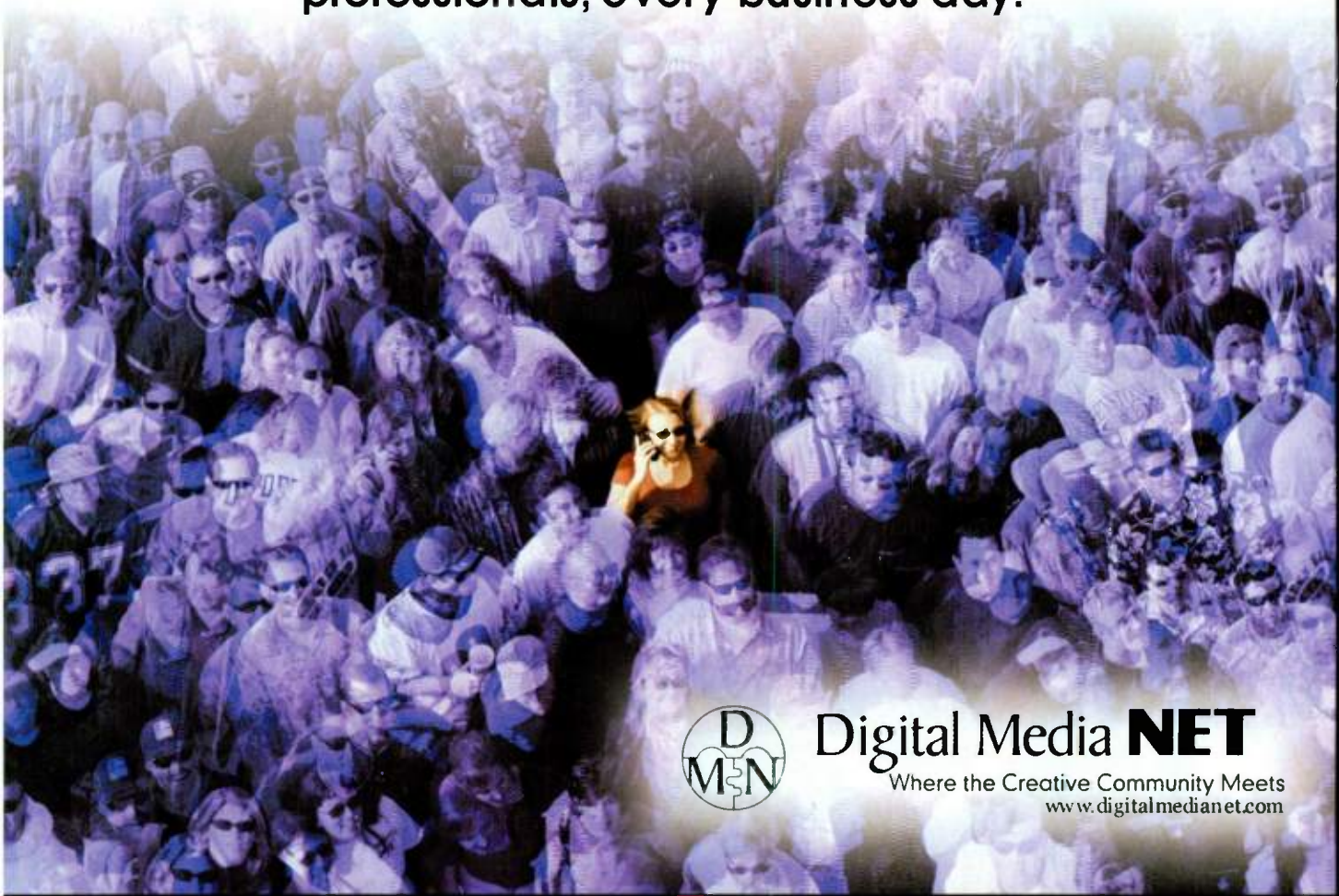
Furman Sound, Inc. • Tel: 707-763-1010
1997 South McDowell Boulevard, Petaluma CA 94954 • USA
Email: plp@furmansound.com • www.furmansound.com

Over 1,000,000 times

a month creative professionals visit a
DigitalMediaNet.com community

Are you one in a million?

DigitalMediaNet.com -
The latest information for digital media
professionals, every business day.



Digital Media **NET**

Where the Creative Community Meets
www.digitalmedianet.com



GOOD CONNECTIONS

A guided tour of audio cables and their applications.

BY JEFF BAUST

No matter what type of audio system you use, cables are necessary to connect the components. Recording studios, live-sound rigs, guitar racks, DJ setups—without cables, none of these systems is much more than a stack of silent boxes. Cables are the highways that audio signals travel on; without them, no sound gets through.

Clearly, cables are essential, critical pieces of “gear” in any audio system. But because they are not as fun and sexy as microphones, preamps, and processors, nor as engaging and multifaceted as samplers, sequencers, and recording devices, cables often get overlooked or ignored. Consequently, cables remain something of a mystery for many people, even those who have invested thousands of dollars in them and rely on them daily.

QUALITY COUNTS

It is common knowledge that good-quality cables are essential for trouble-free system performance and that worn out or damaged cables can result in hums, crackles, and intermittent signals. But what some people might not realize is that an inferior cable—even if it’s fully functional—can also have an adverse effect on the sound quality of a system. Poor-quality cables can filter signals, introduce noise, and cause distortion; in addition, they’re more prone to crap out just when you need them most.



Worse still, the problem is a cumulative one. A single inferior cable might contribute only the slightest sonic compromise, but the tiny degradations introduced by several such cables can add up to a substantial loss of sonic quality. For this reason, it is vitally important to spend ample time and money selecting appropriate, high-quality cables for your system. (Some manufacturers provide inexpensive molded cables with their audio gear just to help you get up and running; but it's usually advisable to replace these with better-quality cables.) Not only do high-quality cables make a difference sonically, but their greater reliability increases your system's longevity as well.

Of course, sonic quality is a balancing act between all the components in a system. Poorly made cables can compromise your audio, but a poor-quality system might be incapable of registering the enhancements offered by premium cables. Don't be surprised if those \$1,000 speaker cables don't improve the sound of your \$300 studio monitors!

ANATOMY OF A CABLE

There are three main types of analog audio cables: microphone, line/guitar, and speaker. (To understand the distinction between analog and digital audio cables, see the sidebar "Appearances Can Be Deceiving.") Fig. 1 shows the basic parts of a line cable. The main component is the central *conductor*, which carries the audio signal. The conductor is covered by a nonconductive

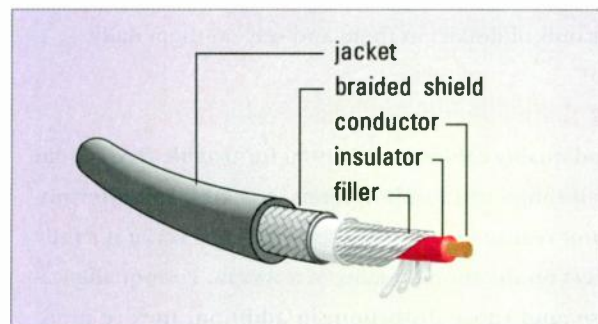


FIG. 1: A single-conductor cable with braided shield and filler (to help reduce handling noise).

insulating material that is typically made of plastic or rubber.

A conductive *shield* encases the conductor and insulator core, protecting it from outside interference and also providing an electrical ground, which is necessary to transmit a signal. A nonconductive *jacket* surrounds all of this, providing structure and durability.

Audio cables typically use copper wire as a conductor because copper is inexpensive, pliable, and a good electrical conductor. However, copper oxidizes when exposed to air, forming copper oxide. This material is a poor conductor, which can cause a cheaply made cable or connection to degrade in performance over time.

Cables typically have hardware connectors fastened to the ends (see Fig. 2). Mic cables normally use XLR connectors, while line cables generally use 1/4-inch or RCA connectors. Speaker cables often terminate in bare wires, but they can also use banana plugs or spade lugs. Cables with high-quality connectors, including those made from superior materials, are always a good investment. Gold is a good choice for cable connectors not only because it is an excellent conductor, but also because it is soft and will deform slightly to fill in all the gaps within a socket and create the best possible connection.

SIZE MATTERS

The diameter of a wire is an important consideration in cable design because it affects the wire's ability to transmit audio effectively. The American Wire Gauge (AWG) protocol defines wire diameter on a scale where larger numbers indicate smaller diameters. For audio wire, typical gauges range from 4 AWG to 30 AWG. (See the table "Wire Gauge Diameters" for a list of wire gauges and their diameters.)

Here are some rules of thumb for estimating



FIG. 2: From left to right, common audio-cable connectors include RCA (consumer and semipro unbalanced line cables), male and female XLR (microphone and balanced line cables), and 1/4-inch TS (unbalanced line and instrument cables).

COURTESY: HOSA TECHNOLOGY

wire gauges. Solid-wire diameters change by:

- a factor of 2 for every 6 gauges;
- a factor of 3 for every 10 gauges;
- a factor of 5 for every 14 gauges.

From this information and the "Wire Gauge Diameters" table, we can deduce that 18-gauge wire is approximately 40.2 thousandths of an inch (40.2 mils) in diameter, 12-gauge wire is 80.4 mils, and 6-gauge is 160.8 mils.

A wire's cross-sectional area can also be estimated with another simple rule of thumb: when you change the gauge by 3 AWG, the cross-sectional area changes by a factor of two. For example, 17-gauge wire has twice the cross-sectional area of 20-gauge wire. This means that a 2-wire strand of a given gauge is the equivalent of a single wire three gauges lower.

This is an important concept in cable geometry, which refers to the physical configuration of the wire or wires used to make the cable. For example, some cables use a single, solid wire as a conductor. However, this is uncommon for audio cable, because a solid wire would make the cable stiff and difficult to work with. Most audio cable uses stranded conductors in which many thin wires are woven together to form a single conductor. This way, the conductor can offer the benefits of a large cross-sectional area but with greater cable flexibility.

RAISE YOUR SHIELDS

Many types of interference can affect an audio signal traveling along a wire. A common type is *radio-frequency interference* (RFI). If you've ever picked up a radio station in your system, you've

THERE'S NOTHING TO FEAR IN SYNTH ITSELF.

The MS2000 is a synth that isn't afraid to act like one. Its meaty analog sounds and knob-packed interface harken back to a day when synths invited you to shape your sound as you played. It pays tribute to all that made synths amazing in the first place, with modern modeling technology that opens up a new universe of possibilities. Don't be timid, take a peek:

- 128 smokin' RAM sounds
- 70 waveforms
- 12/24 dB resonant filter with self oscillation
- Virtual Patch modulation matrix
- MIDI syncable LFOs, effects and arpeggiator
- 3-track Mod Sequencer for cool sound and pitch shaping
- 16-band vocoder
- Audio input into synth architecture
- Available as keyboard or rackmount/tabletop

See, that wasn't so scary now, was it?

For more on the MS2000, including links to reviews, go to www.korg.com/ms2000

©2000 Korg USA, 316 S. Service Rd., Melville, NY 11747 • For more info via faxback: (631)393-8530, doc#3605 • www.korg.com



KORG



experienced RFI. Typically, the culprit is a poorly shielded audio cable acting like an antenna.

RFI is a kind of *electromagnetic interference* (EMI) that is caused by radio-frequency transmissions. Other types of EMI include emissions from various sources, such as coils in motors, fluorescent lights, and rheostat lighting dimmers. *Electrostatic* (ES) noise is another potential source of problems in an audio system. Electrical sparks and static electricity are types of ES noise, either of which can cause artifacts and distortion in an audio signal.

Cable shielding helps protect audio from problems that are caused by RFI, EMI, and ES noise. In general, audio wire employs shielding between the

conductor and the jacket to keep interference from reaching the conductor. For some types of EMI, however, cable shielding is not effective, and the only solution is to use balanced cables (see the sidebar "Balancing Act"). Shielding is essential for mic, guitar, and line cables. That's because the signals from these sources are very low in level and must be amplified—which in turn amplifies the interference to the point of being audible.

BRAZEN BRAIDS

One type of cable shielding consists of a braid of wire that completely encircles the conductor (see Fig. 1). Called *braided shields*, they offer excellent structural integrity, flexibility, and flex life, which is why they are commonly used in mic and guitar cables.

Braided shields typically cover 90 to 97 percent of the conductor. The

Wire Gauge Diameters

Gauge	Diameter
40 AWG	3.1 thousandths of an inch, or 3.1 mils
30 AWG	10 thousandths of an inch, or 10 mils
24 AWG	20.1 thousandths of an inch, or 20.1 mils
4 AWG	204.3 thousandths of an inch, or 204.3 mils
1 AWG	289.3 thousandths of an inch, or 289.3 mils

higher the percentage of braid coverage, the more effective the protection. Cheap cables frequently have loosely wrapped braiding that covers a smaller percentage of the conductor. In this case, interference noise can still penetrate through the gaps in the braid and be picked up by the conductor; as the cable loosens with age, the problem only gets worse.

FOILED AGAIN

Another type of cable shielding uses metal foil wrapped completely around the conductor (see Fig. 3). Called *foil shields*, these consist of aluminum foil laminated to a polyester film. Not only are foil shields lighter and less bulky than braided shields, but they are less expensive to make as well.

Foil shields provide 100 percent coverage of conductors, which improves protection from RFI, EMI, and ES noise. In addition, foil shields use a *drain wire* to aid in grounding electrostatic charges. This wire runs along the length of the foil and attaches to the connector at the output end, which leads these charges away from the destination of the signal. If you've ever cut open a cable with foil shielding and found one more wire than you expected, the extra one was the drain wire.

Foils shields have a shorter flex life than braids, so they are best suited for permanent cable installations. This makes foil-shielded cable a poor choice for any application that requires the cable to be moved, flexed, or otherwise handled regularly. Foil shielding is therefore not used for guitar and mic cables, because the foil would break with use.

THE OLD ONE, TWO, FOUR

Line cables typically have either one or two conductors. Single-conductor cables (see Fig. 1) carry unbalanced audio signals from electronic instruments, studio equipment, guitars, consumer audio gear, and so forth, and they generally

APPEARANCES CAN BE DECEIVING

Because many digital audio cables use the same connectors as analog cables do, it is tempting to use analog cables to make digital audio connections. But by all means, resist this temptation! Analog and digital cables have very different impedance requirements. In an analog cable, it is not unusual for the impedance to vary from 30 to 90 ohms at different points along the length of the cable. Such impedance fluctuations do not negatively affect the quality of an analog audio signal. However, they could have dire consequences for digital signals.

A digital audio signal is a pulse wave that travels at a very high frequency (around 3 MHz). In order for this signal to be transmitted accurately, the impedance of a digital cable must be matched to the sending and receiving devices, and the impedance must also be consistent along the entire length of the cable. For example, an AES/EBU cable must exhibit a consistent 110 ohms from end to end. This is why an AES/EBU cable is consider-

ably more expensive than a seemingly identical mic cable.

So what happens if you use an analog audio cable in place of a digital audio cable? For one thing, the mismatched impedance can create standing waves and unwanted reflections of the signal in the cable, which in turn can "smear" the shape of the pulse wave. This smearing can also be caused by the cable's capacitance, which can reduce the high-frequency response of the cable and thus directly affect the rise time of the pulse wave.

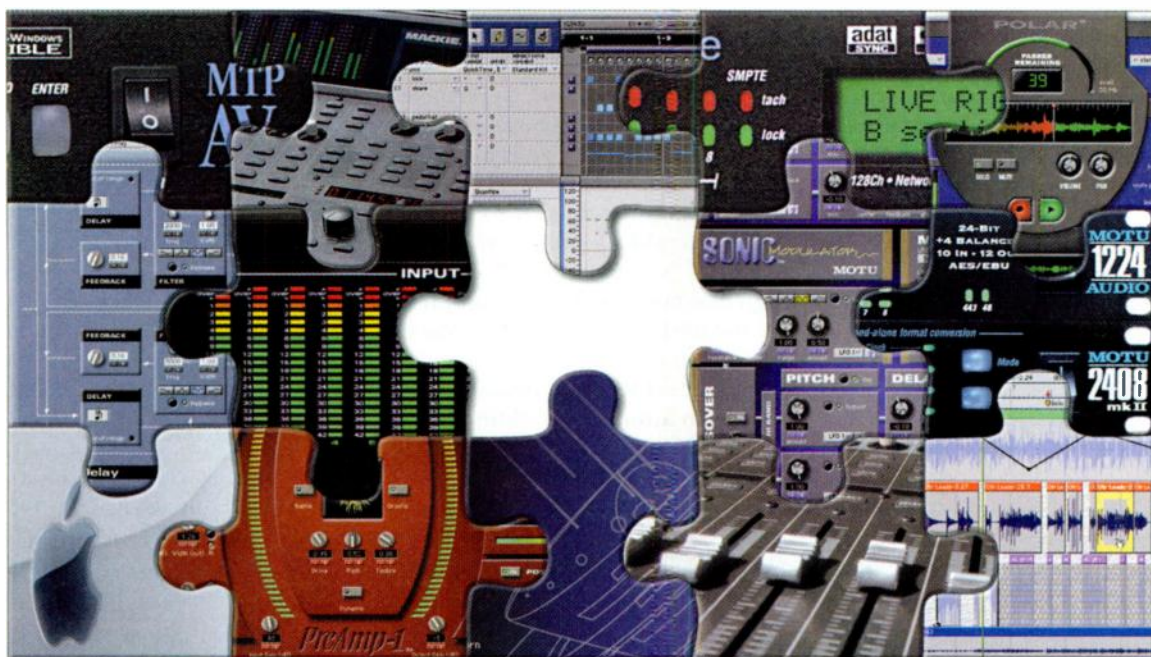
The transitions between high and low voltages in the pulse wave define the 0s and 1s of a digital signal. If these transitions are smeared because of incorrect impedance and/or capacitance, the receiving device might interpret them as arriving either too early or too late. This timing error, known as *jitter*, can result in reduced audio quality and data errors. The bottom line is that you should use only digital audio cables to make digital audio connections.

digital performer^{2.7} version 2.7

electronic musician magazine

2001 and 2000 editors choice winner for

best audio sequencer



hard disk recording • midi sequencing • audio interfaces • midi interfaces • sync • plug-ins • virtual instruments
midi system management • automated control surface support • the most complete integrated system available

the
complete
picture

MOTU
motu.com



use tip-sleeve (TS) 1/4-inch or RCA connectors to accommodate the conductor and shield (see Fig. 2). Braided shields are typical on unbalanced cable, although foil shielding is available for some unbalanced studio connections. Instrument cables (also known as guitar cables) are often designed for greater durability than studio cables and may include reinforced braided shields and extra-thick jackets.

Balanced audio signals are often used in professional audio gear, and they require dual-conductor cables (see Figs. 3 and 4). They also require XLR or tip-ring-sleeve (TRS) 1/4-inch connectors (which look just like 1/4-inch stereo headphone connectors) to accommodate the two conductors plus the shield. These cables come in many design configurations, and the shield can be either a braid or a foil, depending on the intended application. The two conductors are usually twisted together inside the cable to maximize the benefits of balanced connections. Twisting the conductors exposes them equally to any external interference, thereby increasing the efficacy of the noise cancellation that is inherent in balanced transmission.

A variation of dual-conductor cable is *quad cable*, which uses four conductors arranged in pairs. This configuration uses two conductors, twisted

together and attached at each end, to form a single conductor. The two pairs are then twisted together, making a tight winding of all four conductors. Quad cables maximize the effects of noise cancellation in balanced transmissions by exposing all four wires equally to any interference.

Mic cables use either two conductors or a quad configuration and are similar in construction to balanced line cable. The difference is that good-quality mic cable offers increased flexibility and durability as well as reduced handling noise. Because they will be moved around in potentially extreme RFI and EMI fields, mic cables usually employ extra shielding. In addition, mic-cable jackets are typically made of a material that can withstand extra abuse and a wide range of temperatures.

A HIGHER LEVEL

For most audio applications, cable shielding is necessary to protect audio signals from EMI and ES noise. Speaker cables, however, do not need such shielding, because they carry signals at a much higher current level, which means that any EMI must be very strong in order to be apparent. Nevertheless, speaker cables should be kept as short as possible to minimize cable impedance (more in a moment).

Speaker cable consists of two conductors inside a jacket or molded covering (see Fig. 5). To handle the high-current signals, the conductors are usually larger in diameter than mic or line cables.

Speaker cables can terminate in bare wire or in a number of different connector types, including 1/4-inch and XLR

connectors, banana plugs and spade lugs. Obviously, two of these types—1/4-inch and XLR—are also used on line and mic cables, so care must be taken not to substitute mic or line cables for speaker cables with identical connectors. The cables may look the same on the outside, but they are quite different on the inside. For example, line cables use the shield as a second conductor. However, a speaker connection requires two conductors of equal electrical performance to work properly. Because the shield in a line cable is not designed for this application, using one in place of a proper speaker cable would result in poor performance from both the amplifier and the speaker. In extreme cases, this can result in equipment damage.

TRANSMISSION PROBLEMS

A cable's job is to transmit an audio signal with little or no signal loss. As it turns out, though, the cable itself is a major contributor to problems in signal transmission. The conductors, shield, and insulators that make up a cable all contribute *resistance*, *capacitance*, and *inductance*, which affect the signal. This is a complicated subject, beyond the scope of this article, but here are some basic issues to think about.

All cables exhibit a certain amount of *impedance*, which is measured in ohms (represented by Ω , the Greek letter omega). Impedance is a measure of how much the cable impedes the flow of electrical current, and it's actually a combination of three electrical properties: *resistance*, *capacitive reactance*, and *inductive reactance*. Let's take a closer look at all three, starting with resistance, which is the tendency to resist the flow of a direct current. (Of course, audio signals manifest as an alternating current, but resistance is part of a cable's total impedance, so it must be considered.)

Resistance. In simple terms, the larger the diameter of the cable or conductor, the lower the resistance, which is often expressed in ohms per unit length. (See the table "Copper Wire Resistance" for the relationship between gauge and resistance in copper wire.)

A handy rule of thumb is that 500 feet of 16-gauge wire has a resistance of about 4 ohms. Every change of three gauges doubles or halves the resistance, because such a change also doubles or halves the cross-sectional area of the

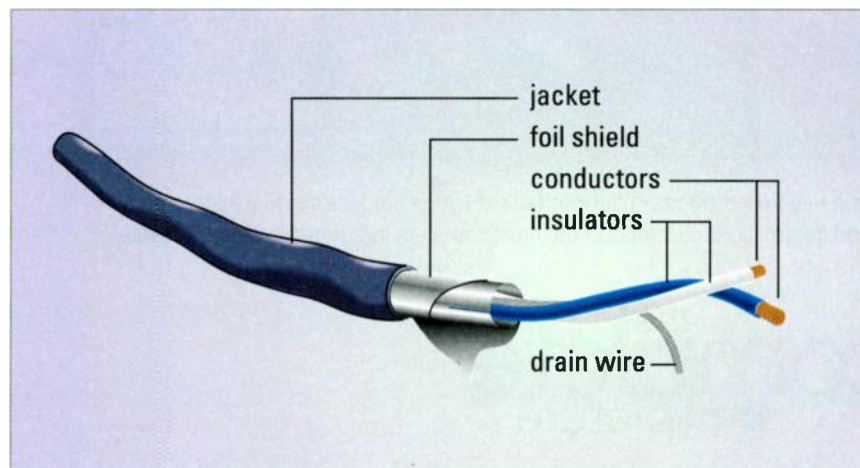


FIG. 3: A dual-conductor cable with foil shield and drain wire. Note the lack of filler material.



Turn Your Creativity Loose with Technics Digital Keyboards

www.technicsusa.com

Technics
Musical Instruments



with guitar cables, mic cables, and any other cable that normally flexes or moves while in use. Therefore, it's very important to look for tight packing when selecting these kinds of cables. (Many retailers have samples with the ends cut open. If not, you can buy a foot or two of the cable and cut it up right there in the store.) Handling noise also becomes a problem when you use cables meant for other applications as guitar cables. For example, speaker cables and studio interconnect cables are not manufactured with the intention of being moved around while in use and therefore contain little or no filler.

CURRENT EVENTS

Another issue to take into account is the current-handling capability, or *ampacity*, of the cable. Again, this is mostly an issue for speaker cables and power cables, both of which need to carry high currents. These cables have a maximum current rating, measured in amperes (amps), that indicates what the cable can safely handle. The rating is based on the amperage a conductor can carry before melting either the conductor or the insulation. Therefore, when in doubt about ampacity, check with the manufacturer.

In general, the larger the conductor size, the greater the current-carrying capacity—that is, as long as the jacket is able to handle the heat. For example, 28-gauge wire can handle between 3 and 5 amps, while 4-gauge wire can carry between 125 and 180 amps. Of course, 4-gauge wire is overkill for most speaker

applications; a typical speaker cable is 10 to 18 AWG. (Depending on how it's constructed, 18-gauge wire can handle around 10 to 20 amps.)

RELIEF IS IN SIGHT

As a cable hangs off a piece of gear, the connector joint bears the weight of the part of the cable that is not resting on the ground. Eventually, this can cause the internal conductor and braiding to fray and even break. That's why *strain relief* is another important factor in cable construction.

When selecting cables, be sure there is good strain relief at the ends, usually in the form of a rubber sheath that extends into the connector. Molded cables offer only fair strain relief and cannot be inspected or fixed if a problem arises. Soldered connectors are generally more robust, because they include better strain relief and you can open them up for repair.

Another important consideration—especially for mic and guitar cables—is how well the cable can handle the strain of being pulled on. Inside good-quality cable, the same filler that reduces handling noise also helps relieve pulling strain, taking the load off the connector. With inexpensive cable, however, the strain is borne solely by the solder joint between the conductor and the connector, which can cause the cable to fail after only one or two unfortunate tugs (or overly enthusiastic stage dives). In either case, the trick is to pull on the connector, not on the cable itself.

UPPING THE ANTE

So far, I have covered the basics of cable design and described some ways in which cables can affect performance. Fortunately, most reasonably priced, well-made cables address these problems to a high degree. But for those seeking maximum audio performance, many types of so-called "exotic" cables are also available—typically at exorbitant prices.

Is exotic cable really worth the added expense? The answer depends on several variables, includ-

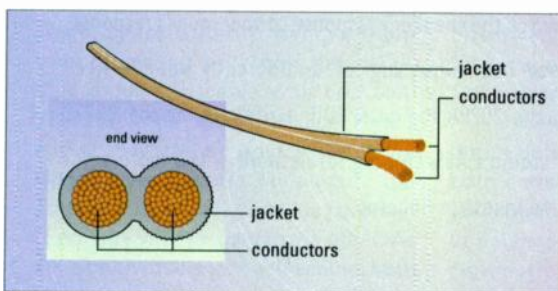


FIG. 5: This speaker cable has two insulated conductors. Note the lack of shielding and filler.

Copper Wire Resistance

Gauge	Feet/Ohm	Ohms/Foot
10 AWG	490.2	0.2
14 AWG	193.8	0.5
18 AWG	76.8	1.3
22 AWG	30.3	3.3
28 AWG	7.6	13.2

ing whom you ask, how good your ears are, the listening environment, and the quality of the other components in the system. As suggested earlier, it makes little sense to buy the most expensive cables available if the rest of your system is not of similar quality.

Exotic cable designs can include unusual geometries, such as square or flat conductors, to reduce cable capacitance and/or inductance. For speaker cables, some manufacturers minimize self-inductance by using multiple insulated wires to form each conductor. And capacitance is often reduced in line cables with expensive insulators and jackets. Also common is the use of silver, gold, and other expensive materials in conductors and connectors to improve performance.

These kinds of tweaks can cost some serious money, resulting in remarkably high-priced cables. But in the right sonic environment with the right gear, they really can provide audible improvements, albeit subtle ones. Whether those improvements are worth the price depends on many factors, starting with your budget and ending with simple common sense. If you are trying to decide whether to spend your inheritance on a pair of speaker cables or a new Jeep, you're probably overdoing it!

THE BIG RUNAROUND

So, what is the best way to go about upgrading your audio system with better cables? Well, short of simply replacing every cable with the best that money can buy—a costly proposition—one approach is to replace a few key cables and determine for yourself if there's an improvement. For example, you might try purchasing a premium-quality mic cable and a similar-quality line cable for connecting a mic and preamp directly to a recorder. Then, record a source using both sets of cables—the originals and the new

Pro Tools 5.1



The New Standard



Total Session Interchange

Workgroup Enhancements & Video Editing

Expanded Control Options

Integrated Surround Mixing



Enhanced Editing Features

www.digidesign.com/protools

1.800.333.2137 code **672**

The Power of True Integration

digidesign

A division of **Avid**

©11/00. Digidesign and Pro Tools are registered trademarks of Avid Technology, Inc. or its subsidiaries or divisions. All trademarks are the property of their respective holders. All features and specifications subject to change without notice.

Explode your senses

"How cool is MetaSynth? Unbelievably cool. Practically every experiment I tried yielded amazing sounds... MetaSynth will furnish about a hundred reasons why **computer music is the ultimate thrill.**"
Keyboard Magazine, July 2000

Turn sound into light
Real-time video synthesis

Turn light into sound
Advanced Synthesis and Sound Design

Find the future of computer arts at www.uisoftware.com
Free demos, galleries & information.

U&I Software: *ArtTools* and *ArtToys* for the Macintosh.
Email: support@uisoftware.com Phone: (650) 364-0556



ones—and compare the results. If you hear an improvement, you must decide if it's worth the money to replace the rest of your cables.

In the meantime, you can do several things to maximize the performance of the cables presently in your system. For starters, be neat with cable runs, not only to keep a tidy house, but also so that your cables don't cause problems with one another. Specifically, be sure that analog audio cables, digital audio cables, speaker cables, and power cables are separated. It is especially important to keep speaker and power cables separate from audio cables, because they can cause hum and signal degradation. If you have to cross audio and speaker cables (or power cables), do so at a right angle; however, do this only if you can't find a better solution.

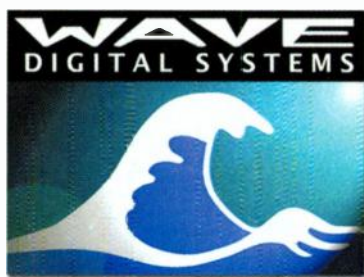
It's also important to clean your connectors on a regular basis. Connectors left sitting in jacks for extended periods will build up dirt and oxidation, which degrade the connection. Regular plugging and unplugging helps connectors to self-clean to some extent. In addition, you should periodically use Tweak, Cramolin, or a similar product to directly clean contacts and jacks.

Make every effort to avoid excessive cable runs. Because longer cables have more resistance and capacitance and are more prone to interference, keep your cables as short as possible. Use the most appropriate length for a given cable run—even if means you have to cut and solder the cable. Also, be sure that all permanent cables have good strain relief, and wherever possible, affix cables to a support to take the weight off the connectors. Finally, label all the cables in your studio. Months after you have wired everything up and can't remember what goes where, you'll be glad you did!

Jeff Baust is an audio engineer and a composer in Boston and New York City. He is owner of Coral Sea Music and a professor of Music Technology at Berklee College of Music.

COMPUTERS FOR MUSIC

We sweat the details, you make the music!



Deliberately Better

toll-free 866-WAVEDIGI
www.wavedigital.com

pre-configured and optimized for:

*Cakewalk • Cubase VST & Nuendo • Digital Performer • Digi001
Frontier • Logic Audio • MIDIManIM-Audio • MOTU • Pro Tools
Only the best components - Apple • Intel • Adaptec • Seagate*

Microsoft OEM
System Builder
Program

Wave Digital Systems
Ringwood, NJ/USA



Authorized Reseller

Throw away your mouse. Throw away your keyboard.

And plug in to your creative potential!

cakewalk

Roland ED

Steinberg



With your hands on real controls that you can touch and feel, and your eyes on the highly detailed, flexible displays on your computer screen, everything you dreamed of is finally possible. Multiple track audio mixing and recording with Cakewalk Home Studio 9 or Steinberg Cubasis VST. A wide assortment of sophisticated digital sound effects. Guitar and XLR microphone inputs. MIDI support. USB connectivity. It's everything you need for professional audio, right where you need it. At your fingertips. Stop being locked into the limitations of a keyboard and mouse. And explore the creative possibilities of the U-8 for yourself.



USB
UNIVERSAL SERIAL BUS

Roland ED U-8
USB Digital Audio Studio
Distributed by Edirol

EDIROL
A member of the Roland Group

Call for our huge FREE color catalog
1-800-380-2580

www.edirol.com

Putting the future of desktop media production into your hands!

The Making of



Photo By Roark Johnson



the Moon



Brian Deck expounds on migrant recording and his role in Modest Mouse's major-label debut *The Moon and Antarctica*.

By Rick Weldon

► For the past ten years or so, drummer Brian Deck has played or produced some of the Midwest's more adventurous pop music. Much of Deck's work bears the imprint of Chicago, the enormous city he calls home. Possessed by a surreal, grizzled sense of Americana, Deck's work evokes the clangor of the Windy City's meatpacking district at the turn of the century.

Idful Music, the studio he helped design and build in the early 1990s, spawned quite a few notable records (such as Liz Phair's *Exile in Guyville*) and made names for engineers such as Brad Wood and John McEntire. Deck worked there while making records and touring with his band, Red Red Meat, which was signed to Seattle's Sub Pop label. He later left Idful and recorded bands such as cult legend Souled American in spaces ranging from abandoned social halls to cramped living rooms. After Red Red Meat made its experimental final album, 1998's *There's a Star Above the Manger Tonight*, its members formed a bevy of satellite projects—Califone, Loftus, Orso, and Sin Ropas—that took the former band's sound to new, more elemental ends.

The new groups' albums were recorded and released by the Perishable Records label, run by percussionist Ben Massarella and guitarist Tim Rutili (both Red Red Meat alumni). After securing space in an apartment building early last year—less than a hundred yards from Comiskey Park—Perishable set up shop next to Deck's new Clava Studios, built into a converted five-car parking garage.

The Making of the Moon

Clava exists in large part to record Perishable artists. (As of this writing, 16 albums have been released.) Its first project, however, was recording indie phenomenon Modest Mouse's third

album and Epic Records debut. Consisting of Isaac Brock (guitar, vocals), Eric Judy (bass), and Jeremiah Green (drums), Modest Mouse amassed a large and devoted audience drawn to the band's caffeinated sets and Brock's tumbling lyrics and raucous behavior. Modest Mouse's earlier recordings were more straightforward affairs, but for its latest offering, *The Moon and Antarctica*, Deck gave the band the Clava treatment. I recently spoke with Deck at his studio about the new record and some of the audio tricks up his sleeve.

After leaving Idful in 1992, you made a niche for yourself in Chicago by recording bands in homes or practice spaces. How long were you out and about?

After taking a good couple years off, I started working with borrowed or rented gear. *Star Above the Manger* was recorded that way; I just used a really awful old PA board for mic pres. In spite of equipment frustrations, I found that the bands I recorded were always at their most comfortable in their own place, and you could hear that in the recordings. So when we started buying the gear for Clava we made sure it would travel easily.

We were kind of itinerant for the first year and a half or so, and the first semipermanent place we set up in was a really cool old social hall in Pilsen, a Southside Chicago neighborhood. It wasn't exactly a legal space; the owners had a deal with City Hall where, if they didn't rent out anything, they wouldn't have to pay property tax. They had begun renovation on the place, but for whatever reason stopped midway and eventually we were able to get in.

There was an empty 2,500-capacity theater with a 50-foot ceiling and nothing in it—no carpet, no seats. They had started to sheetrock the place, which was a disaster because the theater had really beautiful old plaster work. They'd hung all the wires to put a hung ceiling but never got around to finishing. So basically it was this enormous, open, raw reverb chamber with a 5-second decay time on it.

Souled American was one of the bands that came in there to record. They have more of a dedication to vibe and performance than anyone I've ever worked with, and you can totally hear it on their records. I love that; it can be trying on your patience if you're the guy sitting in the control room. But during the course of three records I got it.

But it's kind of like the story of Prince making everyone wait on the set of *Purple Rain* for hours until he was in the right mood to perform the song, and then he'd do it in one take, the take that you see in the movie. And that's kind of how Souled American were: they would wait and wait, and try the song, and work at it, and hang out. Finally they'd get the perfect performance. I don't think they've ever released a song

Extra Toppings (or how to get real bass management)



(Canine SubWooferus)

The Gourmet Sub

Our new PS350B subwoofer with Real Bass Management uses just the right ingredients to get your juices going. Much more than the flavor of the month, the PS350B adds unprecedented power, accuracy and functionality to the studio environment.

You know how difficult and frustrating it is to reference a two channel mix to a modern surround format. Using the PS350B's Bass Management Bypass cable, you have both full 5.1, or full bandwidth stereo monitoring available at the flick of a switch. Plus, the one-sub/two-sub selection switch allows two PS350B's to be used together



without adversely affecting your system's overall balance. Couple these features with 350Watts of patented ProBASH™ amplification for a truly remarkable product that is sure to be welcome in your workspace.

We could (and should) go on about the other extra's in our new gourmet offering, but the proof of the pudding is in the eating, and the PS350B is most definitely—Hmmm...Yum.



TANNOY

FOR THOSE WHO KNOW

Home Audio • Home Theatres • Custom Installation • All Weather Audio • Studio Monitoring • Commercial Installation • Sound Reinforcement • Paging
Tannoy/TGI North America, Inc. • 335 Gage Avenue • Suite 1 • Kitchener, Ontario, Canada N2M 5E1 • Tel.: (519) 745-1158 • Fax: (519) 745-2364

DEALER ORDER HOTLINE: (FAX) 1-800-525-7081 • LITERATURE HOTLINE: litplease@tgina.com • e-mail: inquiries@tgina.com

WEB SITE: www.tannoy.com

The Same. Only Better.

ANTARES

ATR-1a

antares

autotune proc. 100%

BACK IN 1998, Antares introduced the ATR-1 and made the unlikely claim of "perfect pitch in a box" a solid reality. Based on the technology of our ground-breaking Auto-Tune plug-in, the ATR-1 corrected the pitch of vocals or solo instruments, in real time, without distortion or artifacts, while preserving all of the expressive nuance of the original performance.

Since then, thousands of ATR-1s have found their way into touring racks, live performance rigs, and recording studios of artists and producers like Cher, Reba, Everclear, Al Schmitt and many, many more.

Now, Antares (never willing to leave a good thing alone) introduces the ATR-1a. Preserving the great sound quality and ease of use of the ATR-1, the ATR-1a adds some significant new features as well as a snazzy new appearance inspired by our AMM-1 Microphone Modeler.

HOW LOW CAN YOU GO?

Looking to do some pitch correction in the lower depths of the frequency range? The ATR-1a's new Bass Mode lowers the lowest detectable pitch by a full octave to 25Hz. Since the lowest E string on a bass guitar is about 41Hz, Bass Mode (as its name so ably implies) allows you to apply pitch correction to those pesky fretless bass lines as well as other low bass range instruments.

WORKING FOR SCALE

If you've ever had occasion to pitch correct a melody line whose key was not exactly clear, or which had too many accidentals to fit comfortably into a conventional scale, you'll appreciate the ATR-1a's new Make Scale From MIDI function. Simply play any line into the ATR-1a from a MIDI keyboard or sequencer and let the ATR-1a automatically construct a custom scale containing only those notes that appear in the line. No muss, no fuss.

CHECK IT OUT

So if you're still looking for perfect pitch in a box, check out the ATR-1a at your Antares dealer now. Where the song remains the same.

Only better.

UPGRADE ALERT! Got an original ATR-1? Except for the new cosmetics, current ATR-1s can be upgraded with all of the ATR-1a's new features by simply replacing an EPROM. (And if you purchased your ATR-1 after August 1, 2000, the upgrade is free.) Contact your local Antares dealer for all the details.

Did you hear they have a machine that can make you sing in tune?

What will they think of next?



ANTARES

WHERE THE FUTURE'S
STILL WHAT IT USED TO BE

The Making of the Moon

that wasn't all that it could have been. Most people don't have that dedication; a lot of people feel the clock ticking away.

What kind of projects are you getting now that you're in the new space?

Modest Mouse was the first band to record in the new location; it wasn't even finished when they arrived. Since then, we've done a few other projects for other bands, maybe close to a dozen. But at least 75 percent of what I do is for Perishable. It's one big happy family in a way because no matter who's working, the label's right across the hall, and probably most of the people in the other room are going to come in here and play on it. That happened with Modest Mouse: Ben played on it, Tim [Rutili, Deck's bandmate from Red Red Meat and Califone], my assistant Greg played on it, I played on it.

What's your usual method of tracking?

Depends a little bit on what I'm tracking for. I don't have any outboard mic

pres, so I use the ones in my Amek Big console. If I'm tracking a whole band, generally we've got the bass amp in the small iso booth, one or two guitars in the large iso booth, and the drums in the big room. That way, we can have dedicated room mics for the drums. I'll usually take it onto the 3M M79 first if the band wants to spend the money on tape.

But usually we'll track basics to tape and fit whatever overdubs we can onto it. Then I like to bounce all of it into Pro Tools in sync, so I'll use one of the 16 tracks for SMPTE. That way, if we decide later on to mix the drums from the analog tape, it'll be synched to the Pro Tools file.

Beyond the basic tracking and maybe one or two guitar overdubs, pretty much everything else happens inside of Pro Tools. I don't like to shuttle tape anymore; it's so immediate with the computer. I've seen that people I work with, too, really enjoy the immediacy of saying, "Aw, that was a crappy take," knowing that they can start again right away before they get cold, while their part is still fresh in their minds. Command + Period, Command + Spacebar, and you're ready to go.

If I'm tracking drums for a loop, I'll usually do that with just a couple of microphones. And just for the ease of working with the sample, I'll usually track that type of thing directly into Pro Tools.

One thing that I do is use default technical methods. I don't have a huge budget, but I have a very defined selection of microphones. I know them very well, what they sound good on. I don't ever EQ anything to tape unless I'm going for a really screwed-up effect. The only things I usually compress to tape are bass and vocals. But I don't much mind tape compression and tape saturation.

Do your clients?

Very occasionally. I tend to print acoustic guitars pretty hot, and sometimes when I'm mixing something, I'll have the acoustic soloed. Once



COURTESY BRIAN DECK

Bassist Eric Judy tracks in Clava's live room. The room was built so that the existing glass bricks could remain in place to let in natural light, a huge plus in any studio.

in a while someone hears the saturation and wonders why it's so hot. I'll usually say something like, "I'm sorry if you didn't notice or if I didn't point it out before, but here's how it sounds in the mix." Usually people are pretty happy about how it sounds that way. A hot acoustic guitar on tape lends a nice, aggressive sound to things, which I like to have even if I'm working with a slow, quiet ballad.

So I have these default engineering things that I do. That means I don't necessarily need to hear something through the control room speakers, completely isolated from the room where the performer is playing, for a solid 15 minutes in order to know that I'm ready to go. I just set up one of the microphones in my collection that I know is going to work well, get a good level, and we're off and running.

Do you have a default method for drum miking?

I do. My mic selection is more limited now than when I was at Idful. At Clava I use an Audio-Technica ATM25 for inside the kick drum, sometimes an AKG 414 or a Neumann KM 86 for the outside. I might also use a Coles 4038, which is good for some kick drums. Then I have a pair of Sony C-37s—solid-state mics—for the toms. I love those on toms; I don't have to EQ them, ever. They just come out sounding perfect.

I've never met the perfect snare mic. I've got some old Altec Lansing thing that's more or less an AKG 451 with a built-in pad that's okay, especially for a



COURTESY EPIC RECORDS

Nervy live shows, incessant touring, and badass records helped Modest Mouse build a rabid fan base. Pictured (left to right) are bassist Eric Judy, guitarist/vocalist Isaac Brock, and drummer Jeremiah Green.

You are now here.
Musically speaking.



Andromeda A6. The possibilities are endless. Presenting the first – and quite possibly, last – great analog polyphonic synthesizer of the 21st century. Literally, the culmination of everything that's come before, and the most powerful true analog polysynth ever made. Sixteen voices. Sixteen channels. Thirty-two oscillators. Thirty-two filters. Full MIDI control, with a complete range of digital effects. All made possible by Alesis' proprietary, patented ASIC technology. The result is a warmer, yet more aggressive, sound than any digital – or virtual analog – synthesizer ever made. At any price. And a tonal spectrum bordering on infinity. To learn more, visit www.alesis.com today or call 1-800-5-ALESIS. Because suddenly, anything else is just a compromise.

ALESIS

MIDI

The Making of the Moon

tight snare. Sometimes I'll use it in conjunction with an SM57 on the top. More often than not, I'll use a 57 on the bottom.

Three mics on the snare?

Sometimes. But I'm big on this "no EQ" thing, so it's blending and getting the phase just right so that the mics are all affecting each other in the right way.

For the overheads, right now I'm using a Shure VP88, a stereo microphone. It's an all-in-one M-S mic, and you can adjust the width of the stereo field. It puts out a left and a right signal, or you can switch it so that it's giving you the cardioid and the bidirectional separately, if you want to matrix it yourself.

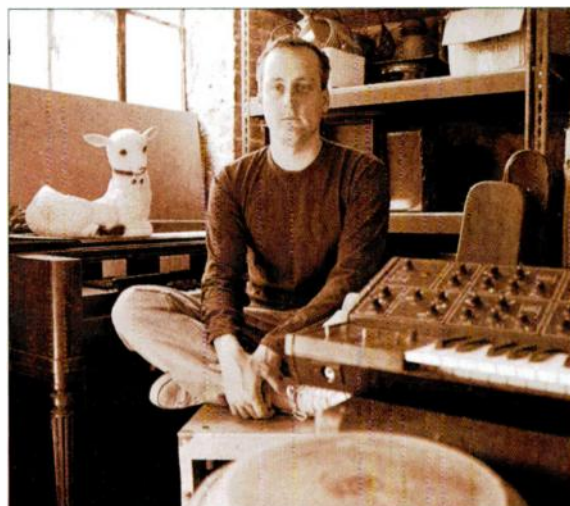
I'll use a beyerdynamic M160 on the hi-hat. I also have an old Universal lavalier mic, an unbalanced output mic that I like to use for the hi-hat. I like to go for a rich, crunchy signal because I already get a lot of hi-hat sizzle from the overhead. A lot of times I'll use just the hi-hat mic at some points in a mix for a weird drum sound.

For a room mic, it's often 4038s, sometimes 414s. I've experimented with

different placements trying to figure out what's best in this room, and what seems to be best is two mics 10 or 15 feet out in an equilateral triangle from where the drummer is sitting. Either they'll be pointing at the drums or pointing on either side past the drums. But it's weird—almost by happenstance, we built a live room that's pretty even sounding. It almost doesn't matter where you put the room mics out there, the sound will be very similar unless you do something extremely radical like up near the ceiling pointed toward the corners of the room.

How about guitar miking? Will you put up several mics at different distances from the amps?

If I'm doing a rock band, there's generally two guitars. I'll try to listen to how they interact while we're doing basics, and when we go to do overdubs, I can then accentuate the difference between them. We've got the 4038s and the M160s, both of which are great-sounding ribbon mics for guitars. I usually use one of the ribbons on each amp, and then I'll enhance it with a 57, which I really like.



COURTESY BRIAN DECK

Brian Deck created Clava Studios in 1999 in a converted five-car parking garage. The space wasn't even completed when he began work on Modest Mouse's *The Moon and Antarctica*, the band's major label debut.

I've used that lavalier on guitar amps, and it's an interesting sound if the amp isn't too loud. It won't take a high SPL. I'll usually do the off-axis thing, sort of out at the edge of the cone, more or less pointing toward the center. Kind of close, maybe four inches off the cone. We have a collection of old, crappy garage sale mics, all of which have their own charm.

Sometimes I'll use an M160 and a 57 the same distance away from two different cones on the cabinet. That usually makes for good sound with no phase problems.

CLAVA CALCULATIONS

People sometimes consider studio construction and design to be voodoo, but actually it's really easy stuff. The information you need is readily available. I used the book *Master Handbook of Acoustics* by F. Alton Everest when we built Idful, and we used an Excel spreadsheet to work out the dimensions of the room for the acoustics.

Your space is always finite. We weren't trying to allocate the space. It just so happened that at Idful there were two ceiling heights and support members in a couple spots, which all defined where the control room and the live room would be. We just wanted to know the right dimensions so we

didn't have multiple room resonances.

The Everest book has an equation in which you enter height, width, and depth dimensions to calculate the room's mode. Most of the resonance problems are going to be down below 300 Hz. So this equation shows you distribution of room resonances, and what you're trying to do is get them to be equally distributed. You can make sure, for example, that you don't have a general decay time in your room of 0.8 second, but it takes 3 seconds for 160 cycles to go away. That's a problem.

For Idful, I did basic calculations for a rectangular room with par-

allel walls. But the Everest book points out that you need an offset of 1 foot for every 10 feet of wall, which will give you completely nonparallel surfaces along the walls. As soon as you offset your walls, which I did, you're changing your dimensions. You don't know exactly what you're doing to your room resonances because you're randomizing them, but if you've covered your basic dimensions using the calculations, you'll be okay. For Clava, we made sure that the height, width, and depth were not divisible by the same number, and that the wall offset was correct. It turned out great.

—Brian Deck

NOW SHIPPING!

Record 24 tracks of 24-bit audio*. Edit from the front panel or on your computer. Interface with your DAW system. Backup to your favorite media. Make records. Be famous. Have fun.

With the TASCAM MX-2424™ 24-Track Hard Disk Recorder/Editor, you might get more than you expected. Though it's hard to imagine getting much more from a recording system. Any system.

Start with 24 tracks of 24-bit/48kHz digital audio. Take your choice of 24-bit analog, TDIF, ADAT® or AES/EBU optional I/O modules...digital and analog interfacing available simultaneously, of course. Use the front-panel drive bay and fast/wide SCSI port to extend recording time with external hard drives and create backups with tape drives and DVD-RAM. Get file format and drive compatibility with your favorite DAW system on Mac® and PC.

Time to edit? No computer required. All the controls you need are right there on the front panel. Or get visual editing and transport control with the included ViewNet MX™ graphic user interfacing software. Need more tracks? Chain up to 32 machines for a huge integrated system with true single sample accuracy.

Surprisingly affordable, incredibly powerful, feature-packed and (most importantly) unbelievably great sounding. And (alas), far too cool to give you everything you need to know on this page. So go to www.tascam.com for the whole story. Because the more you find out about the MX-2424, the more likely you'll be to, well, uh...buy one. Available today at your authorized TASCAM dealer.



The MX-2424 (shown with optional IF-AN24 analog I/O and IF-AE24 AES/EBU multichannel digital I/O) features built-in SMPTE Sync, MIDI Time Code, MIDI Clock, Video Sync, stereo AES/EBU and S/PDIF ports and much more.



TASCAM
a whole world of recording

* 12 tracks of 96kHz recording available later this year

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

All copyrights are the property of their respective holders

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

VR21

The Making of the Moon

Do you ever put another mic in back of the cabinet and reverse the phase?

I used to do that all the time at Idful. You ever see the old Altec ribbon mic that also had a crystal element in it? It has a screwdriver-set switch that set the way the two were matrixed together. That sounded great in the back of a Fender amp. I haven't done that kind of thing lately; I should probably get back to that. I guess most of the people I've worked with lately have had closed-back cabinets.

It makes for a great, unreal sound when you pan the two signals hard left and right.

Almost any pair of mics can be used to introduce some kind of phase problem and produce a great effect. You might have a really cohesive mix going, but you want something to really snap the listener out of it. You throw in something like that, and it really calls attention to itself.

The Moon and Antarctica has a lot of production touches that are a far cry from earlier Modest Mouse recordings. Had the band worked with synths or

MIDI, or done heavy-duty production much before?

Not much—it was a bass-guitar-drums, analog-tape, quick-overdub-and-mix kind of a band. But the band members were definitely interested in production, and Isaac in particular really gained a handle on the possibilities. By the end of making the record, he was able to mastermind some cool maneuvers with plug-ins and Pro Tools. Shifting things back and forth, flipping parts around backwards; he was getting good at knowing what he wanted to hear and knowing how to express it. It wasn't so much that he was mixing, but he could look at a song, understand the musical event that he wanted to make happen, understand the tools at his disposal, relate it in a way that I could understand, and make it happen pretty quickly. That helps you to get a good working rhythm.

We didn't use much MIDI at all for this record. There were parts where we wanted to sprinkle a little piano onto a track. I'd hook up the Kurzweil K2500 and record a MIDI track in Pro Tools, just in case we wanted to edit it. But in the end we just used the original recorded track.

Actually, most of the technologically tricky stuff that we did was in editing. Once any band I work with finishes recording on tape, we bounce the basics into the computer. What I'll frequently do—almost by default at this point—is to make a tempo map in Pro Tools. You just set your cursor wherever you



COURTESY BRIAN DECK

Jeremiah Green gets ready to track drums.

want and hit Command + I. A dialog box comes up, and you can say this is bar-whatever, beat-whatever, and the time signature is thus and so. It'll take that and calculate a beat map for however many different markers need to be in there.

I pretty much put a marker on the first beat of every bar throughout the song, which is extremely tedious, but you get a really precise map, and you can export that as a tempo map into [Emagic's] *Logic Audio*, so that all your MIDI files will chase your live band performance perfectly. It also gives you a really accurate editing grid.

The main reason I do this is to avoid playing to a click track. I can't think of a single band that I've worked with that uses one, and I don't like them, either. A click-track recording usually just doesn't breathe; most people can't play to them and still sound human. And Chicago isn't a click-track kind of a town. So if I can get your MIDI stuff to chase a live-band performance, that's going to be the most natural-sounding thing you can get.

I may come up with a loop, but I don't necessarily *ReCycle* it and SCSI it over to the K2500. I'll just make a simple audio loop, define a region, and stick it into the song. I have the bars and beats defined, and if the tempo of the band moves one way or the other, throwing the loop off for a bar or two, I can just time stretch it. It's usually a very small amount. That's about the level of intensity we were working at with Modest Mouse.



COURTESY BRIAN DECK

Modest Mouse guitarist-vocalist Isaac Brock (foreground), Deck (middle), and drummer Jeremiah Green (background) work on a typical late-night mixing session. Next to Green are the anvil cases for Deck's Amek console and outboard gear—remnants from Clava's mobile recording period.

All of your equipment resides in road cases. Do you travel much with it?



Artist Profile:

Shawn Clement

Profession:

Music Composer for TV and Film

Location:

Clemistry Ranch, Southern California
(a recent emigré from Beverly Hills)

Credits:

Buffy the Vampire Slayer, feature films, network TV and a long list of reality shows including *World's Most Amazing Videos*, and our favorite: *When Good Pets Go Bad*

Recent Honor:

ASCAP 2000 Award Winner
Most Performed Composer on TV in 1999

Frontier Gear:

DAKOTA Multichannel Digital Audio and MIDI Card
MONTANA 16-channel Digital Audio Expansion Card
SIERRA 8x8 MIDI Expansion Box

FRONTIER
DESIGN GROUP



800.928.3236

outside USA
603.448.6283



"When I'm on a roll, I need technology that can keep up and enhance the vision. Sonic clarity and solid reliability... that's what I get with Dakota."

Learn more about Shawn and Dakota:

www.frontierdesign.com



The Making of the Moon

we went with it. It turned out to be "manipulation." I'm all about turning f**kups into art.

In any case, it's not too much of a problem for me to be in the same room with a band recording. I don't know how other people do it; I know a couple of large, very nice facilities in Nashville are built on that model. [Peter Gabriel's] Real World studios is that way, too. Huge SSL, great big room.

If you're tracking in the same room, without the isolation of a control room, do you spend a lot of time making sure you're not distorting or having phase problems?

I'll spend a little more time setting levels if I'm going straight to Pro Tools, because you need to max out the levels to get the bit depth, but if I'm going to tape, I'll be a little bit more slovenly.

Assuming your mic pre or your board has some kind of reliable overload indicator on it, and you can see your meters on your tape machine and on your buses, you pretty much know whether you're overloading. If you're working with analog tape, you know that if you're printing a tambourine or a triangle track, you can't go up above -7 or -5 dB. You just get to know these things, and I don't record a little bit, listen back, change the level. It just isn't worth that much screwing with. Usually people are much more interested in getting going and working out their ideas instead of asking, "Oh, is there 0.01 percent distortion on my signal, and did I really mean to have 0.03 percent?"

When it comes to phase stuff, that's the hairiest thing when you're trying to work in the same room with musicians. The drum phase relationships, you have to check that stuff. And the thing is, if you're in that situation, you're probably working with a Mackie or something like it that has no phase buttons. You have to solder up a bunch of phase-reversing adapters for yourself, and you're not going to be able to fix it when you mix.

So you need to watch the two kick

drum mics in relationship to each other, the two or three snare mics in relationship to each other, that kind of thing. You watch the tom mics and the snare mics and possibly the kick mics as they relate to the overheads, all of those mics as they relate to the room mics. If you know that all your microphones have the same wiring, the mic cables have the same wiring, and the wiring between the board and the mic pres and the tape machine have the same, proper phase relationship—in other words, if you have perfect phase going on—then there's a little less to worry about. So I check all that stuff. It takes a lot of the guesswork out of the mixing later on.

You mentioned earlier that you sometimes record drums in stereo straight to Pro Tools if you're making a loop. Do you give much consideration to the reverb characteristics of the room, or try to prevent the loop from sounding "unnatural"?

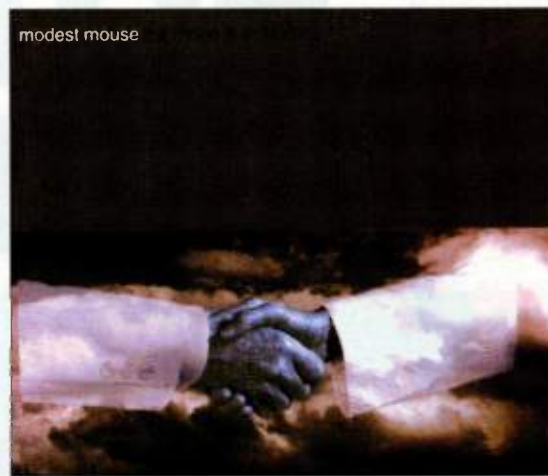
I'm not a huge fan of "natural." I like to record drums well, but after that I tend to really manipulate stuff, and sometimes if there's a really noticeable ring to the drums in the room, and that ring in the sample gets cut off, I get into it.

Would you try to enhance something like that?

Yeah, constantly. With Califone, and some of the other bands I'm directly involved in, we like to start out with something as natural as possible. We like to have hands on the instruments, and amps moving air, and picking all that up with a microphone. But beyond that, the signal will frequently find its way through several guitar stomp boxes and be heavily compressed or gated beyond reason before it gets mixed.

Do you often get involved in producing, or even playing and directing things when you're working with a band?

A lot of people, especially in this town, have the mindset that the best way to produce a record is to keep your dirty mitts off of it. Just do a really good recording, kind of a photorealist



The Moon and Antarctica, the latest release from Modest Mouse, displays the band members' newfound penchant for heavy studio manipulation, even as it retains the group's trademark antagonism.

approach. Capture what the band sounds like and hand that back to them; that's all you're supposed to do. But I've never really enjoyed that; it's not fun. I guess that someone might say that you're not supposed to have fun; it's not about having fun. But I'm not going to do something that isn't fun for a living for the rest of my life. So, in order to keep it fun for me, I'll get involved. I'll go to rehearsals with the band before they're ready to come in. I try to get demo tapes, and we'll talk about songs and arrangements.

They might have a song ready to perform live, and we'll talk about how they might do it. You know, these are all the boxes you step on in the various parts of the song, but for a recording of that song we try to get a deeper understanding of the song, to pull out each section separately. You don't have to do this the same way as you would with a live performance, so how can it be better represented? The musical idea in your head—maybe it isn't a guitar part; maybe it's a completely different guitar, amplifier, room, microphone. We try to plan ahead like that. I'll even mess with people's lyrics—there's no end to what suggestions I'll make. I think that, contrary to popular opinion, that is your job. Your job is to point out every possibility you can that isn't too distracting from the making of the record, or you're not giving people what they're paying for.

That actually reminds me of something we came up with when we were making the Loftus record—I like to

Electronic Musician

2001
EDITORS
CHOICE



New Tool.

The last limiter you'll ever need.


Your studio will never be the same after you get your Waves L2 Ultramaximizer.

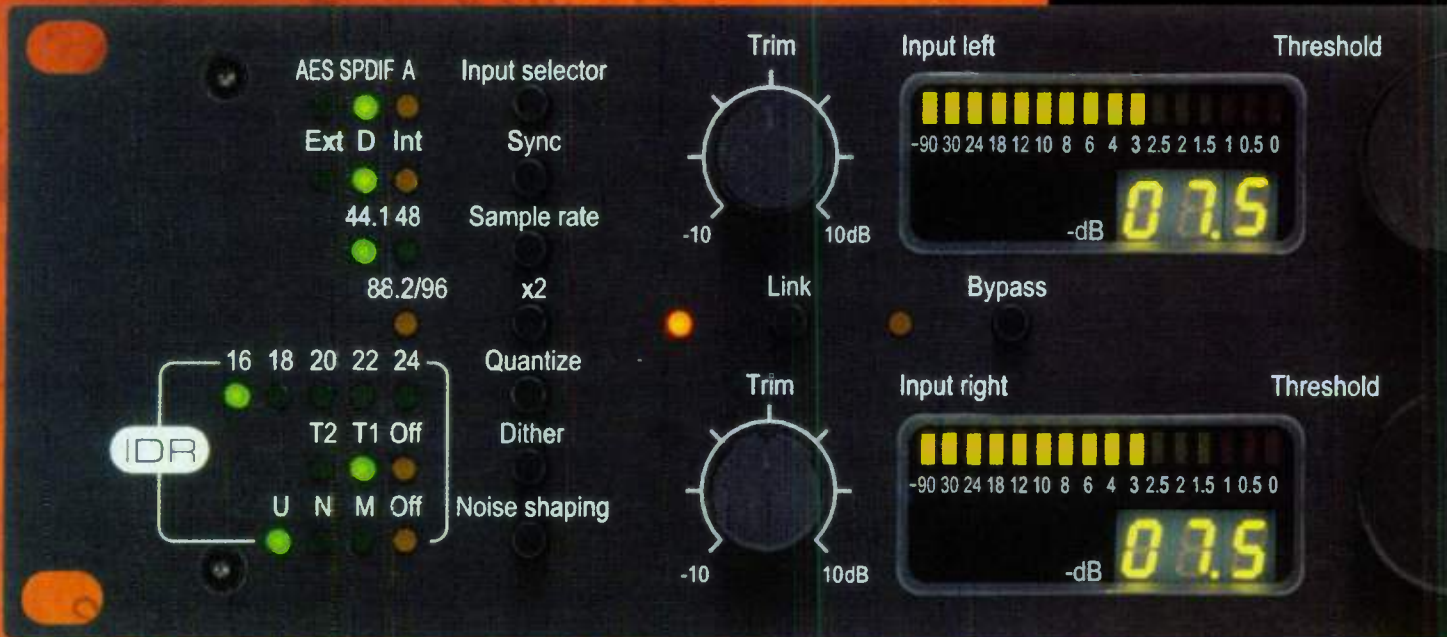
Essential for mastering of course, but it's the new secret weapon for live sound, channel insert, guitar racks, broadcasting, mixdown, remix, sound design, location recording, you get the idea?

Use the A/D converters to boost your quality, and the limiter to never clip your master. Spank a voice or snare beyond any imaginable point. Scare yourself a little. There's simply nothing else in the class of the L2 Ultramaximizer.

"Best limiter I've ever heard". "The A/D converters are better than \$2000 standalones". "I must have one today". What will you say?

Want to push your limit? We'll build one for you.

- ▶ **Astonishing transparent brickwall limiter**
- ▶ **Get 4 bits better. 16 sounds like 20 with Waves  dither**
- ▶ **96, 88.2, 48, 44.1kHz stereo or dual mono**
- ▶ **True 48-bit processing**



phone +1.865.546.6115

www.waves.com



Choice of the Masters

The Making of the Moon

come up with variations on this idea any chance I get. Loftus was Red Red Meat plus Rex [a band from New York, and friends of RRM], plus Bundy K. Brown [member of Tortoise and sev-

eral other Chicago groups]. A couple of the Rex guys had come to town the month before we started recording, and we had maybe four songs prepared for the record when they arrived. We had ten days to make the record, so we needed to come up with a bunch of material. We put everyone's name in a hat, and we would draw three or four names and send the squad into the room. They'd have ten minutes from the time the door closed to come up with something, perform it, and record it.

We played this game all day long

for the first day, and it's extremely stimulating. We started coming up with all kinds of stuff, and ideas were flowing so quickly. And every pairing of people was different. We had a couple sampling/delay pedals, and the one other rule we had was that if someone left a loop going when they left the room, the next squad had to use it. So we ended up with a few songs that were pieced together from different jams and different people.

We'd mix the different sections as stereo mixes and throw them into [Tim] Hurley's computer, which was the only computer setup we had at that point. We were working with Steinberg's *Wavelab*, and we'd piece together the song in the computer and dump it back onto tape and finish overdubbing. Generally, everything synched because the parts came from the same loops, but occasionally we'd have to time-correct the loops a bit if we jammed two different loops together.

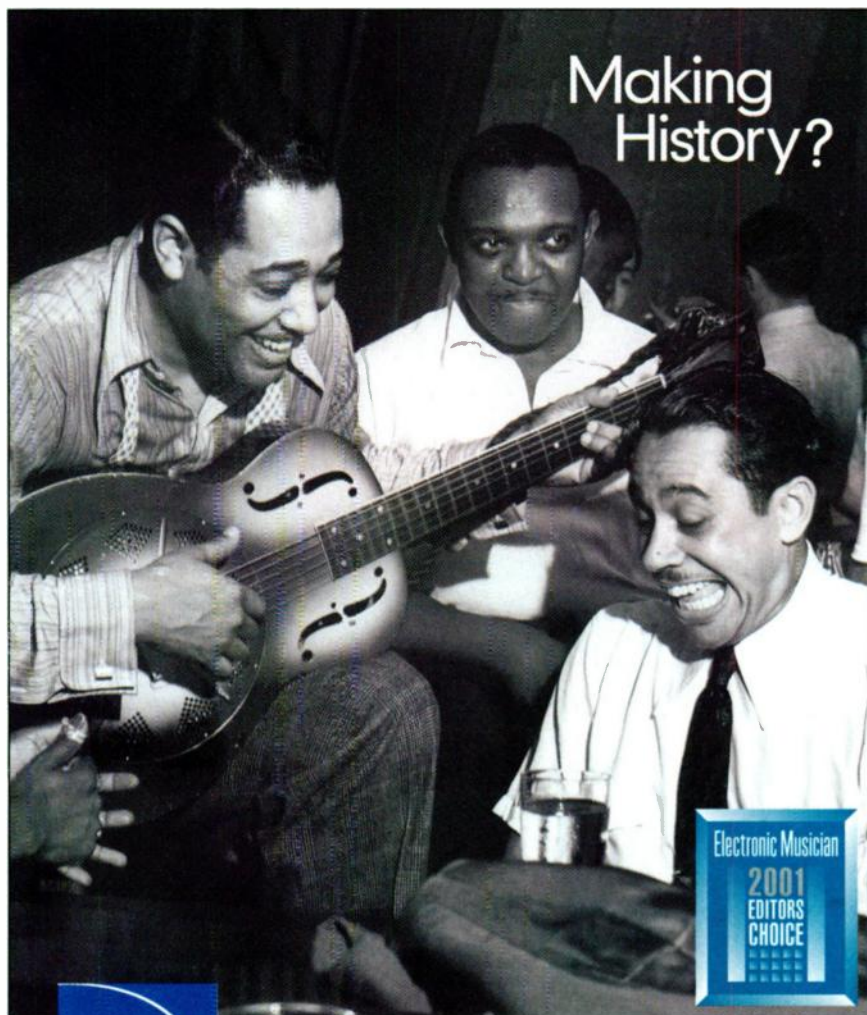
Sometimes things would be in the right rhythm, but maybe the key would be off from one loop to the next. But instead of applying pitch shifting, we'd find some sort of compositional solution, modulating, basically, to make it sound okay. It's a weird way of working but it's a great game.

Did you do that at all with Modest Mouse?

It was mostly straightforward with them. But in lieu of having the liberty or the time to play that particular game, instead of being specific sometimes about an overdub idea, I'd suggest to the band, "This idea is too organized. You need to go choose an instrument you've never played before and come up with something right away." Or, "This is really even. Think about prime numbers and go try this again." You know, just ridiculous things, "oblique strategies" and other Brian Eno-type things to say to them to trigger a different way of thinking.

There are a lot of different variations and mind games that you can play on yourself and other people in the studio, just to grease the wheels; even if nothing comes of it directly, it can be that mental colonic that people need.

Former EM assistant editor Rick Weldon "manipulates" numerous "unnatural" bands in his converted garage-cum-studio, Oakland Scavenger.



Digigram's VX sound cards are the affordable way to produce full 24-bit audio on your PC or Mac desktop or laptop using your favorite software.



Digital Audio Networking Solutions
DIGIGRAM INC
TEL: +1 703 875 9100 FAX: +1 703 875 9161 E-MAIL: INPUT@DIGIGRAM.COM WWW.DIGIGRAM.COM

create DVD-Audio disks

with the MASS 5.1 System
from Microboards and Minnetonka



Mix it

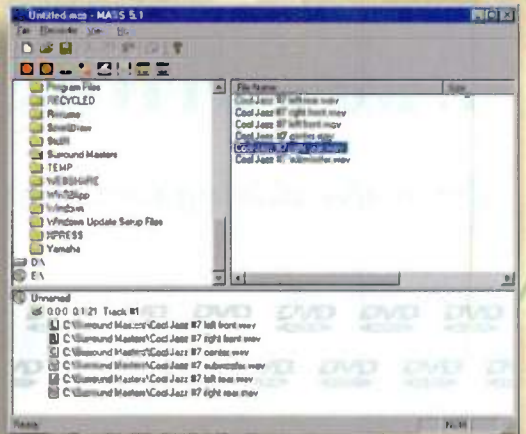
Mx51.

Mixing is incredibly easy and fun with Mx51. Take your multitrack recording and place each track anywhere in the surround sound field. Mx51 uses Minnetonka's unique "Build-Your-Own-Mixer" architecture, letting you build a custom mixer in minutes. Includes an interface for a motorized joystick, letting you **FEEL Surround Sound as you HEAR it.**



Compile it

Assemble a playlist in any order. MASS 5.1 makes it EASY to assemble your DVD-A. Just drag-and-drop the soundfiles from your master recordings into the bottom window. MASS 5.1 accepts the masters as 6 soundfiles or as an MLP-encoded file. Just line up the recordings in order, and hit the Record button!



Burn it

Included in the package is a **Pioneer S201** DVD-R recorder.



Corporate Headquarters: (952) 556-1600
Toll Free: (800) 646-8881 • Fax: (952) 556-1620
Europe: 44-1789-415-898 • Fax: 44-1789-415-575
Japan: 81-3-3561-2266 • Fax: 81-3-3561-2267

www.microboardsproaudio.com

 **Minnetonka**
AUDIO SOFTWARE, INC.

 **MICROBOARDS**
Technology



Who's Driving?

Defensive driving for computers.

By David Roach

When audio applications for personal computers first appeared in the mid-1980s, many of them communicated directly with the sound card or onboard audio chip. That was fine as long as you only ran one music program at a time, but as operating systems matured, they became capable of running several different programs simultaneously. Unfortunately, music programs often hung or crashed as you switched between them.

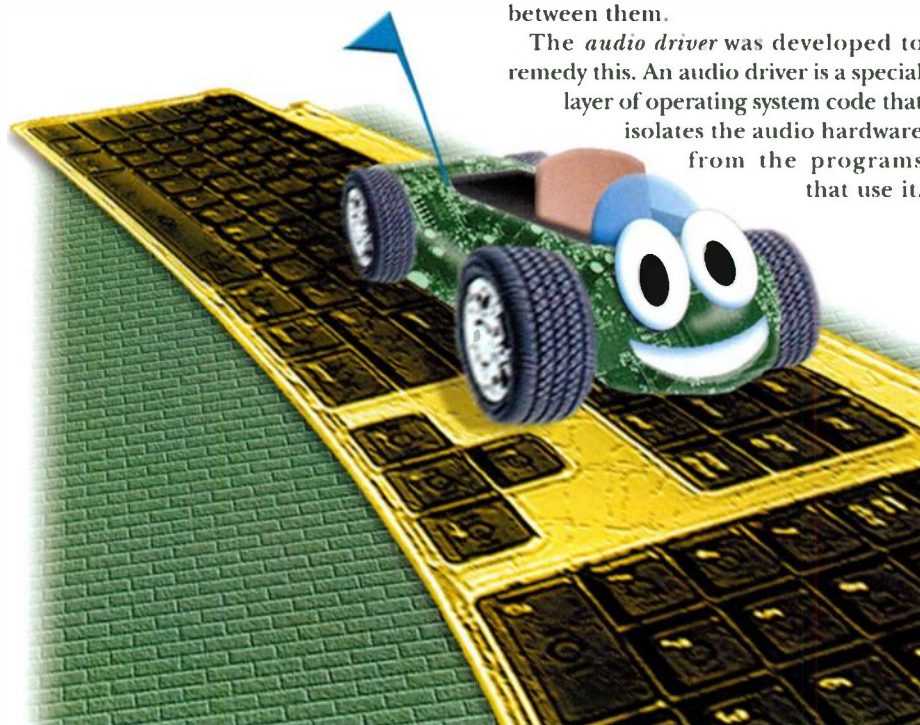
The *audio driver* was developed to remedy this. An audio driver is a special layer of operating system code that isolates the audio hardware from the programs that use it.

(Drivers for MIDI hardware perform essentially the same function.) Instead of talking directly to the hardware, music programs communicate with the operating system, the operating system communicates with the driver, and the driver talks to the hardware (see Fig. 1). The driver is usually supplied by the company that makes the audio chip or sound card, rather than by the operating-system developer. Drivers often operate at a "privileged" level in the operating system, which means that poorly designed or buggy drivers can cause more problems than they solve.

ONE CUSTOMER AT A TIME

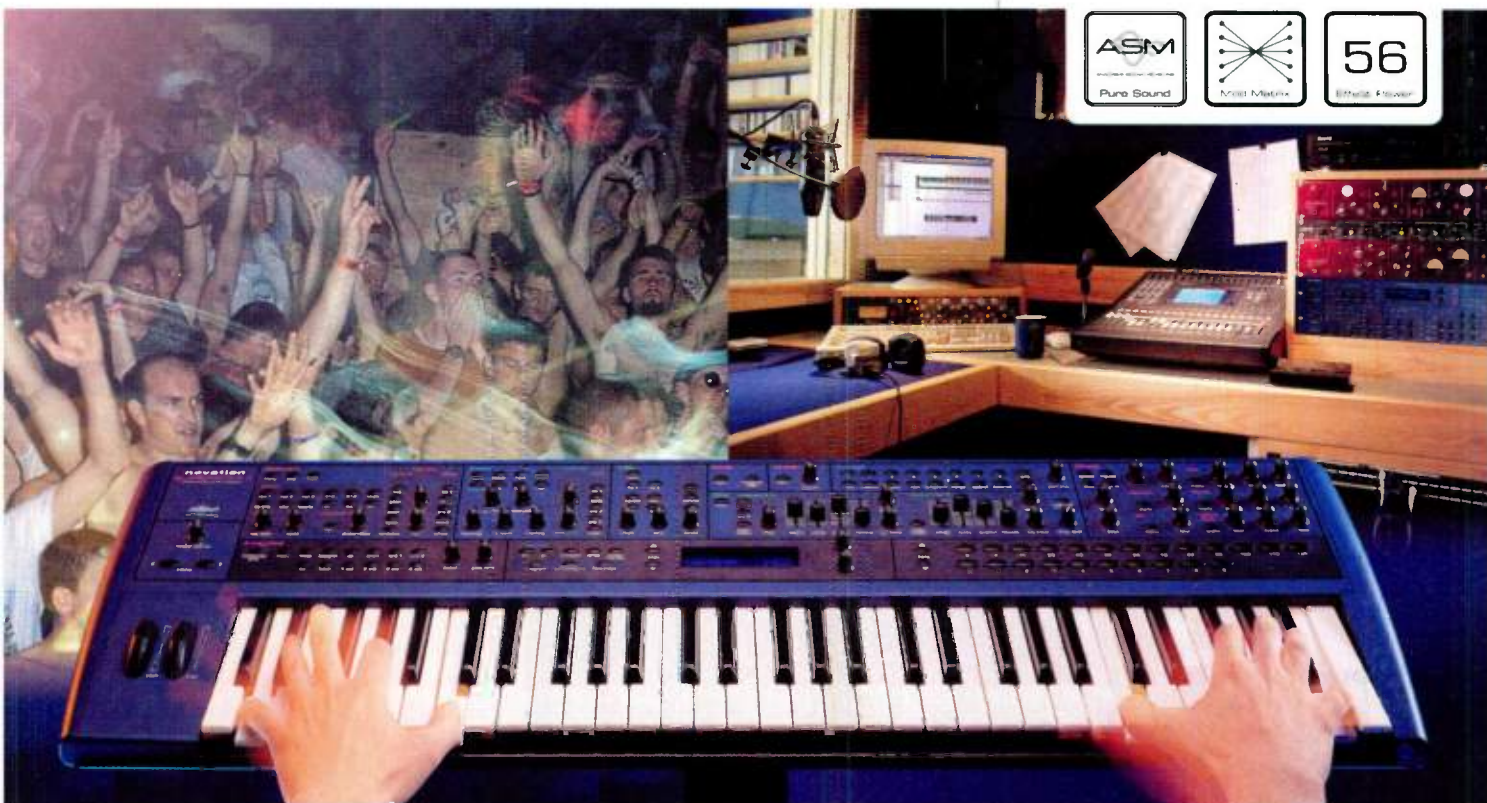
The simplest audio driver is the single-client variety. It's available to programs on a first-come, first-served basis. If a second program tries to play or record sound, it will get a "busy signal," which means it can't do anything with audio just then. In addition, the user will see a message along the lines of, "The driver is in use by another application."

Drivers at the next level deal with one program's sound at a time, but can also switch from one program to another as the user switches between them. This is useful for some types of games or for browsing the Internet, but it's often inadequate for working with music-composition or audio-editing software. For example, if sound came from a software synthesizer and you switched to an audio editor, the synth's output



The Supernova II series

The ultimate performance



Live, or in the studio

Wherever you create your music, it's always about performance and expression. And in this, the most expressive of all art forms, you should not allow yourself to be confined by technology.

Supernova II synthesisers from Novation give you more instinctive control over incredible sounds than has ever been possible before. With capacity for 1,024 Programs, 512 Performances and 128 user-definable "Favourite" memories you begin from a massive store of potential sonic ecstasy.

You can even create finished mixes on the Supernova II, because it has enough processing power to enable seven superb effects on each Program simultaneously. Add 43 knobs, eight sliders and 135 switches and you have a tone palette of unrivalled versatility and sheer sensual reward.

At last the technology is on your side – and not fighting against you with endless unfathomable menus.



- Phenomenal sound
- Superb semi-weighted keyboard with Aftertouch
- 24 voices, expandable to 48 voices
- 2 analogue inputs, 8 analogue outputs
- 42 band Vocoder
- Keyboard and Rack versions

 **novation**
In music, anything is possible.

● SQUARE ONE

would immediately cut off. The most advanced drivers can handle multiple programs playing and recording audio at the same time, but they have been in the minority until recently.

During the last few years—as operating systems steadily moved into competition with consumer audio- and video-playback systems—there’s been a branching of driver philosophies. For instance, Microsoft DirectSound and Apple QuickTime are geared toward efficient playback of up to six channels of music and video. On the other hand,

systems intended for music composition and editing often use more advanced (but sometimes incompatible) technologies, such as ASIO, EASI, AudioX, and Direct I/O, which I’ll discuss in more detail. (See the sidebar “Soft Serve” for a discussion of drivers created for use with specific software.)

MAC ATTACK

Sound has been part of the Mac experience since the beginning. On early Macs, there was no need for a driver because every Mac had the same sound

chip. Later, Apple added the Sound Manager, which handles built-in audio. Since 1993, quality 16-bit stereo recording and playback have also been part of the standard package.

Several high-end sound-card manufacturers provide Sound Manager drivers for their hardware, but they can only accommodate two audio channels, which is a limit Sound Manager imposes itself. As hard disk recording software became more sophisticated, audio applications needed the ability to address more than two channels. As a result, manufacturers developed their own audio “engines” to raise the audio performance level. These engines perform functions that audio drivers can’t, such as handling streaming audio to and from the hard drive and, in some cases, effects processing and automation.

Initially, audio engines were designed for use with specific sets of hardware and software, but today they are somewhat interchangeable. For example, Digidesign’s *Pro Tools*, Opcode’s *StudioVision*, and Emagic’s *Logic Audio* can use the Digidesign Audio Engine (DAE), while Mark of the Unicorn’s *Digital Performer* can use its Audio System (MAS) or DAE.

WINDOWS: THE GLASS HOUSE

The sound-card and driver permutations and combinations in Windows are bewildering until you nail down a few basic concepts. No real audio standards existed for DOS or early Windows versions, and each application had to provide a way to communicate with each sound card it supported. Windows Audio as we know it today was introduced as a Windows 3.0 add-on called MultiMedia Extensions (MME). This is where the venerable Windows WAV driver made its debut.

It’s technically possible to design a WAV driver for all non-NT Windows versions, from 3.0 to Millennium (ME). A section of the WAV driver handles the built-in analog mixer that is usually found on multimedia sound cards, though not on professional ones.

Windows NT3.x, Windows NT4, and Windows 2000 also use WAV drivers, but these drivers use 32-bit addressing exclusively and are not interchangeable with non-NT Windows versions. Moreover, they typically have fewer features. WAV drivers rarely group more than two channels together, so multichannel sound cards typically provide WAV

clever gear for a smart world

AudioSystem

EWS88MT

The ultimate MultiTracking solution

- 8 analog ins/outs, 2 digital ins/outs, MIDI in/out
- Up to true 24-bit/96 kHz recording and playback
- +4/-10 dB analog I/O plus S/PDIF and MIDI
- Newly revised ASIO 2.0 drivers with 2 ms latency
- The only multiport card able to be mounted internally and externally



\$ 599,-
SRP excl. VAT

AudioSystem

EWX24/96

High Resolution Soundcard

- High-End 24 Bit/96 kHz Technology
- Ultra low noise signal processing (beyond 100db!)
- ASIO 2.0, GigaSampler and DirectSound Support
- Analog Stereo in and out (cinch) with up to 24 Bit and 96 kHz signal-processing
- Optical S/PDIF stereo in and out (TOS-Link) with up to 24 Bit and 96 kHz signal processing
- AC3 pass-thru
- incl. Fullversion of Nemesys Gigasampler LE
- incl. Fruity Loops- Software
- incl. 2 mtr. optical cable

NEW



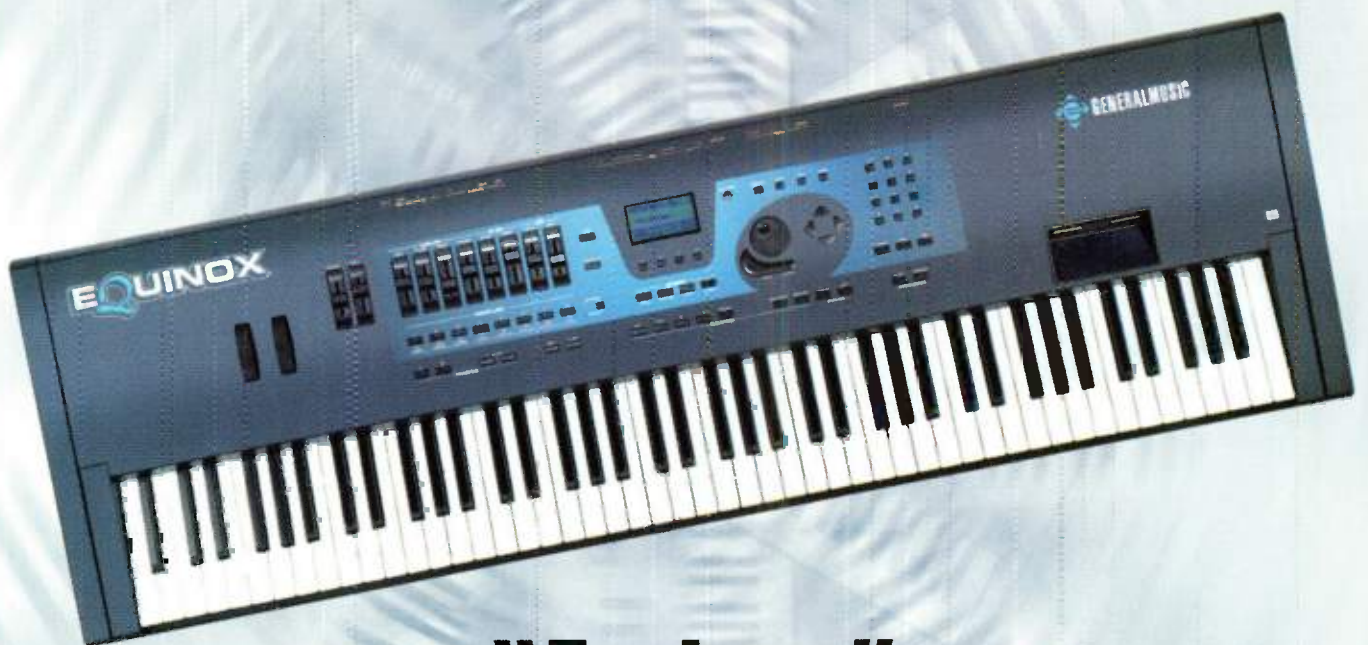
\$ 249,-
SRP excl. VAT

Look for other TerraTec products in you local music superstore or contact:

TERRATEC PROAUDIO, INC.
FON (407)-331-4002
WWW.TERRATEC-US.COM

TERRATEC

How Do You Fit Six Different Keyboards Into A Single Unit?



"Equinox"

It wasn't easy putting the equivalent of six different keyboards into the Equinox, but we did it for one reason. To offer the most complete workstation available anywhere. Generalmusic has developed patented breakthrough technology that changes the way we analyze and reproduce sound. The Equinox is essentially a synth workstation, a virtual analog keyboard, a sampler, a groove station, a MIDI controller, and a drawbar keyboard (for those picky about their organ sounds), all combined in a single-unit keyboard. There's never been anything as comprehensive or as enjoyable to navigate as the Equinox.

How did we fit six keyboards into one? Well, we aren't telling. But you can hear and experience the Equinox simply by visiting your Generalmusic dealer. At that point you won't care how we did it. Embrace the future with the Equinox from Generalmusic.



Generalmusic is distributed exclusively by Peavey in North America and the United Kingdom
Peavey Electronics Corporation 711 A Street Meridian, MS 39301
www.peavey.com — www.generalmusic.com

drivers with multiple stereo pairs of audio inputs and outputs (see Fig. 2).

DIRECTSOUND

As an enhancement to MME, Microsoft introduced DirectSound as a Windows 95 add-on. Today, it is part of all newer Windows operating systems. (DirectSound 8 should be out soon after you read this.) It is also installed or upgraded automatically as part of many games and music applications.

DirectSound is part of the DirectX package, which also includes video and game-controller drivers, as well as audio drivers for many popular sound cards. Upgrading DirectSound often changes your computer's behavior in subtle ways, usually for the better. Although you can upgrade DirectSound, you can't downgrade it. You can download the most current DirectSound version from Microsoft's DirectX Web site (www.microsoft.com/directx).

Until recently, DirectSound supported mono and stereo audio only. DirectX 8 and Windows ME, last fall's update to Windows 98SE, add multi-channel support for four-channel games and 5.1-channel DVD playback.

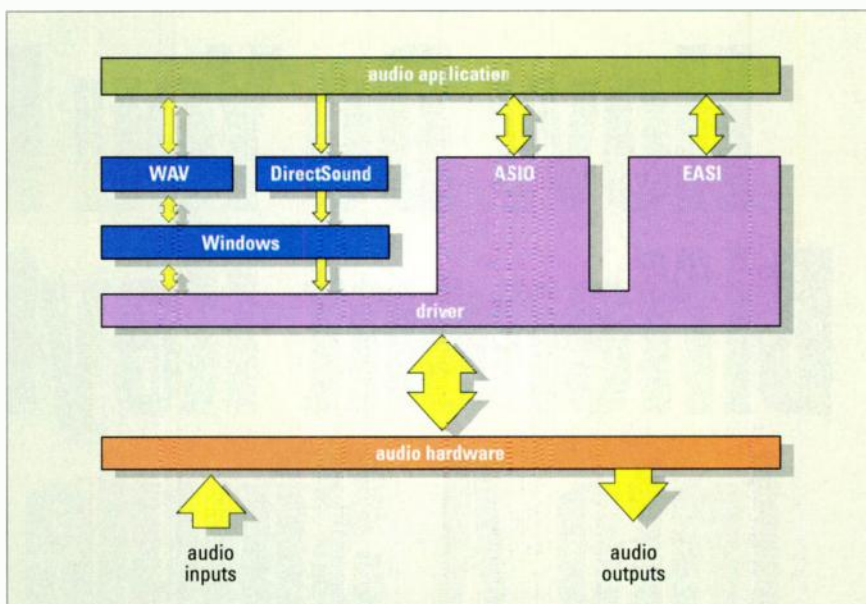


FIG. 1: Audio drivers were created to allow communication between audio software and hardware. Operating system layers which support audio, such as Window's WAV and DirectSound, do not communicate directly with hardware. Specialized drivers such as ASIO and EASI provide more direct communication between the software and the hardware.

Early DirectSound versions played sound from the foreground application only, but later versions can mix sound from multiple programs at once.

DirectSound handles output only; input is passed on to the ever-present WAV driver. If no DirectSound driver is available, then DirectSound itself can take over the WAV driver to ensure that sound is heard, but with reduced performance. This is often called "emulated DirectSound" because it allows programs that rely on DirectSound to work with a standard WAV driver.

In an effort to unify the various types of drivers used by different Windows versions, Microsoft created WDM Audio Architecture, a digital audio playback system that is part of Windows 98SE, Windows ME, and Windows 2000. WDM extends well beyond the functions typically provided by a driver, and it includes SoundBlaster Pro emulation and a digital USB-speaker driver.

Unfortunately, unless you own a sound card with hardware acceleration (that is, the sound card itself can assist in the audio-mixing process), this new protocol can add between 30 and 80 ms of latency to the final audio output. This is particularly problematic with applications such as software synthesizers. A few pro-audio software and sound-card developers are working with Microsoft to solve this problem soon.

PROFESSIONAL ALTERNATIVES

In the world of audio production, not everything comes in stereo pairs. With

SOFT SERVE

A few driver strategies are dedicated to connecting software synthesizers and samplers more directly to digital audio sequencers or sound cards. For example, quite a few Windows sound cards support Nemesys's low-latency GigaSampler Interface (GSIF; see www.nemesysmusic.com for a current card list). GSIF achieves low latency by avoiding the Windows driver layers, much like ASIO and EASI, but it performs its magic at a lower level in the Windows operating system than most of the other driver protocols mentioned here. The results are greatly reduced latency as well as more efficient use of CPU horsepower, placing Nemesys's software (*GigaSampler* and *GigaStudio*) performance on par with that of hardware-based synthesizers.

Using a different approach, Propellerhead Software's cross-platform ReWire specification allows software synths to move data into and out of a digital audio sequencer.

Functionally, it is similar to Digi-design's DirectConnect, though it pre-dates that protocol by several years. ReWire provides a flexible way for software synths to coexist with sequencers. However, the ability to play the synth in real time without delay still depends on the latency of the sound card and driver.

Along the same lines, using Steinberg's VST Instruments protocol is yet another way to connect a virtual device's audio output directly to a mixer channel in a digital audio sequencer, as long as the sequencer supports that protocol. Unlike ReWire, VST Instruments runs directly within the sequencer interface and provides both MIDI in and out connections.

Finally, a generic "virtual" audio router, such as NTONyx's Virtual Audio Cable (www.ntonyx.com), can move multiple audio channels from any software to another audio application running on the same computer.



ONE STOP SHOP!

Even if you live in the middle of NOWHERE!



FREE CATALOG!

Call **800-776-5173**
or Visit Us **Online** at

www.musiciansfriend.com

Sign up for our weekly Web giveaway
and **win up to \$1000 in FREE gear!**

HUGE SELECTION!
In Stock & Ready
to Ship!



The Musician's Choice for Over 17 Years!

Rapid Delivery!

- Most packages delivered in 2-3 business days at no extra charge

45-Day Double Guarantee!

- Money-Back Satisfaction Guarantee
- Best Price Guarantee

5 Easy Ways to Order!

- Phone
- Online
- Mail
- Fax
- Email



To get your **FREE** catalog subscription, fill out this handy coupon and mail to: Musician's Friend, Dept. 120, P.O. Box 4520, Medford, OR 97501

FREE One-Year Catalog Subscription!

Name: _____
 Address: _____
 City: _____
 Email Address: _____ State: _____ Zip: _____
 Area(s) of Interest: Guitar Bass Keyboard & MIDI Drums
 Stage (PA, lights, etc.) Studio (recording) DJ

Refer to this code: 120-0012

● SQUARE ONE

compatibility between the programs you intend to use and your hardware.

THE DIGI WAY

Digidesign takes a different approach to the driver dilemma with its Pro Tools system. Digidesign software (except for *Pro Tools FREE*, which runs with Sound Manager on the Mac or with any WAV-compatible sound card on a Windows 98 system; and *Pro Tools PowerMix 4.3.1*, an earlier version that supported Sound Manager) only works with the company's hardware. To support third-party applications using its hardware, Digidesign developed the cross-platform Direct I/O specification as an alternative to DAE. Direct I/O doesn't interact with the hard drive; it simply lets the application route audio streams to and from the sound card. The application must handle any hard disk activity directly.

Although *Pro Tools LE* runs on Windows 98 using the Digi001 and Audio-Media III cards, higher-end Digidesign hardware still requires Windows NT or a Mac. Digidesign's standard WAV driver is limited to two channels of input and output, so you need *Pro Tools* or Direct I/O to access more than two channels.

Digidesign goes one step further with its DirectConnect technology, which allows other applications to plug directly into Pro Tools inputs, where they are treated just like a hard disk playback or record channel. Most Mac software synths support DirectConnect so that they can be used at the same time as *Pro Tools*. A DirectConnect version for Windows is under development.

As with DirectConnect, Mark of the Unicorn's MAS garnered wide third-party support on the Mac. For example, popular software synths and samplers—such as Bitheadz's *Unity* and Native Instruments' *Reaktor*—can communicate directly with *Digital Performer* using the MAS virtual I/O. *Digital Performer* can use DAE, but you're usually better off using MAS with Direct I/O for Digidesign hardware. If you want to use MOTU hardware, such as the popular 2408, MAS is the only option.

In the past, using a combination of software and hardware from the same company almost always guaranteed the most features and best stability. Today, however, manufacturers are reaching out to one another to ensure that you get excellent results with any combination of products.

WALK, DON'T DRIVE

The future of general purpose Windows audio is clearly WDM, but its relatively high latency and limited support for multiple input channels and synchronization restrict its usability for creative endeavors. Fortunately, Cakewalk took a rather elegant approach to solving this difficult problem. In its ongoing attempt to ensure high-performance audio on the PC, the company led an informal consortium of music-software developers to convince Microsoft that a portion of WDM (specifically, the Kernel Mixer) is not appropriate for music creation because of the latency it adds. Future applications from Cakewalk, Sonic Foundry, and others will be able to take advantage of next generation's high-end WDM drivers to bypass the

Kernel Mixer altogether and provide efficient, low-latency performance under Microsoft's auspices.

Cakewalk also introduced a PC standard called AudioX, which is intended to enhance audio software's ability to utilize your audio hardware's professional features. This includes mixing, effects processing, synchronization, and more.

WHAT TO DO

If you're in the process of choosing new desktop-audio hardware, select a sound card, driver, and software combination that you know is compatible. It's helpful to check with both the software developer and sound-card manufacturer to make sure you have a good match.

If you want to play games and watch DVDs as well as do more advanced audio activities, consider using a multimedia sound card in addition to a multichannel audio card. This combination can be handy when you need to run two applications at once and one of them hogs the sound card. Most computers sold in 2000 have a multimedia sound chip mounted directly on the motherboard, and most of them will also sound better than computers with older sound cards. As drivers mature and coalesce, computer-based audio systems will become simpler and more useful for electronic musicians everywhere.

When he is not playing reggae or New Orleans funk, David Roach designs real-time integrated-audio applications, ranging from software synths to voice recognition.

DRIVER COMPATIBILITY

Driver	Mac	Windows 95	Windows 98/ME	Windows NT	Windows 2000
ASIO	X	X	X	X	X
AudioX			X	X	X
DirectConnect	X				
Direct I/O	X		X	X	
DirectSound		Add-on	X	X	X
EASI	X	X	X	X	X
GSIF		X	X		
MAS	X				
ReWire	X	X	X	X	X
Sound Manager	X				
32-bit WAV				X	X
WAV		X	X		
WDM			X		X



“We Had A #1 Hit Because We Joined TAXI”

If you told me that one day I'd co-write the #1 Country song in America, I probably wouldn't have believed you.

My name is Erik Hickenlooper. My writing partner, Jim Funk and I wrote the Kenny Rogers hit, 'Buy Me A Rose.'

We aren't professional songwriters with a string of hits under our belts. Just a couple of ordinary guys who love to write and record our own songs. We live in small towns in Utah, and we both have day jobs.

But, even though we write Country songs, we've never been to Nashville.

'Buy Me A Rose' was recorded on an 8-track in the back bedroom of an old farm house. We only had one microphone. And every time a cow moed or a plane flew over, we had to stop the tape. Not very high-tech, but it worked.

Jim and I didn't have any music industry connections, so we joined TAXI. It seemed like the smart way to go. Our instincts proved to be right on the money -- literally.

We landed our first publishing deal through TAXI. That resulted in 'Buy Me A Rose' being cut by Kenny Rogers.

Over the next few months, we watched our song climb the charts until that wonderful week when it hit #1 on all three Country Music charts, including Billboard.

Can TAXI do that for you? Maybe. It depends how good your music is.

TAXI proved to us that if your music is great, they really *can* get it to all the right people.

And TAXI's not just for songwriters. They also work with bands and artists, and can get your music in TV shows and films, too.

But TAXI is much more than a way to connect with the music industry. The written feedback you'll get on your material is like having a team of music industry veterans as your personal coaches.

You'll also get TAXI's great monthly newsletter, and a FREE pass to TAXI's private convention, "The Road Rally." This exclusive convention is phenomenal, and worth far more than what your TAXI membership costs.

So, don't let your music sit on a shelf collecting dust. Call right now for TAXI's FREE info kit. We did, and we got a #1 Hit!

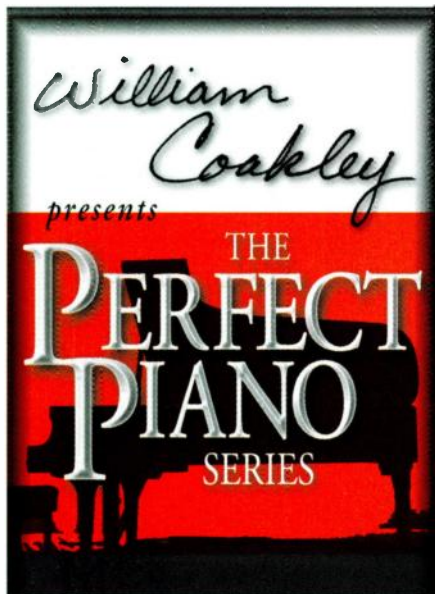


TAXI®

The Independent A&R Leader

1-800-458-2111





JUST RELEASED!

Volume III
Steinway
 \$399

"carefully distilled, well balanced, and gorgeous-sounding samples... the best you're ever likely to play."

Electronic Musician, May 1997

Volume III... "sets a new standard in quality. Its warm, round sound evokes a Steinway and makes for a nice solo piano."

Electronic Musician, Sept 2000

Featured in productions by Hallmark, Disney, Warner Bros, Sony Records... website loaded with info.

www.williamcoakley.com

Volume I
Steinway & Kawai
 \$299

Volume II
Fazioli & Steinway
 \$299

1-800-PIANO-25

(1-800-742-6625)

(561) 582-7709

Fax: (561) 547-8205



● **WORKING MUSICIAN**



Like many musicians who don't want to run a retail business in addition to their musical careers, Noelle Hampton provides a link to the CDBaby site for visitors who want to purchase her CD.

arrangement allows struggling musicians to present a convenient payment method without breaking the bank. (See the sidebar "Retail Help Online" for a few of these companies and other online retail services.)

WANNA BUY A CD, BABY?

Singer-songwriter Noelle Hampton has a Web site (www.noellehampton.com), but she also maintains a link to a site called CDBaby (www.cdbaby.com) to manage her online CD sales. To set up an account, she sent the company \$35 and five copies of her product. CDBaby takes a small percentage (about \$4) of each sale and ships the CDs. Hampton receives payment and a sales report through e-mail with information about the purchasers, including addresses to add to her mailing list. When the inventory runs out, she receives a request for more discs.

Amazon.com, one of the largest online retailers on the planet, has a similar program called Advantage for Music (www.amazon.com/advantage). You can set up your account for free and send two to five copies of your product to start. Amazon takes a hefty percentage of sales, however—usually 45 percent. Your CD must display a Universal Product Code (UPC), which can be a hassle to

obtain, and you are responsible for supplying inventory to the Amazon distribution center. But Amazon also gives you a Web page with a shot of your cover art, preview tracks, and credit information; it also adds your name to its massive searchable database of music, which makes your band much easier to find. The distribution possibilities are astonishing: I've heard unconfirmed stories of people selling as many as 20,000 CDs through the site.

Riffage.com (www.riffage.com) has a program similar to Amazon's Advantage, but you may send the company as many CDs as you like. (It recommends an initial inventory of ten discs.) Payment to artists is only made every three months. A plethora of other Internet companies provide similar services, including CDRanch (www.cdranch.com), a division of Olde West's CD duplication service; the Internet Underground Music Archive (IUMA, www.iuma.com); and MP3.com. These companies usually provide a promo page and preview tracks for your music as well as online credit card verification and processing.

FULL-SERVICE ACCESS

The Los Angeles Music Access (LAMA) Web site (www.lama.com) provides Southern California artists with a



Lauren Ellis's tidy "Recordings" page on her LAMA Web site offers two full-length downloadable songs and the option to buy the CD online through LAMA's secure server.

INTRODUCING
THE NEW

MS

DRIVERS

- oversized woofer magnet for low distortion
- magnetically shielded
- neodymium soft dome tweeter/waveguide assembly
- tweeter level adjustment switch

CROSSOVER

- 24dB/octave Linkwitz-Riley
- highest grade components
- Zobel/series notch filter optimized crossover point

PERFORMANCE

- 70Hz-21kHz frequency response
- 20-200 watts power handling
- designed, engineered & manufactured in the U.S.A.

(WE KNOW YOU'LL LOVE THEM ...
SO WE'VE BUILT THOUSANDS)

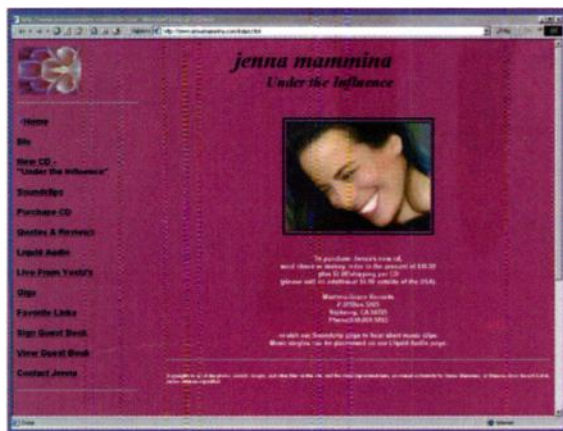


Hafler[®]
the standard

www.hafler.com



888.hafler.1.888.423.5371 546 South Rockford Drive • Juncos, AZ 85281



Jenna Mammina sells her CDs from her site using the CCNow credit card service. Individual tracks can be purchased through the Liquid Audio site.

complete online promotional package for \$135 per year. This includes individual Web pages containing photos, bios, tour dates, reviews, lyrics, RealAudio and MP3 previews, and, of course, the option to buy the CD from the LAMA secure server at the click of a mouse. I think my personal experience with the service typifies how the Internet can be a publicity godsend for

musicians who don't have major label support.

I met Lauren Ellis, a gifted singer-songwriter and slide guitarist, during the mid-1980s when she was living in Marin County. I lost track of her when she moved to L.A., relegating her to the "I wonder what ever happened to . . ." file. However, a recent Yahoo search on her name brought up her LAMA page, and I was so impressed with the MP3 preview cuts that I filled out the online order form with my address and credit card number. A few days later, her *Push the River* CD arrived in my mailbox.

Without the Internet, I would never have known that my old friend had produced a CD—and I would never have been able to purchase one so easily. These days, Ellis's work is also being distributed by City Hall Records in San Rafael, California, and is avail-

able on Amazon.com, CDNow, and as downloadable tracks on MP3.com. Although she may not be moving huge amounts of product through these Web channels, she does have a level of access and exposure that was previously unavailable.

DRINK PLENTY OF LIQUIDS

Although the majority of unsigned artists I talked to found that their Web presences were good for publicity but not necessarily for their pocketbooks, there are musicians who actually make a financial profit from online sales. Jenna Mammina, a jazz vocalist, tells me that she has sold more than 3,000 copies of her *Under the Influence* release from her Web site (www.jennamamma.com) and has easily covered the cost of the site and production of the CD. She uses a credit card service called CCNow (www.ccnw.com) and sends out the CDs herself.

She also uses the Liquid Audio (www.liquidaudio.com) technology to promote her work and to allow users to preview her music through extraordinarily



QTC1mp

Earthworks

Does it again! Accomplishing the impossible!
with new circuitry by David Blackmer
Zero Distortion Technology

1024 with ZDT

Ruler flat time coherent response from 2Hz to 100kHz, clean gain with THD of under 1ppm (0.0001%), EIN which equals the 140dB capability of 24 bit digital and the 10Volt rms output to utilize it. In combination with our QTC1 you can have 4Hz to 40kHz ±1dB as it was in the air amplified to a very hot line level with the sound and the experience of being there still intact. Realismo! This is good. Ha!



4 channel Zero Distortion Preamp

Many high end preamps and mics promise their own special and unique brand of coloration. At Earthworks we strive for perceptual perfection. Imagine sound so accurate that you can make your sonic choices later when you have time to consider! The distortion added by those colored mics and preamps can never be removed. When you want to capture the sound of the source with no color added choose Earthworks. Right On!

real: +1-603-654-6427 (fax: 6107) ∞ virtual: www.earthwks.com ∞ postal: box 517 Wilton NH 03086

REVIEWS

N E M E S Y S

GIGASTUDIO 160 2.0 (WIN)

A popular disk-based software sampler gets a virtual makeover.

By Allan Metts

Several years ago, NemeSys Music Technology introduced its groundbreaking *GigaSampler* program. The virtual sampler could play huge samples directly from a computer hard drive and could crossfade, layer, and switch among hundreds of samples within a given Instrument. Because of its reduced dependence on RAM, *GigaSampler* could create highly expressive and realistic reproductions of acoustic and electronic instruments.

NemeSys, however, didn't rest on its laurels. The company has been refining and enhancing its product line, and its latest flagship product, *GigaStudio 160*, is quite a step up from the original *GigaSampler*. Offering 64 MIDI channels, up to 160 notes of polyphony, real-time effects, onscreen mixing and routing, enhanced sampling performance, and a host of other goodies, *GigaStudio 160* could be the primary sound source for your next masterpiece. (NemeSys also offers *GigaStudio 96* [\$399], a "lite" version of *GigaStudio 160* with 96-note polyphony, 32 MIDI channels, and fewer effects.)

GigaStudio 160 comes on two CD-ROMs and installs quite easily. Once the software is installed, a configuration wizard takes you through the necessary settings.



FIG. 1: *GigaStudio 160* sports a spiffy new user interface. Common features are rarely more than a couple of mouse clicks away.

146 NemeSys *GigaStudio 160 2.0* (Win)

158 Waves L2 Ultramaximizer

166 Steinberg *Cubase VST/325.0* (Win)

174 AKG C 2000 B

180 IK Multimedia *Groovemaker 2.0* (Mac/Win/BeOS)

186 Applied Acoustics *Tassman 1.2* (Win)

196 Quick Picks: Big Fish Audio *Big Beat: Megaton Bomb*, vol. 4; Big Fish Audio *Wall of Vinyl 3*; Prosoniq *Time Factory* (Mac/Win); Native Instruments *B41.0* (Mac/Win)

The Hardware

The Software

The Machine



FRONTIER Dakota

Dakota is a superintegrated PCI soundcard that provides a complete solution for digital audio, MIDI, and synchronization. No other soundcard offers this level of integration. Its multiple outputs provide computer connections to digital mixers, minidisks, CD players, digital tape machines, external audio converters (such as Tango24™ from Frontier Design Group), video decks, synthesizers, samplers, sequencers, sound modules, and more. Dakota™ supports industry-standard interfaces, including ADAT lightpipe, S/PDIF, SMPTE, MIDI, and ADAT Sync, and is compatible with today's most popular sequencing and audio editing software.

•soundchaser.com/fdg•

CAKEWALK Pro Suite

Step inside the new Cakewalk® Pro Suite™, a complete software workstation for multitrack recording, real-time mixing, and hard-disk based sampling. Once inside, you're free to create professional music and sound projects entirely in the digital domain. Pro Suite provides an arsenal of tools for today's recording musician, combining essential recording and sampling software into an integrated studio solution. Includes: Cakewalk ProAudio™ 9, NemeSys™ GigaSampler® LE and GigaPiano™, Cakewalk FX™ 1 Dynamics Processing, FX™ 2 Analog Tape and Amp Simulation, FX™ 3 SoundStage Design for Custom Reverb and the Musician's Toolbox™ III.

•soundchaser.com/cakewalk•

SOUNDCHASER PC-DAW

Soundchaser PC Digital Audio Workstations are dialed in for serious recording, sound design, software synthesis, restoration, mastering and CD Duplication. All of our machines are factory certified to work in harmony with software and hardware from companies you can trust, such as: Cakewalk, Creamware, Digital Audio Labs, Echo, Ego•Sys, Emu / Ensoniq, Frontier Designs, Gadget Labs, Lynx Studio Technology, MidiMan / M-Audio, Nemesys, Seasound, Sek'd, Soundscape, Swissonic Sonic Foundry and Steinberg / Nuendo. Visit (www.soundchaser.com) or feel free to call one of our system specialists at: 1(800) 549-4371 for a quote on a custom built audio-friendly computer.

•soundchaser.com/pcdaw•

*Now Shipping Single and
Dual Rack Spaced
Computers!*

The Ultimate Integration

Visit our online store at **soundchaser.com**

FREE 80 page Catalog!

1-800-549-4371



Everything to Make Your Computer Musical

"It's the easiest way to explore new song ideas and add Pro backing tracks to your songs"

JAMMER[®]

Professional



256 Track Sequencer
Plus Virtual Musicians
Style Editing/Blending
Harmonizers

FREE DEMOS
WWW.SOUNDTREK.COM
FREE SAMPLE MIDI FILES

Pro Drum Tracks
Pro Drum Fills
Live Chord Recognition
Progression Ideas

download it all at
www.soundtrek.com
800-778-6859

770-831-8515 fax 770-614-6215 sales@soundtrek.com



Learn Audio Recording Like No Where Else.

The Conservatory of Recording Arts & Sciences
1.800.562.6383

All students train, hands-on, in cutting edge 48-track Analog/Digital Recording Studios that feature:

- SSL
- Studer
- Otari
- Neumann
- Amek
- Neotek
- Lexicon
- Hafler

Plus...

- Mac G3/TASCAM Digital Lab
 - Studio Master Mix Down Lab
 - Individual Pro Tools Work Stations
 - And Much, Much More!
- No more than 12 students per class - taught by award winning professionals.
 - Every student completes an internship in the industry for graduation.
 - Only recording school authorized by Avid/Digidesign, T.C. Electronics, WAVES, and SIA to certify students in the use of their products.

l.c. electronic



2300 East Broadway Road
Tempe, Arizona 85282
www.audiorecordingschool.com

GIGASTUDIO 160



FIG. 4: *GigaStudio's* Reverb effect sounds good and is easy to use. A list of the other in-use effects appears on the left. *GigaStudio* displays only one effects window at a time to preserve onscreen real estate.

keyboard for easy triggering. Creating such an Instrument is simple: you choose a starting point on the Virtual Keyboard and then load one or more WAV files. Each file is mapped to the next available key or to another key that you specify.

Once you've set up your Distributed Wave Instrument, you can save it to disk for later recall. Only the WAV-to-key mappings are saved in the Distributed Wave Instrument file, which saves disk space. If one of an Instrument's WAV files is destroyed or renamed, you can still load the rest of the Instrument. Only one Distributed Wave Instrument can be loaded at a time, although you can share it among multiple Ports and MIDI channels.

CALLING ALL STATIONS

Each Port/channel combination in the Main display is assigned a pair of Input channels in the DSP Station (see Fig. 3). The DSP Station is an onscreen mixer that brings together multiple *GigaStudio* Ports and channels and lets you apply various effects to them. It then routes the signals to your audio hardware's outputs.

The DSP Station offers eight aux buses, up to 32 Input channels, and up to 32 Master Output channels. (The Master Output channels are limited by your system's number of audio outputs.) Each channel type appears on its own tabbed page.

The 32 Input channels are grouped into 16 stereo pairs, although they can operate in dual-mono mode. With the exception of the Volume faders and Pan sliders, only one set of controls is provided for the stereo pair. For dual-mono operation, therefore, you must use the L and R buttons to specify

which channel's settings you want to change.

Each Input channel accommodates up to four insert effects and can send its signal to any of the eight aux buses. To add an insert effect, simply click on one of the effects slots and then choose from the available NFX effects. (*GigaStudio* does not support DirectX or VST plug-in effects.) Once you choose an effect, the adjoining Edit button opens a graphic display with the effect's settings.

The aux sends can operate in pre- or post-fader mode.

Each Input channel has Mute and Solo buttons, tri-color meters, a Master Output selector, a Link button for the Volume faders, and a label that automatically shows the channel's Instruments. You can disable a channel's effects sends to save processing power.

The aux-bus controls resemble the Input channels, except that they have only four effects slots and they lack the Mute, Solo, L, and R buttons. The Master Volume controls provide only the Volume faders, level meters, and labels.

Nearly all of the DSP Station controls

PRODUCT SUMMARY

NemeSys Music Technology

GigaStudio 160 2.0 (Win)
software sampler
\$699

FEATURES	4.5
EASE OF USE	4.0
DOCUMENTATION	3.0
VALUE	3.5

RATING PRODUCTS FROM 1 TO 5

PROS: Efficient user interface. Powerful sampling capabilities. Capable effects included.

CONS: Hefty system requirements. No DirectX support. A few nonserious bugs.

Manufacturer

NemeSys Music Technology
tel. (877) NEMESYS or (512) 219-9181
e-mail info@nemesysmusic.com
Web www.nemesysmusic.com

Kool Keith : Blackalicious : DJ Spooky : Phish
Jah Wobble : Green Day
EMusic Unlimited - Over 125,000 MP3's
As Much As You Want - \$9.99 Per Month



Suspend Your Disbelief!



www.emusic.com

W93

can be linked to MIDI controllers, which is quite handy for automating mixes or for using a hardware control surface. Simply right-click on the onscreen control that you want to automate, choose a MIDI port, channel, and controller, and you're all set.

CAUSE AND EFFECT

GigaStudio comes with three NFX effects: Reverb, Chorus, and Tap/Delay. You get a fourth effect (EQ) when you register the product. All four have a similar look and feel and share a number of features.

When you first click an Edit button in the DSP Station display, *GigaStudio* presents you with a control panel for the corresponding effect. Each subsequent effect that you open appears in the same space (covering the previous one), and a list of all the control panels that you've opened is displayed on the left. This feature keeps the effects panels from cluttering up the screen.

The effects have an assortment of presets, and they let you create your presets by dragging various parameter sliders.

All but the EQ have a Patch Navigator control that lets you browse through the presets in sequence or jump to the next effect with characteristics similar to the current one.

All the effects also have a Bypass button, a clipping indicator, and an A/B switch, so you can compare an effect's original and edited versions. The Output control allows you to send only the effect's left or right channels, and the Reverb, Chorus, and Tap/Delay also have separate level controls and left/right switches for both the input and dry output signals.

EQ appears in all the effects; it provides a three-band semiparametric equalizer with control of low- and high-frequency shelving and mid-range cut or boost (up to 18 dB). A graphic display shows exactly what you get. The boundary between the mid- and high-frequency bands is fixed at 2 kHz, but the low-to-mid crossover point is user configurable.

Reverb has some nice features, including controls for Room Size, Pre-Delay, Damping, Decay, Diffusion, and three bands of EQ (see Fig. 4). Some of

Minimum System Requirements

GigaStudio

Pentium II/266 or AMD 400 K6-2; 64 MB RAM; Windows 95/98; Ultra DMA, Ultra ATA, or Ultra/Ultra Wide SCSI hard drive with under 10 ms access time; GSIF or DirectSound-compatible sound card

the presets add chorusing, echo, or flanging. There are no settings for room type (chamber, hall, and so forth) or for extra effects like chorusing. Instead, you pick a preset that is close to what you want, and modify the settings from there.

Chorus is capable of several commonly used effects, including chorusing, flanging, and phasing. You specify settings for speed, depth, feedback, delay, and the three bands of EQ. As with the Reverb unit, however, you must start with a preset that is close to what you want.

Tap/Delay has four independent delays, two of which have auto-panning capabilities. For each delay, you can specify a delay time, feedback amount, high-frequency damping, pan position, and volume level; for the auto-pan effect, you can specify the speed and depth. You can also adjust the three-band EQ settings (which affect all the independent delays).

I particularly like the delay-time parameter; it lets you specify a value in either milliseconds or bpm, and the delay-time slider sets itself to a quarter-note position for that value. You can then easily and accurately change the delay time to repeat on sixteenth-, eighth-, or half-note beats instead.

The effects can be adjusted in real time, and there's no perceivable latency between moving a control and hearing the results. (NemeSys applied the same performance enhancements to effects processing as it did to sampling and mixing. It also accelerated the means by which audio passes through effects.) As with the DSP Station controls, you can link most of the effects settings to external MIDI controllers.

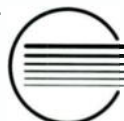
The effects sound great, although there is some funky pitch-shifting right after changing a delay time in the Tap/Delay effect. (This behavior is to be expected as the delay time changes, but not afterward.) I also had a little trouble

Where do **your**
dreams *begin?*



AAS DEGREES IN MUSIC PRODUCTION AND RECORDING TECHNOLOGY

• ANALOG AND DIGITAL MULTITRACK TECHNOLOGIES • 5:1 SURROUND • PROTOOLS •
• NEW MEDIA • MIDI • SSL • • HARD DISK RECORDING •



MUSIC TECH

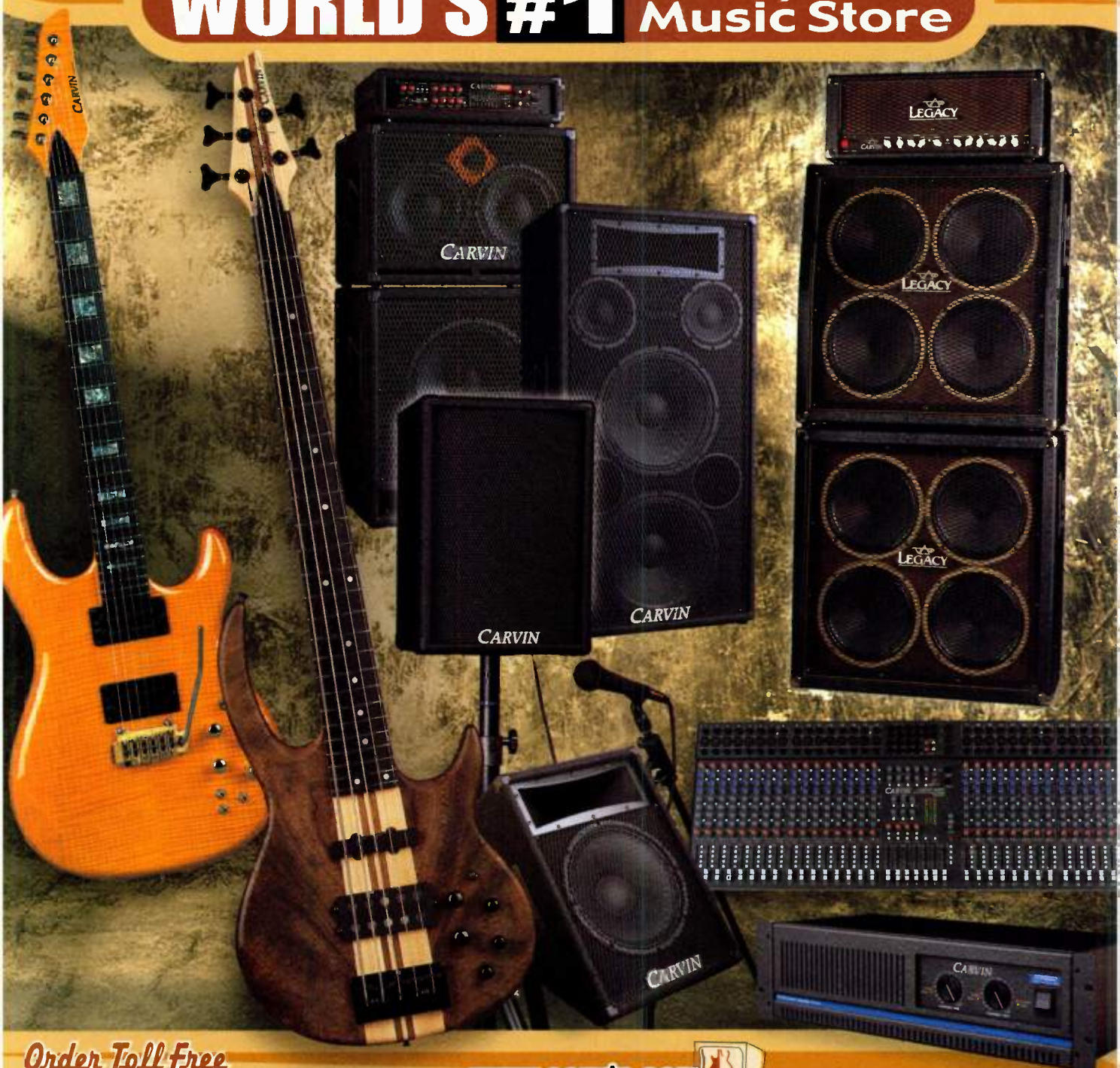
College of Music and Recording Arts

1.800.594.9500 www.musictech.com
In Europe call +46(0)322.639211

CARVIN

For all your music needs - Musicians • Schools • Churches • Businesses • Contractors

WORLD'S #1 Factory Direct Music Store



Order Toll Free

800-854-2235
BUY DIRECT FROM MANUFACTURER
CALL TODAY OR VISIT OUR STORE ONLINE

www.carvin.com

World's #1 Factory Direct Music Store



Sherman Oaks, CA 818-990-2660 Hollywood, CA 213-851-4200
Santa Ana, CA 714-558-0655 Covina, CA 626-815-8787 San Diego, CA 858-487-8700

W#1

WRB

Starting a Studio from SCRATCH

Get it together with Interstate Music!
Call for our FREE Recording, MIDI & Live Sound Catalog

- TAPE & CD-RS
 - RECORDING EQUIPMENT
 - MUSIC/DIGITAL AUDIO SOFTWARE
 - SOUND CARDS
 - MICS & EFFECTS
 - KEYBOARDS & SAMPLERS
- PLUS MUCH MORE!



A Division of Canada Music®

Great SERVICE • Huge SELECTION
Guaranteed LOW PRICES

Check out our other Guitar & Bass Catalog
FREE catalogs Drums & Percussion Catalog

FREE 877.213.2587
catalog www.interstatemusic.com

Aside from practice... We're all you need!



Digital Audio/Midi Mail Order

Box 665
Ardmore, Pa. 19003
(USA) 800-321-6434 (CAN) CALL ME !!!
Voice - (610-789-9897)
Email : sales@leighs.com
Our Music ! [Http://www.mp3.com/leighs](http://www.mp3.com/leighs)
Web Page: <http://www.leighs.com>



We stock : Cakewalk, Cubase, Sound Forge, Smart Score, DSPFX, Voyetra, Sibelius-Emu Midi Time Piece, SEKD, T-Racks, Midi Man GIGASAMPLER, ECHO, Finale, Band in a Box, Jammer, Turtle Beach, Antares, Frontier, Season, MIXTREME, MOTU, Wave Lab, Cool Edit, Lynx Studio, Jam-Toast, Ego-Sys, Retro As-1, Reality-Acid- Dozens of Others!

SHOP ONLINE !!!
www.leighs.com

mxtreme CD Rom Recorders and software to master are our specialty!
mibiman

Digital AUDIO DSP-FX

emagic **FRONTIER**

Call for free Midi Multimedia catalog!
We ship worldwide !!
FAX : 610-789-9895

GIGASTUDIO 160

establishing a crisp "small room" setting in the Reverb effect, but a little editing eventually gave me what I wanted.

QUICKSOUND

The QuickSound area at the bottom of the main window offers a split Windows Explorer-style display with a hierarchical list of drives, directories, and files. The handy file view combines with *GigaStudio's* powerful search engine to help you quickly locate Instruments and other sounds.

Type "piano" into the Search field, for example, and you get a list of all the *GigaStudio*-supported piano sounds on your hard drive. Type "piano not electric," and you get a shorter list. QuickSound also supports more complex searches, such as this example from online help: "(cello OR viola) NOT (pizzicato OR tremolo)." *GigaStudio* locates sounds even if the instrument's name is not part of the title, like when a trumpet is labeled as a brass Instrument.

How does it work? WAV and *GigaStudio* file formats support the inclusion of identifying information. *GigaStudio* scans your system for file types it recognizes and adds this identifying information to its database, which it continually updates. You can also browse through your system's sound files as you would in Windows Explorer, and even find files on networked drives.

Once you locate the files that you're interested in, you can drag *GigaStudio* files to a Port and channel slot, move WAV files into a Distributed Wave Instrument, view the file properties, or simply audition the sounds. Aside from its other talents, QuickSound converts Akai samples to *GigaStudio* format and audio CD tracks into WAV files. (For more information on the Akai conversion feature, see *EM's* March 1999 *Giga-Sampler* review.)

ONE MEAN EDITOR

No, I'm not talking about *EM's* Steve Oppenheimer. *GigaStudio* includes the Instrument Editor (see Fig. 5), which lets you create Instruments from scratch. In general, this part of the program hasn't changed much since the previous (*Giga-Sampler*) version, but a few enhancements merit attention.

For starters, the Instrument Editor supports the 2.0 version of *GigaStudio* Instrument files. Version 2.0 supports faster load times, more layers, enhanced crossfades between layers, enhanced filters, more LFOs, and MIDI control of more Instrument settings. You'll also find some new features to combine layers from other Instruments into new ones, Macros to speed up repetitive editing tasks, and other features designed to make editing easier.

The Instrument Editor can save all Instrument parameters to Articulation

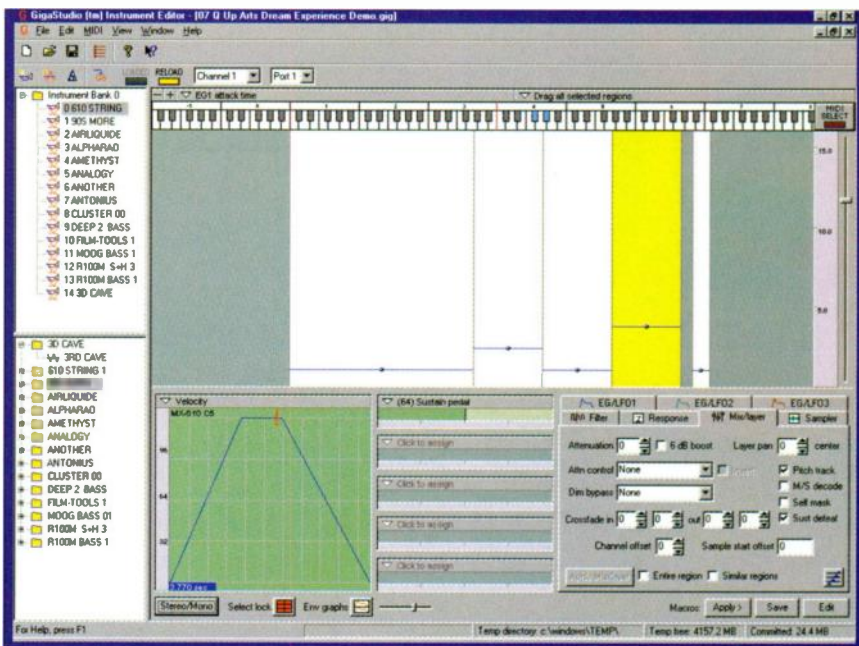


FIG. 5: *GigaStudio's* Instrument Editor offers sophisticated control of dozens of Instrument parameters.



version 3

It's All New!



New processors, new features, new interfaces, higher resolution. More capabilities in every box, such as double-precision 48bit L1 Ultramaximizer for TDM,

48bit Double Precision

88/96kHz support for many native processors in every bundle.

88.2/96kHz Ready

And no more dongle.

It's all new, from the Gold, to the Renaissance Collection, featuring our new Renaissance Reverberator, including the Renaissance EQ and Compressor. Three of our best, for our lowest price ever. And the Gold bundles now contain everything, including the award-winning C4 Multiband Parametric Processor.

Waves pushes the edge, again, so you can sound your best.

Version 3 Software Processors



Gold Native



Native Power Pack



Pro-FX Plus Native



C4 Multiband Parametric Processor Native



Renaissance Collection Native



Gold TDM



The TDM Bundle



Pro-FX Plus TDM



C4 Multiband Parametric Processor TDM



Renaissance Collection TDM

**gotta
get Waves**

phone +1.865.546.6115
www.waves.com



Choice of the Masters

files, which are just like Instrument files, except they don't have the actual audio data. Their greatly reduced size facilitates the sharing of edited Instruments through e-mail and Internet postings. Naturally, the receiver of an Articulation file must have the original Instrument file (with the audio data).

THE GIG IS UP

GigaStudio has two other notable features, both of which also existed in *GigaSampler*. First, you can capture your *GigaStudio* creations to a WAV file. Just

hit the Record button and start playing. (If you're using a sequencer, you can take advantage of *GigaStudio*'s ability to wait for a MIDI Start message before recording.)

You can also load and save *GigaStudio* Performances. Performances are snapshots of the entire *GigaStudio* environment (except for the Distributed Wave Instrument settings). Though this feature existed in *GigaSampler*, now you can include much more in a Performance file, such as DSP Station routings and effects settings. In fact, you can create

some crude "snapshot automation" capabilities by saving several Performance files for a particular project.

GigaStudio's system performance is excellent, and dozens of sound cards can take advantage of the software's extremely low-latency operation. (Any native DirectSound card can be used with *GigaStudio*, but those that support GSIF—the company's proprietary audio interface—offer the best performance. DirectSound cards are also limited to two channels.) I experienced no fatal crashes during the review period. Although it had a number of bugs, none were serious and most were cosmetic.

Unless you have a humongous system, don't plan on running 64 different Instruments into 32 different channels with lots of added effects; you'll probably run out of memory or CPU resources before you get there. In general, Instruments tend to eat up memory, and effects are more likely to use up CPU capacity.

I tested *GigaStudio* on a fast Athlon machine with 256 MB of RAM and ran out of memory after about 30 assorted Instruments; it took about 10 effects to use up half of my CPU power. Your mileage may vary, mainly because each Instrument's complexity (rather than size) greatly influences the RAM requirements. For example, you can load hundreds of simple Instruments within the same amount of memory as only ten or so more complex Instruments with hundreds of samples each. In other words, the total number of samples determines how much RAM you need.

Overall, *GigaStudio* produced excellent sound quality. The program ships with *GigaPiano*, and also includes a *Retro* drum kit along with several demo files from commercially available sample libraries. The printed documentation consists of an 83-page, unindexed *Getting Started Guide*, and a more complete online manual with an index. I had no trouble finding what I needed to know from the documentation.

GigaStudio is a great product at a fair price. If your projects demand that you access and organize big sample libraries or if you like working with big samples, *GigaStudio* can help get the job done efficiently—and with impressive results.

Allan Metts is an Atlanta-based musician, software/systems designer, and consultant.

In the Studio?

FREE Guide Saves You Time and Money!

Bonus Offer!

We'll include our 37 Recording Tips brochure, packed with advice and simple tips on how to save big bucks in the studio, FREE!



Nothing is more frustrating than making CDs or cassettes and finding out there's something wrong with your master. **DISC MAKERS' Making A Great Master** provides insider information, as well as common sense tips, on preparing an error-free master on the first try. No matter where you record your product, you need this 36-page booklet before leaving the studio.

Call Today For Your FREE Guide:
1-800-468-9353

www.discmakers.com · info@discmakers.com

DISC MAKERS

The Totally FireWire Project Studio is here!








The 30GB X-Project Hard Drive

**Record, mix and edit 144 minutes of
24-track, 24-bit audio at 48K!**



Glyph's FireWire SMOKES!

-  Glyph optimized for superior A/V performance
-  Drives mount on your desktop and you're ready to go
-  24-hour advance replacement warranty*
-  Compatible with Macintosh and PC
-  No host bus adapter card needed
(For Macs, your PC may not have FireWire on board)



WildFire 3-in-1 CD-RW

The FireWire edition of Glyph's X-Project™ and Glyph's WildFire™ CD-RW.

Tools that simplify digital audio production.

Enjoy the performance, Herculean service
and crushing technical support that professionals do.

**Plug in...turn on
Start Creating.**



*Applies to single hard drives in 1st year of warranty



800 • 335 • 0345 www.glyphtech.com sales@glyphtech.com

W A V E S

L2 ULTRAMAXIMIZER

A professional mastering limiter punches up your tracks.

By Myles Boisen

Waves' *L1 Ultramaximizer* software plug-in is one of the few audio tools I rely on that doesn't have a "sound" of its own. This mastering/compression program is essential for getting the most out of the 16-bit CD format. During the last five years, it has been one of the most important components in my studio.

Needless to say, I was enthusiastic about the new hardware version of *Ultramaximizer*, the L2. I used the L2 straight out of the box, because *L1*'s familiar features were retained more or less unchanged. In addition to the advantage of real-time (as opposed to file-based) processing, L2 offers a handful of exciting new options that don't mess with the proven success of Waves' Increased Digital Resolution (IDR) technology.

These options include support for 24-bit, 96 kHz digital audio, excellent 24-bit A/D/A conversion, 48-bit internal processing, individual left and right analog-input controls, auto-release circuitry, dual-mono or stereo operation, and a hardwired bypass. *L1*'s only feature that was not handed down to L2 is the ability to output 8-bit audio, which is pretty much limited to multimedia and Web-based audio.

MAX HEADROOM

For those not familiar with Waves' *Ultramaximizer*, here's how *L1* works.

The *L1 Ultramaximizer* plug-in combines output-level normalization with look-ahead limiting—a process that lowers amplitude peaks that come in above an adjustable threshold—and intelligently redraws them to minimize audible distortion.

As the threshold is adjusted downward from 0 dB FS (the maximum value, or *ceiling*, for any digital signal), more peaks are limited and the signal's dynamic range is reduced. Consequently, more headroom is created, and the normalizing function—which is typically set to keep peaks around the 0 dB maximum—effectively pushes the signal's overall gain up as the threshold decreases.

Besides its obvious gain-maximizing function, *L1* also provides adjustable bit-depth reduction in addition to dithering and noise-shaping options to audibly enhance the low-level information stored in the digital signal's least significant bits. As a result of Waves' proprietary IDR process, the subtle aspects of a mix—room sound, reverberation, quiet instruments, and extreme high and low frequencies—are brought out of the background without the unwanted artifacts of nonlinear distortion or quantization noise.

I use *L1* on nearly every mastering and editing job, and my clients are consistently amazed at the depth and resolution it adds to a mix while boosting their music to the level of most commercial CDs. On live recordings, analog-tape transfers, and other difficult reclamation work, *L1* frequently works miracles; even on an average mastering day, it makes me look like a hero.

OUTBOARD FOR GLORY

For all L2's sophistication, the 2U front panel is a marvel of simplicity and makes this unit a joy to operate (see Fig. 1). The white-on-black control labels are easy on the eyes and large enough

to read at a distance. The same goes for the numerical readouts and colored status LEDs. Best of all, the unit has no master LCD and no banks of menus to scroll through.

On the left are seven buttons, one for each processing parameter or I/O option. The buttons toggle through the available settings, which are clearly indicated by orange or green status LEDs arrayed to the buttons' left.

The buttons control input selection (AES/EBU, S/PDIF, analog); synchronization (external, digital, internal); sample rate (44.1 or 48 kHz); sample rate x2 (for 88.2 or 96 kHz operation); bit depth (16, 18, 20, 22, 24); dither (type 1, type 2, off); and noise shaping (ultra, normal, moderate, off).

The center-detented, analog-input gain controls range from -10 to +10 dB. To the right of the gain controls are three pairs of large, one-inch rotary control knobs, each with a yellow numerical LED and multisegment gain meters with automatic peak hold. The knobs control different parameters for each channel independently. The first pair adjusts the L2's threshold downward from 0 dB FS in 0.1 dB increments, and the meters indicate the input-gain level. The next pair, called Out Ceiling, controls the final output level (again in 0.1 dB steps downward from 0 dB), and their meters indicate output gain. The third pair governs release time and the knobs are adjustable over a range of 0.01 ms to 1 second. The associated meters indicate the amount of gain reduction.

To the far right is a pair of switches that activate the L2's auto-release function for each channel. Additional switches that engage stereo or dual-mono operation, bypass mode, and meter peak-hold reset are located in the center strip between the individual channel controls.

The front panel had one minor problem: the tips on some of the buttons were loose and wobbly. In fact, a



FIG. 1: With the L2 Ultramaximizer, there are no banks of menus to scroll through. Every control you need is accessible on the front panel.

imagine...

a loop based recorder that has
unlimited memory expansion

imagine...

being able to independently
change a loop's pitch and
tempo in real time

imagine...

instantly making glitch-free
loops that synch perfectly to
your mix

imagine...



ELECTRIXTM

WWW.ELECTRIXPRO.COM

Look for **REPEATER** in stores this **FALL**



COMPACT DISC • CASSETTE
& RECORD MANUFACTURING

**GUITARIST
GOES
CRAZY!**

Mastering Engineer
Sought for Questioning!

Local guitar lesson

**POOR REPRODUCTION IS NOT
A VICTIMLESS CRIME!**

QCA IS COMMITTED
TO STAMPING OUT THESE
SENSELESS ACTS!

CALL TOLL FREE
1.800.859.8401
For Your Free Catalog

QCA

Serving the Music Industry for Over 45 Years.

2832 Spring Grove Ave., Cincinnati, OH 45225
Tel: 513.681.8400 • Fax: 513.681.3777
E-mail: qca@pol.com • web: www.pol.com/QCA

L2 ULTRAMAXIMIZER

few came off upon examination. The switch mechanisms are recessed below the panel, and without the tip, they could be accessed only with a small, pointed tool. Waves has confirmed that this problem has since been corrected.

The power switch and all connections are on the rear panel (see Fig. 2). Analog I/O is available on XLR and 1/4-inch jacks, but at +4 dBu professional level only. Balanced or unbalanced signals are accepted on both types of input connectors. On the outputs, the XLR jacks are balanced and the 1/4-inch connectors are unbalanced. The L2 has no -10 dBV semi-pro connectors.

Inserting a 1/4-inch plug at the input interrupts any signal present in the XLR connector. However, I found that some crosstalk from the XLR input was easily heard when both jacks were connected, prompting me to manually disconnect the XLR cable.

As noted earlier, the supported digital signal formats are AES/EBU (XLR) and S/PDIF (RCA), with input switching on the front panel. Both digital outputs are active simultaneously, which is a big advantage in a studio or mastering situation. Latency is rated at a low 1.5 ms. The unit's all-metal chassis is vented on both sides because it runs rather hot.

MANUAL DEXTERITY

The L2's manual is an exemplary document that not only explains all functions and potential applications thoroughly, but also provides detailed theoretical information in a straightforward, easy-to-comprehend manner. Most important, the manual stresses that the L2 should be the final processor in a digital signal chain, located immediately before the destination device, such as DAT, CD, or computer.

The manual also scores points by warning users against "slamming" mixes prior to mastering. There is no

undo on a hardware processor, so prudent use is advised to avoid the typical pitfalls of over-compression. The L2's most sensible applications include maximizing levels from a DAT (or other master) to CD or cassette reference copies for clients, or as a high-quality, analog-to-digital converter with conservative limiting.

NORMALIZING RELATIONS

I tested the L2 as a mastering compressor on a CD project by the band Cranium. I placed the L2 between my TC Electronics M2000 (used for parametric equalization with 24-bit output) and my digital audio work-

▼
**I was able to use
the L2 straight
out of the box.**

station, and I adjusted the L2 on a song-by-song basis to boost overall gain within a range of 4 to 7 dB as tracks went to hard disk.

At these settings, some compression was audible on the snare and hi-hat, which stuck out dynamically from Cranium's wall of distorted guitar and bass. But the L2 dealt with these transients mercifully and yielded fine results. For example, running the mix through the L2 increased the guitar bed's level and intensity compared to the original, unprocessed DAT mixes. Once I auditioned everything from the computer, I was pleasantly surprised to find that overall levels were consistent. Only two songs out of nine needed additional minor gain adjustment.

I had similar success using the L2 on other mastering projects. It was a great time-saver compared to the file-based

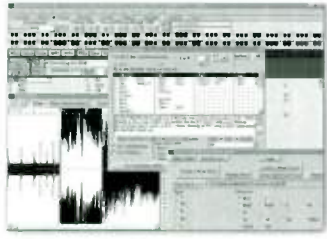


FIG. 2: The L2 Ultramaximizer is a professional unit all around. Analog I/O is +4 dBu and the signal is available from both digital outputs simultaneously.

DOWNLOAD IT NOW!!!

BAND-IN-A-BOX™ 10 IS HERE!

* Band-in-a-Box for Macintosh® currently available at version 8



INTELLIGENT MUSIC SOFTWARE FOR YOUR PC OR MAC!*

AUTOMATIC ACCOMPANIMENT HAS ARRIVED! The award-winning Band-in-a-Box is so easy to use! Just type in the chords for any song using standard chord symbols (like C, Fm7 or C13b9), choose the style you'd like, and Band-in-a-Box does the rest... automatically generating a complete professional quality five instrument arrangement of piano, bass, drums, guitar and strings in a wide variety of popular styles.

- OVER 150 STYLES INCLUDED:** Jazz, Latin, Waltzes, Pop/Rock, Classical, Country, Folk, Ethnic, Euro-Tek, Fusion, Blues, Unplugged, Praise and Worship, and more!
- AUTOMATIC SOLOING.** Simply select the soloist you'd like to hear and play with (from over 100 available) and Band-in-a-Box 10 will create & play a solo in that style, along to any song! This is **hot!**
- AUTOMATIC SONGS.** Compose a new song in the style of your choice, complete with intro, chords, melody, arrangement & improvisation. You can go from nothing to a completed song in one second!
- STANDARD MUSIC NOTATION and leadsheet printout of chords, melody and lyrics.** Enter your songs in standard notation & print out a standard lead sheet of chords, melody and lyrics.
- AUDIO TRACK.** Add vocals or any instrument to your Band-in-a-Box song.
- NEW IMPROVED GUITAR SUPPORT.** Generate a guitar chord solo - from any single note melody; Guitar tablature - on-screen or print out notation complete with Guitar TAB.
- HIG LYRICS WINDOW.** Great for singalongs and Karaoke!
- BUILT-IN SEQUENCER ALLOWS YOU TO RECORD OR EDIT MELODIES.**
- BUILT-IN STYLEMAKER™.** You can create your own 5 instrument styles using the StyleMaker section of the program.
- AUTOMATIC HARMONIZATION.** You can select from over 100 harmonies to harmonize the melody track, or harmonize what you play along in real time. Play along in "SuperSax" harmony, or harmonize the melody with "Shearing Quintet". Create your own harmonies or edit our harmonies.

NEW FEATURES IN VERSION 10

THIS MAJOR NEW UPGRADE TO BAND-IN-A-BOX INCLUDES OVER 50 NEW FEATURES! First off, you'll get "Guitar Styles" - styles that accurately play and show strummed and picked guitar parts. The **Guitar Tutor** shows you real guitar chords for any song, in any style. The **Chord Substitution Wizard** provides alternatives for any chord progression. Play harmonies that follow the chords you play with the **Live Harmonies** feature. The **Chord Preview Builder**, hear how a chord sounds before you select it. **Ear Training Window** provides endless hours of chord and interval recognition exercises. **NEW!** **DirectX audio plug-in format** with DirectX support. The **Audio Edit Window** makes edits and overdubs of your audio track easy. "Burn" your composition directly to an Audio-CD or save it in Windows Media Format. **NEW! Print-Preview, Print-to-JPG and a Print Chords-only leadsheet. And much more...**

"...one of the few music products that sits in the 'must-have' category." Sound On Sound, July 2000

FIRST-TIME PURCHASE

- ✓ **Band-in-a-Box Pro Version 10...** \$88
Includes Version 10, Styles Disks 1-3, Harmonies Disk 1, Soloist Disk Set 1, Melodist Disk Set 1 & bonus software **SlowBlast!** (Windows® version only). Band-in-a-Box for Macintosh® currently available at Ver. 8
- ✓ **Band-in-a-Box MegaPAK version 10...** \$249
The MegaPAK contains "the works" - version 10 PLUS Styles Disks (1-26), all Soloist Disks (1-9), Melodists (1-2), The MIDI Fakebook & PowerGuide Instructional CD-ROM!

UPGRADES

- ✓ **Regular UPGRADE from version 9...** \$49 • From Ver. 8 or earlier or crossgrade... \$59
Includes Band-in-a-Box version 10 upgrade PLUS Styles Disk 24
- ✓ **MegaPAK UPGRADE from version 9...** \$149 • From Ver. 8 or earlier or crossgrade... \$159

ADD-ONS FOR BAND-IN-A-BOX... each \$29

- ✓ **NEW! Styles Disk 24 - Guitar and More!**
- ✓ **NEW! Styles Disk 26 - Classic Country**
- ✓ **Styles Disk 23 - Contemporary Country** • Styles Disk 22 - 60's British Invasion • Styles Disk 21 - Top 40 • Styles Disk 20 - Southern Gospel • Styles Disk 19 - Requested • #18 - Praise & Worship • #17 - Unplugged • #16 - All Blues • #15 - Nashville Country • #14 - Jazz/Fusion • #13 - EuroTek • #12 - Country/Swing • #11 - Classical • Styles Disks #4-10
- SOLOISTS DISKS: Soloist Disk Set #9 - Blues Guitar, Country Piano & More...** \$29 • Disk Sets #2-9... each \$29 • Soloist PAK - all Soloist Disks 2-9 + Bluegrass MIDI Fakebook... \$99
- PLUS: The MIDI Fakebook for Band-in-a-Box...** \$29

HOT NEW SOFTWARE PROGRAMS FROM PG MUSIC!



HOT! OSCAR PETERSON MULTIMEDIA CD-ROM (for Windows®)... only \$79.95
Multimedia Performances, Transcriptions, Autobiography, Photo Gallery, Discography & More!
Jazz piano legend Oscar Peterson brings an exciting new level of artistry to the Multimedia experience in this signature CD-ROM. This rich treasury integrates interactive audio/visual performances with on-screen piano display and notation. You can see and study exactly what the master is playing! Join Oscar for a musical journey through his life and career. There's also a comprehensive Multimedia autobiography loaded with audio and video clips PLUS exclusive photographs from Oscar Peterson's private collection.

OSCAR PETERSON NOTE FOR NOTE (Companion book/audio CD)... only \$39.95
Transcriptions of Classic Recordings: Over 200 pages of music PLUS performances on audio CD!

Jazz Piano MasterClass CD-ROM: Vols. 1 & 2 (for Windows®)...

each \$29 or both for \$49
Master jazz pianist Miles Black is your teacher in a multimedia software program designed to illustrate basic skills to the beginning pianist while enhancing the skills of more advanced pianists. You'll study over 60 topics such as Roots and Shells, Block Chords, Stride Piano, Playing the Blues, Scales, Common Progressions, Improvisation and more. All lessons are accompanied by practice exercises, backing tracks, further illustrated with 11 tunes included in the program. Interactive audio lessons with on screen piano display and notation let you see and hear exactly what Miles Black is playing.

Jazz Guitar MasterClass CD-ROM: Vols. 1 & 2 (for Windows®)...

each \$29 or both for \$49
Master jazz guitarist Oliver Gannon is your teacher in this software program designed to illustrate basic skills to beginning guitarists while enhancing skills of more advanced guitarists. Study over 60 topics such as Chord Voicings, Inversions, Right Hand Techniques, Comping, Scales, Modes, Arpeggios, Common Progressions, Improvisation and more. All lessons are accompanied by practice exercises, backing tracks, further illustrated with the included 10 tunes. Interactive audio lessons with on screen guitar display and notation let you see and hear exactly what Oliver Gannon is playing.

Master Jazz Guitar Solos Volume 1 (for Windows®)...

only \$49
Full featured program includes over 50 tunes with jazz guitar solos in the style of the great Jazz Guitarists (Joe Pass, Pat Metheny, John Scofield and others). What a great way to learn jazz guitar soloing! Let a master show you solos in the styles of the greats. All tunes are done in MIDI format with a complete hand arrangement (drums, piano, bass, guitar). Watch and learn the tunes as they play on the guitar fretboard, notation and tablature. Slow the music to the tempo you want, or step through the solo note by note.

Master Flatpick Guitar Solos Volume 1 (for Windows®)...

only \$49
Full featured program including 50 tunes with guitar flatpick solos in styles similar to Doc Watson, Jerry Reed and others. Since guitar is such a visual instrument, it is easiest to learn by watching the on-screen guitar as a flatpick master plays these great solos. Slow the music to the tempo you want, or step through the solo note by note. View or print out the material in notation and tablature.

Multimedia & Pianist Performance Series each \$49

MUSIC MEDIA PERFORMANCE SERIES CD-ROMS

THE BLUES GUITARIST

Hot session players perform great sounding blues music, while you learn the riffs, licks and tricks!

THE ROCK GUITARIST

Multimedia features, on-screen notation, tablature and chord progressions scrolls by with the band.

SOR STUDIES FOR CLASSICAL GUITAR

Superb performance of Francisco Sor's celebrated studies (Opus no. 29, 31, 35, 44 & 60 complete).

THE BACH CHORALES Vols. 1, 2 (\$19 each)

Inspiring performances of the 4-part Chorales, plus detailed multimedia history of Bach's life & times.

THE BARBERSHOP QUARTET Vols. 1, 2

All-time favorite Barbershop songs and an interactive multimedia history of barbershop singing in America.

THE ROCK SAXOPHONIST

Full featured professional MIDI program containing studio recording, stage rock'n'roll session music.

THE JAZZ SAXOPHONIST

Seamlessly integrated Multitrack audio, MIDI, chord symbols & notation for your sound card equipped PC.

Multi releases \$19 per vol. Special pricing for 3 or more!

PIANIST PERFORMANCE SERIES

THE PIANIST Vols. 1, 2, 3, 4, 5, 6 (\$19 each)

World's greatest Classical Piano Masterpieces!

Vol. 1: 215 selections. Vol. 2: 200 selections. Vol. 3: 170 selections (incl. arrangements and duets). Vol. 4: 200 selections. Vol. 5: Complete 32 Beethoven Sonatas.

NEW! Vol. 6: 200 selections. Great French Composers, including Ravel, Ginastera, Debussy, Bartok & Faure!

THE MODERN JAZZ PIANIST

Top studio musicians Renee Rosnes, Miles Black, Ron Robinson, and Brad Turner perform over 50 tunes!

THE LATIN PIANIST

Popular Latin pianist Rebecca Maurein Santana plays over 50 tunes in a wide variety of Latin piano styles.

THE GOSPEL PIANIST

Over 50 "Gospel Style" piano standards played on MIDI keyboard by top Gospel pianists.

THE NEW ORLEANS PIANIST

Over 50 "New Orleans Style" piano music standards, played on MIDI keyboard by top New Orleans pianists!

THE BLUES PIANIST

Top pros play Boogie Woogie, Slow & Fast boogie, jazz blues, New Orleans style, Chicago blues and more.

THE CHILDREN'S PIANIST

Over 70 of the world's best-loved children's songs. Words are displayed in a Large "Karaoke" style display.

THE NEW AGE PIANIST

Over 70 "New Age" & "New Age Jazz" style piano pieces. Includes photo album of stirring nature scenes.



NEW! SlowBlast! for Windows®... \$19.95

Bonus software included with your first-time purchase of Band-in-a-Box or PowerTracks Pro Audio PowerPAK PLUS SlowBlast! slows down the music in your collection! You will play along or transcribe your favorite riffs and tunes at your own speed instead of trying to catch everything at full pace. You can master difficult phrases with ease. **SlowBlast!** creates studio quality sound without changing the original pitch. Currently for Windows 95, 98 & NT.



New Version. Cool Features. Same Low Price!
"Solid pricing at an unbelievable price" Electronic Musician



PG MUSIC INC.

29 Cadillac Ave., Victoria, BC V8Z 1T3 CANADA
Phone (250) 475-2874 • (800) 268-6272

(888) PG MUSIC

www.pgmusic.com • sales@pgmusic.com

Fax (250) 475-2937 • (888) 475-1444

See us at NAMM, Booth 6815, Hall A

onstage™

FOR THE PERFORMING MUSICIAN

Onstage is the exciting new monthly magazine from *Electronic Musician*. Each edition of **Onstage** is rich with equipment reviews, music business techniques, and survival tips for performing musicians.

Available on newsstands everywhere!
Subscribe online at:

www.emusician.com/onstage/suboffer.html



VIPER ROOM, LOS ANGELES

L2 ULTRAMAXIMIZER

processing of *L1*, and I adjusted levels with confidence on any collection of mixes featuring consistent production and arrangements.

On one occasion, the L2 saved the day, providing left/right channel balancing and massive—yet very clean—gain boosting of an extremely low-level concert recording. On the other hand, I would be nervous about using the L2 for mastering a multiple-source compilation or for a job where levels, instrumentation, or dynamics vary widely. Under these conditions, I would prefer *L1*'s ability to instantaneously compare processed and unprocessed material in the computer.

ALL IN ONE

In the recording studio, I pulled out the L2 for a broad range of jobs, and it soon became the digital equivalent of a well-stocked toolbox. When faced with impending deadlines and short sessions, the L2 kept me from getting bogged down by the time it takes to use the computer for mastering compression. CD copies of unfamiliar material were handled smoothly and efficiently by the L2 with a touch of set-it-and-forget-it limiting to avoid unforeseen digital overs. The unit's analog I/O also did a first-rate job of sample-rate conversion. For example, I converted 48 kHz material from a DAT tape to 44.1 kHz for burning a reference CD.

To critically evaluate the L2's sound, I put together an analog-multitrack mix from the dub-oriented *Guerrilla Hi-Fi* project produced at my studio by engineers Eithen Fletcher and John

Finkbeiner. I used an Apogee PSX-100 for the initial 24-bit A/D conversion and recorded samples of the mix to a DAT machine running at 48 kHz. I tried the L2 in several different configurations: out of the signal path altogether; with the L2 between the PSX-100 and DAT machine, but bypassed; and active at threshold settings of 0, -3, and -6 dB using either types 1 and 2.

There was no noticeable difference in sound with the L2 in or out of the signal path, and I heard only a slight, beneficial emphasis in the high-end detail of the hi-hat with the Ultramaximizer set to 0 dB limiting. At the -3 dB threshold, limiting was minor and generally confined to snare-drum hits, with no audible compression effects. With the threshold at -6 dB, the mix reached a fairly robust level that was certainly on par with most commercial CDs. At this setting, only the percussive guitar "skanks," drum fills, and some full horn chords were audibly limited, despite the meters' indication that most of the mix's dynamic peaks maxed out between -2 and 0 dB.

This is called *brick-wall* limiting. The L2 Ultramaximizer's performance at this extreme setting was still very musical, distortion-free, and, for much of the mix, absolutely undetectable. The L2's auto-release function worked marvelously throughout these trials and certainly deserves part of the credit for the device's transparency.

Next, I took the PSX-100 out of the signal path and used the L2 for A/D conversion as well as limiting. The resulting timbre was very close to that of

L2 Ultramaximizer Specifications

Analog Outputs	(2) XLR (balanced); (2) 1/4" TS (unbalanced)
Digital I/O	(1) AES/EBU (XLR); (1) S/PDIF (RCA)
Other connections	(1) word clock input (BNC)
Threshold Range	30 dB (in 0.1 dB steps)
Release Range	0.01 ms to 1 second
Resolution	16, 18, 20, 22, and 24 bits
Analog Input Gain Range	20 dB
Internal Processing	48-bit
Sample Rates	44.1, 48, 88.2, 96 kHz
Dynamic Range (A/D)	-112 dB (unweighted)
Frequency Response	20 Hz-20 kHz (+0/-0.3 dB @ 44.1 kHz)
Noise (A/D)	-112 dB (unweighted)
Dimensions	2U x 8.66" (D)
Weight	8.8 lbs.

Mo'Phatt by E-MU.

From the people that brought you the legendary SP1200 and Planet Phatt comes a new machine to move the masses — the Mo'Phatt Urban Dance Synth. Loaded with the hottest new sounds and beats on the planet, Mo'Phatt is the ultimate instrument for stage and studio, featuring a lethal compliment of dance tools like E-MU's exclusive SuperBEATs performance mode, syncable ARPs, and digital 12 pole filters that will rip your head off. Check out Mo'Phatt and hear why nobody does it better than E-MU.



Move the Masses

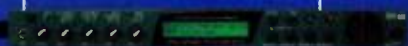


- Huge 64 voice polyphony
- All-new 32 MB Hip-Hop soundset
- 12 real-time control parameters
- E-MU's exclusive SuperBEATs Mode
- Advanced syncable arpeggiation functions
- Dynamic 12 pole filtering

Launch your next groovological journey with the Xtreme Lead-1 Turbo



Explore Planet Earth and bring a world of sounds to your music



Experience the Mo'Phatt Urban Dance Synth at your local E-MU Dealer today!

64 VOICE URBAN DANCE SYNTH

Mo'Phatt
\$995
MSRP

www.emu.com



E-MU
1600 Green Hills Rd., Scotts Valley, CA 95067 tel. 831.438.1921

PRODUCT SUMMARY

Waves

L2 Ultramaximizer
mastering limiter/normalizer
\$2,395

FEATURES	5.0
AUDIO QUALITY	4.5
EASE OF USE	5.0
VALUE	4.0

RATING PRODUCTS FROM 1 TO 5

PROS: Quick and easy to set up and adjust. Logical front-panel layout. Individual left- and right-channel analog-input controls. Multiple digital outputs. Auto-release circuitry. Dual-mono or linkable stereo operation. Hardwired bypass.

CONS: Expensive. No -10 dBV analog I/O. Audible crosstalk when both XLR and 1/4-inch analog inputs are active.

Manufacturer

Waves
tel. (865) 546-6115
e-mail sales@waves.com
Web www.waves.com

the Apogee converters; much closer, in fact, than any other digital processor or recorder I've tested. The main differences included a slightly grainier upper midrange in the hi-hat and trumpet and an occasional harshness from the limiter in the most densely compressed sections at the extreme -6 dB threshold setting. Regarding other important factors (such as resolution, frequency response, sound stage, and noise floor), the two converters were evenly matched, and there were no significant differences.

UNLIMITED POTENTIAL

Based on my experiences with the L2, I would seriously consider adding one to my studio inventory. In fact, the more I used it, the more reasons I found to keep it close at hand. The unit sets up quickly and easily, and it provides a logical front-panel layout of dedicated switches and knobs that governs all functions. In addition to being a snap to use, the L2 is an extraordinarily versatile processor. With its top-notch A/D converters, high sample-rate and bit-depth capability, and multiple digital

outputs, this unique device integrates seamlessly into any two-track mixing, mastering, or transfer scenario.

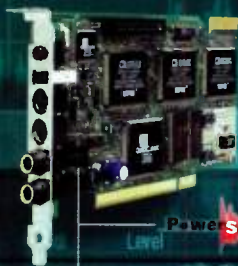
An experienced mastering engineer can rely on the L2 Ultramaximizer to make a mix jump out of the speakers, and in less time than the L2's computer-based predecessor. It's also invaluable as a limiter during unpredictable tape transfers, live two-track mixes, and location recordings. When used sensibly to beef up demos or reference CDs, the L2 is so good, it's addictive.

Of course, all this power doesn't come cheap, and it's unfortunate that the only real drawback of the Ultramaximizer is its rather steep price tag. But the cost of this fully professional unit is insignificant compared to its ability to dramatically increase sound quality while pushing your stereo mix levels up to the ceiling.

Myles Boisen is a guitarist, producer, composer, and head recording/mastering engineer at Guerrilla Recording and The Headless Buddha Mastering Lab in Oakland, California. He can be reached through e-mail at mylesaudio@aol.com.

PERFORMANCE TOOLS

- take the best virtual studio software
- add massive processing power
- eliminate latency
- integrate "live" signals
- integrate your studio



- **PowerSampler:** a full-featured professional sampler on a PCI card: broad sample library support, unique "zero latency" performance and ultra-tight timing. Thanks to the flexible driver architecture, PowerSampler is a high-end 24-bit / 96 kHz multi-I/O system as well.
- **The Elektra modular synthesis suite:** 30 entirely different great-sounding synthesizers in one exciting package. Download more from the Internet. Or build them yourself - you will be amazed! Thanks to its flexible drive architecture, Elektra is a high-end 24-bit / 96 kHz multi-I/O system as well.
- **Luna 2496 DSP:** utilizing FireWire technology, the DSP-powered high-end multi-I/O solution features 10 analog inputs, 10 analog outputs and digital I/O. Luna integrates a "live" DSP mixer, surround mix functionality and unlimited routing possibilities.
- **Pulsar II:** takes your PC or Macintosh straight into the future of audio production - today. Includes an incredible collection of the finest virtualized studio equipment available. Integrates all functionality within a single, controllable environment. The most powerful audio upgrade available for your computer.

www.creamware.com

creamw@re

Order your catalog copy - call 1-800-899-1939 or email info@creamware.com

CreamWare Audio Solutions, 6879 Russell Ave., Burnaby, B.C., V5J 4R8, Canada • call (604) 435-0540 • fax (604) 435-9937

Cheap, yet priceless

D16

Digital Recording Studio



How can the D16 be so affordable, yet so invaluable? The D16 can record, mix, master and burn your CD,* yet it's portable enough to bring to any session or gig. And its improved Version 2.0 software delivers new features based on D16 users' suggestions, like the ability to backup to CDR/CDRW media, an MTC slave mode and .WAV file import/export. With the touch of a screen, you have access to a complete studio, making this the easiest-to-use recorder on the market. Talk is cheap. So check out the improved D16, with its new low price at your local Korg dealer today.

→ Now at your Korg dealer for \$1199 (after \$100 rebate)

- 24/16 bit recording - no data compression!
- Up to 8 track recording/16 track playback
- TouchView™ touchscreen display
- 44-bit effects including 8 insert, 2 master and 1 final effect
- REMS modeling effects (mic, amp, speaker & effects modeling)
- 215 PCM drum patterns
- Built-in SCSI for recording/backup to external drives
- Built-in tuner and mic
- Direct CDR/CDRW burning *(CD recorder required)
- Already own a D16? Download D16 V2 @ korg.com



KORG

©2010 Korg USA. For the Korg dealer nearest you: (800) 335-0800.
For more info via faxback: (631) 393-8530. Doc # 4103. www.korg.com

STEINBERG

CUBASE VST/32 5.0 (WIN)

Now PC users get a chance to play with all the new tools.

By Scott R. Garrigus

Until my review copy of *Cubase VST/32* 5.0 arrived, I happily used *Cubase VST/24* 3.7. I was aware that version 4.1 had been released, but it was Mac only, and those of us running Windows were stuck waiting for the next upgrade. *Cubase VST/32* 5.0 for Windows changes that; in fact, it temporarily moves the PC version ahead of the Mac version. Fortunately for Mac users, version 5.0 for their favorite computer will even things up, and it should be available by the time you read this. Among the new features in *Cubase VST/32* 5.0 are a redesigned user interface, built-in access to the Rocket Network, Apogee's UV-22 dithering algorithm, new plug-in effects and VST Instruments, and high-resolution MIDI timing, accurate to within 300 ms when using Steinberg's MIDEX 8 USB MIDI

interface. *Cubase VST/32* 5.0 also includes all the enhancements found in recent Mac versions, only some of which made it into PC version 3.7. These include the ability to change individual Track sizes in the Arrange window and several new track parameters that you can adjust during playback. There are two new track types: Marker Track, which lets you create and edit Markers just like other Parts; and Folder Track, which lets you group tracks together while retaining their separate identities.

In addition, a variety of new tools allows you to change volume and pan directly on Parts, time stretch or compress MIDI or audio data, and make selections regardless of Parts boundaries. *Cubase VST/32* also provides a Controller Editor, a Groove Box, and a MIDI Track Mixer windows, as well as outrageously high 15,360 PPQN internal audio and 1,920 PPQN internal MIDI resolutions.

EM published numerous *Cubase* reviews in the past (see the table "Cubase Past and Present"), including an extensive review of *Cubase VST/24* 4.0 in the April 1999 issue. So I'll give only a quick overview of the program before discussing the features that are new since the last PC review. This review will focus on the features found in the top-of-the-line *Cubase VST/32*. Stein-

berg has also released *Cubase Standard* 5.0 and *Cubase Score* 5.0, which contain most of the same features.

A BIT OF BACKGROUND

As one of the most popular sequencers on the market for a long time, *Cubase* has established itself as a major player in the professional music world. With its extensive tools for recording and editing MIDI and audio, the program transforms your PC into a complete music-production system. By combining Parts into Tracks to create an Arrangement, you form the structure for a Song (see Fig. 1). The program's wide range of music-construction tools lets you edit MIDI and audio data in just about any way imaginable. When it's time to mix your creation, *Cubase* provides a complete set of mixing, processing, and effects options that let you produce the type of quality project you would expect from a professional recording environment. Its audio-processing and -routing features are among the most powerful available. By modeling its interface after hardware components, complete with easy-to-manipulate controls, *Cubase* makes you feel right at home. The program even incorporates full-blown professional score editing, layout, and printing features.

IN THE INTERIM

Since our last look at *Cubase* on the PC, the Mac 4.1 and Windows 3.7 versions added a significant number of new features. Version 5.0 incorporates these enhancements and adds even more. Among the most significant additions since the Windows 3.6 version are ASIO2, VST Remote Control, VST Mixer Views, and VST Instruments, plus some other small but helpful improvements. Here's a rundown of these features.

ASIO2 brings what Steinberg calls Direct Monitoring and Positioning Protocol to the party. Direct Monitoring delivers low-latency monitoring by sending the audio signal from the monitored input directly back to a specified output on your audio hardware. This means the signal doesn't pass through the program, so there's virtually no latency when monitoring the audio. Positioning Protocol provides sample-accurate synchronization between *Cubase VST/32* and external devices. Of course, your computer's audio interface must have an ASIO2 driver in order to take advantage of these features.



FIG. 1: *Cubase VST/32* 5.0 offers a redesigned user interface with many new features, including adjustable track sizes and new VST Instruments. You build compositions by combining individual clips of audio and MIDI data (called Parts) into Tracks to create Arrangements.

WARNING: Don't let this happen to you!



I'm stuck with duct tape?



© 2000 SAE Institute. All rights reserved.



At SAE, we offer:

- Localized education
- Small class sizes
- Hands-on learning
- World-class recording studios and multimedia labs
- Financial assistance for qualifying recipients
- Career placement

Life is short. Go for your dream now. The alternative could be frightening—a dead end job you never wanted and certainly won't enjoy.

If you dream of a career in professional audio or multimedia as an artist, engineer, or producer, you have a real choice. Attend one of our 30 schools around the world. Join more than 12,000 students in 15 countries who are already turning their dream into a promising reality.

Since 1976 SAE has been preparing thousands of people for fulfilling careers in entertainment technology and services. At SAE you can study in your own backyard or half way around the world and still enjoy the same quality education. Maybe that's why leading entertainment companies look to SAE for their technology interns and entry level positions.

Reach for your future today and call SAE toll free at **1-877-27Audio**. You already know the alternative.



State-of-the-Art Education in
Audio · Multimedia

www.sae.edu

Toll free **1(877) 27-Audio**



FIG. 2: The *Universal Sound Module* is a VST Instrument included with *Cubase VST/32 5.0*. More than 70 MB of sound samples are used in the full GM sound set. This software synth makes it easy for *Cubase VST/32* users to collaborate on their General MIDI compositions.

VST Remote Control lets you control *Cubase VST/32* from external MIDI devices, such as a digital mixing console. Depending on your external hardware's exact features, you can control volume faders, pan settings, EQ parameters, and more. *Cubase VST/32* provides support for the CM Automation Motor Mix, JL Cooper CS-10 and MCS-3000, Roland MCR-8 and U-8, Tascam US-428, and Yamaha 01V.

If you don't own any of these items, you can still take advantage of VST Remote Control with the Generic Remote Device (GRD). GRD lets you assign MIDI controllers, NRPN and RPN messages, and even MIDI note numbers to control the fader, pan, and mute, and to send controls in *Cubase VST/32*. Any MIDI device (such as a keyboard) that sends these messages can be set up to control *Cubase VST/32*. Combine this with Key Commands—which let you assign MIDI messages to any of the program's menu functions—and you have a high level of remote control. Very cool indeed.

Other improvements include VST Mixer Views, which offer an "adaptive" view of VST channels in the VST Mixer windows (that is, you can choose which channels are visible and which are hidden). In addition, you can type values for VST parameters such as level, pan, and EQ directly into their respective fields, rather than using the mouse as in previous versions. A Reset VST switch lets you reset all VST parameters to their default values, and ReWire channels can be routed to Groups. ReCycle files can be auditioned before loading, and it's now possible to copy mixer settings from one channel to another.

VST INSTRUMENTS

One of the most significant updates to *Cubase* (first found in Windows version 3.7) is VST Instruments support. *Cubase VST/32* emulates the audio components of a studio (mixer, effects, and so forth); VST Instruments do the same for MIDI devices, such as synths, samplers, and drum machines. Like VST effects, you load VST Instruments as plug-ins and control them with MIDI messages.

Especially cool is the fact that the output from the Instruments is routed through *Cubase VST/32* just like normal audio tracks. Each VST Instrument has its own set of dedicated channels in the VST Mixer—complete with EQ and other effects—and you can activate up to eight Instruments at the same time. Because the Instruments are integrated into *Cubase VST/32*, they output audio with the same bit depth and sampling rate as the current Song. So if you're using 24-bit/96 kHz audio, the Instruments use the same specs.

Included with *Cubase VST/32 5.0* are four VST Instruments: *Neon*, *VB-1*, *LM-9*, and the *Universal Sound Module (USM)*. *Neon* is a software synthesizer with two oscillators and a basic VCO/VCF/VCA architecture. It offers up to 16 voices of polyphony and has a nice analog sound.

VB-1 is a virtual bass instrument built on real-time physical-modeling principles. It provides a damper switch, adjustable pick and pickup positioning, and volume and waveform parameters. With its physical-modeling nature, you can squeeze very realistic bass sounds out of this bad boy. Unfortunately, it does not respond to Pitch Bend or Modulation messages, so it's limited in terms of musical performance.

LM-9 is a scaled-down version of Steinberg's *LM-4* drum machine, and it offers two drum sets (Acoustic and Beat Box), each with nine sounds.

Each sound has adjustable volume and pan parameters. The sounds—bass, snare, three toms, two hi-hats, crash, and ride—are generated with samples.

The best of the lot is the *Universal Sound Module* (see Fig. 2), which is a General MIDI tone generator. It provides more than 70 MB of sampled waveforms in addition to all 128 patches in the GM sound set and a standard drum kit permanently anchored to MIDI channel 10. The *USM* produces up to 96 voices of polyphony, and it responds to MIDI Note On/Off, Volume, Pan, Pitch Bend, and Modulation messages.

In addition, the *USM* provides four stereo outputs for flexible routing of sounds to different effects processors. You can assign each of the 16 MIDI channels to one of the four outputs. I would love to be able to load samples into the *USM*. But then again, you can purchase additional VST Instruments or find a number of them for free download on the Web, so that option is available elsewhere.

ROCKET POWER

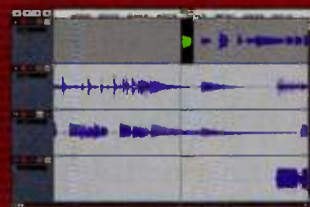
In addition to being the most powerful VST Instrument included with *Cubase VST/32*, the *USM* comes in handy when you're collaborating on the Internet with other users through *Cubase VST/32*'s InWire feature. InWire lets you access the online Rocket Network, which provides free virtual-studio facilities so that you can make live music interactively with *Cubase VST/32* musicians anywhere in the world. Everyone can work on the same production, and share audio and MIDI data in real time.

When sharing MIDI data, the *USM* instrument ensures that everyone can hear the same performance because



FIG. 3: Every audio channel in *Cubase VST/32* provides a full set of dynamics processors: AutoGate, AutoLevel, Compress, SoftClip, and Limit.

HDR24/96. MACKIE'S NEW 24 TRACK RECORDER. WORKS WITH ANY MIXER. NO EXTRA COMPUTER OR SOFTWARE NEEDED.



- 24 tracks...24-bits
- Built-in full-feature digital workstation editing
- Affordable pull-out media
- Built-in SVGA, mouse & keyboard ports
- Built-in 100BaseT Ethernet

New hard disk recorders are popping up all over the place. Our new HDR24/96 is the only recorder with built-in nondestructive graphic waveform editing. Just plug in a mouse, keyboard and SVGA monitor to view all recorder parameters on screen in real time. Enjoy complete editing control with unlimited levels of undo, drag-and-drop cross-fades with 9 preset combinations plus fade/crossfade editor. And look forward to DSP time compression/expansion, pitch shift and lots more!

The HDR24/96 was the only recorder that uses pull out Ultra-DMA hard drives, so affordable that you can keep one for each project—over 90 minutes of 24-track recording time costs less than a reel of 2-inch tape!

Call or visit our website for preliminary info on the new HDR24/96. Shipping soon from Mackie Digital Systems.

HDR24/96 editing features include: 8 takes per track with nondestructive comping, nondestructive cut/copy/paste of tracks, regions or super-regions, drag-and-drop fades & crossfades, 1x/2x/4x/8x/24x waveform views, bidirectional cursor scrub and unlimited locators and loops... with unlimited undos — but without requiring an external computer! Coming soon: DSP time compression/expansion, true waveform editing with pencil tool, invert, pitch shift, normalize and much, much more.



- Built-in 20-gig Ultra-DMA hard disk plus front panel bay for additional easily available pullout drives
- Intuitive analog tape deck interface and monitoring
- Syncs to SMPTE, MIDI, Black Burst, PAL & NTSC without extra cards
- Unlimited HDR24/96 linking! Sync 48, 72, 96, 128 or more tracks sample accurately
- 96kHz recording via software and new PDI • 96 I/O
- Digital 8 • Bus I/O cards — mix and match!
- 3.5-inch disk drive for software upgrades & tempo map importing
- Fast Ethernet port built-in
- Remotes available.

MACKIE
Digital Systems

www.mackie.com

800/258-6883

DIGITAL MACKRODS
AT OUR FACTORY IN
WOODBRIDGE, VA, USA



SUBSCRIBE TO Electronic Musician VISIT

WWW.EMUSICIAN.COM CALL (800) 245-2737

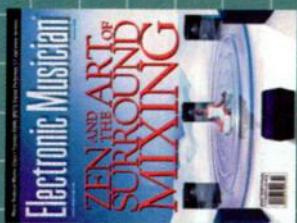


FIG. 4: You can adjust the EQ controls numerically or graphically by manipulating the EQ curve directly with your mouse.

they are using the same synth. (They can also use the other VST Instruments, as long as everyone uses the same ones, but the *USM* is the most useful because it's a GM synth.) InWire takes the online experience even further by including all VST parameters for a Song—including dynamic mixing and automation—in the shared file.

SUPERB SOUND

With the introduction of version 5.0, *Cubase VST/32* provides up to 128 audio channels. (*Cubase Standard 5.0* and *Cubase Score 5.0* offer 72 channels.) But more importantly, the program's audio quality has been boosted into the 32-bit realm. With the right hardware, you can record your audio data with 32-bit floating-point resolution.

Even if your audio hardware is limited to 24 bits, you'll hear a difference in the sound quality because the data is still stored and processed with 32-bit floating-point resolution. In fact, *Cubase VST/32* processes all audio data internally with this resolution, so your data is processed with the highest quality possible no matter what bit depth

from Steinberg's *Magneto* effects plug-in and can give your audio tracks the same warmth you get from tape saturation during an analog recording. TrueTape provides only one parameter, Drive, to adjust the amount of effect applied to the signal. You use the effect when recording, which means you can monitor the processed audio as it's recorded, just as you would on a real analog tape deck. However, you can't apply it after recording.

Because TrueTape uses 32-bit processing, you can really push the Drive parameter. I made the Clip indicators light up occasionally, but I didn't get any digital distortion. According to Steinberg, this is because 32-bit floating-point audio can easily accommodate a dynamic range of up to (and perhaps more than) 200 dB. By the way, if you only have 16-bit audio hardware, you can still use TrueTape. The effect simply converts your signal to 32-bit floating point and then applies its magic to the high-resolution signal before it converts back to 16-bit resolution.

You might wonder how much 32-bit

you use during recording. You can even mix audio files with different resolutions within the same Song; for example, you can take 16-bit drum loops from a sample CD and add new music tracks at 24- or 32-bit resolution. I like that a lot.

In addition to 32-bit resolution, the latest *Cubase* provides a new type of recording technology called TrueTape. This technology is adapted

Cubase Past and Present

April 1999	<i>Cubase VST/24 4.0</i> (Mac)
November 1997	<i>Cubase VST 3.5</i> (Mac/Win 95)
August 1996	<i>Cubist Art</i> (<i>Cubase 3.0</i> master class)
January 1995	<i>Cubase Audio 2.0</i> (Mac)
July 1993	<i>Cubase Score 1.0</i> (Mac)
December 1992	<i>Cubase Audio 1.01</i> (Mac)
February 1991	<i>Cubase 2.0</i> (Atari ST)
January 1990	<i>Cubase</i> (Atari ST)

Minimum System Requirements

Cubase VST/32

Pentium II/200; 64 MB RAM;
Windows 95/98/2000; approved MME
or ASIO-compliant sound card

processing will benefit your signal if you have to bump it to 16 bits to get it on CD. Well, Steinberg has thought of that too. All *Cubase 5.0* versions (including *Cubase VST Standard* and *Cubase VST Score*) include high-quality dithering. *Cubase VST/32* goes one step further by including the Apogee UV-22 word-length-reduction algorithm, considered the best in the industry.

The UV-22 control panel lets you select from two dither types: Normal (providing an "all-around" dither) and Low (providing a lower level of dither noise). There's no hard and fast rule regarding which one you should use on what type of material, but I tried them both with a variety of music, and both produce excellent results. You can also choose whether

the dither noise is gated (muted) during silent passages.

NEW AND BETTER EFFECTS

Cubase's own plug-in effects have always used 32-bit internal processing, but now they employ more advanced algorithms to provide even better sound quality. In addition, every standard audio channel has built-in dynamics processors. (Group, VST Instrument, and ReWire channels don't have these dynamics features.) Each channel can have up to five different processors applied simultaneously.

The available processors are AutoGate, AutoLevel, Compress, SoftClip, and Limit (see Fig. 3). AutoGate provides precision gating with controls for threshold, attack, hold, and release. You can also specify a frequency range for the threshold trigger. AutoLevel is similar to compression (that is, it reduces signal-level differences), and it works by boosting low levels and attenuating high levels. However, it only processes levels above your threshold setting, so low-level noise is not boosted. Compress

does exactly what its name suggests: it provides threshold, ratio, attack, release, and gain parameters, and it includes a graphical display of the compression curve.

SoftClip is similar to a limiter in that it ensures the output level never exceeds 0 dB. However, you can't adjust this threshold; instead, SoftClip begins to add a warm, analog characteristic to the audio signal at -6 dB or above. If you push this effect with a high signal level, you can also coax it into giving a hotter, dirtier sound. Limit performs the obvious function with adjustable threshold and release parameters.

In addition to dynamics, each audio channel in *Cubase VST/32 5.0* includes new, sonically enhanced EQs with up to four parametric bands. Each band has adjustable gain, frequency, and Q, and there are low-cut, hi-cut, low-shelf, and hi-shelf modes. (You can save custom EQ settings as presets.) The best feature is the graphical display (see Fig. 4). Not only does it show you the EQ curve's shape, but the display also lets you adjust the curve by clicking on and dragging band points

All The Sound You've Never Heard™



BBE®

INTERACTIVE
DEMO
ON LINE NOW!!

"The BBE can be a real life saver when dealing with poor quality source material, whether it be in film/video or broadcast production, mastering or tape duplication chains."

George Petersen
MIX MAGAZINE



Tel: 714. 897. 6766 Fax: 714. 896. 0736 Web: www.bbesound.com
In Canada Please Contact Sounds Distribution Tel: 416. 299. 0665

with your mouse. I really appreciate this kind of versatility.

Unfortunately, I can't say the same for the new Reverb32 effect. Its sound is silky smooth, but it doesn't provide as many adjustable parameters as I'd like. There are controls for predelay, room size, reverb time, mix, and high- and low-cut filters. But there are no early-reflection parameters, and the filters only provide amplitude adjustment; you can't change their frequencies. I expect more flexibility in a high-end plug-in.

There are other new plug-ins, such as Chopper, Phaser, and Trancemitter, which have graphic interfaces and can sync to the tempo of your music. This lets you set delay times or LFO speed intuitively using musical note values.

THE LAST BIT

There are a number of other improvements that I don't have room to talk about in any detail. More than 300 new notation features were added, which include automatic rehearsal markings in the Marker Track, text presets, the ability to import pictures into your score, easier part ex-

traction, and modern-notation and time-signature styles for contemporary scores. In addition, *Cubase VST/32* can import MP3 files and convert them directly to WAV format. However, you can't export your audio to MP3 without the optional MP3-encoder plug-in. That should be included in the package.

The documentation remains quite good in its coverage of the program. Unfortunately, most of it is available in electronic (PDF) format rather than in print, and the online help is not very good. It provides a reasonable amount of information about each of the menu functions, but none of it is context-sensitive. If I need help within a specific dialog box, I should be able to hit the F1 key and see the relevant information rather than having to look for it manually.

Of course, we are still burdened with the dreaded dongle for copy protection. However, I prefer it to the "challenge code" system many manufacturers use these days. At least with the dongle I can freely move the software to another computer without going through the hassle of requesting a new code from the manufacturer. Who has the time or patience for that nonsense? Don't manufacturers realize they are causing undue frustration for their legitimate customers?

My biggest gripe is that *Cubase VST/32* still does not provide a multiple undo function or an undo history. After all this time and with such a powerful product, how is it that Steinberg overlooks this obviously much-needed feature? I'm disappointed by this.

Still, these gripes don't come close to outweighing the sheer power and number of positive features that *Cubase VST/32 5.0* provides. With the addition of VST Instruments, 32-bit recording and processing, high-end dithering, up to 128 audio channels, and a full arsenal of effects—combined with the other features—Steinberg truly earns the right to call this product "the single most important upgrade you can make to your studio at any price."

Scott R. Garrigus is the author of *Cakewalk Power and Sound Forge Power*, and he is the publisher of *DigiFreq*, a music-technology newsletter. For more information, surf to www.garrigus.com.

Version 2.0... Now Shipping!
<http://www.emusician.com>

PRODUCT SUMMARY

Steinberg

Cubase VST/32 5.0 (Win)
 digital audio sequencer
 \$799

FEATURES	4.5
EASE OF USE	3.0
DOCUMENTATION	3.0
VALUE	4.0

RATING PRODUCTS FROM 1 TO 5

PROS: 32-bit recording and internal processing. 128 audio channels. Apogee UV-22 dithering included. VST Instruments support. Powerful and flexible dynamics and EQ for every audio channel.

CONS: Most documentation still in electronic form. Online help isn't context-sensitive. MP3 encoding not included. Dongle-based copy protection. No multiple undo or undo history.

Manufacturer

Steinberg North America
 tel. (818) 678-5100
 e-mail info@steinberg-na.com
 Web www.steinberg.net

PHRAZER

Loop the Loop

Take it from the top with Phrazer™, the new audio software from BitHeadz that takes loop composition to the next level.

Phrazer is *the* real-time audio loop sequencer Mac users have been waiting for. Powerful pitch and tempo matching algorithms, built-in sample editing, and on-board digital effects provide total control of your sound.

The power of multi-track digital audio and MIDI has finally been integrated into the most comprehensive loop-based production software ever.



Phrazer Tech

- Import Acid™ libraries, Unity DS-I, and CD Audio
- Play AIFF, Sound Designer II, and wave samples
- Record your own samples and loop them
- Create with over 300 MB of included loops
- Import and assign multiple loops and DSP effects to each track
- Stream audio from hard-disk or load audio into RAM
- Gate tracks using QWERTY keyboard or MIDI controller
- Get maximum performance with Velocity Engine optimization
- Use ASIO, DirectConnect, MAS, ReWire, or Sound Manager
- Edit your samples for fine tuning audio files
- Render or Record entire mixes to disk



A K G

C 2000 B

Large-diaphragm sound from a small-diaphragm condenser.

By Karen Stackpole

Prolific microphone manufacturer AKG has added yet another low-cost, high-performance mic to its sizable catalog. Billed as an "optimum entry-level recording microphone," the C 2000 B (\$378) is a side-address, cardioid-only, small-diaphragm electret condenser mic that, according to AKG, possesses large-diaphragm features. By this the company means the mic has an extended low-frequency response made possible by an innovative, patent-pending capsule design. The C 2000 B looks like a large-diaphragm mic as well, thanks to the side-address configuration and familiar cylindrical shape.

AKG also employed some ingenuity to cut costs without cutting corners. The mic's low price should appeal to budget-conscious recordists who want to break into the world of studio-grade condenser



The affordable AKG C 2000 B microphone employs an innovative capsule design to obtain large-diaphragm characteristics from its small diaphragm.

mic without breaking their bank accounts. I tested the C 2000 B in a variety of applications. Here's what I found.

ALL IN THE FAMILY

The C 2000 B has an all-metal, two-piece, die-cast body and the same silver-gray finish and jaunty red stripe as the other mics in AKG's Project Studio line. If AKG's C 3000 B and C 4000 B got together, their progeny would likely resemble the C 2000 B. That is, the C 2000 B's base is identical to the C 3000 B's, and the cylindrical top half looks like a smaller version of the C 4000 B (albeit with joint seams along both supporting posts at either side of the grille basket). Like the C 3000 B, the mic has two recessed switches on either flank of the base to allow for selection of a 10 dB pre-attenuation pad and a 500 Hz highpass filter.

One way that AKG cut production costs was by casting the C 2000 B's grille basket rather than weaving it. The sturdy cast basket appears to be woven and is lined with a layer of fine-gauge woven screen. The design also includes an internal foam-rubber pop filter. However, unlike the typical internal pop filter—which is simply a piece of foam rubber lining the grille basket walls—this one is a 1-inch foam circle attached to the capsule's internal suspension system and positioned to directly shield the capsule's address side. The filter proved fairly effective at reducing plosives, doing a slightly better job of quelling pops than the C 3000 B's integrated pop filter (which lines the inside of that mic's grille basket).

Using parts already in production was another way AKG kept down costs. Specifically, the C 2000 B incorporates a PC board identical to the C 3000 B's, as well as the same base, capsule-mounting assembly, and internal elastic suspension system. The big difference between the two mics is in the capsule design. Typically, a condenser mic's diaphragm is suspended close to the back plate, but never touches it. In the C 2000 B, however, a rubber nipple pushes the center of the diaphragm up against an uncharged area of the back plate. This puts the diaphragm's central area closer to the back plate, which affords extended low-frequency response (typically a large-diaphragm characteristic), higher sensitivity, and, hence, lower self noise.

Each C 2000 B comes nestled in form-cut foam in a cardboard box—the same packaging AKG uses for its entire line of budget mics. I've said it before and I'll say it again: the packaging is inadequate and a bother. Not only is the box inconvenient to carry around, but it is also prone to rapid deterioration. Get a decent case if you plan on taking the mic out often. The C 2000 B includes an SA 41/1 stand adapter.

ROLL 'EM, ROLL 'EM

I used a pair of C 2000 Bs in a majority of the preferred applications listed by AKG, including miking acoustic and electric guitars, harmonica, vocals, drum set, hand drums, and percussion. All signals were recorded direct to DAT on a Panasonic SV3800, sans EQ and processing, using Monster Cables and the preamps in a Mackie 1202-VLZ mixer. Because the mic employs many components from the C 3000 B, I also did some comparison testing between the two models. In addition, I put up one of AKG's premium large-diaphragm recording mics, the C 414 B-ULS, as an extra reference.

The C 2000 B's 500 Hz rolloff puzzled me at first because it seems high for a low-cut filter. (Typically, low-cut filters are positioned between 75 and 150 Hz, and have a relatively steep slope.) But there's a reason for the 500 Hz filter: according to AKG, small-diaphragm mics tend to exhibit more proximity effect than large-diaphragm mics—a fact that could trip up inexperienced users not familiar with the subtleties of mic placement. Therefore, AKG designed a gently sloping filter starting at 500 Hz that would compensate for excessive bass boosting caused by a user positioning the mic too close to a source.

I tested the low-cut filter in several of the applications and received mixed results. Typically, it tightened up the sound and increased high-end presence, but often thinned out the lows more than I liked.

SLAM, BAM, THANK YOU

The C 2000 Bs performed well as overheads on a drum set, offering good definition, but not as much presence in the highs as captured by the C 3000 B and the C 414—a somewhat surprising result considering that small-diaphragm mics typically excel in high-end response.

Loud! - The Voice of the Pro Audio Community

The latest news and information for audio professionals is now delivered FREE to your desktop.

- *Get product reviews, tutorials and hot news*
See the latest trends in the audio market
View streaming product demos
Win prizes



LOUD!

Sign up now!

<http://www.digitalmedianet.com/register.htm>

Digital Media **NET**
Where the Creative Community Meets



vocal application for the C 2000 B, and solo or lead vocals are a secondary recommendation. But based on my tests, the C 2000 B is a fair choice either way—depending, of course, on the vocalist and the sound you want. Overall, I preferred the mic on male vocals, from which it captured a fairly rich sound with a bit of low-end boost around 150 Hz.

Engaging the low-cut filter made the vocals sound a bit thin, so I wouldn't recommend it in this application, especially for singers who tend to move

off mic a lot. However, it could work for a singer who stays consistently on top of the mic and whose voice could use some bass attenuation—so the track would sit better in a dense, bass-heavy mix, for example. In contrast with AKG's explanation for the 500 Hz filter, I found that bass boosting from the proximity effect—at least in this application—wasn't particularly excessive without the low-cut filter, even when the singer was less than an inch from the grille.

On female vocals, the C 2000 B's thick

midrange sound worked well on my subject's voice, but again, there was a lack of crispness in the high end. Overall, it's odd that this small-diaphragm mic's highs were not as well represented as on the two large-diaphragm AKG mics. Still, the mic sounded quite good.

The C 2000 B sounded clear and present on harmonica, though a bit harsh in the upper mids. The sound was usable, but not as smooth as that captured by the C 3000 B or the C 414.

Though the C 2000 B is fairly quiet, it was noticeably noisier than the C 3000 B when recording vocals and harmonica. This is borne out by the specifications, which show a 6 dB higher equivalent noise level for the C 2000 B. Just the same, the mic is not so noisy as to be problematic.

SOLID VALUE

The C 2000 B is a versatile, good-sounding, good-quality studio condenser mic and a great deal. The mic's low price should make it particularly attractive to the personal-studio owner who is just getting started, as well as to veteran home recordists with budget constraints.

This mic has very good transient response and an appreciable low end—made possible by an innovative capsule design—that is especially impressive for a small-diaphragm condenser. At the same time, the C 2000 B's high end is not as crisp and clear as you might expect from a small diaphragm, and a midrange emphasis between 500 Hz and 1 kHz makes for a thick and sometimes tanky sound, depending on the application. Fortunately, the mic features a highpass filter which, in many cases, is quite effective at tightening up the lows and improving high-end presence. Unfortunately, the filter is positioned radically high (500 Hz), resulting in an overly thin sound when employed on some instruments.

I especially like the C 2000 B on bongos, where its thick midrange response worked beautifully to bring out the drums' tone. It also proved quite nice for vocals, especially on males. For those seeking AKG quality at a low price, the C 2000 B could be your baby.

Karen Stackpole is a recording/mastering engineer and active drummer/percussionist. She operates Stray Dog Recording Services and is an instructor at Ex'pression Center for New Media in Emeryville, California.



(((**8thstreet** .com)))
Online Music Superstore

800-878-8882

www.8thstreet.com



BIG NEWS...

FROM

Electronic Musician[®]

IK MULTIMEDIA

GROOVEMAKER 2.0 (MAC/WIN/BEOS)

*And the beat
goes on and on
and on and on.*

By Jeff Burger

Software that actively creates new music can be a great boon to composers, especially in the dance music scene where no two performances are ever expected to be the same. Even if your tastes run toward the mainstream, music-generating programs can provide valuable building blocks for digital recording and multimedia.

One of the more interesting entries in this arena is IK Multimedia's *GrooveMaker* 2.0, a loop-based, music-generation program that is available for Macintosh, Windows, and BeOS. *GrooveMaker*'s user interface may look more like a video game than an audio package, but it provides a whole new approach to the music-writing process.

SLICK, SMOOTH, CIRCULAR

GrooveMaker songs consist of up to 512 stereo loops, each with an 8-bar maximum length. The loops share the same key and tempo and you can overlay and sequence them in various combinations. You can load any of the loops into *GrooveMaker*'s eight stereo tracks while the program runs in real time, so

you can experiment for hours without stopping the beat.

GrooveMaker's main user interface has a slick smooth skin and a circular design (see Fig. 1). The track list in the upper right lets you assign a category, such as Bass or Percussion, to each of the eight tracks and then select a loop from the assigned category. You can change the category and the loop on the fly; eight buttons along the interface's upper rim determine which tracks are played or muted. Icons emanating from the central hub select individual tracks. Buttons along the rim control volume, pan, and other functions.

In addition, the Randomix buttons let you generate seemingly limitless permutations of groove combinations. Each of the four buttons produces separate mixes and distinct styles. Clicking on the same button repeatedly creates related grooves. The track list's Lock button prevents selected tracks from being modified by the Randomix feature, letting you experiment with various elements without losing the current groove's feel. The Sync button determines whether changes made to the tracks take effect immediately or wait until the start of the next 8-bar phrase.

The new *GrooveMaker* version features an Arpeggiator that appears as an overlay on top of the main interface (see Fig. 2). The virtual keyboard lets you select notes to play in a pattern synchronized with the groove. Notes that will most likely produce harmonious results in the song's key are highlighted. Each song comes loaded with a palette of synth sounds, and you can load more from your hard drive, including custom WAV files. You can set the pattern type (up, down, up/down, and random), beat value (quarter, eighth, sixteenth, and thirty-second), and choose from 33 rhythmic variations. You can save up to 99 arpeggiator settings to disk for instant access.



FIG.2: The Arpeggiator adds another layer of sound to the groove. You can choose notes with the virtual keyboard.



FIG.3: Using the Loopmaker interface, you can import, record, and format custom loops.



FIG.1: *GrooveMaker*'s main user interface resembles a video game. The track list appears in the upper right.

GETTING LOOPY

To get you started, IK Multimedia ships *GrooveMaker* 2.0 with 750 dance loops organized into 12 genres. The *GrooveMaker* 2.0 DJ Box also includes the Tecknostorm and Contaminated collections, boosting the loop count to 1,250. You can purchase other loop collections from the company for \$49.95 each. I tried House Party, Contaminated, Drumbastic, Tecknostorm, and Axe, a Latin percussion set. Each was well produced with an individuality and character that lives up to its name.

You can copy loops between songs, but the loops must be in the same key and tempo to be musically useful. Because *GrooveMaker* doesn't provide pitch correction, the groove's key changes as you adjust the tempo up or down. Therefore, you must design pitched loops to work together, although grooves with only percussion sounds are more forgiving.

Minimum System Requirements

MAC: PPC 601/603/604;
32 MB RAM; Mac OS 7.5

PC: Pentium 200; 32 MB RAM;
Windows 95/98/2000/NT 4.0 or BeOS 5.0
16-bit Sound Blaster-compatible sound card

Announcing Onstage™ and Remix™ ...

Appearing Monthly in 2001 at a Newsstand Near You!

onstage™

The live performance magazine for bands and musicians.



REMIX™

Dedicated to the art of remix production and DJ performance.



Subscribe online!

REMIX™: <http://www.emusician.com/remix>

ONSTAGE™: <http://www.emusician.com/onstage/suboffer.html>

FREE FREE FREE FREE FREE FREE FREE

AXON

*MIDI controllers
for Guitar & Bass*

*Like nothing you've
ever heard before.*

While supplies last, get your **FREE** demo video of the Axon AX-100. Email your name/address/phone to axonvideo@musicindustries.com or call 1-800-431-6699. Visit our web site www.musicindustries.com

FREE DEMO VIDEO WHILE SUPPLIES LAST

GROOVEMAKER

GrooveMaker 2.0 allows you to import custom loops in AIFF, WAV, and MP3 formats or record directly to the program using the Loopmaker interface (see Fig. 3). You can adjust the imported audio's tempo setting and loop while the groove is playing, but as usual, the loop's pitch changes along with the tempo. Moreover, imported loops can only be 1 bar in length, although you can specify how often the loop appears within an 8-bar phrase. *GrooveMaker* appeared to let me save an 8-bar loop, but behaved erratically when I tried to apply it.

ROLLING YOUR OWN REMIX

When you find a setting you like, click on the Mark button to place it in a Groove list along the left rim. You can store up to 99 numbered grooves. You can play the grooves by clicking on them, or you can drag the numbers into the adjoining Sequence list for automatic consecutive playback. Because each groove is an 8-bar phrase, you can program a sequence of up to 792 measures.

Once you sequence the grooves, you can save the mix or output the sequence in a variety of audio formats,

Encore Electronics

611 LAIRD LANE LAFAYETTE, CA 94549
(525) 229-8875 voice/fax

Visit our website:
www.encoreelectronics.com

This is what you have:



This is what you want:



This is what you need:



Knobby comes with dozens of pre-defined instrument profiles. Simply drag and drop onto the knobs and away you go!

Windows and Mac

More than twice the resolution of it's competitors!

Using your computer as an interface, the Knobby can be programmed with 120 messages from simple controllers to complex sysex. Once programmed, the Knobby can be used on stage or anywhere else to tweak your performance in real time.

Visit a dealer near you:
Australia: www.users.bigpond.net.au/awave/
Canada: www.generation.net/~music/
Germany: www.a-e-w.de/
Sweden: www.jam.se/
USA: www.audiomidi.com/
www.drummachine.com/

PRODUCT SUMMARY

IK Multimedia

GrooveMaker 2.0 (Mac/Win/BeOS)
loop-based music-generation software
\$79.95

FEATURES	3.0
EASE OF USE	4.5
QUALITY OF SOUNDS	4.5
VALUE	4.5

RATING PRODUCTS FROM 1 TO 5

PROS: Easy way to generate high-quality grooves. Fun and intuitive. Real-time manipulation of parameters useful for composition and the dance floor.

CONS: Pitch shifts with tempo. Must work within limits of canned songs. No effects. No MIDI sync. Does not export MP3 format.

Manufacturer

IK Multimedia/
Ilio Entertainments (distributor)
tel. (800) 747-4546 or (818) 707-7222
e-mail ilioinfo@ilio.com
Web www.groovemaker.com

visit us on the web at www.samash.com or call

1-800-4-SAMASH

twenty-four hours a day • seven days a week

Thinking about buying musical equipment? You can buy it from a friend, travel to another planet or go with one of the most trusted names in the music industry!



The largest selection of the hottest products all at the guaranteed lowest prices!

No other on-line/catalog retailer can offer you the incredible selection of musical instruments, pro audio and accessories like SamAsh.com. Our huge 70,000 square foot warehouse is packed with the latest and greatest from such leading manufacturers as Roland, Korg, Alesis, Yamaha, JBL, Crown, Mackie, Shure, Steinberg, Samson, dbx, Fender, and Gibson - to name only a few!

Our staff is filled with musicians who will make sure that you find exactly what you are looking for - at the lowest price available. For over 76 years guitarists have relied on Sam Ash for professional advice and service. We created SamAsh.com specifically for musicians that want Sam Ash style selection, price, service and expertise without



Every major brand, every top model - including some that you won't find anywhere else!

having to leave the privacy of their own homes.

Use your Sam Ash Credit Card and make no payments, pay no interest for six months on purchases of \$500 or more!* Call 1-800-4-SAMASH today and get a copy of our 180-



Acoustic, electric, bass - you name it, we got it! In-stock and ready to ship!

page full-color catalog featuring thousands of the latest products from all of the leading manufacturers - it's like holding a music store in your hands!

It seems that every new day brings a new dotcom music retailer claiming to have the best selection and the lowest prices. Who are these people and where do they come from?

Only SamAsh.com offers the benefits of over 76 years of service to musicians. The Sam Ash family is committed to delivering their world-famous selection, service and famous discounted prices to musicians on-line.

The Guaranteed Lowest Prices

Everyone claims to have the lowest prices. But only SamAsh.com stands behind their claim with the industry's best price protection policy. Simply put, find a lower advertised price from an authorized dealer within 60 days of your purchase and we'll beat it.*

We Will Beat Any Price!
50/60 STATES/DAYS
THE LOWEST PRICE GUARANTEED!

The Best Selection

Our multi-million dollar inventory means the gear you want is always in-stock. And most orders are shipped out the very same day!

Personalized Service

Your complete satisfaction is our only goal. That's why SamAsh.com gives you 45 days to make sure you are totally happy with your purchase.* If you ever have a question, our call center is staffed by actual musicians, producers and DJs ready to handle any and all questions you might have regarding our products and services. If you are ever dissatisfied for any reason call (516) 932-6400 and an Ash family member will be glad to take your call.

45 DAY SATISFACTION GUARANTEE!

samash.com

The on-line musical instrument megastore!

*No interest/no payments on approved credit. Call 1-800-4-SAMASH for complete details. Some restrictions apply on our return and price policies - both are fully detailed on the website or call 1-800-4-SAMASH for full details.

**Get A FREE 180 Page Color Catalog!
Call Toll-Free: 1-800-4-SAMASH**

Internet Audio is *Mix's* new quarterly magazine focusing on Web-based audio production and delivery. *Internet Audio* is designed to educate the audio production community in making sense of emerging technologies while offering insight and perspective to this expanding market.

Editorial content of *Internet Audio* includes step-by-step guides to putting audio files online, examination of the shifting face of music distribution, exploration of Webcasting and profiles of Internet innovators who are creating great sounds online.

Subscribe **FREE** at

www.mixonline.com/internetaudio/intaud.cfm



InternetAudio™

APPLIED ACOUSTICS

TASSMAN 1.2 (WIN)

Flexible physical modeling and more in a software synthesizer.

By Brian Smithers

Have you ever wondered what a bowed marimba sounds like? Or how about the sound of a cello changing size as you play it? These feats and many others are possible with *Tassman* 1.2, a new modular software synthesizer from Applied Acoustics Systems (AAS).

Tassman employs physical-modeling techniques to create unique sounds. It provides a toolkit full of sound generators, resonators, filters, and other processes with which you can build accurate acoustic simulations or outrageously gritty vintage synths. Furthermore, many aspects of these sonic building blocks can vary in real time with MIDI controllers.

Software synthesizers are booming, and *Tassman* distinguishes itself by

combining state-of-the-art physical modeling with a retro aesthetic, featuring lots of knobs, LFOs, and step sequencers. What's more, you have a tremendous level of control over your synthesizers' internal patching.

SYNTH BUILDING 101

If I taught a synthesis course, my syllabus would include *Tassman*. It's the next best thing to physically patching together oscillators, filters, and so forth on an old modular analog synthesizer. In addition to an interface that clearly shows the cause-and-effect relationships between modules, *Tassman* comes with an impressive collection of more than 100 instruments that you can use as study models. The synths are organized into three categories: Analog, Acoustic, and Miscellaneous. Within these groups, you'll find all manners of bowed beams, blown bells, and bubbling basses. Each instrument includes several presets, and you can download more instruments at the AAS Web site.

Tassman actually consists of two separate programs: *Builder* lets you assemble the synths (see Fig. 1); *Player* then lets you hear the results. *Builder* is a straightforward application that includes a Library window (on the screen's left), where you find a bin full of building blocks; and a large

Construction window (on the right), where you assemble your synths. A Help window is located at the top of the screen.

To begin your design, select the module type you need in the Library window. (To see a complete modules list, check out the AAS Web site.) First click on a module icon, then click on the Construction window where you want the module to appear. If you prefer multiple copies of a module, shift-click on the Construction window as many times as needed. Once you place the modules in the Construction window, you connect them by pulling virtual patch cords from one to another. To discover what a module's inputs and outputs consist of, position the mouse on them to see an informative display.

When you select a module in either the Library window or the Construction window, the module's description appears in the Help window. The printed documentation offers more detailed module descriptions, but the Help Window provides a good deal of practical information.

As a general rule, a module's output can be patched to any number of other modules. This allows, for example, a keyboard module's Velocity output to control an oscillator's amplitude and a filter's cutoff frequency at the same time. *Builder* also lets you save and import subpatches, which are groups of modules or entire synths that you can encapsulate in a single module. Subpatches let you reuse your favorite inventions as parts of new designs and can simplify a complex synthesizer's layout. You can enter a subpatch's description before saving the subpatch, and this description appears in *Builder*'s Help window, just like with *Tassman*'s stock modules.

GOOD VIBRATIONS

Tassman's sound sources are called Generators and Resonators. For the most part, Generators are objects that induce vibration in Resonators, although this category also includes an LFO and a VCO. The acoustic Generators collection consists of two mallets for beating on items and a plectrum for plucking others. A variety of acoustic Resonators are provided, including a beam, a marimba, a membrane, a plate, and a string. Each of these is also available in a

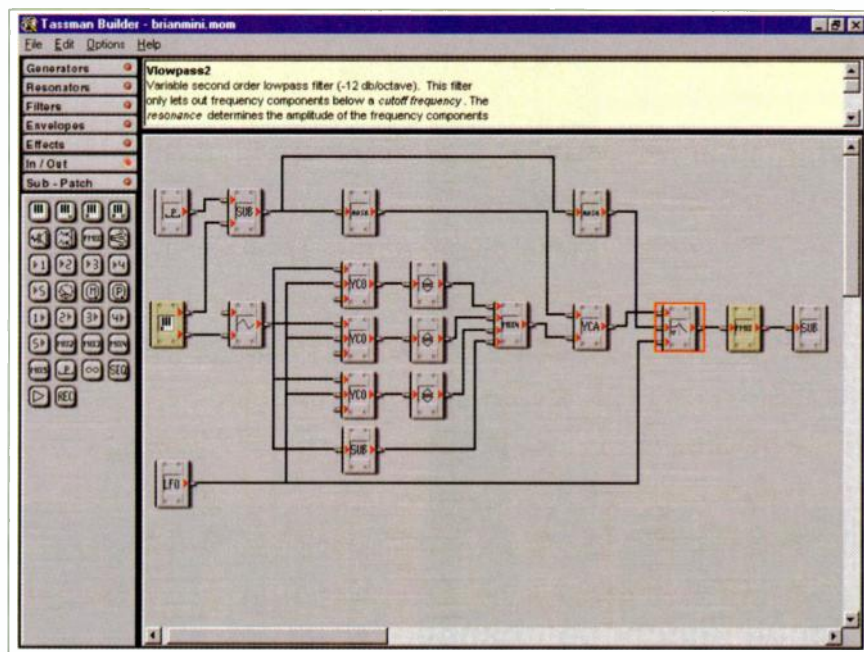


FIG. 1: *Tassman Builder* offers a versatile toolkit for synthesizer design. At the left is the Library window, where modules are arranged by category. When you select a module, its description appears in the Help window at the top. Place it in the Construction window, at right, by clicking anywhere on the screen. Virtual patch cords connect the modules and route control and audio signals.

music
showcase
and
conference

NEMO

boston • april 19-21 • 2001

3 nights 20 clubs 200 bands/artists

SHOWCASE APPLICATION

To submit your music for consideration, please include the following materials:

- Completed Showcase Application
- Two copies of your music on CD or cassette
- Two copies of your bio, photo, and press kit
- A non-refundable application processing fee for \$30

Entries must be postmarked by January 12, 2001

Sorry, we cannot return any materials submitted to NEMO.

Submission does not guarantee acceptance. You will be notified of our decision by February 16, 2001.

To help expedite the process, please do not call our office to inquire about your application status.

All showcasing artists receive full registration to NEMO.

Name of Band/Artist: _____ # of Members: _____
Hometown (for directory listing): _____ Type of Music: _____
Primary Contact Person: _____
Address: _____
City/State/Zip/Country: _____
Phone: () _____ Fax: () _____
EMail: _____ Website: _____
Performing Rights Affiliation (circle one): ASCAP BMI SESAC SOCAN None
Management Co: _____ Manager: _____
Phone: () _____ Fax: () _____
Record Co: _____ Contact at Label: _____
Circle one: Major Label Indie Label None
I am interested in having a track on the Nemo Compilation CD: Yes No
PAYMENT METHOD: Total amount enclosed: \$ _____
 Cash Check/Money Order AMEX Visa MasterCard
Cardholder's Name: _____ Card#: _____
Exp. Date: _____ Cardholder's Address: _____
Cardholder's Signature: _____

SEND TO: NEMO, ZERO GOVERNORS AVE., #6, MEDFORD, MA 02155

For office use only Date of receipt: _____

Processed by: _____

for info call 781.306.0441

www.nemoboston.com

BOSTON
Herald

DISC MAKERS

WBEN
104.1 FM

DOTCLICK

bowed variation. Rounding out the Resonators are a single tube, a complex arrangement of four tubes, a flute, and an organ.

Instead of being available as an independent Generator, a bow is integrated into the associated Resonators. According to AAS, this is done for the sake of efficient coding. Bowing an object creates physical feedback between the object and the bow, and separating the two would bog things down. A future bow release should include a separate bow module, along with additional Generators such as reed and brass modules.

The complexity of *Tassman*'s objects is impressive. For example, the flute module is a model of a recorder. When a player blows into a recorder, the air stream is directed across a sharp edge (called the *labium*) at one end of the recorder's body. This sets the instrument's air column in motion, creating its characteristic sound. *Tassman*'s flute module takes this into account, letting you set default values for the turbulence noise of the player's air stream, the air stream's behavior, the labium's position relative to the air stream, and even the sharpness of the labium's edge, which affects the instrument's timbre and response.

The ability to define an instrument's characteristics is cool enough, but you can then control these parameters during performance, either from the virtual onscreen knobs or by assigning MIDI controllers to them. This lets you modify the in-



FIG. 3: To play any of *Tassman*'s instruments, you must launch them in *Player*, which features a detailed retro look, right down to a touch of glare on the round "analog" meters. The buttons at the bottom let you load and save presets, and the Undo button reverts your tweaks—one knob, button, or slider at a time—an unlimited number of steps back.

strument's behavior in numerous ways as it plays.

THE ENVELOPE, PLEASE

AAS included a healthy complement of filters and envelopes for shaping the sound of *Tassman*'s synths. Lowpass and highpass filters are available in static and variable varieties, along with bandpass and comb filters. Flexibility is, again, the name of the game.

You can control a filter's cutoff frequency with an onscreen knob, assigned to a MIDI controller, or set to track an incoming signal, such as pitch or Velocity. Resonance can also be assigned to a MIDI controller for complete control of the filter's sound during performance.

One of the benefits of *Tassman*'s modular construction is the ability to combine elements in ways that expand their basic usage. For example, you can combine multiple bandpass filters to create a "quasi" parametric equalizer. The top of **Fig. 2** shows the partial design for a patch in which a bowed marimba's output is sent to three separate bandpass filters. The filters include frequency and resonance controls, which

means you can also control bandwidth, as it is inversely proportional to resonance. An image of the synth produced by this design appears in the inset at the bottom of **Fig. 2**.

The Envelope bin contains ADSR (Attack, Decay, Sustain, Release) and VCA modules as well as modules for volume (manual control only, no modulation input), portamento, and Root Mean Square (RMS). RMS is an envelope follower that lets you, for example, track an audio input's volume and then use that information to control some parameter of another module. You could use the ADSR to control a VCA's gain or a filter's cutoff or center frequency. You can assign all four envelope parameters to MIDI controllers.

CAUSE AND EFFECT

You certainly won't want to throw away your multi-effects units, but *Tassman* does provide a number of useful effects to incorporate into your creations. These range from staples such as reverb and delay to more esoteric effects such as a sample-and-hold module and the Scratcher, which is a delay with modulated delay time.

The reverb simulates the effect of sound generated at the intersection of three tubes. You can define the length and radius of each tube. Two or more reverbs can combine for a

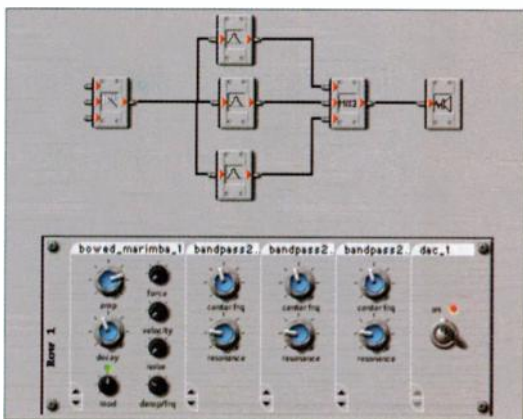
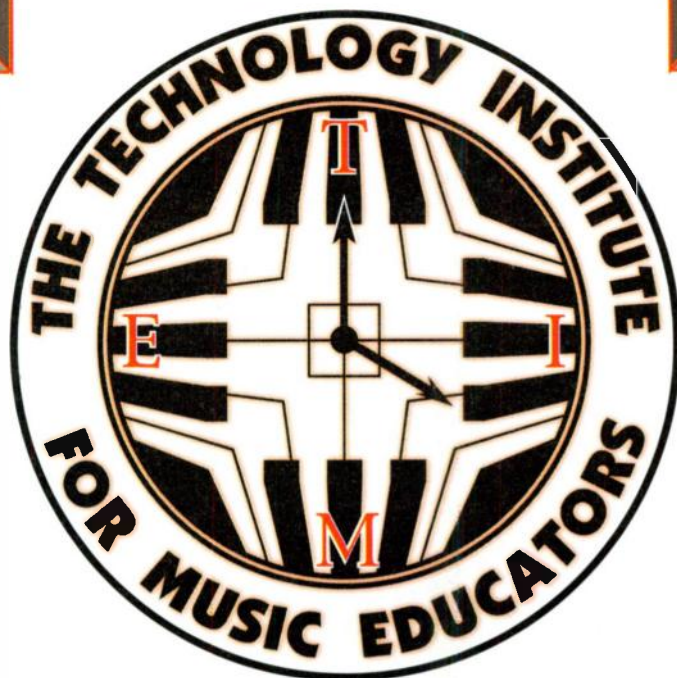


FIG. 2: *Tassman*'s modular nature allows you to come up with novel uses for modules. In this design (top), three bandpass filters create a three-band parametric equalizer with variable frequency and bandwidth. The inset (bottom) shows what this arrangement looks like when it's loaded in *Player*.

Don't miss the
TI:ME
National Music
Technology Conference!



Columbus, OH
Jan. 31 - Feb. 3, 2001

TI:ME, the Technology Institute for Music Educators, was exclusively created to help music educators learn how to integrate technology into their everyday teaching strategies. Join TI:ME at our national conference and take advantage of these resources:

- Over 100 continuous technology sessions
- Six fully equipped lecture and hands-on rooms
- Keyboards and computer labs by Roland, SoundTree, and Music in Education (MIE) by Yamaha
- Product presentations and instruction
- Multiple sessions for novices, intermediate and advanced users
- Electronic music concerts
- New educational products
- Over 150 exhibitors

The TI:ME National Conference, in partnership with the Ohio Music Educators Association (OMEA), is supported by NAMM, the International Music Products Association and by IAEKM, the International Association for Electronic Keyboard Manufacturers. We also thank GVox, Lentine's Music, Roland, SoundTree and Yamaha Corporation for their support and participation.

Find out more:

www.ti-me.org

e-mail us at: TimeMusEd@aol.com

or call George Pinchock at 610-519-6050

stereo-reverb effect, and you can route the output of one or more reverbs through the tube or tube array from the Resonator bin.

A number of interesting sonic possibilities are available by applying delay, flange, or pan effects. The Splitter module doubles its input's pitch one, two, or three octaves down, and a variable pitch-shift module is also available. There's also a phase inverter and a pickup module, which models a magnetic-coil pickup's effects as used with guitars and electric pianos. The pickup's distance and lateral position relative to the source are variable, and you can control input and output gain. Three LEDs on the pickup module in *Player* display the amount of distortion produced by combining these parameters.

INS AND OUTS

Tassman has many input and output devices. Monophonic and polyphonic keyboards come with or without Velocity sensitivity. You can add Breath Controller, Modulation, and Pitch Wheel, or drive the whole shebang with a step-sequencer module.

Any *Tassman* synthesizer must include

a digital-to-analog converter (DAC) for its sound to be heard, and this module comes in mono or stereo. A number of other I/O options are also included, most of which are used for submixing elements or configuring subpatches.

IN PERFORMANCE

Once you create a *Tassman* synthesizer in *Builder*, open it in *Player* to hear it (see Fig. 3). This two-program approach is a bit on the clunky side; to audition any updates you made in *Builder*, you must close *Player* and reopen it with the updated synth. AAS is working on streamlining the process so that *Player* can load *Builder*'s updates or new synths without closing first.

With brushed-metal faceplates, round "analog" meters, and lots of knobs, *Tassman* has a decidedly retro look. Modules are arranged in rows, and you can customize the components' positions in *Builder*. *Tassman* runs in 800 × 600 resolution, but you should run it in at least 1,024 × 768 or you'll have some difficulty seeing all the modules in some synths. However, you can easily scroll the entire screen left or right as needed.

Once you load a synth into *Player*,

PRODUCT SUMMARY

Applied Acoustics Systems

Tassman 1.2 (Win)
software synthesizer
\$395

FEATURES	3.5
EASE OF USE	3.5
DOCUMENTATION	4.0
VALUE	4.0

RATING PRODUCTS FROM 1 TO 5

PROS: Novel and intricate physical models. Flexible and powerful structure with almost limitless opportunities for tweaking. Acoustic models and analog objects can be mixed freely. Outstanding tutorial. Small instrument files are easily shared or transported.

CONS: Clunky two-program design. Significant latency. Some functions are buried too deeply in menus.

Manufacturer

Applied Acoustics Systems
tel. (888) 441-8277
e-mail sales@applied-acoustics.com
Web www.applied-acoustics.com

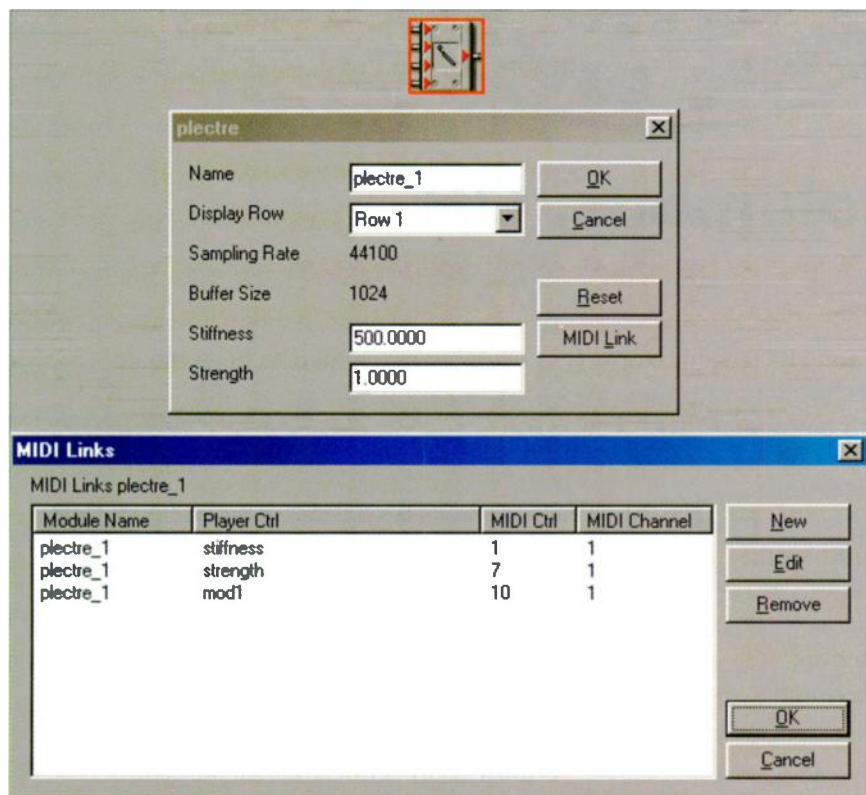


FIG. 4: *Tassman* offers impressive control over every aspect of its instruments. Here, MIDI controllers have been assigned to three of the plectrum's parameters. This powerful aspect of the program would be even better if it weren't buried three dialog boxes deep in *Builder*.

you must turn on its DAC before it will make any sound. This is a minor annoyance, but considering the number of included synths that begin to play instantly because of their built-in sequencers, it's probably a reasonable precaution against a loud surprise.

Player exhibits a high degree of latency. This is due to a fixed buffer size of 1,024 samples and the overhead of writing to the operating system's audio device—which requires three buffers—resulting in a delay of at least 68 to 200 ms when responding to incoming MIDI data. AAS says it plans to make improvements available in a free update. By shrinking the buffer size, the company anticipates latencies as low as 10 ms on a Pentium III/500 MHz. (I installed *Tassman* on two machines: a Pentium II/266 MHz with 96 MB RAM and a Pentium III/450 MHz with 128 MB RAM. In both cases, the latency was very noticeable.)

Unlike analog synths of yore, you can save all settings in presets. For the ultimate in tweaker flexibility, even individual modules and subpatches support their presets. It would be great

Merrily,
merrily,
merrily,
merrily,
life is
but a
stream.

The magazine for streaming content & delivery.

netmedia
STREAMING CONTENT CREATION & DELIVERY

913-341-1300

www.netmedia-online.com

An INTERTEC®/PRIMEDIA Publication

Streaming content professionals create. They distribute. And *netmedia* shows them how. Up-to-date technology. Creative ideas. Business opportunities. From content to delivery, *netmedia* is the magazine for today's streaming industry.

Intertec is also the publisher of Telephony, Video Systems, Millimeter, and MIX magazines.

to have a drop-down list of available presets for a given synth or module; currently, you can access presets through an Explorer-style window that opens by clicking on the Load button at the bottom of the *Player* window.

Speaking of presets, *Tassman* ships with one or more for each of its approximately 100 synths. You could spend days just working your way through this massive collection, and you can modify any of the synths.

TWEAKER'S DELIGHT

Tassman is the sort of program that inveterate tweekers love. With so many variables and customization opportunities, *Tassman* is almost overwhelming. Fortunately, it's laid out quite logically, so even novices can make sense of everything. What's more, its knob-laden interface begs you to start twisting away until you find a sound that moves you.

As an example of how customizable *Tassman* is, take a look at the plectrum, one of its Generators (see Fig. 4). You can specify the plectrum's stiffness, as well as the strength of its impact on the sound source. When you add a

plectrum to a program, you can also assign a MIDI controller to vary its parameters in real time.

Four modulation inputs let you customize the plectrum's response to incoming MIDI data. The first is the trigger, which tells the plectrum to pluck the string (or other Resonator), typically in response to a gate signal from a keyboard module. The second input varies the plectrum's stiffness in direct proportion to some parameter of the incoming signal, typically pitch; that causes the stiffness to increase with pitch. The third modulation input is similar to the second, except it varies the stiffness in inverse proportion to some parameter of the incoming signal, typically Velocity. The fourth input varies the plectrum's strength directly with the amplitude of the incoming signal; that is usually used to cause strength to track Velocity, which is the expected behavior of an acoustic instrument. Three knobs—labeled mod1, mod2, and mod3—determine the degree to which modulation inputs 2 through 4 track incoming signals. These can also be assigned MIDI con-

Minimum System Requirements

Tassman

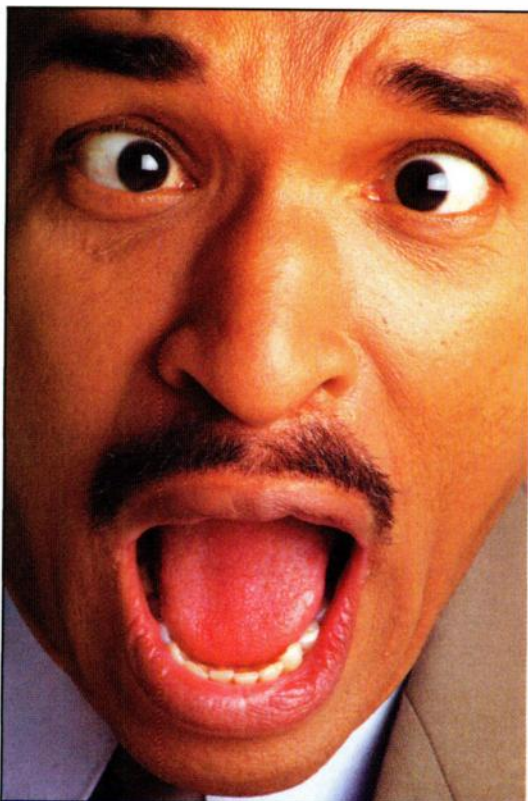
Pentium II/233; 32 MB RAM; Windows 95/98;
DirectX 5.0; DirectX-supported sound card

trollers for real-time tweaking.

With so many knob twirling opportunities, *Tassman* cries out for some kind of external control surface along the lines of Keyfax's PhatBoy. If you only have a mouse, though, AAS has made *Player* reasonably easy to control. Grabbing a knob and dragging vertically makes coarse adjustments, and the arrow keys make fine adjustments to the selected knob. Right-clicking anywhere on a knob snaps its value to that point. Knobs with green LEDs indicate that you can snap to a centered position by clicking on their LEDs.

THE BIG PICTURE

Tassman has some real strengths and a lot of potential, but it also has some first-version quirks. Until AAS finishes integrating *Player* and *Builder*, you will



WORRIED THAT YOU MISSED YOUR MOST IMPORTANT TRADE SHOW?

We cover all the major tradeshows for music, sound, lighting and video industries including: **Winter NAMM**, **DJ Expo West**, **NSCA**, **NAB**, **Infocomm**, **Summer NAMM**, **The International DJ Expo**, **AES**, **LDI** & **Musikmesse**.

Testa's Convention TV brings you all the highlights, straight from the show floor. You'll be on your computer but it will feel like you're watching the evening news, with breaking news stories, in-depth reports, product demonstrations and presentations.

Our webcasts run for three full months after a show. Check out www.conventionTV.net for complete show schedules.

TESTA'S
ConventionTV

For more information about Convention TV, contact Tony Clemente at 516-767-2500 or email: tclemente@testa.com

The Best Kept Secret in The Pro Audio Universe

The only Microphones Endorsed by Aliens!



ADK Inc. (360) 566-9400

ADK

www.adkmic.com

find yourself opening and closing *Player* constantly to audition new sounds or changes you made in *Builder*. (Fortunately, there are shortcut keys for these functions.) This minor bother is compounded by the fact that Windows often lets go of *Player* slowly, or not at all. If you open it again too quickly, you'll run into MIDI conflicts.

It's great to have MIDI control over so many parameters, but establishing those assignments means digging three dialog boxes deep into *Builder*; it would be much better to right-click on a *Player* knob to create or change an assignment directly. That isn't possible because *Builder* is actually a compiler that creates and gathers source code according to your instructions. On the other hand, each synthesizer's source code is stored in a tiny text file with a .mom extension, making it easy and efficient to trade synthesizers with friends.

The user manual includes a fantastic tutorial on building a synth in *Tassman*, along with clear and detailed information about every module. Unfortunately, it neglects to tell you how to run *Tassman* with a sequencer and how to create

multitimbral synths. (You can create such synths either by splitting a keyboard or by using multiple keyboards on different channels assigned to different instruments, all within a single synth program.)

For your sequencer to see *Tassman*, you must use a MIDI loopback program, such as the freeware Hubi's *Loopback* (www.simtel.net/pub/win3/music). This is an extremely easy program to set up, and *Loopback* will become unnecessary when *Tassman* is revised to operate as a VST Instrument within Steinberg's *Cubase* and Emagic's *Logic* or as a DirectX instrument within *Cakewalk Pro Audio*. (Tutorials on these subjects should be available at the AAS Web site by the time you read this.)

The models of acoustic objects are impressive for their attention to detail, but they have one important shortcoming: they can't perform smooth pitch bends. Any attempt to bend the pitch is stepped in semitone increments, rendering the effect all but useless. That is another computational compromise that AAS engineers are working on. On the other hand, the various analog-synth building blocks suffer from no such limitations.

While some musicians I respect were enthralled with *Tassman*'s sound from the first note, it took me a while to warm up to it. A good number of the included synths are of the step-sequenced variety, which is not my cup of tea. I found more to like about the acoustic and analog sounds, but it wasn't until I started assigning controllers and tweaking knobs that I became truly enthusiastic. That is where *Tassman*'s real potential lies. When not only the amplitude but the physical size of a cello model can be modulated as a function of Velocity, you have something unique.

The beauty of software synthesis is that you can audition *Tassman*. The downloadable demo version includes *Builder* and *Player*, so you have an opportunity not just to play *Tassman* but to design your own synths, remap patches, and assign MIDI controllers. That's when you'll feel *Tassman*'s power and potential. Download the demo from the AAS Web site and tweak away.

Brian Smithers is a musician and educator in Orlando, Florida. Julius Hocott of Full Sail deserves special thanks for his insights.

THE RIGHT CONNECTION FOR THE BEST CABLE AND ACCESSORY BRAND NAMES AT THE BEST PRICES!

CablesAndSuch.Com

FREE

FREE SHIPPING ON ALL ORDERS ABOVE \$20!
GET A FREE CABLE TIE WRAP WITH EVERY ORDER!

IN STOCK & READY FOR IMMEDIATE DELIVERY!

Instrument cables
Recording Cables (professional and home)
Power cables
Computer cables
Home Theater
Home Video
Car Stereo
Fiber Optic

Snakes
A/B boxes
Direct boxes
Adaptors
Connectors
Specialty cables
AND SUCH!

www.cablesandsuch.com



Got beats?

THE PRO AUDIO / DJ AND STAGE LIGHTING

PRO SOUND
AND STAGE LIGHTING

SAMSON AirLine:
Turn Your Favorite Hand-Held Mic Into A Wireless Mic!

NEW!
Remix 2001 Video
Full 1-Hour Video. A Step-By-Step Guide to Remixing. Our Experts Make it Easy!
Introductory Price **REMIX-2001-01**

www.pssl.com

MasterCard Visa American Express Discover

Before You Enter The Remix Zone There's **One** Catalog You've Got To Get!

100% Customer Satisfaction Guarantee
45-Day Price Protection Guarantee
95% Of All Orders Shipped Same Day

Get your **FREE** catalog online @ pssl.com
or call 1-888-273-6400

PRO SOUND
AND STAGE LIGHTING

11070 Valley View Street, Cypress, CA 90630

(714) 891-5914

fax (888) 777-5329

www.pssl.com

**AIRPLANE
PROPELLERS
ONSTAGE!**

Vroom!

Wild, highly rhythmic, a combination of industrial age sounds and jazz, George Antheil's *Ballet Mécanique* was the musical scandal of Paris in 1924. It still is one of the most notorious musical moments of the 20th century! And this is the first recording of the original version of Antheil's masterpiece, scored for 3 airplane propellers, 16 synchronized player pianos, 7 bells, 3 xylophones, 4 bass drums, 2 pianos, siren, and tamtam.

"A combination of industrial age sounds and jazz."

More about Antheil?

After composing *Ballet Mécanique*, Antheil went to Hollywood and composed film music. He also met Hedy Lamarr, legendary Hollywood star, and worked out a torpedo guidance system with her. Hey, what a guy!

Visit <http://www.antheil.org>

Ballet Mécanique is an EMF Media compact disc.

EMF EMF Media™
Past and Future Classics

CDeMUSIC & EMF are trademarks of Electronic Music Foundation, Ltd.
Copyright © 2000 Electronic Music Foundation, Ltd.



EMF Media CDs are available from CDeMUSIC™. And you'll find more than 2000 other CDs from more than 100 other publishers of the most original music in the world. It's all at...



<http://www.cdemusic.org>
cde@emf.org
(888)749-9998
(518)434-4110



single-instrument loops. Track tempos range from 87 to 106 bpm, and the booklet lists every track's tempo.

Under Construction

The construction kit tracks start with a full band groove (usually 8 to 16 bars long) followed by drums, drum hits, and other elements, including bass, piano, and scratches. The single-instrument loops include 47 scratches, 49 drums, 75 wah-wah riffs, 74 guitar riffs, and 75 bass lines.

While guarded about offering production information, Big Fish Audio did reveal that the producer, John Tejada, played all the parts using Steinberg's *Cubase VST* for tracking and processed the audio with Waves plug-ins. The vinyl sound probably comes from a plug-in, along with some form of tube processing during recording or mastering. It deserves kudos for subtle tape-saturation coloration, as well as the absence of overt, repetitive crackles and pops in the processing.

Drum loops are the foundation of discs like this, and *Wall Of Vinyl 3* comes saturated with loping, laid-back grooves that feature crispy hi-hats and crunchy snares. The mixes put extra-large kick drums in your face—right where they belong. Sampled drums were sequenced on an Akai MPC2000; however, the drum-only samples featured on disc 2 are live.

The instrumental parts tend to be simple one- or two-chord lines. What makes them interesting is the rhythmic interplay between the drums and the other elements—the syncopation creates some seriously funky results. Although the lines sit in one tonal center, there are enough songs at the same tempo to provide for an easy interchange of samples.

You get numerous killer processed synth stabs, and the meaty organ sounds will grab your attention. The scratches provide all sorts of aural entertainment—easily the set's best sounds. A host of scratches pepper the song elements, and disc 2 contains 47 single samples. The lo-fi string lines and hits are intriguing, and a number of them appear as individual elements. An occasional sound effect in the synth lines or a short vocal burst rears its head in the mix, which blends nicely into the rhythmic soup.

The funky guitar parts on the main tracks sound sharp, distinct, and in the pocket. However, disc 2's guitar-only samples don't sit right in the groove, and the tone is lacking. The bossa nova chord parts are out of place in a rap and hip-hop collection and don't mesh with any of the other feels.

Media One Company



**QUALITY HIGH SPEED DIGITAL CASSETTE DUPLICATION
COMPACT DISC PRODUCTION
REAL TIME VIDEO DUPLICATION**

1000 CD'S - \$899.00
CDR MASTER REQUIRED

100 CD'S - \$199.00
CDR MASTER REQUIRED

1000 CASS - \$499.00
HIGH QUALITY MUSIC GRADE FERRIC

200 CD'S - \$299.00
CDR MASTER REQUIRED

500 CASS - \$295.00
HIGH QUALITY MUSIC GRADE FERRIC

500 CD'S - \$699.00
CDR MASTER REQUIRED

**CD'S & CASSETTE PRICES REFLECT NORELCO,
SHRINK WRAP & INSERTION OF YOUR INSERTS**

CALL: 1-800-586-9733

IN LA (626) 358-2556 • FAX (626) 358-2826

www.mediaonecompany.com



Who's clicking and dragging your bottom line across **Europe**?

www.vitaminic.com
www.vitaminic.it
www.vitaminic.co.uk
www.vitaminic.de
www.vitaminic.fr
www.vitaminic.es
www.vitaminic.nl
www.vitaminic.se



With the only genuinely pan-European network across all major territories, Vitaminic is the digital downloadable music community with offices all over Europe and in the US.

So what?

It means we can sell your music to any market.

It means we can promote your music to any market .

On the Internet. The world's fastest growing audience.

That's what.

the music evolution



Join the network now at www.vitaminic.com



Time Factory lets you designate an audio-editing program to launch automatically when you double-click a file in the main window. The file then appears in your favorite editor ready for modification. *Time Factory* comes bundled with *SonicWORX Essential* (Mac only), a cut-down version of Prosoniq's *SonicWORX* editing software. It offers a range of useful effects along with good waveform editing features.

Overall EM Rating (1 through 5): 4

NATIVE INSTRUMENTS

B4 1.0 (Mac/Win)

By Rob Shrock

Native Instruments' *B4* (Mac/Win; \$249) first impresses you with its incredible graphics—a top-down view of an organ in a beautiful wood casing. The image reflects *B4*'s sound quality; the *B4* packs some heavyweight organ tones.

The *B4* CD-ROM comes with Mac and Windows versions. Installing the *B4* is straightforward: you can choose the stand-alone version, the MAS version, the VST version, or all three. When you launch *B4*, the copy-protection scheme will occasionally ask for the installation CD-ROM, so keep it handy. In stand-alone mode, *B4* determines the MIDI and audio port settings. *B4* is also compatible with any sequencer that supports VST Instruments (Mac/Win) and DirectConnect (Mac only). PC users with DirectX can access *B4* with FXpansion's VST-DirectX Adapter (\$30).

Pick a Classic

B4 offers 10 banks of 12 presets. You choose presets by using the reverse colored keys to the left of the two manuals and a Bank Select knob, or with a drop-down menu. You can edit and overwrite the 120 presets and export entire preset banks or individual presets.

The huge variety of presets cover practically any familiar organ sound you can think of. It makes it easy to find great sounds and provides an educational peek into creating classic organ tones. The informative user manual is well written and contains an additional section on tonewheel organ theory and sound creation.

Manual Control

B4 is divided into four basic areas: upper manual, lower manual, pedals, and controls.

The *B4*'s manuals and pedals each have individual drawbar sections. In the Keyboard view, the virtual organ console offers a familiar layout consisting of a Bank Select switch; upper and lower Vibrato on and off switches; Vibrato Setting knobs; Percussion, Overdrive, and Rotator on and off switches; and a Rotator speed control.

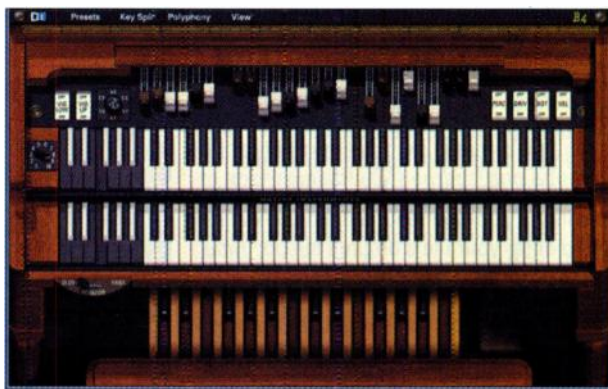
In addition to the Keyboard view, *B4* provides a Control view where you can really tweak the sound. Here, you can alter the Percussion (volume, decay, harmonics); Vibrato (mix, depth, amount); the Tube Amp simulator (drive, volume, body, amount); the Treble and Bass Rotors (slow, fast, acceleration, tone); and the placement of two virtual microphones. The Control view displays the same drawbars and switches you found in the Keyboard view—again, the graphics are detailed and excellent.

You can assign the *B4*'s upper and lower manuals and foot pedals to receive either on separate MIDI channels or on a single MIDI channel with user-definable keyboard splits that determine the range of the two manuals and pedals. This lets you set up two MIDI keyboards and a set of MIDI pedals to play *B4*, or you can play all three sounds from a single MIDI controller.

Onscreen changes to the drawbars or switches are transmitted as MIDI Control Change messages and can be recorded into your sequencer in real time. You can also use your MIDI controller's wheels, sliders, and pedals to transmit Control Changes, animating the organ sound in real time. The user manual lists the Control Change numbers with their assigned parameters.

B4's maximum polyphony is dependent on your computer's processor. However, *B4* lets you allocate 25, 50, 75, or 91 Tones. Unlike organ samples, once you generate a Tone (as either a fundamental or a harmonic pitch), redundant occurrences of the same Tone from other keys won't take up more polyphony. Instead, *B4* reduces the Tone's amplitude.

A setting of 25 or 50 Tones is usually sufficient. If you exceed your Tone Limit with lots of chord clusters, for example,



Native Instruments' *B4* accurately models all aspects of a tonewheel organ. *B4*'s Keyboard view looks very much like a real organ, complete with two manuals, foot pedals, and controls.

B4 will mute the highest harmonics, resulting in the sound losing brightness. (If this happens, just bump up the Tone Limit.) Only Tones playing at any given time draw on your computer's processor, which makes the *B4* an extremely efficient plug-in instrument.

B4 We Go

The *B4* organ is absolutely stunning. The tonewheels sound just like the real thing. The rotating speaker, amp overdrive, percussion, and vibrato also sound completely convincing. The *B4*'s ability to move virtual microphones around a simulated speaker cabinet puts the icing on the cake.

You can't beat the *B4*'s sound quality, great presets, price, ease of use, and efficiency. I would put *B4* up against any of the new organs and organ modules on the market—maybe even a real Hammond B-3. 🎹

Overall EM Rating (1 through 5): 4.5

QUICK PICKS

Manufacturer Contact Information

Big Fish Audio tel. (800) 717-FISH or (818) 768-6115; e-mail info@bigfishaudio.com; Web www.bigfishaudio.com

Native Instruments USA/Steinberg North America (distributor) tel. (818) 678-5100; e-mail infoUSA@native-instruments.com; Web www.native-instruments.com

Prosoniq Products Software GmbH e-mail info@prosoniq.com; Web www.prosoniq.com

Electronic Musician
Presents

REMITMX

**The Only U.S. Publication
Dedicated to the Tools and
Technology of Remix Production
and DJ Performance!**

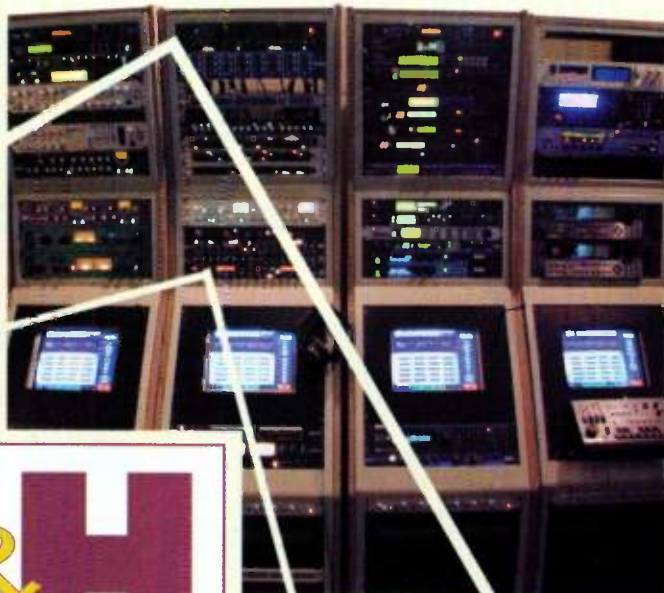
**Catch the newest spin and
latest groove with Remix.
Keeping up with the rapidly
changing technology of the
electronic music scene is
now possible!**

Featuring:

- **Interviews with hot artists, producers, and labels on the dance-music scene**
- **In the Know: Cool gadgets, gear, and Web resources**
- **Ear2Gear: In-depth reviews of the latest products and equipment for remixers, producers, and DJs**
- **Taking your mix over the top with tips and tricks from the people who know best**
- **PLUS so much more!**

**Available on newsstands everywhere!
Subscribe online at:
www.emusician.com/remix**





420 Ninth Ave.

*Between 33rd & 34th Streets,
New York, N.Y. 10001*

Store and Mail Order Hours:

Sun. 10-5, Mon. thru Thurs. 9-7

Fri. 9-1, Sat. Closed

For Orders Call:

800-947-5509

212-444-6679

or FAX (24 Hours):

800-947-9003

212-444-5001

www.bhphotovideo.com

We Ship Worldwide

**VISIT
OUR
SUPERSTORE**



FOR ORDERS CALL: **800-947-5509**
 212-444-6679
 OR FAX (24 HOURS): **800-947-9003**
 212-444-5001

MOST ORDERS SHIPPED WITHIN 24 HOURS
OVERNIGHT SERVICE AVAILABLE

www.bhphotovideo.com

420 Ninth Ave. (Bet. 33rd & 34th St.) New York, N.Y. 10001

COMPUTER BASED AUDIO



Version 3 Plugins Now Available

New Processors - New Features - New Interfaces - Higher Resolution

Waves Bundles feature some of the hottest software processing plugins for tracking, mixing, remixing, mastering and sound design. Choose from the precision dynamics and spatial processing capabilities of the **Native Power Pack (TDM Bundle for ProTools)**, the vintage processing characteristics of the **Renaissance Collection** and the extreme sound shaping capabilities of the **Pro-FX Plus Bundle**. Also available is the **C4 Multiband Parametric Processor** which provides 4 discrete bands of dynamics and EQ. The **Waves Gold Bundle** features all of Waves processors in one affordable package.



New Features--

- Native Bundles feature support for VST1, MAS, RTAS and AudioSuite (Mac Only) and DirectX (PC) in the same box
- Many of the plugins in the Native Bundles support 88/95kHz processing
- The NEW! Renaissance Collection includes Renaissance Reverb, Renaissance EQ and Renaissance Compressor. These plugins recreate the warmth and ease of operation of classic analog hardware
- TDM Bundles feature support for TDM, RTAS and Audio Suite
- NEW! 48-bit double-precision processors for TDM Bundles include the L1-Ultramaximizer now with 24-bit dithered output and 48-bit precision



DIGI001 Digital Audio Workstation For Mac And PC

A completely integrated digital recording, mixing and editing environment for the Mac and PC, the DIGI-001 offers a 24-bit multi I/O breakout interface along with Pro Tools LE software—based on Digidesign's world renowned ProTools software. The DIGI-001 interface features 18 simultaneous I/Os made up of 8 analog inputs and outputs—two of the inputs are full featured mic preamps with phantom power, and digital I/O including standard S/PDIF as well as an ADAT optical interface that can also be used as a S/PDIF I/O. ProTools LE supports 24 tracks of 16 or 24-bit audio and 128 MIDI tracks and also features RealTime AudioSuite (RTAS) effects plug-ins. For ease of use, MIDI and audio are editable within the same environment and all mixing parameters including effects processing can be fully automated.



- Two plug-in platforms offer multiple options for effects processing—Real-Time AudioSuite (RTAS) is a host-based architecture that allows an effect to change and be dynamically automated in real-time as the audio plays back. —AudioSuite is a file-based format, that renders a new file with the processed sound.
- Bundled RTAS plug-ins include: 1 and 4-band EQ; Dynamics II—compressor, limiter, gate and expander/gate; Mod Delay—short, slip, medium, and long delays with modulation capabilities for chorus or flange effects and dither. AudioSuite plug-ins include Time Compression/Expansion, Pitch Shift, Normalize, Reverse.

MIDI Functions

- MIDI functions include graphic control for editing, piano roll display, up to 128 MIDI tracks and editing options like quantization, transpose, split notes, change velocity and change duration.
- MIDI data can be edited on the fly

Pro Tools LE

- Supports 24 tracks of 16 or 24-bit audio and 128 sequenced MIDI tracks
- Sample-accurate simultaneous editing of audio & MIDI
- Real-time digital mixing capabilities include recall of all mixing parameters, support for edit and mix groups and complete automation of all volume, panning, mutes and plug-ins.
- Route and mix outboard gear in real-time
- MP3 and RealAudio G2 file support (Mac)

TASCAM®

US-428 USB Digital Audio Workstation/ Controller

The US-428 is a 24-bit USB-based audio controller co-designed by TASCAM and Frontier Design Group. The control surface includes plenty of faders, transports and other dedicated controls compatible with the most-used functions in today's DAW applications. The US-428 supports a total of four channels of audio in and two out's simultaneously. The interface plugs right into a USB equipped PC or Mac computer—no opening your computer and no sound card to install. Musicians taking the leap from Portastudios to computer-based DAW programs will feel right at home with the tactile control surface.



FEATURES--

- PC and Mac compatible
- Works with most major DAW programs
- 24 bit D/A and A/D converters
- Bundled with Steinberg's Cubasis VST sequencing software for Windows (MacOS version shipping soon)

I/O--

- Total of four channels of audio in (analog or S/PDIF) and two out simultaneously via USB
- Two XLR mic inputs, two balanced 1/4" TRS inputs, two unbalanced 1/4" inputs (switchable to Hi-Z)
- S/PDIF digital I/O • Two independent MIDI I/O (32 channels)

Controls--

- Unlimited banks of eight faders
- Transport, mute/solo and locate keys
- An EQ module supports control of up to four bands of fully parametric EQ
- Four aux sends and a panpot
- Can be customized to control everything from virtual synths to MIDI lighting panels



MOTU AUDIO Hard Disk Recording Systems

The MOTU Audio System is a PCI based hard recording solution for the Mac and PC platforms. At the heart of the system is the PCI-324 PCI card that can connect up to three audio interfaces and allows up to 72 channels of simultaneous I/O. Audio interfaces are available with a wide range of I/O configurations including multiple analog I/O with the latest 24-bit A/D/A converters and/or multi channel digital I/O such as ADAT optical and TDIF I/O as well as standard S/PDIF and AES/EBU I/O. Each interface can be purchased separately or with a PCI-324 card allowing you to build a system to suit your needs. Includes drivers for all of today's hottest audio software and AudioDesk, multitrack recording and editing software for the Mac.

THEY ALL FEATURE--

- Mac OS and Windows compatible
- Includes software drivers for compatibility with all of today's popular audio software plus AudioDesk, MOTU's sample-accurate audio workstation software for Mac OS • Host computer determines the number of tracks that the software can record and play simultaneously, as well as the amount of real-time effects processing it can support
- Front panels display metering for all inputs and outputs
- AudioDesk Audio Workstation Software for Mac OS features 24-bit recording, multi-channel waveform editing, automated virtual mixing, graphic editing of ramp automation, real-time effects plug-ins with 32-bit floating point processing, crossfades, support for third-party audio plug-ins (in the MOTU Audio System and Adobe Premiere formats), background processing of file-based operations, sample-accurate editing and placement of audio, and more



1296 Features--

- 24-bit, enhanced multi-bit 128x oversampling 96kHz converters • A-weighted signal-to-noise ratio of 117 dB
- 12 balanced XLR inputs and outputs can support two simultaneous 5.1 mixes • AES/EBU I/O with sample rate

- Conversion both in and out • Compatible with existing PCI-324 cards (requires new PCI-324 driver) • Connect up to 3 1296 interfaces to 1 PCI-324 card for a total of 36 inputs and outputs or mix and match the 1296 interface with up to three of the other MOTU audio interfaces



2408 mKII FEATURES--

- 7 banks of 8 channel I/O; 1 bank of analog, 3 banks of ADAT optical, 3 banks of Tascam TDIF, plus stereo S/PDIF
- Custom VLSI chip for amazing I/O capabilities • Format conversion between ADAT and DA-88

- 8x 24-bit 1/4" balanced analog I/Os • 24-bit internal data bus for full 24-bit recording via digital inputs • Standard S/PDIF I/O for digital plus an additional S/PDIF I/O for the main mix • Sample-accurate synchronization with ADAT, and DA88s via an ADAT SYNC IN and RS422



1224 FEATURES--

- 24-bit analog audio interface • State-of-the-art 24-bit A/D/A • Simultaneously record and play back 8 channels of balanced (TRS), +4 dB audio • 24-bit balanced +4 XLR

- main outputs • Stereo AES/EBU digital I/O • Word clock input • Dynamic range of 116 dB (A-weighted) • Front panel displays six-segment metering for all inputs and outputs • Headphone jack with volume knob

Digital Performer 2.7

Digital Performer is an integrated multitrack digital audio and MIDI sequencing program packed with advanced tools for a wide variety of audio applications. Sample accurate editing, loop based audio capture, real-time DSP effects and the best MIDI timing/resolution available insures unlimited creative potential.

FEATURES--

- 24-bit recording and editing • 32-bit native EQ and effects processing • Includes over 50 real-time MIDI and audio effects plug-ins including 64-bit MasterWorks Limiter and Multiband Compressor • POLAR window provides interactive audio loop recording • Sample-accurate waveform editing with the tightest sync you can get • Drag & drop samples between your Mac and your Sampler • PureDSP stereo pitch-shifting and time-stretching • Unlimited audio tracks, real-time editing, full automation and remote control • QuickTime video support

NEW FEATURES--

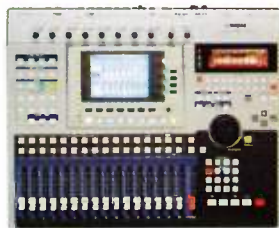
- Full Plug-In FX automation and increased 3rd party support • Drum Editor
- Adjustable Display Resolution from 2 to 10,000 PPO. Tick values up to four decimal places allows 1000 times greater editing resolution.
- MIDI Time Stamping (MTS) which exists in MOTU's rack-mountable USB MIDI interfaces, delivers MIDI data from Digital Performer to MIDI devices as accurately as a third of a millisecond for every single MIDI event.



PORTABLE DIGITAL MULTITRACK RECORDING

YAMAHA® AW4416 16-Track 24-Bit Hard Disk Recorder

The AW2416 is an easy to use, high quality 16 track hard disk recorder/digital mixing system designed and built without compromise. Choose between 16- or 24-bit resolution at either 44.1 or 48 kHz recording on a song by song basis. The digital mixing capabilities, based on the acclaimed Yamaha O2R digital mixing console, is expandable to a total of 44 input channels and features 32-bit processing, 4-band parametric EQ, dynamics control, two dedicated effects processors, motorized faders and full automation and library storage capabilities. Eight assignable sample pads allow up to 90 seconds of samples to be placed over two banks for a total of 16 samples. A front panel drive bay accommodates an optional CD-RW drive that allows back-up and storage of songs as well as audio CD burning.



RECORDING/EDITING FEATURES-

- 16 track playback with 8 virtual takes per track
- 16- or 24-bit recording at 44.1 or 48 kHz with 32-bit processing offers as much as 105dB dynamic range
- Manual or Auto Punch In/Out
- Song, Track/Part and Region editing functions
- Jog wheel with Shuttle control
- Up to 99 locate points per song

SAMPLE PADS-

- 8 sampling (trigger) pads, assignable to any channel input of the mixer, x two banks for a total of 16 sounds (90-sec. of sampling time at 16-bit/44.1kHz)

MIXING-

- 4-band parametric EQ and Dynamics per channel
- 2 powerful digital effects processors
- Channel pairing plus 4 fader groups and 4 mute groups
- Recallable scene memories of all settings as well as Channel EQ, Dynamics and Effects libraries
- Fully automated mixing with 60mm motorized faders

I/O

- 8 analog Mic/Line inputs w/ inserts on channels 1 and 2
- Stereo digital I/O
- Analog outputs include Stereo and Monitor, plus 4 Omni outs to which you can assign up to 4 Group or Aux buss outs, or additional Stereo or Monitor outs.
- World Clock I/O, MIDI In, Out/Thru, MTC out and a To Host connector for direct connection to a computer
- SCSI connector for external hard drives and other peripheral devices
- Mouse connector offers point-and-click navigation
- Foot Switch jack for triggering Start/ Stop Play, Recording or Punch I/O by foot.

EXPANDABILITY

- 2 Optional Mini-YGDAI cards provide 8 additional channels of I/O each for a total of 16 inputs and 16 outputs. Available in Alesis ADAT, ASCAM, AES/EBU or additional analog I/O configurations
- Optional internal CD-RW drive

Fostex

VF-16 16-Track Digital Multitracker

The Fostex VF-16 is an affordable fully integrated 16 track digital multi-track recorder and digital mixer designed for project and home recording studios. This all-in-one rugged package offers 8 tracks of simultaneous recording, a 16 channel automatable mixer with pan, mute, EQ, compression, effects and 2 aux sends on each channel as well as 8 mic/line inputs—2 of which are XLR balanced with switchable phantom power and inserts. Also included with the VF-16 is a dual 24-bit effects processor, a SCSI port for data back-up and a full range of non-destructive editing capabilities.



FEATURES-

- 16 tracks plus 8 ghost (virtual) tracks of non-compressed 16-bit, 44.1kHz CD quality recording
- 8 track simultaneous record (16 when using ADAT lightpipe interface)
- 64 x 128 dot-matrix LCD display
- I-EIDE 3.5-inch hard drive is used for storage—Up to three hours of recording time per Gigabyte.
- Built-in dual 24-bit stereo A.S.P. effects
- 32-bit processing and mixing

MIXING-

- 16-input channel faders with mute, pan, three-band EQ with parametric mid-range, Compressor, Effects Send and two Aux Sends (selectable pre/post).
- Auto indication and self-illuminating switches allow you to see the status of the entire mixer at a glance.
- 99-mix scene memory
- Totally controllable via MIDI

EDITING-

- Editing functions include COPY/PASTE, MOVE/PASTE, ERASE and non-destructive editing with UNDO/REDO

INPUTS & OUTPUTS-

- 8 x 1/4" Mic/Line inputs
- Channels 7 & 8 feature XLR-balanced mic inputs with phantom power and inserts.
- SPDIF and ADAT I/Os are included as well as external SCSI for backup

ADDITIONAL FEATURES-

- Imports and exports WAV file format.
- ±6% pitch control
- 90 point locate memory

SOUND MODULES

KORG Triton Rack Sound Module

The TRITON-Rack is the long-awaited rack-mount version of the TRITON keyboards. It provides all of the sound and sampling functionality of Version 2.0 of the highly respected synth/workstation/sampler and in addition dramatically expands the possible number of sounds, includes a digital output, allows up to eight; EXB-PCM boards to be installed as well as other functions that make it a no-compromise sound source.



FEATURES-

- 60-voice polyphony, 16-part multi-timbral with up to 5 insert and 2 master effects per multi
- 200 user "multi" memory locations.
- Up to 2,057 programs (fully expanded) including 1,664 combinations consisting of up to eight timbres each
- 32MB of ROM with room for up to 8 EXB-PCM 16MB expansion boards
- 102 master and insert effects plus 3-band master EQ
- Dual polyphonic arpeggiator with 328 patterns

OPTIONS-

- **EXB-DI-** 6 channel ADAT out with a Word Clock IN
- **EXB-mLAN-** supports the upcoming mLAN digital network allowing a single Firewire cable to handle all audio and MIDI I/O signals of the TRITON-Rack
- **EXB-SCSI-** interface board for adding an external SCSI device, and load AKAI sample data from CD-ROM

- 6 analog and a 24-bit digital S/PDIF out, 2 mic/line ins
- Built-in 16-bit/48kHz linear sampler with 16MB of RAM expandable to 96MB using (3) 72-pin SIMMS
- Export samples as WAV and AIFF files
- 240 x 64 dot display- Visual waveform editing
- Time-slicing easily matches rhythmic (looped) samples to a master tempo without changing pitch and creates patterns from the sliced samples
- Song data created on the TRITON can be played back via floppy disk or SCSI device by the TRITON-Rack.

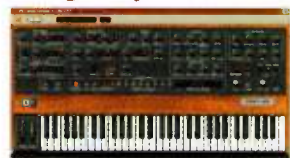
- **EXB-PCM01-** Pianos/Classic Keyboards
- **EXB-PCM02-** Stucic Essentials
- **EXB-PCM03-** Future Loop Construction
- **EXB-PCM04-** Dance Extreme
- **EXB-PCM05-** Vintage Archives
- **EXB-MOSS-** DSP 6-voice synthesizer board with 13 synthesis types including analog and physical modeling

SOFTWARE SYNTHS



NATIVE INSTRUMENTS PRO-52 VST Plug-In Synthesizer

A VST plug-in synthesizer fashioned after the legendary Sequential Circuits Prophet-5. It combines the sonic brilliance, power, warmth and beauty of the original with the practical requirements and advantages available today. Additions to the classic include: no fixed limit to the number of voices, more preset memories, velocity sensitivity, MIDI automation of all available parameters plus the option to run several Pro-Fives in parallel.



FEATURES-

- Operates as VST 2.0 Plug-In
- 2 oscillators per voice
- Choice of pulse, triangle and saw-tooth waveforms
- Detune and synchronization
- 24 dB low-pass filter with resonance and self oscillation
- ADSR envelopes for amplitude and filter

- LFD with numerous modulation options
- Unlimited number of voices (CPU dependent)
- 512 user memories and 512 presets including 50 new sounds by vintage-synth legend John Bowen)
- Velocity sensitivity (optional)
- Real-time MIDI control and automation of all parameters
- Two operating modes: analog warmth or digital accuracy



ES-1 Software Synth

EXS24 24-Bit Software Sampler



FEATURES-

- Virtual instruments designed for the Logic Series
- Ergonomic user-interface
- Up to 8 simultaneous ES1 instruments, each with up to 16 voices • Sample-accurate timing
- Every parameter can be completely automated
- Instruments can be routed to the effect plug-ins of Logic's internal digital mixer
- With Logic Audio Gold and Platinum, audio recordings can be routed into the ES1 and even used as modulation sources

FEATURES-

- Up to 16 instruments can be used simultaneously in Logic Audio with up to 32 voices per unit
- Instruments can be AIFF, WAV, SDII and AKAI \$1000/3000 files from 8 to 24 Bit
- Clearly laid out Instrument Editor
- Multi-mode filter • Two full -range envelope generators
- Sample accurate timing
- Full integration with Logic Audio's internal mixer
- Same storage medium for songs and sounds allows total recall of sampler parameters within Logic Audio

E-mu Systems, Inc. XL-1 Extreme Lead

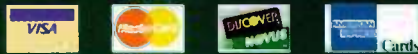
Xtreme Lead-1 is E-MU's new single rackspace techno/electronic BPM synthesizer. It is an all-in-one dance module with powerful filters and unparalleled rhythmic capabilities including 16 simultaneously synced arpeggiators. The new SuperBEATS Mode allows you to effortlessly trigger, latch and unlatch synced loops and grooves from separate keys on your keyboard. Additional internal ROM expansion capabilities allow you to expand your sound with the many Proteus expansion ROMs available. You can even create your own custom ROMs using E-MU's E4 Ultra samplers.



FEATURES-

- 32 MB Sound ROM w/512 ROM & 512 User Presets
- 64 voice polyphony (128 w/Turbo upgrade)
- SuperBEATS Mode
- 12 assignable real-time front panel controls
- Rhythmic Pattern Generator/Arpeggiator
- 12th order filters

- Advanced synthesis architecture
- 2 outputs (expandable to 6 + S/PDIF w/Turbo upgrade)
- 24-bit dual stereo-effects processor
- 1 additional internal ROM expansion slot (expandable to 3 w/Turbo upgrade)
- 16 MIDI channels (expandable to 32 w/Turbo upgrade)
- Plays back Flash ROMs authored on E4 Ultra Samplers



TO INQUIRE ABOUT YOUR ORDER:
 800 221-5743 • 212 239-7765
 OR FAX 24 HOURS:
 800 947-2215 • 212 239-7549

420 Ninth Ave.
 (Bet. 33rd & 34th St.)
New York, N.Y. 10001

CD RECORDERS & DUPLICATORS

ALESIS Masterlink ML-9600

High-Resolution Master Disk Recorder

The MasterLink ML-9600 combines stereo hard disk recording, CD burning, DSP, and mastering functions to deliver compact discs in the standard "Red Book" 16-bit/44.1kHz format, or high resolution 24-bit/96kHz CDs that utilize Alesis' revolutionary CD24 technology. The ML-9600's amazing sonic quality and powerful built-in tools offers a uniquely versatile and affordable solution for everyone from large commercial facilities to project studios and recording musicians.



- FEATURES-**
- Reads/writes 16-bit 44.1kHz Red Book Audio CDs as well as files in Alesis' CD24 24-bit/96kHz high-resolution mastering—an AIFF compatible file format that can be read by MacOS, Windows and Unix computer platforms.
 - 24-bit 128x oversampling A/D/A converters
 - Built-in 3.2GB IDE hard drive
 - 4x CD burning using standard CD-Rs
 - Up to 20-40k Hz frequency response
 - 113dB S/N ratio (A-weighted)
 - Supports 16-, 20-, and 24-bit wordlengths and 44.1, 48, 88.2, 96 kHz sample rates
 - Built-in sample rate conversion & noise shaping
 - Create and store up to 16 playlists containing as many as 99 tracks
 - **Inputs and Outputs**
 - Analog - XLR balanced and unbalanced RCA connectors
 - Digital - AES/EBU (XLR) and coaxial S/PDIF (RCA) I/O
 - 1/4" headphone out w/ level control
 - Editing
 - Gain control
 - Cramping allows adjusting start and end points
 - Join and Split for combining and separating song sections
 - **DSP Finishing Tools**
 - Equalization, Compression, Normalizing and Peak Limiting
 - **Includes**
 - Infra red remote control and rackmount brackets

StartREC Digital Audio Editing/ CD Duplication System



The Microboards StartREC is the first digital audio editing system combined with a multitrack CD recordable duplication system for professionals. Audio is recorded to the internal 6.2 GB IDE hard drive using analog or digital inputs. Sample rate conversion is automatic. Tracks can be edited and sequenced using the StartREC's user friendly interface and up to 4 CDs can be recorded simultaneously. StartREC is the ideal solution for studio recording, mastering, post production or any pro audio environment requiring digital audio editing and short run CD-R duplication.

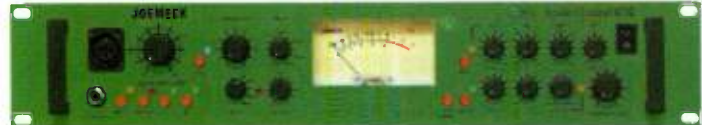


- FEATURES-**
- 2X, 4X, or 8X recording speeds
 - 6.2GB IDE hard drive
 - Editing functions include move, divide, combine or delete audio tracks, add or drop any index or sub index and create track fade in or fade out
 - Coaxial S/PDIF and AES/EBU digital input plus optical S/PDIF I/O
 - XLR balanced and RCA unbalanced inputs and outputs
 - Automatic sample rate conversion from 32 and 48kHz
 - Automatic CD format detection feature and user friendly interface provide one touch button operation
 - Front panel trim pot and LCD display provide accurate input signal and time/leave metering
 - SCMS (Serial Copy Management System) is supported, regardless of the source disc copy protection status

StartREC Models Include	ST3000 - w/ (3) 8x writers
ST2030 - w/ (2) 8x writers	ST4000 - w/ (4) 8x writers

PROCESSING

JOE MEEK VC1Q Studio Channel



The Joe Meek Studio Channel offers four pieces of studio gear in one. It features an excellent transformer coupled mic preamp, an EQ, compressor and enhancer unit all in a 2U rackmount design. Find out why more and more studio owners can't live without one.

- FEATURES-**
- Fully balanced operation Mic/Line inputs with 48V phantom power and High pass filter switch
 - Mono photo-optical compressor
 - Front and rear XLR inputs on for easy patching
 - Compression In/Out and VU/compression meter switches
 - Twin balanced XLR outputs with one DI XLR output for stage use
 - EQ section with fixed high and low shelving EQ with approx 18dB lift and cut at 8kHz and 100Hz respectively, sweepable (600Hz to 3.5kHz) mid-band EQ with approx 16dB lift and cut. The "C" (bandwidth) value of the mid frequencies increase with the frequency
 - Enhancer with Drive, Q, enhance/De-ess control, In/Out switch and enhance indicator
 - Internal power supply 115/230V AC

t.c. electronic M3000 Studio Reverb Processor

Setting the new industry standard with the VSS-3 technology, the M3000 is the best sounding, most versatile and easiest to use professional reverb today and well into the future. Combining ultimate control of early reflections with a transparent and harmonically magnificent reverb tail the art of reverb is brought to a higher level.



- FEATURES-**
- 24-bit A/D conversion, AES/EBU and S/PDIF digital I/O.
 - Advanced expander and dynamic EQ
 - Intuitive user interface with instant preset recall
 - 5 band parametric EQ

MICROPHONES

AKG C2000B Condenser Mic

Includes Free H-100 Shockmount



The C 2000 B is an all-purpose cardioid condenser microphone perfectly suited for both recording and live sound situations. The newly developed small-diaphragm transducer capsule is made using a unique manufacturing process that ensures high sensitivity, low self noise, and excellent bass response.

- FEATURES-**
- Cardioid polar pattern
 - Switchable bass rolloff filter (6 dB/octave @ 500 Hz) and -10dB pad
 - Built-in pop screen reduces unwanted noise
 - Rugged construction, elegantly styled die-cast metal housing, and silver-gray finish
 - 30 Hz to 20 kHz frequency response

SHURE

KSM44/SL Multipattern Condenser Mic



The KSM44/SL is a multiple pattern dual large diaphragm condenser microphone built without compromise using premium electronic components and gold-plated internal and external connectors. The KSM44/SL is a premium vocal mic and is equally adept for close miking a wide range of acoustic instruments, amplifiers and for ambient room miking.

- FEATURES-**
- Dual 1-inch, gold-layered, Mylar diaphragms
 - Class A, discrete, transformerless preamplifier
 - Cardioid, omni and bidirectional polar patterns
 - Subsonic filter eliminates rumble from mechanical vibration below 17 Hz
 - Integrated 3-stage pop grille and shock mount
 - 15 dB pad and 3-position switchable low-frequency filter virtually eliminates unwanted background noise and controls proximity effect
 - Includes ShureLock elastic-suspension shock mount and swivel mount, protective pouch and locking aluminum carrying case
 - 20 Hz - 20 kHz frequency response

STUDIO MONITORS

PS-5 Bi-Amplified Project Studio Monitors



The PS-5s are small format, full-range, non-fatiguing project studio monitors that give you the same precise, accurate sound as the highly acclaimed 20/20 series studio monitors. The use of custom driver components, complimentary crossover and bi-amplified power design provides a wide dynamic range with excellent transient response and low intermodulation distortion.

- FEATURES-**
- 5-1/4-inch magnetically shielded mineral-filled polypropylene cone with 1-inch diameter high-temperature voice coil and damped rubber surround LF Driver
 - Magnetically shielded 25mm diameter ferrofluid-cooled natural silk dome neodymium HF Driver
 - 70 watt continuous LF and 30 watt continuous HF amplification per side
 - XLR-balanced and 1/4-inch (balanced or unbalanced) inputs
 - 52Hz-19kHz frequency response ±3dB
 - 2.6kHz, active second order crossover
 - Built-in RF interference, output current limiting, over temperature, turn-on transient, subsonic filter, internal fuse protection
 - Combination Power On/Clip LED indicator
 - 5/8" vinyl-laminate MDF cabinet



Hafler

M-5 Passive 2-Way Studio Monitors



The Hafler M5s are lightweight, portable studio monitors with all the qualities of the TRM6 in a more compact, non-amplified package. They are an ideal monitoring solution for broadcast and project studio environments.

- FEATURES-**
- 70 - 21k Hz frequency response ±3dB
 - 20 - 200 watts power handling
 - 5.25" polypropylene/rolled nitrile rubber surround 1" silk dome/waveguide tweeter
 - 5-way gold plated binding post inputs
 - Shielded woofer magnet
 - User selectable front panel 3dB tweeter level control
 - 4th order Linkwitz-Riley crossover at 3.2kHz, Zobel's, tweeter overload protection
 - Dimensions 12.25" x 6.75" x 7" D
 - Weight 12 lbs. net

VERGENCE M-00 Powered Mini Monitor System



The M-00s are an integrated, self-powered, 2-way acoustic suspension mini monitoring system designed for near/mid-field monitoring. They're portable enough to take anywhere, have balanced and unbalanced inputs with lots of output power (75 watts/ch) and a tough cast metal enclosure.

- FEATURES-**
- 4.5" treated paper woofer, 1" soft fabric dome tweeter with full magnetic shielding
 - Built-in 75 Watt per channel (continuous) amplification
 - 98 - 20k Hz frequency response ±2dB @ 1M
 - XLR, TRS & RCA input connectors
 - Cast aluminum/zinc alloy body & Glass-filled ABS baffle.
 - 10, 44dB input sensitivity & near/mid-field proximity switching
 - Power On, Auto-On, Off
 - Sensitivity, Power & Standby Display
 - Anti-clip circuitry
 - 9" x 5.7" w x 7.3" d / 14 lbs.



EM MARKETPLACE

DOC'S PROPLUG

FOUR GREAT PRODUCTS!



1 MULTIPURPOSE PROTECTIVE EARPLUG

Loud Music and Sound Attenuation without Muffled Occlusion for Musicians, Stage Technicians, Nite Club Staff, Audiences, Light Industry and Airline Attendants.

ONLY \$8 PR. (In Flip-top Box)

2

HANDS-FREE HEADSET FOR CELLPHONES

Doc's Protune with 4 Sizes of Earmolds in Flexipak for Storage. Includes earphone receiver, one microphone, 4 pairs of earmolds and 1 pair Protune adapters in Flexipak for storage.

ONLY \$35



DOC'S PROTUNE - ONLY \$25

Improves Sound and Comfortably Secures Bud-Style Earphones in the Ear! Decreases Occlusion Effect, Enhances Bass, Light & Comfortable. Includes 4 Pairs in Flexipak for Storage.

VISIT US AT NAMM 2001

3

4

DOC'S EARSAYER

Our Newest Product! New vertical placement of hex-cylinder in ear for comfort and effect.

5 PAIRS - \$450 (Washable)



TOLL FREE:
1-800-521-2982

International Aquatic Trades, Inc. • 719 Swift St., Suite 56
Santa Cruz, CA 95060 USA • 1-831/425-5920 • Fax: 1-831-425-0178
email: info@proplugs.com • www.proplugs.com

*Zvex * Fulltone * Mooger * ECHO * MOTU * RODE * TC * Akai * More!

Line6 * EH * FAT

sales@musictoyz.com

You Need Toyz!

Guitars & Recording Gear
Forums-Chat-News-Mp3
Musictoyz.com #1 Online!

musictoyz.com

888-400-7436

Best Price... Best Service... Period.

One-Stop Audio Manufacturing

- CD Replication
- Vinyl Records
- Cassette Duplication
- Audio Mastering Studio
- New, *Fast*, ON-DEMAND PRINTING!
Booklets, tray cards, J-cards, posters

ALL MADE IN OUR PLANT!

Experience the ultimate in project control - know exactly how your job is progressing with our On-Line Job Tracking!

www.europadisk.com

Work directly with our factory and save - the U.S. MOST COMPLETE FACILITY! Major Credit Cards Accepted.

Call for Free Catalog or Quote **(800) 455-8555**
(718) 407-7300

EUROPADISK, LLC

CD & CD-ROM manufacturing
cassette duplication
graphic design & insert printing
digital mastering & editing
30 years experience
guaranteed national distribution
through all major Internet & retail chains: Amazon.com, CD Now, Tower Records, etc.
Call or visit our website for details!

crystal clear sound
1-800-880-0073
visit us at www.crystalclearsound.com/cdtape

DD-301 *Digily Dynamics* *Compartor* *Tuberator* *Vintagerator* *Funk Logic*

SOURISH N BIGGEN FROSTY POP UGH 100/1001

High Quality Vintage-Style Rack Fillers for Filling Your Empty Rack Spaces with Vintage-Style Rack Fillers
Many Designs and Variations ~ Silky-Smooth Knobs ~ Info at www.funklogic.com or Call 760.305.6213

www.drummachine.com 415-503-0477



PHOTOS
SOUNDS
MANUALS
FORUM
STORE
ARTICLES
POLLS

Mobius
MIDI/CV Sequencer



Knobby
MIDI Controller



Selector
Analog
Moduler
Synth



Effexon
Analog Effect Processor



Microcon II
MIDI Analog Synth



MachineDrum
MIDI
Drum
Machine



SidStation
C64 MIDI Synth

SunSyn Analog
Complex Wave
Synth



Omega8
Analog 8 Voice Synth



"TWEAKERS!!!"

Your new choice for all things analogue at the lowest prices. Call us today!

Visit our new showroom.

DRUM MACHINE MUSEUM
1067 Market St. Ste. 1004
San Francisco, CA 94103

TECHNOSAURUS+ELEKTRON+SOFTWARE TECHNOLOGY+DOEPPER+JOMOX+STUDIO ELECTRONICS+SHERMAN
BIG BRIAR+ENCORE ELECTRONICS+TOUCHED BY SOUND+MAM+FUTURE RETRO+MASTERBITS+SYNHOUSE

Subscribe to Electronic Musician
www.emusician.com

www.earthdisc.com

500 Free CDs !!!
WHEN YOU PURCHASE A CD PACKAGE AT EARTH DISC, YOU'LL BE ENTERED IN OUR FLAVOR OF THE MONTH CONTEST! ONE WINNER WILL BE PICKED EACH MONTH. GO TO WWW.EARTHDISC.COM FOR CONTEST RULES. RESTRICTIONS MAY APPLY.

\$986.00
500 CDs include:
full color 2 page 4 panel insert
3 color on CD jewel case
3 color CD printing
jewel case, direct wrap

\$1299.00
500 CDs we do it all!
full color 2 page 4 panel insert
3 color CD printing
jewel case, direct wrap

\$1385.00
1000 CDs include:
full color 2 page 4 panel insert
3 color CD printing
jewel case, direct wrap

Free Barcode. Fast, reliable and friendly service

1.800.876.5950

MEDIA services 1.888.891.9091

GUARANTEED NATIONAL DISTRIBUTION!
and FREE barcode

<p>\$1395 2 Panel 4/k book, 4/0 tray</p> <p>includes: national distribution, printed inserts, FREE barcode, topspines, all films, jewel cases, assembly & wrap 2 color CD's, 1000 units</p>	<p>\$1595 4 Panel 4/k book, 4/0 tray</p> <p>includes: national distribution, printed inserts, FREE barcode, topspines, all films, jewel cases, assembly & wrap 2 color CD's, 1000 units</p>
--	--

Call with questions or inquires on other services

Call about our broker discounts

Media Services
4030 S. 108th Street
Omaha, NE 68137
1.888.891.9091
www.mediaomaha.com
mediaomaha@aol.com

BULK CD'S STARTING AT 62¢

LEARN the ART of RECORDING

You can get the practical, real-world skills needed to successfully start your career as a recording engineer or producer. For 29 years, thousands of students from the US and around the world have started their career at the Recording Workshop.

- The Original since 1971
- Hands-On Training
- On-Campus Housing
- 8 Studio Facility / Latest Gear
- 3 - 6 Students per Class
- Job / Internship Assistance
- Very Affordable Tuition
- 2 Month, 300+ hrs Training
- Financial Assistance

Contact us for a Free Brochure
800-848-9900
www.recordingworkshop.com

RECORDING WORKSHOP
email: info@recordingworkshop.com

Outside the USA: 740-663-2544 fax machine: 740-663-2427
455-L Massieville Road, Chillicothe, OH 45601
Ohio State Board of Proprietary Schools Registration #80-07-0696T

IF YOU DECIDE
TO START CARING ABOUT YOUR AUDIO...

MERCENARY
BOSTON



AUDIO

TEL: 508-543-0069 M-F 10a-6p

mercenary.com open 24 hrs.

subscribe to

REMIX

www.emusician.com

LonelyRecords.com

Free national distribution with Indie Music Online
Web pages for only \$5 per month.

1 cd to 1,000,000

100 CDs...retail package with full color inserts, jewel case&wrap... **\$259**

1000 CDs...retail package with full color inserts, jewel case&wrap... **\$1270**

Mastering as low as \$35
Blank CD-R as low as 59c
Graphic design as low as \$20
Call For A Free Catalog

1 800-409-8513

6460 E. Leisure Lane-Flagstaff, AZ 86004

CDS as low as **54¢**
1000 cds only **\$620**
100 cds fast!!! **\$185**

National Price
Call for details

Make a MIDI Light Show!

Light Master™

Four channel MIDI controlled dimming system
Great for Multimedia and Automation
Delivers High Quality Performance
Use MIDI Notes, Controllers and More!
International Model Available

NEW! Version 3 enhanced features more functionality.

www.tpz.com
topaz@tpz.com
(303) 252-4844

TOPAZ
ENTERTAINMENT

Where light and sound mix

Only **\$269**
Order now!

Dealer inquiries welcome

Call Toll Free!

ReliableMusic.com

Online Catalog!

PRO AUDIO • RECORDING • KEYBOARDS • SOFTWARE



QUESTIONS?

Get straight answers from Pros with hands-on product knowledge. Working musicians, engineers and songwriters who understand your equipment needs.

1-888-888-4515



WWW. **CLICK HERE FOR GREAT DEALS!**

1-800-214-9222

ShreveAudio.com



1200 Marshall st
Shreveport, La. 71101

**Marshall mics
ON SALE!**

Price **TOO LOW** to
advertise!

Includes **FREE**
shockmount! - a
\$49 value!



**While Supplies
Last!**

TASCAM



24 Track 24 Bit
HD Recorder

**Surprisingly
Affordable!**

digidesign 001



Call For Best Price!

AKAI DPS 12 v2 AND
Limited Time Only!
Complete Workstation



Now with
FREE 2 GB HD

Instock and Ready to Rock!

GLYPH

Glyph Cd-R Burner

ONLY \$999 Bundle



1. 12 tracks - not 8!
2. Mix on your computer!
3. Burn your own CD's!
4. 250 Virtual Tracks!
5. Cables Included
6. Everything you need!
7. Software Included
8. Easy to use!
9. Unbelievable price!

Glyph Cd-R Burner
6X4X24, Toast & Adaptec
Software Included

Call us-Before it's too late!

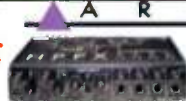


MX 602 A

**AS LOW AS
\$89!**

CALL!

We carry the entire
line of Benchmark
gear!



MOTU

HPFX
Headphone
Monitor
System +
Effects

Mark II's in stock
ready to rock!



audio-technica

atm41a's **ON SALE!**

Mark of the Unicorn 2408

ALESIS

ADATS starting at
\$1,399-CALL!

SHURE

We have the
LOWEST Prices
on Shure mics!



Custom & hard
to find cables
IN STOCK!

Proceeds a 2% cash discount and are subject to change without notice. Returns are subject to a 15% handling fee. Not responsible for typographical errors.

**Write Music, Play Music,
Learn Music... ANYWHERE!**

Play **MIDI compatible!** **Shown actual size**

Software for all Palm™ & Handspring™ handhelds

www.minimusic.com

NotePad software shown. Pattern sequencer and educational software also available. For more info call 415-831-1514 or write to: miniMusic, POB 210761, San Francisco, CA 94121

**INTRODUCE
YOUR MUSIC
TO THE WORLD**

Release your CD on Internet e-stores with
any order of 500 or more Deluxe CD Packages

Also announcing the "Super Duper."
Our short run quick turn CD duplication service.
Custom personalized inserts in color or B & W
with on-disc printing & jewel boxes.

Ready in just 1 to 2 days!

Ask about our Deluxe Starter 500 CD package:
Color inserts, Mastering, Bar Code,
Web Site, Graphic Design & Posters.

JUST \$1395 COMPLETE!

(800) 423-5227 (818) 505-9581
www.cdlabz.com

CD LABS™
The sounds of music

Unbeatable Prices! Unsurpassed Service!



on all your **Recording Supplies**

and related services

- Blank audio, video and data media
- Studio mastering supplies
- Labels, albums, sleeves, jewel cases
- Cassette duplication
- CD replication
- Graphic design services

877-778-7987

www.universaltapes.com

(732) 367-TAPE • Fax: (732) 886-TAPE
61 Whispering Pines Lane • Lakewood, NJ • 08701



CD LABELING & PACKAGING FROM YOUR DESKTOP!

DESIGN • PRINT
APPLY • PACKAGE

40 FREE HIGH-GLOSS CD LABELS
with the purchase of a NEATO2000 Kit
Use Coupon EM08 when you CALL or CLICK

ONLY \$29.95



KIT INCLUDES

- NEATO 2000 CD Label Applicator
- Assortment of Labels and Jewel Case Inserts
- MediaFACE-II
 - Design Software (PC), Templates (Mac)
 - Digital Background Art for Labels and Inserts
 - Label and Insert Templates for Popular Graphics Programs (PC/Mac)

800-984-9800

Also available...
Other Media Labeling Products Including -
Video Sleeves/Wraps/Labels,
Business Card CD Labels/Sleeves

NEATO
Media Labeling Products

250 Dodge Ave. • East Haven, CT 06512 • 800-984-9800 • 203-466-5170 • Fax 203-466-5178

www.neato.com

Rackmount Your Mac

Rackmount solutions for PowerMac 8500 through the latest G4's

New: rackmount your iMac in only 1RU:
The Marathon iRack



Rackmount your classy Apple case:
The Marathon G-Rack
Supports your case front and back, top and bottom. \$225

www.marathoncomputer.com

mwd@marathoncomputer.com 800-832-6326

Quick Turnaround Affordable Prices

Shimad

CD-R Media

CD-R Printers

CD Duplicators

CD-R Business Card

CD-Rom Replication

CD-R Duplication

CD-R Silkscreen

CD-R Printing



www.shimad.com

Fax: 650-493-1333

Ph. 650-493-1234

1-888-474-4623

Toll Free

ex•tend•it

USB-241

Switch Video & USB between your
ProTools Mac and GigaStudio PC



800-545-6900 www.gefen.com gsinfo@gefen.com



CLASSIFIEDS

ELECTRONIC MUSICIAN CLASSIFIED ADS are the easiest and most economical means of reaching a buyer for your product or service. The classified pages of **EM** supply our readers with a valuable shopping marketplace. We suggest you buy wisely; mail-order consumers have rights, and sellers must comply with the Federal Trade Commission as well as various state laws. **EM** shall not be liable for the contents of advertisements. For complete information on prices and deadlines, call (800) 544-5530.

EMPLOYMENT OFFERED



The job you want.

Sales • Service • Technical Support • Contracting/Install Recording Studio • Creative Marketing • And More

Call and ask for Kristine Haas or the Career Center today!



Sweetwater
music technology direct

800-222-4700

www.sweetwater.com
careers@sweetwater.com
5335 Bass Road, Fort Wayne, IN 46808
(219) 432-8176 • FAX (219) 432-1758

ACOUSTIC PRODUCTS



Hear Today. Gone Tomorrow.™



INTRODUCING THE MAX-Wall from Auralex.

It's the super-affordable, world-class, stand-mounted recording & mixing environment that can go ANYWHERE!

Our patent-pending, interlocking MAX-Wall system can grow & grow as your needs change and allows you to do critical stereo or 5.1 work in ANY room at ANY time.

The MAX-Wall offers linear acoustic control in an attractive, portable package that's the perfect solution when wall-mounted & ceiling-mounted acoustical treatments are out of the

question. Amazingly, its absorption only varies .04 over the entire test frequency spectrum! That's accuracy & performance you can't get anywhere else.

Add Sunburst-360s™ or some of our new stand-mounted 4' tall LENRD™ Bass Traps and you've got an incredible amount of AFFORDABLE and TOTALLY MOBILE acoustical control. Visit www.auralex.com for more info & put a MAX-Wall to work...today!

ON DISPLAY & IN-STOCK AT MAJOR DEALERS EVERYWHERE! • 800-95-WEDGE

Fun, exciting and fast-paced office environment, working with national music industry magazines—

Mix, Electronic Musician, Sound & Video Contractor, REMIX, Internet Audio, Onstage, and more!—in a convenient Northern California Bay Area location. Intertec Publishing is a global leader in B2B publishing & a rapidly growing division of media giant PRIMEDIA. As we continue to expand our circulation and specialties, we offer exceptional career opportunities in marketing, promotions, circulation, art, and editorial. Great benefits. Join our team of noted professionals; and work for the leading magazines in their respective markets.

Send resume via e-mail to: Resume.Job_Openings@intertec.com
Via U.S. mail to: HR Front Desk, POB 8845, Emeryville, CA 94608
or fax (510) 653-0312. EOE.

EQUIPMENT FOR SALE



WhisperRoom INC.
SOUND ISOLATION ENCLOSURES

"Celebrating 10 years of reducing sound to a Whisper!"

Practice / Vocal Booths, Etc.
Immediate Shipping!
3 Year Warranty
Various Sizes & Configurations
www.whisperroom.com
PH: 423-585-5827 FX: 423-585-5831

VocalBooth.com

Starting at \$1595
Affordable Portable
4x4, 6x6 & larger
(541)330-6045

Recording, Keyboards, Guitars, Pro Audio & MORE!!
for a FREE catalog call—
1-888-348-5003
or shop online anytime—
www.rocknrhythm.com

Rock'n Rhythm

Audio Hard Disks

Premium Storage Systems for:

MOTU 2408 - Digital Performer - Cubase VST
Digidesign ProTools / Digi001 - Logic Audio

SCSI - IDE - Rackmount - Removable

Complete Turnkey Mac & PC
Computer Audio Systems

Plugins - Software - Hardware - Backup

877-244-3472 bigdisc.com

THE CASE SPECIALISTS

FREE CATALOGUE



(800) 346-4638

(831) 563-8828, NY

(831) 563-1300, Fax

Custom or stock sizes.

Our prices can't be beat!

www.Discount-Distributors.com

TIME IS MONEY

Are you tired of wasting your valuable time talking with people who don't have a clue? Or better yet, clicking on an icon and getting the wrong gear or no gear at all. Stop wasting time and start making music.

One phone call to **Caruso Music** will connect you with a 71-year-old-family owned and operated business. Yes, there still is a place where the owners answer the phone and the person you talk to has been working at the store longer than 3 weeks. Most of the staff have been here for over 10 years.

We carry every major brand known to man and have a worldwide reputation for integrity, knowledge and the best damn prices around. Take the time to save some time. Make the call now and start enjoying the difference experience can make. Call (800) 264-6614 or email sales@carusomusic.com today. Fax (860)442-0463.

Caruso Music, 94 State St. New London, CT 06320. www.carusomusic.com

SILENT
98 Norwocik St., Northampton, MA 01062
INPO (413) 584-7944 • FAX (413) 584-2377
ORDER (800) 583-7174
info@silentsource.com • www.silentsource.com

Acousticore Fabric Panels • Sound Barrier Isolation Hangers • A.S.C. Tube Traps
Silence Wallcovering • WhisperWedge
Melaflax • S.D.G. Systems • Technifoam
R.P.G. Diffusers • Sonex • Sound Quilt

AcousticsFirst™
Toll Free: 888-765-2900

Full product line for sound control and noise elimination.
Web: <http://www.acousticsfirst.com>

CLASSIFIEDS

EQUIPMENT FOR SALE

INSTRUMENTS

Shopping for Equipment?
Before you pay too much...check www.digibid.com

digibid.comTM
Auction Network
an IndustryClick solution

The Internet Auction Marketplace
Best Deals On the Planet!

No Limits No Boundaries

visit **CFOX** Guitars
www.cfoxguitars.com

INTERNET SERVICES

www.musicalinstrumentsearch.com

Find info on instruments, manufacturers, dealers, music colleges, DJ & pro sound gear w/stories & new products. PLUS 1000s of listings for musical instruments. DJ & pro sound equip. BONUS listing of 8600 US music dealers.

Every major brand of everything. Millions of dollars of musical gear in stock.

ALTO MUSIC. Guitars, recording, keyboards, amplifiers, drums, pro sound, new & used. One of the largest

selections in the country.

We ship everywhere!

(914) 692-6922 • 680 Rt. 211 East Middletown, NY 10940

www.altomusic.com

Ask for Uncle Freddy—He loves ya!

www.AudioGearOnline.com

One Stop Shopping & Friendly People

Order Online or Toll Free 1-877-469-3294

SINGERS! REMOVE VOCALS
Unlimited Backgrounds™
From Standard Tapes, Records, & CDs with the Thompson Vocal Eliminator™
Visit our Internet Site at <http://www.itsound.com>
LT Sound, Dept EM-1
7988 LT Parkway
Lithonia, GA 30058
24 Hour Demo/Info Line (770) 482-2405 • Ext 16
Best Vocal Eliminator™, Key Changer, Voice Enhancer!

Digital Recording
Factory Direct Discount Dealer
Alesis • Yamaha • Sony • Tascam • Roland • Akai • Event Electronics • Digital Audio • Fostex • Korg • Pro Audio Plus (800) 336-0199
Division of Rolls Music Center
www.rollsmusic.com

The gear you need.
We've got it.

Recording • Guitars
Amplifiers • Pro Audio
Keyboards • & More

We have everything you need for studio and stage!



Sweetwater
music technology direct

800-222-4700

www.sweetwater.com
sales@sweetwater.com
5335 Bass Road, Fort Wayne, IN 46808
(219) 432-8176 • FAX (219) 432-1758

To let over 71,000 musicians know about your product & service, place an affordable classified ad in EM!
(800) 544-5530

We Buy & Sell
Used Late Model Gear
Keyboards, Drum Machines,
Electronic Percussion,
Digital Recording Workstations.
Use our Nationwide Locator Service;
Free of charge. (865) 405-8820
www.DittyCity.com

VACUUM-TUBE synthesizers!
only from **METASONIX**
tubesynth.com
801 Woodside Rd
PMB 14-247, Redwood City CA 94061
USA rep: VTV, www.vacuumtube.com,
(707) 263-5881, fax (707) 263-7648

OMNIRAX
STUDIO FURNITURE

CODA D8
with Sidecars
OMNIRAX 900.332.3383 416.332.3392
FAX 416.332.2807
www.omnirax.com

ARGOSY

NEW 90 series
console enclosure
for SONY DMX-R100
Specialized Studio Furnishings
www.argosyconsole.com
catalog: 800.315.0878

LEARN the ART of RECORDING
REC W RECORDING WORKSHOP
• The Original since 1971 • Affordable Tuition
• 12 Weeks / Lifetime Use • On Campus Housing
• 2 Month Training • Job Placement Assist
• 16 Sessions per Class • Financial Assistance
800-848-9900 or 740-663-2544
www.recordingworkshop.com
email: info@recordingworkshop.com
455-L. Massville Rd, Chikoke, OH 43101

See our ad in Marketplace pg. 211

LET DICK HYMAN TEACH YOU
the techniques of
the master jazz pianists in
Dick Hyman's Century of Jazz
Piano CD-ROM.

"An addictive learning device."—
db. 103 tunes in interactive MIDI
Studio; styles of 62 artists;
200,000+ words of text;
21 rare videos; 90 min. of lesson
videos; stunning graphics.
Info: (800) 557-7894;
webdemo: jssmusic.com

BE A RECORDING ENGINEER
TRAIN AT HOME
Easy Home-Study practical training in
Multi-track Recording. Join our successful
working graduates or build your own studio.
Career guidance... Diploma... Licensed.
FREE INFORMATION:
Audio Institute of America
814 48th Ave. Suite F, San Francisco, CA 94121
Or visit us at www.audioinstitute.com

CLASSIFIEDS

Recording Engineer Broadcasting

Multimedia/Digital/Video/Film
Radio/TV/Sports/News/DJ/Talk Show

No experience required!

On-the-job-training

in local major Recording Studios & Radio/TV Stations
Part-time, nights, weekends - Call recorded info line for FREE video

1-800/295-4433 www.radioconnection.com



digimixdoctor.com

Send us your music on any format.

We will doctor your sounds and return to you
a professional mix.

Experienced Engineers with Major Label Credits.

phone 615.385.3820 or check us out @ digimixdoctor.com

****A great deal!****

Real-time cassettes—Nakamichi
decks, chrome tapes—the best!
Album length \$1.50/100. On-cass.
printing/inserts avail. Grenadier,
10 Parkwood Ave., Rochester, NY
14620.

(716) 442-6209 evs.

RECORDS, TAPES & CDS

RECORDING SERVICES & REPAIRS



CD-ROM REPLICATION

NEW On-Demand Color Printing

Best Price...Best Service...Period.

(800) 455-8555 www.europadisk.com

EUROPADISK LTD.

CD - R DUPLICATION

50+	2.49	300+	1.89
100+	1.99	500+	1.79
200+	1.94	1000+	1.69

Price includes: CD - R, Duplication, Thermal
Imprinting, Jewel Box,
Inserting of cover,
& Shrinkwrapped



(936) 756-6861

See our ad in Marketplace pg. 210

Best Pick

DIGITAL FORCE

Feel the Power of Excellence

toll free: 1-877-DISC-USA

www.digitalforce.com

(212) 252-9300 in NYC

TOTAL CD,
CD-ROM, DVD, &
CASSETTE PRODUCTION

149 MADISON AVENUE NY, NY 10016

EARTH DISC

YOUR NEXT
REPLICATION OF
500 CDS COULD BE
FREE

800-876-5950
www.earthdisc.com

See our ad in Marketplace pg. 211

HARVEST

Music Productions

1,000 CDs @ \$1395.00
Expert mastering & Graphics
Short runs & Custom orders
Great prices on cardboard sleeves & packaging.

1-888-626-2250
All major credit cards accepted

www.gvrjr.com
Good Vibrations-RJR Digital
800-828-6537

"Simply the best prices and
service for CD Replication,
Duplication and Design!"
SINCE 1976

CD-R COPIES

Full Color On Disc Imprint
10 to 200 copies in 2 days!
LOWEST PRICES!

1-800-927-3472

LonelyRecords.com

•100 CDs...retail package with full color inserts, jewel cases...\$299
•1000 CDs...retail package with full color inserts, jewel cases...\$1270

1 800-409-8513

See our ad in Marketplace pg. 212

The Digital Sunspot Inc

Affordable Professional
CD MASTERING

1-888-985-3331
www.digitalsunspot.com

THE GATE MEDIA GROUP

CD, CD-ROM, DVD and Vinyl replication
Audio & DVD Mastering & Authoring
Graphic Design proofing on the Internet
Retail-Ready & Specialty Packaging
Posters, Stickers & Promotional Material
Promotion and Internet development

CHECK OUT OUR SPECIAL'S ON-LINE AT:
WWW.GATEMUSIC.COM
OR CALL US TOLL FREE AT: 800-655-1625

GRAPHIC DESIGN SERVICES & FILM INCLUDED IN ALL RETAIL PACKAGES!

1000 CD'S RETAIL-READY \$1495.00	500 CD'S RETAIL-READY \$1295.00	COMBO GATE \$2295.00
500 130 GRAM VINYL \$1495.00	1000 FULL COLOR POSTERS \$425.00 w/cd package	2000 POST CARDS \$225.00

WE WILL BEAT ANY PRICE!

AMERICA'S BEST CD PACKAGE HANDS DOWN

1000 CDs Only \$1399 Includes:

- full color inserts • design • film • reference CD • glass master
- 2 color on disk • shrink wrapped • priority proofs
- manufactured at a Major Manufacturing plant for the

Very Best Quality • Fast Turnaround • Free Overruns!!

100 cassettes With Inserts \$199

ELECTRIC Disc

100 CDs Only \$379
includes full color inserts,
full color on disc, design, shrink wrapped
Retail Ready!

800-367-1084
www.electrictdisc.com

CLASSIFIEDS

RECORDS, TAPES & CDS

CD, CASSETTE, CDR and CD-ROM Complete Packages!



1-800-444-DDAI
www.4dai.com

- CD/CASS MASTERING
- CD/CASS REPLICATION
- CEDAR RESTORATION
- GRAPHIC DESIGN
- FILMS AND PRINTING
- CD-ROM AUTHORITY

CD PACKAGES

300 - \$85.00
500 - \$625.00
1000 - \$999.00

CALL RIGHT NOW FOR A BOTTOM LINE QUOTATION!

BASE Multimedia Inc.

USA **800-579-7010** CANADA

Fleetwood MultiMedia

1000 CDs from \$799
500 Tapes Packaged \$715
Includes Everything
Fast Turnaround

800-353-1830 (781) 599-2400

500 CDs and Jewel Boxes for \$650.00

800-859-8401

Great prices on complete packages w/ printing, graphic design & mastering
www.go-QCA.com

HEY LOOK! WE'RE ON THE WEB!

Toll Free:
800-538-2336



All Formats!
Best Prices!

www.tapes.com

DIgi-ROM® Full Services For Electronic Media

CD-ROM • DVD • AUDIO CD

MASTERING REPLICATION PRINTING

- CD-ROM One-Offs: Same Day - On Site
- 2000 CD-R Duplication: Next Day - On Site
- Video Compression: BetaSP & VHS to AVI, Quicktime, MPEG1 & MPEG2: On-Site
- Audio & DVD Mastering Suites: On-Site
- DVD-R Disc Duplication: On Site
- Audio Archival Restoration with CEDAR • Personalized Service: *Outta Sight!*

800-815-3444

In New York City: 212-730-2111 On the web: www.digirom.com

WE'LL BEAT ANY PRICE ON CDS

- CD'S
- QUICK
- BEST QUALITY
- DIGITAL CASSETTES
- PERSONALIZED SERVICE
- TOTAL COMPLETE PACKAGES
- LOWEST PRICES, CALL US LAST!

(727) 446-8273

TOTAL TAPE SERVICES, INC.
119 Missouri Ave / Clearwater FL 33755

XTC DISC.

- 24 Hr Order Status
- Exact Pricing
- \$.62 Raw Disc

1-866-XTC-DISC
www.xtcdisc.com

Lowest Price Period!

- CD, CD Rom, DVD, cassette & video manufacturing
- Graphic design & print production
- Customized packaging solutions
- Low run capability



1-888-256-DISC ballmedia.com

MEDIAWORKS®
INTERNATIONAL, INC.
1029 Elm Hill Pike
Nashville, TN 37210

compact discs cd rom dvd
cd +/cd enhanced video
digital bin cassette duplication

short-run discs and cd one-offs now available

call toll free for quotes, special packages and large quantities

- competitive pricing
- friendly service
- professional results

1-800-211-4689
www.mediaworksacd.com

SPECIAL PACKAGE PRICE
1000 CDs for \$1545
both include graphics, film, print, duplication, packaging

THE WAREHOUSE
Studio Sales & Services

CD, CDR, Cassette duplication
RtoR - DATS - ADATS - Hi8 - VHS - CDs
Blank Cassettes, any length
Warehouse prices

800-483-TAPE • fax: 904-398-9683
Visa - Mastercard - Discover
www.warehouse-studio.com
2071-20th Emerson St., Jacksonville, FL 32207 • 904-399-0424

www.yourmusiconcd.com

10 cds - \$50, 25 cds - \$75, 50 cds - \$125

100 CDRS - \$169.00

OR **100 FULL COLOR CDR** Includes cdr, on cd print, & jewel case

PACKAGE ONLY \$349.00

500 CDR SINGLES ONLY \$599.00

Atlanta 678-442-0933
Toll Free 877-442-0933

1000 CDs \$900

500 CDs \$690

300 CDs \$614

price includes: mastering, 2 color printing on cd, jewel case & polywrap

DEAL DIRECT! WE ARE THE MANUFACTURER

- CD/DVD Replication
- Graphic Creation & Design
- Digital Film Output
- CDR Duplication
- CDR/CD silk screen printing
- Custom Cut™ CD
- Booklet & Insert printing
- Packaging/Fulfillment

Media Dimensions

877-221-8440 toll free
info@media-dimensions.com • www.media-dimensions.com

SPECTRUM'S **FastTrack** Full Color CDs...
From your CD or DAT master

100 CD's Full Color only \$595 complete

Mix Special GET 25 FREE CDS w/EVERY 100 ORDERED

INCLUDES:

- Full color one side front insert card
- Matching color tray card with color photo
- Fast Track layout and design
- One color black print on disc
- Jewel case and wrap

Spectrum Fast Track Digital Chrome Cassettes
1.800.334.9328 100 \$445 GET 25 FREE w/EVERY 100 ORDERED

CLASSIFIEDS

In the Studio?



FREE Guide
Saves You Time and Money!
Contact Us Today:
1-800-468-9353
www.discmakers.com
Info@discmakers.com

DISC MAKERS

www.eclickpro.com

Click Productions' blank MITSUI media prices are so low, we can't print our current prices.

But, we can print our toll free phone number!

1-888-738-2573
Dial fast, save gobbs!
Media * Supplies * Duplicators

www.eclickpro.com

IT'S YOUR BABY AND WE DELIVER.

FULL COLOR CD PACKAGES
From supplied CDR & print ready film

500 \$923.00
1000 \$1,193.00
2000 \$2,050.00

Other Services Include:
• Mastering
• Design
• Film

800-DIGIDOC
www.digidocpro.com

ONE YEAR FREE MEMBERSHIP WITH N.A.G. WORLDWIDE INTERNET MARKETING AND DISTRIBUTION COMPANY

VISION
www.visionmusicgroup.com/digidoc

1000 CD's in full color cardboard sleeves! \$1049⁰⁰

5000 3.5"x5.5" POSTCARDS in full color \$250⁰⁰

1000 CDs \$0.62^{ea.}

compact discs
cassettes
posters
postcards
cd-r media

888-DISC-MFG

TGS www.tgsdisc.com
Get an online quote or a free catalog!

THE BEST IN CD, CDR, & CASSETTE DUPLICATION!
LONG RUNS, SHORT RUNS - FAST TURNAROUND!
GRAPHICS, PRINTING, PACKAGING.

ALSHIRE
CUSTOM SERVICE

CALL 1-800-423-2936
www.alshire.com • sales@alshire.com

FULL COLOR RETAIL-READY CD PACKAGES
Includes: Insert & Traycard, Direct-on-Disc Printing, Jewelcase, & Shrinkwrap

100 FULL COLOR 12x18 POSTERS \$179

• Let us "ENHANCE" your CD by adding VIDEO!
• CD/CD-ROM Replication as low as .52¢
• Audio/Video Tape Duplication
• Mastering/Digital Editing
• Design, Printing, & Packaging

www.eastcopro.com

1-800-365-8273

EASTCO PRO MEDIA
CORPORATION
Serving the world since 1985

100 per unit \$369

Call for FREE COLOR CATALOG!

Compact Disc Replication
Audio Cassette Duplication



Want more info than that? Check us out online at www.nmsonline.com or call us at
(800) 249-1110

National Multimedia Services
a division of Ken-Dei Productions, Inc.

Recording Supplies

UNIVERSAL

Unbeatable Prices!

877-778-7987
www.universaltapes.com

See our ad in Marketplace pg. 214

1000 CDs \$1225
Includes 2 Colors On Disc (from customer supplied film), 2 Panel 4/1 Booklets, 4/0 Tray Cards & Jewel Case w/Overwrap

ODFP

CD Replication • Vinyl Cassettes • DVD Replication
Graphic Design • Printing

Toll Free: 866•855•6337

Subscribe To
onstage
www.emusician.com

Don't go crazy, Go direct!



MMSdirect
Music Manufacturing Services

\$899.00
500 CDs with
4 page CD folder
& tray card (4+1)

or \$1399.00 for 1000 CDs
(from master and film supplied)
add \$199.00 - add for file check
and film output from your art supplied.

Call **1.800.MMS.4CDS**
for your free catalog
www.mmsdirect.com

Compact Disc ▶ CD-ROM ▶ DVD ▶ Vinyl ▶ Cassette
Design ▶ Mastering ▶ All Related Packaging

CLASSIFIEDS

RECORDS, TAPES & CDS



The Sonic Package In 10 Days

- 1000 CD's in Jewel Case & Wrap
- 3 Color on Disc printing
- 1000 Color/Black 2PP Inserts
- 1000 Color/0 Tray Cards
- Glass Mastering Included

\$1,099

CD SONIC

Toll Free 1-888-CD SONIC (237-6642)
www.cdsonic.com



TRAN TRACKS MIDI SEQUENCES

Over 5000 high-quality Standard MIDI files
All Styles of music

Toll-free order line 800 473-0797

24-hour Immediate Email Delivery
from our website!

www.trantracks.com

We're there right now.

Tech and info 973 383-6691

"Find out why professional musicians love us."

1000 CDs for \$1,399
4-panel full color insert & tray card,
film output, 3 color on-disc silk screen,
jewel case, polywrapped, and barcoded.

bulk cds - 67 cents each
(includes label films)
get 1000 full color posters for \$299

2-panel full color insert & tray card,
film output, 2 color on-disc silk screen,
jewel case, polywrapped, and barcoded.

500 CDs for \$999

SERAPH MEDIA Toll free 877-255-0509 e-mail: CDs@seraphmedia.com

Got Fat Sound?

Analogmastering.com
(800) 884-2576

Makes it look as
Good as it sounds.

Wholesale Pricing
on
Pre-perfed
cd-r supplies
for laser and
ink jet printers

www.shadesofgreymusic.com
847-304-5228

www.beatboy.com

New low prices
legendary drummers/
percussionists
online downloads
excellent EM reviews
world class drum grooves
with character and nuance
Beatboy Drum Sequences

KID NEPRO

Quality Samples & Patches For
100s of Synths & Samplers

Since 1984

The Best
Sounds
@
The Best
Prices

ROLAND
YAMAHA
AKAI
KORG
EMU
CASIO
KAWAI
ENSONIQ
KURZWEIL
OBERHEIM
SEQUENTIAL

VIEW OUR CATALOG & ORDER ONLINE AT:
WWW.KIDNEPRO.COM
KID NEPRO PRODUCTIONS
TEL: (246) 420-4504
E-MAIL: KIDNEPRO@AOL.COM

You Supply The Music, We'll Do The Rest!

- Graphic Design
- Digital Mastering
- Complete Packaging
- Free Web Page
- Online Distribution
- Free Bar Code

Call: 1-888-387-8273

visit our website: www.klarity.com
Buy or Sell Online at www.KlarityMusic.com

BAND-IN-A-BOX IMPROVEMENT PRODUCTS***

You can put a Better-Band-In-Your-Box.
Power-User Styles, Fake Disks & More! GenMIDI SEQUENCE & CD-ROMs, too! FREE info! Norton Music & Fun, Box 13149, Ft. Pierce, FL 34979. Voice mail/fax (561) 467-2420. www.nortonmusic.com

www.BizzyBeatz.com

High Quality Samples
Lowest Prices!
Credit Cards Welcome
Check our site!

UNIVERSAL MEDIA

CD/DVD Manufacturing Services
100 CDs (Media, Print & Case) \$185
1,000 Bulk CDs for \$610
Ready in 7-10 Business Days
Ph: (408) 946-0948 or (408) 973-3514
www.universalmedia.com

SOFTWARE, SEQUENCES & SOUNDS

THE BEST MIDI SEQUENCES MONEY CAN BUY

Classic Rock, R&B, Blues, and Jazz standards programmed by Pete Solley. LET US SEND YOU OUR FREE DEMO DISK AND SEE WHY WE SIMPLY ARE THE BEST.
Call (888) 211-0634 or fax (954) 570-9788 for song list. CHECK OUT OUR NEW STYLE DISKS All credit cards accepted. Visit our Web site at www.petersolleyproductions.com
Peter Solley Productions

SOUND EFFECTS

FREE Sounds,
Concept: FX sample CD-ROMs,
Unique CDs, used gear.
F7 Sound and Vision
(813) 991-4117
www.f7sound.com

Here's where the PRO's Come For Their Tracks...!

Over 6,000 backing tracks with that "off-the-record" feel.
Pop - Oidles - Jazz
Country - Standards
Swing - Latin - Blues
Big Bands - Dance

Midi Hits
1010 S. Riverside Dr
New Smyrna Beach, FL 32168
(800) 593-1228
www.midi-hits.com
Int'l (904) 426-1263 Fax (904) 426-8928

CLASSIFIEDS

Translator™!

Say goodbye to proprietary formats! Read most sample format CD-ROM or SCSI Drives from Emu®, Roland®, Kurzweil®, Akai®, or Ensoniq® samplers!

Translate most popular disk or file formats (pro samplers, .WAV, .AIF, more) with great results. Translate ALL parameters, keymaps, samples - absolutely EVERYTHING!

- Write native-format SCSI Drives
- Transfer via SCSI (SMDI; other)
- Edit most parameters onscreen

\$149.95!

Chicken Systems®

www.chickensys.com/translator
800.877.6377 320.235.9798

DANGEROUS SOUNDS, accessories, and manuals for all **Ensoniq** keyboards, from the ASR to the Mirage. Free catalog! Syntaur Productions, (800) 334-1288; (830) 627-1530 www.syntaur.com

PATCHMAN MUSIC

ATTENTION
Unity DS-1 and
SampleCell II Owners!
PATCHMAN MUSIC
now offers
NATIVE soundbanks
programmed specifically
for these samplers!
Visit our website
for details.
www.patchmanmusic.com.
(216) 221-8282.

WORLD CLASS MIDI FILES the WORKS

Music Productions
For Free Catalog & Demo Disk
call (800) 531-5868 or visit
our Web site: www.worksmidi.com
Popular styles, General MIDI
compatible, e-mail delivery avail.
Box 22681, Milwaukie, OR 97269



www.soundburst.com
european sound design

COMPUTER MUSIC PRODUCTS
Beginners Welcome! Sound card
MIDI cables, MIDI & Audio
software, hardware & accessories.
Online catalog & MIDI Tutorials:
www.musicmall.com/cmp

New Acid CDs and
Free Downloads from the
creators of the popular
Universal Groove Elements and
Futurist Drum 'n' Bass libraries.
Massive meg and loop counts.
Free sampler CD and testimonials.
www.Endlessflow.com

Music Tools Blowout! Great Deals & Service

Software, Sound Cards, Interfaces, Cables,
Controllers, Samples, Sequences, Books, Videos
Shop for over 12,000 products at
www.midi-classics.com
Call 800-787-6434 NOW!
MIDI Classics, Dept.E, Box 311, Weatogue, CT 06089



To Subscribe to
Electronic Musician
call
(800) 245-2737

EM CLASSIFIEDS WORK FOR YOU

Text rate: \$10.75 per line (approximately 27-32 character spaces per line); seven-line minimum. Add \$0.50 per bold word. Each space and punctuation mark counts as a character. \$75.25 MINIMUM CHARGE for each ad placed.

Enhancements: \$50 per inch 4 color, \$10 black border, \$25 for one color screened background, \$25 for a reverse, \$25 for Post Office box service. Charges are based on a per-insertion basis.

Display rate: \$138 per inch (1" minimum/half-page maximum). Logos or display advertising must be camera-ready, sized to EM column widths and specs. Frequency discount rates available, call for information.

Special Saver rate: \$35 for up to four lines, including first word in bold. Only available to individuals not engaged in commercial enterprises. No additional copy allowable for this rate.

Closing: First of the month, two months preceding the cover date (for example, the April issue closing is February 1). Ads received after closing will be held for the next month unless otherwise stated. Cancellations will not be accepted after the closing date. Copy changes and cancellations must be submitted in writing.

Other requirements: Full street address (PO boxes aren't sufficient) and phone number must accompany all requests, whether included in ad or not. All words to be bold should be underlined. Copy must be typed or printed legibly in standard upper/lower case. Publishers are not responsible for errors due to poor copy. Arrangement of characters may be altered in typesetting process due to space. The publishers are not liable for the contents of advertisements. Payment must be included with copy: check, Visa, MasterCard, Discover, or American Express accepted. Sorry, no billing or credit available.

The small print: Only ads dealing with music, computers, or electronics will be accepted. No stated or implied discounts allowed on new-equipment sales. Publishers reserve the right to refuse or discontinue any ad deemed inappropriate.

Art instructions: Logos or display advertising must be sized to EM column widths and specs. For best printing results please provide exact size film (emulsion side down) preferably with a velox proof, or camera-ready linotronic paper output, or a stat. We accept laser prints or photo copies but do not assume responsibility for their reproduction quality. Line screen should be between 90 & 133 LPI.

Send coupon & payment to: **Electronic Musician Classifieds:** 6400 Hollis St., #12, Emeryville, CA 94608
tel. (800) 544-5530 or (510) 653-3307; fax (510) 653-8171; e-mail: emclass@intertec.com.

Categories available (PLEASE CHECK ONE)

- ACOUSTIC PRODUCTS
- BUSINESS OPPORTUNITIES
- COMPUTER SYSTEMS
- EMPLOYMENT OFFERED
- EQUIPMENT FOR SALE
- EQUIPMENT WANTED
- INSTRUCTION
- INSTRUMENTS
- INTERNET SERVICES
- MAINTENANCE SERVICES
- PARTS & ACCESSORIES
- PUBLICATION & BOOKS
- RECORDING SERVICES & REPAIRS
- RECORDS, TAPES & CDS
- SOFTWARE, SEQUENCES & SOUNDS
- SOUND EFFECTS
- MISCELLANEOUS

ATTACH YOUR CLASSIFIED AD COPY ON A SEPARATE SHEET, TYPED DOUBLE-SPACED OR PRINTED CLEARLY IN CAPITAL AND LOWER-CASE LETTERS.

Company Name _____

Name _____

Address (no PO boxes) _____

City _____

State _____

Zip _____

Phone () _____

Signature _____

Display (\$138 per inch) \$ _____
Lines @ \$10.75 \$ _____
(seven-line minimum)
Bold @ \$0.50 additional \$ _____
Border @ \$10 \$ _____
Reverse @ \$25 \$ _____
Color Screen @ \$25 \$ _____
4-Color @ \$50 per inch \$ _____
Special Saver rate = \$ 35

TOTAL PAYMENT INCLUDED \$ _____

Visa MC AmEx Discover

Check/Money Order # _____

Card # _____ Exp. _____

**Your music technology
information source:**

www.iaekm.org

**product
information**

**music
technology
articles**

**free product
contest**

**links to
music
web sites**

**educational
resources**

Sponsored by: IAEKM

International Association of Electronic Keyboard Manufacturers

and affiliated members:

Music Software Manufacturers and Music Publishers

more essential gear for MAS

Expand your MOTU audio workstation with these essential tools.

MOTU AUDIO SYSTEM



PLUG-INS EXCLUSIVELY FOR MAS

Nautilus is the latest ground-breaking audio effects processing technology from Netherlands-based Audio Ease, the leader in plug-ins designed exclusively for the MOTU platform.

Like its namesake from the timeless Jules Verne novel, Nautilus takes your audio below the surface, into exotic sonic seascapes you

never could have imagined. From Deep Phase Nine, a syncable 24-notch true phaser, to RiverRun, the world's first real-time granular synthesis plug-in, to PeriScope, an Altivec-turbocharged 32-band phase coherent equalizer, Nautilus launches your creativity anew. Mitch Gallagher, Editor of EQ magazine, says: "Nautilus is anything but another set of me-too plug-ins. Recommended for those looking for inspiring, unique audio processors."



Nautilus Bundle™



WAVES 3.0/MAS — NOW SHIPPING

New processors, new features, new interfaces, higher resolution. More capabilities in every box, such as 88/96kHz support for many native processors. And no more dongle. It's all new, from the Gold to the Renaissance Collection, featuring

including the Renaissance EQ and Compressor. And the Native Gold Bundle contains everything, including the award-winning C4 Multiband Parametric Processor.



our brand new Renaissance Reverbator,

Waves pushes the edge, again, so you can sound your best. Call sweetwater today and find out why so many have said you simply gotta' get Waves.

Gold Native™



AFFORDABLE HANDS-ON AUTOMATED MIXING

With its new, custom software written specially for Digital Performer, MotorMix becomes a seamless, tactile extension of your MOTU software recording environment. Put your hands on eight 100mm motorized faders and rotary encoders to

tweak your mixes in record time. Gain instant easy access to all MIDI and audio tracks with control banks. You'll never even think about mixing with a mouse again. Imagine having tactile control over most of Digital Performer's features with MotorMix's intuitive layout and easy operation. MotorMix gives you all the advantages of a professional mixing board, at an incredibly affordable price. Bring motorized mixing to your MOTU desktop today. For more info: cmlabs.net.



MotorMix™



PRISTINE MIC PRE-AMPLIFICATION

Why is the PreSonus DigiMax perfect for your MOTU rig? Because it's the purest path to digital.

award winning 24-bit mic pre-amplification with our unique simultaneous RMS/peak detection limiting and EQ enhancement, giving you maximum gain before clipping while maintaining the musical

transparency of a compressor. The result? Fast, natural and versatile limiting on every channel. And DigiMax connects all 8 channels directly to your MOTU system in pristine, 24-bit digital glory.

PreSonus DigiMax combines 8 channels of

DigiMax™



Sweetwater
music technology direct

800-222-4700
www.sweetwater.com



MOTU AUDIO SYSTEM

THE LATEST NATIVE REVERB TECHNOLOGY

On the heels of their ground-breaking RealVerb 5.1™ surround reverb plug-in, Kind of Loud Technologies presents RealVerb™, a new stereo reverb plug-in for MAS. RealVerb uses complex spatial and spectral reverberation technology to accurately model an acoustic space. The bottom line? Great sounding reverb with the ability to

customize a virtual room and pan within the stereo spectrum. RealVerb even lets you blend room shape, material, and size according to the demands of your mix. And RealVerb was designed from the ground up for automation: adjust controls in real-time without distortion, pops, clicks or zipper noise. You can even morph between presets – in real-time. Don't rely on your old standby – let RealVerb bring new quality and space to your recordings.



RealVerb™



AUTOMATED WORKSURFACE

The Human User Interface (HUI) from Mackie is unmatched for advanced, yet affordable control surface technology for audio workstations. HUI is so tightly integrated with Digital Performer, it's like placing your hands on Digital Performer itself. Sculpt your mix with HUI's silky smooth motorized faders. Tweak effects parameters with firm, yet

responsive V-Pot rotary encoders. You can even call up plug-ins on-screen directly from HUI. Keypad and transport controls let you locate Digital Performer's main counter instantly, just like the familiar keypad on your computer keyboard. HUI is a complete hardware workstation console, with the user-friendly ergonomics that Mackie mixers are known for. Boost your productivity through direct hands-on control.

MACKIE.

HUI™



MICROPHONE EMULATION

Now the microphones you own can sound like the microphones you wish you owned. Mic Modeler allows any reasonably full-range microphone to sound like virtually any other mic. Using patented Spectral Shaping Tool™ (SST) technology, Antares has created precise digital models of a wide variety of microphones, from historical classics to modern exotics, as well as a selection of industry-standard

workhorses. Just select which microphone you are actually using and then select what mic you want it to sound like. You can further fine-tune the sound with modeled tube saturation, proximity, windscreen effect, and more. Mic Modeler is an easy, cost-effective way to extend your existing mic collection, or to obtain that classic, vintage sound — without the excessive price tag.

Microphone Modeler™

The Antares Microphone Modeler has won the prestigious Mike Magazine Technical Excellence and Creativity (TEC) Award for Outstanding Technical Achievement in Digital Processing.

ANTARES
REALLY COOL STUFF FOR MAKING MUSIC



EVERPACK BUNDLE

From tube warmth to stereo enhancement to the new Z-room reverb, there's no other way to get the smooth sound produced by these classic MAS plug-ins.

For more info:
www.duy.com



All trademarks are the property of their respective owners. References to specific microphones are intended solely to identify the microphones analyzed in the development of the digital models and do not in any way imply any association with or endorsement by a specific microphone's manufacturer.

Sweetwater
music technology direct

www.sweetwater.com

Voice: (219) 432-8176 • Fax: (219) 432-1758 • Email: sales@sweetwater.com
5335 Bass Road • Fort Wayne, IN 46808



©2005 Sweetwater, Inc.

more essential gear for MAS

MOTU AUDIO SYSTEM

Bomb Factory



BIG KNOBS. BIG SOUND.

NEW BOMB FACTORY PLUG-INS FOR MAS

Pultec EQP-1A



The Pultec equalizer provides smooth, sweet EQ and an extremely high quality tube audio signal path. Use Bomb Factory's meticulously-crafted replica anywhere you'd use the original: on individual tracks, critical vocals, or even across a stereo mix for mastering applications.

Fairchild™ 660



Re-introducing the undisputed champion in price, weight and performance: the \$35,000, 100-pound, Fairchild compressor. Bomb Factory's no-compromise replica captures every nuance of the studio classic. But unlike the original, it's affordable enough that actual musicians can afford to own one. Heck, run a dozen at once — even in stereo.

JOEMEER™ Compressor



Add a little magic to your mixes with the JOEMEER SC2 Photo Optical Compressor. In use by top producers the world over, JOEMEER compression is the secret weapon that gives your sound the character and excitement it deserves!

JOEMEER™ Meequalizer



Joe Meek prototyped musical circuits in tiny tobacco tins. One of them was a treble and bass circuit used in conjunction with a sweepable mid control. The Meequalizer recreates the exact circuit used by Joe Meek, offering simple controls and incredibly warm, musical results. Use it on mono or stereo tracks!

Tel-Ray™ Variable Delay



In the early 1960's, a small company experimented with electronics and technology. When they came up with something great, they would 'Tell Ray' (the boss). One invention involved a tuna can, a motor, and a few tablespoons of cancer-causing oil. The creation: an "Electronic Memory Unit." A technology, they were sure, that would be of great interest to companies like IBM and NASA. Though it never made it to the moon, the killer technology that gives Tel-Ray its unique sound was licensed by most every major guitar amp manufacturer. Ad-N-Echo™ to any voice or instrument using the Tel-Ray™ Variable Delay. It provides lush delay, amazing echo, and warms up your tracks and mixes.



moogerfooger™ Analog Delay

The moogerfooger Analog Delay is simply the coolest (and warmest!) delay in the digital domain. Due to component shortages, fewer than 1,000 "real world" versions exist! Bomb Factory snagged serial #1 and, as always, meticulously modeled every detail of Dr. Moog's classic analog design. Wait until you hear it!



moogerfooger™ 12-Stage Phaser

The moogerfooger 12-Stage Phaser combines a 6 or 12 stage phaser with a wide-range variable LFO. Start with subtle tremolo or radical modulation effects, then crank the distortion and resonant filters for unbelievable new tones—all featuring classic MOOG® sound.

Sweetwater is an authorized Apple VAR and MOTU specialist. From your Mac, to your MOTU audio system, to free lifetime tech support, we make it easy for you.

800-222-4700

It Ain't Whatcha Do, It's the Way You Do It

I know of three kinds of work: interesting, fun and interesting, and bad. (There's no work that's fun but uninteresting; if it's uninteresting, it's no fun.) My ideal is work that is fun and interesting, but I, like everyone else, must often settle for work that is merely interesting in today's workaday world. Whilst ruminating upon this rickety conceptual structure, I began to wonder what differentiates the fun from the interesting.

Why is music my favorite work? What makes it both fun and interesting, while I find dialog editing to be merely interesting? What is it about mixing that is more fun for me than mastering? What does sound design have that makes it more fun (and often more interesting) than sound-effects editing? How is it that programming a computer is fascinating and even fulfilling but not as much fun as making sound with the computer?

This line of questioning incited further cogitation on the matter, until I finally arrived at a conclusion that seems to hold water: what makes work interesting (for me, anyway) is *process*, while what makes it fun is *expression*.

For example, the craft of dialog editing is certainly a fine one, and I find fascinating little tricks to attack challenging problems. Therefore, I find the process quite interesting. However, although there is certainly expression in the dialog, it is the actor's creative expression, not mine. As a consequence, I rarely find dialog editing to be "fun."

In contrast to that, consider music mixing. I've experienced that both as an engineer and as an artist. In both cases, the process of weaving all of the song elements into a finished recording is fascinating, filled with choices, strategies, and techniques. It also is an expressive act in that all of those choices and strategies are brought to bear to create a certain mood or world for the listener. That's what I call "fun." In keeping with



my original assertion, mixing is even more fun when I'm the artist, since the mood being created is of my devising.

Fun-fillment requires us to thread through some tough situations. Say you are responsible for creating the music or sound for an interactive product. If you are simply a contractor providing content, life is relatively simple. But if you also are charged with managing that aspect of sound for the product, project wrangling (tracking, scheduling, troubleshooting) ends up being as much as 70 percent of the job and creating the content is only 30 percent.

This imbalance in favor of process offsets the fun-to-interest ratio; that is, it's fascinating work, but it's more of a "job" than it is one of life's abiding joys. I know of many people who would play music or even do sound design for free, just for the sheer fun of it, but I've never known anyone who chose to do project management just for kicks. (I recognize that there are worthwhile reasons besides fun to do project management for free.)

The personal studio, interestingly, poses a particular challenge to maintaining a healthy fun-to-interest ratio. Most personal-studio owners have "day jobs" which are usually more interesting than fun (if they are interesting at all), so the personal studio is where we turn to even out the ratio. Sadly, the technology that makes the personal studio possible entails its own level of hassle, which is not fun and frequently is not even interesting. The time left for fun is reduced until, at worst, it becomes vanishingly small.

The best strategy to combat that is the classic personal-studio approach: customize to your work style and make presets and templates to reduce setup. Customization can be a very interesting task, though not often fun, but, in the end, it allows the scales to be much more balanced. All interest and no fun makes The O a dull musician. And we wouldn't want that. ☹

Looking to Sell Equipment Online?



**Your Internet
Storefront is Ready.
Right Now.**

Imagine one online marketplace where you can sell professional, digital-media production equipment – without investing time and money in the sale. Now imagine that you can leverage this powerful sales tool right now – for free. That's the reality of Digibid.

Solve Inventory Problems

Sell your individual components, overstock items, discontinued products or trade-ins, demo gear and more, with no hassles or phone calls. Simply post them on Digibid and get top dollar. It's that simple.

Visit Digibid Today

Thousands of smart production professionals turn to Digibid every day. There's no better source for relevant, timely competitive intelligence and industry-equipment information. Visit today!

It's FREE to List Items for Sale

You pay a commission only after your item sells. Digibid completely handles the buyer side of the transaction. To date, we've more than 25,000 successful auctions.

How to Get Started

Just register online at digibid.com.

Get a Branded, Online Storefront

If your company is interested in a higher level of promotion and exposure, inquire about our setting up your own, branded digital marketplace, leveraging our state-of-the-art technology. We have more than 21,000 registered users and more than 90,000 unique monthly visitors.



a member of **IndustryClick**
Where Industry Clicks on the Web

E-mail: sales@digibid.com

Phone: 609-371-7833



motu usb midi interfaces
now available for windows

MOTU™

motu.com

WR3