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# project5

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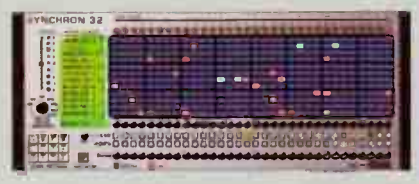

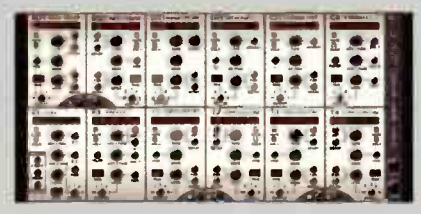

## "Highly Addictive" – *EQ, June 2003*

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**"Project5 is meant for those trying to create the in-sounds of now where the groove is king"**
*– DJ Times, November 2003*

**"Its instruments and effects are phenomenal"**
*– Computer Music, May 2003*

**"There's something about Project5 that just makes music happen"**
*– Sound on Sound, June 2003*

**"There's no need to wait any longer, Project5 has arrived"**
*– Keyboard, June 2003*

Experience the addictive qualities of Project5; available at music retailers world wide. Visit www.project5.com for more information and to download the demo.

* Supports ReWire™; ACID™-format loops; DirectX & VST™ Effects; DXi & VSTi™ soft synths; and AIF, Akai™, Kurzweil™, LM4™, SF2™, WAV samples

cakewalk

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On the cover: Ozzy photo by Robert Matheu. Digital background manipulation by Doug Gordon

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# simply different...

# simply stated.

## the new tube reviews

"... the AT3060 is an easy-to-use, surprisingly wonderful-sounding microphone. It brings the Audio-Technica sonic legacy to a warm, musical tube design ..."
**Home Recording Magazine** July 2003 **David Darlington**

"One Cool Tube! The specialty of the AT3060 is that it does not require a separate power supply and cable, making it easy to set up and use ..."
**The Female Musician** May 2003 **Theresa Orlando**

"... a delicious sonic character—even when compared to mics that cost four times as much."
**Pro Audio Review** July 2003 **Andrew Roberts**

"The sound was as sweet and warm and clear as I could have hoped."
**Recording,** November 2003 **Bruce Kaphan**

"It definitely gives you that sought-after 'classic warmth' of a tube mic."
**Performing Songwriter** July/August 2003 **Fett**

"The AT3060 typically captures a nice sparkle... the lows seldom get muddy, making this a wonderful mike for jumbos and other large-body acoustics."
**Guitar Player** November 2003 **Michael Molenda**

"There's a nice softness to the top end, and although the mids are forward, they're not peaky; it's a pretty smooth sound overall."
**Tape Op** September/October 2003 **Scott Craggs**

"... round and full, with nice presence and good top-end detail .... [It] held up well under even the loudest assault."
**EQ** April 2003 **Mitch Gallagher**

"I found the mic's all-around usefulness, smooth high-frequency response and warm sound make this one a solid winner."
**Mix** July 2003 **Barry Rudolph**

**AT3060**
phantom-powered tube microphone

30 | series

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# Talk Box

## WAITING

I've been on the edge of my seat for some time now. Why? Because I made a fatal error . . . I was talking with an old friend, a former studio partner of mine. As usual, we were discussing our favorite topic. And when we finished discussing the merits of Guinness bottles versus draft, we moved on to discussing our studios; relating our latest gear purchases, problems we were encountering, and so on.

The conversation turned to our computers, and soon we were reminiscing about the "good ol' days." Or maybe they weren't so good. We recalled spending hours getting audio and MIDI software and hardware to work properly, and the endless frustration with compatibility and conflicts. In those days, for example, it was anathema to have your studio Mac on the nascent web . . . communication extensions caused conflicts with some software. I recall having at least ten extension sets — one for FreeMIDI, one for DAE, one for OMS, one for OMS with DAE, etc., etc. I knew the inside of my Mac's extension folder better than I know myself. And don't get me started on my PC adventures. . . .

I went on to relate how solid my Mac and PC are since I updated to OS X and Windows XP. I have many audio programs installed, and tons of plug-ins and soft synths, yet I haven't had a real problem, and I have virtually no conflicts. My friend agreed, and we both shared that others had told us the same thing. So now I'm scared. Once you say something like that, you can bet that a firestorm of problems is going to descend upon you — it's the universe's way of keeping you in line.

But I guess I'm not too frightened. Operating systems seem to finally be getting to where they need to be. Technologies such as Apple's Core Audio and Core MIDI have brought some (if not total) standardization to things, and eliminated much of the Conflict Fear Factor. I mean, I've been able to do crazy things such as work in Pro Tools HD while listening to iTunes play music out of the G5's optical port — amazing.

Things have come a long way, and we have a lot to celebrate. Of course, there are always problems, but I don't see nearly as many today as I did a few years ago.

Now if I could only get over that nagging feeling of impending disaster. . . . *—Mitch Gallagher*

# The BAND STAND

## How do you go about building a mix?

**Mitch Gallagher, Editor**

I generally don't try to build things up one element at a time, *e.g.*, starting with the kick drum. I prefer to put everything up so I can hear what I've got to work with, then start isolating problem areas, resolving conflicts, etc. This way I hear everything in context as I'm working.

**Craig Anderton, Editor at Large**

With my own music, I already hear a mix in my head before I start recording, so I try to build that mix during the recording process. When mixing for clients, I get the best possible vocal or lead instrument sound first (EQ, effects, etc.), then work on the rhythm section. Once that's set, I fill in the holes.

**John Krogh, Technical Editor**

I typically have an idea of what I want the final mix to sound like before I get to the mix stage. I have an internal "guide" for choosing instruments, parts, processing, etc. that I reference throughout the production. By the time I'm ready to mix, things are pretty much where they need to be. From there it's a matter of making it translate to other systems.


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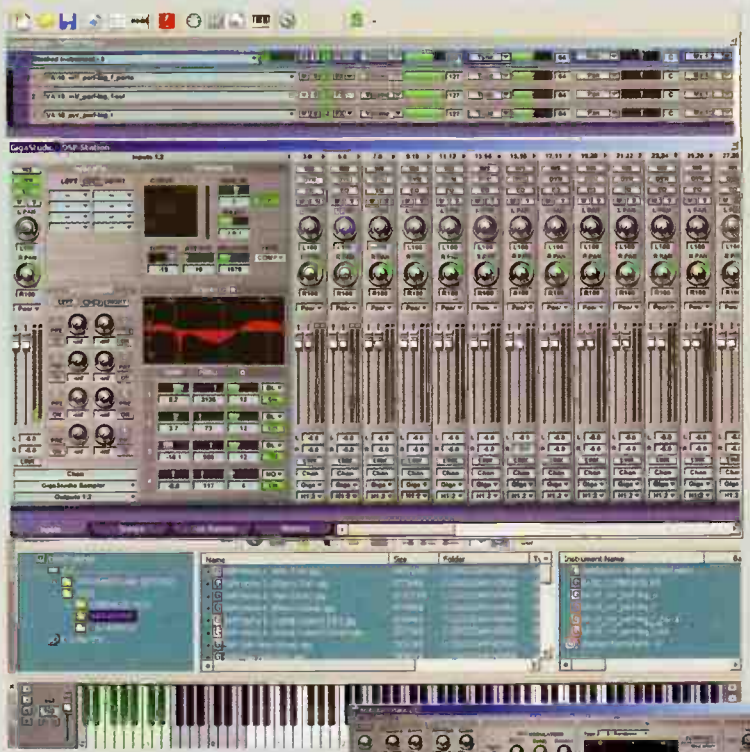
NEW!

# GS3

## GIGASTUDIO3.0

## Now the world's most powerful sampler is even *more* powerful.

- Unlimited polyphony determined only by the power and configuration of the host computer.
- ReWire – MIDI from DAW software like Pro Tools®, Cubase™, Nuendo® and Sonar™ is routed to GS3; GigaStudio 3.0 audio is sent into the DAW application where it shows up with its own mixer section faders
- New DSP Station – GS3's expanded 128-ch. mixer section has 32 channels of group faders and expanded processing including 4-band EQ and compressor on each channel
- Quick Edit – Parameters like tuning, envelopes, filters, attenuation, and sample offset are at your fingertips in real-time
- VST plug-in hosting
- Intelligent MIDI – New controller rules including Expanded Legato, Alternation, Round Robin, Random sample playback or "roll-your-own" rules
- 24-Bit/96kHz sample library capability with 192K hardware support
- Enhanced Capture To Wave (multi channel) – Now simultaneously record 64 audio streams
- Unlimited Instrument Stacking on a single midi channel. Control each of the instruments' parameters and even route each to its own audio channel
- 256 Dimensions for cross switches and crossfades
- GSIF 2.0 for real time processing of incoming audio with NFX plug ins. For example, process vocals with GigaPulse™ Pro convolution without any noticeable latency.



- Real Time Surround Convolution. Sample developers can encode their instruments with acoustic space/reverb convolution and mic modeling using GigaPulse™ Pro included with GigaStudio Orchestra. You can play encoded .gig files back in any level of GigaStudio via GigaPulse™ SP. Up to seven channels of convolution is supported for surround sound applications

New Quick Edit window gives you instant access to commonly-accessed real time parameters. Perfect for moving a part down an octave, changing filter settings on a bass sound, shortening release time of a synth sound, or other common tweaks.

GigaStudio 3.0 is the long-awaited new version of the world's biggest, best sampling instrument.

Available in three versions – ***Orchestra***, ***Ensemble*** and ***Solo*** – GS3 offers up to unlimited polyphony, ReWire, 24-bit/96kHz sample support, real-time convolution modeling, a new GUI and literally hundreds of other improvements.

Plus it retains the features that have made GigaStudio the professionals' choice for sampling, such as disk streaming, the lowest latency of any sampler and the world's best sound libraries (with samples anywhere from *60 to 8000 times as large* as conventional hardware samplers!).

For the full story of why new GigaStudio 3.0 creates such breathtakingly realistic instrumentation — and why it's the overwhelming choice of serious composers worldwide — visit our web site.

Or e-mail us at **tascamlit@teac.com** for a free six-page brochure. ◄

GIGASTUDIO3.0

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World Radio History

# Punch—In

Tips & News You Can Use

BY CRAIG ANDERTON

## TASCAM GigaStudio 3 Will Support Rewire

Propellerhead Software's ReWire technology, already an industry standard communication protocol supported by all major music production applications, is now part of all three versions of TASCAM's GigaStudio 3 (Orchestra, Ensemble, and Solo). As a result, GigaStudio's outputs can now appear as individual channels within programs such as Pro Tools, Logic, Cubase, Sonar, Nuendo, Live, and Melodyne. As Oscar-winning composer Hans Zimmer comments, "ReWire is a great technology for patching music applications together in the virtual studio, and I look forward to the potential offered by ReWire support in GigaStudio 3 for a more seamless integration of my studio environment."

For software manufacturers, implementing ReWire 2 into applications is free of charge, though Propellerhead Software does require information about ReWire implementation in other software programs. Developer information can be found at www.propellerheads.se/developer/.

## Broadjam to Create Online Voting System for ACM

Broadjam, Inc. (a leading provider of Internet and desktop tools for musicians, record labels, and publishers), will create and implement an online voting mechanism for the Academy of Country Music (ACM). The organization announced it would move the voting process onto the Internet in time for its annual awards show, scheduled to air in May 2004 on CBS.

Using Broadjam's technology, ACM members will cast votes online via a secure third-party Internet site. Members will be able to stream instantly and listen to the music they're voting on during the final rounds of polling in several categories, including Song of the Year and Video of the Year.

Since the first show in 1965, the Academy of Country Music Awards have honored the industry's most notable talent and is consistently one of the highest rated specials in prime time. (The 2003 broadcast was viewed in 178 countries and also seen by 800,000 men and women in the Armed Forces).

www.broadjam.com

## Garageband.com Becomes the Internet's Largest Source of Free Music

Buoyed by its first month of positive cash flow from operations, the recent shutdown of MP3.com, and closing a $200,000 round of financing from private investors, Garageband.com is now positioned as the largest source of legal free music on the Internet. The Garageband.com community involves 200,000 independent musicians in virtually every genre.

Also, multi-platinum producer and Rock & Roll Hall of Fame member Jerry Harrison (of Talking Heads), who co-founded Garageband.com in 1999, has assumed the role of Chairman of the Board of Directors. Sir George Martin, the industry legend who discovered and produced The Beatles, took the opportunity to reaffirm his position as Chairman of Garageband's Advisory Board.

"The secret to Garageband.com's success," said CEO Ali Partovi, "is our unique method for ranking songs. Every song on our chart is rated by randomly assigned listeners, and a collaborative filtering system identifies the best music. Our system can't be easily skewed or cheated . . . which makes Garageband.com attractive to musicians, radio programmers, industry reps, and consumers." www.garageband.com



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## print

If you're a musician or engineer using Vegas, check out Douglas Spotted Eagle's *Vegas 4 Editing Workshop* published by CMP Books (www.cmpbooks.com). Spot really knows his video, but best of all, he knows audio too so he can explain everything in terms we musical mortals can understand (*e.g.*, that the Broadcast Color plug-in is like a limiter for video colors). The part where he digs deep into compositing is worth the price alone, but he covers everything from capturing the initial material to insuring good streams over the web. An accompanying CD includes companion video project files and test media. $49.95, soft cover, 400 pages, ISBN: 1-57820-219-1.

tip

### MAC LAPTOP VS. DESKTOP

How much of a latency performance hit will you have with OS X when you take your desktop files to the road with a laptop? Well, none. Because Apple's Core Audio HAL (Hardware Abstraction Layer) provides ultra-low latency communication between applications and I/O devices, and is built directly into the operating system itself, you experience the same minimal latency "out of the box" on any Apple system — from a Power Mac G5 in the studio to a PowerBook on the road. www.apple.com

tip

### USB "HARD DRIVES" NEED LOVE TOO

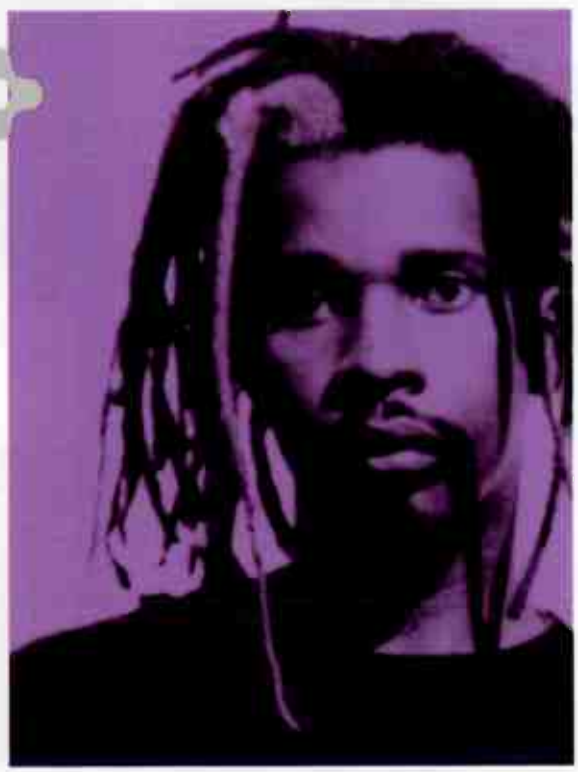
They may be tiny and convenient, but those solid-state USB virtual drives are, after all, mass storage devices. And like other storage devices, they can benefit from periodic defragmentation, particularly if you're used to loading them up to the max with data. If transfer times start slowing down, or worse yet, your system hangs while copying to the drive, it's time to defrag. Windows users can go Programs > Accessories > System Tools > Disk Defragmenter; Mac fans can use any third-party defragmenter; DiskWarrior and Norton are two common defrag programs.

## Quotes from the archives

### Living Colour's Vernon Reid on Getting His Guitar Sound

From the May 1999 issue of *EQ*: "I have this setup that's always varied throughout the years. I've been using some digital technology and tube power amps for warmth. I work with old VHT power amps, wired with Monster cables. I use the Roland VG-8 guitar system, as well as Dual Rectifier Mesa Boogie amps. Talking to people about the VG-8, some people are strongly opinionated about it. I've always been into programming my own sounds, and I've gotten some sounds that I really like out of it. The idea of using computer modules on guitar is really just the next step.

"The best mark of a technology working is it becoming unselfconscious, invisible. But, still, I have my own personal barriers and limits concerning technology. A Martin is a Martin is a Martin, hands down. While all this technology is here to utilize, you really just have to use your good sense of feel."





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## Aviom Supports Yamaha Digital Products

Aviom has developed the AVIOM16/o-Y1 output card for Yamaha digital mixers. This card allows audio in the form of the company's proprietary A-Net protocol to be distributed via Cat-5 cable directly from the console to Aviom A-16 Personal Mixers.

The AVIOM16/o-Y1 output card is a mini-YGDAI format card, and fits into an expansion slot in the rear of Yamaha's digital consoles, including the 01V96, DM1000, 02R96, DM2000 and PM1D. A front-of-house engineer can use it to assign and send 16 mono channels, or up to eight stereo channels, of audio in the digital domain to each performer on stage (or in the studio) — directly from the Yamaha console's control surface. The AVIOM16/o-Y1 output card is compatible with Aviom's new A-16II Personal Mixers, as well as with the company's A-16D and A-16D Pro A-Net Distribution products.
www.aviom.com

Forum Exchange

# MusicPlayer.com Forum Watch

*So just what do you need to run a dual-monitor setup, particularly under Windows XP? This illuminating thread illustrates the multiple ways to solve this problem.*

**Original question posed by Shniggens:** I want to configure a dual-monitor setup for Cubase SX on my XP machine. I have a decent AGP video card, and an older PCI video card. Can I just add the PCI card, or do I need to buy a new card made for dual monitors?

**Miroslav:** I've been dealing with dual monitors for about seven years and currently have three 21" dual-monitor setups. They all required a dual-monitor card in order to output one large desktop across both monitors.

**Coaster:** I did a Google search on this and found that one card has to have a chipset that supports two monitors. This does not mean that card has two monitor outputs; only that the chipset on the card supports sharing the info with the other card.

**Anderton:** I highly recommend a dual-monitor AGP card; I'm using a Matrox G450 for my Windows machine. You can do two monitors with AGP+PCI, but there is a performance hit involved. Macs are even easier...they've been doing the dual monitor thing forever.

**Dylan PDX:** Using a dual-head AGP card will give you much better performance. PCI video cards are notorious for eating up PCI bandwidth and causing conflicts with PCI soundcards. Any dual-head Nvidia or ATI card should do the trick.

**Shniggens:** Is it possible to use dual-monitor setup with monitors of different size? I was hoping to do this with a 19" and 15" flat screen.

**Miroslav:** Yes.

**Coaster:** For Macs, I selected low-performance accelerator cards on purpose so they would not gobble up PCI bandwidth. They are accelerated enough so that Pro Tools' meters are smooth, but that's all. The video cards live on a separate PCI bus than the SCSI card and audio interface, although placing any combo together on one PCI bus makes no hit unless you put a Digi 001 card on the same bus as a FireWire card and run a session off of it — that does not work. Placing the FireWire card on the other bus works fine. The SCSI card doesn't seem to care what bus it's on as long as it is the busmaster.

**TB-AV:** I launch separate apps on each desktop all the time, as well as different apps on different monitors and stretch an app across the two — all at the same time. Plus I have dual inputs on the monitors so I run multiple PCs off the same monitor. Again, all this goes on at the same time. By the way, if you want a nice quiet adapter, the new Matrox 3 head is fan-less.

**Philip O'Keefe:** I had a Matrox G550, which worked well with a couple of motherboards, but was incompatable with my current board's (Asus A7N8X) nForce2 chipset. So I went with an ATI Radeon 9000 Pro 128MB dual-head card, which has worked great for me. Once your card is installed, just right-click on the desktop and select "Properties," then the "Settings" tab to configure the desktop. I don't bother too much with the config apps that come with most video cards.

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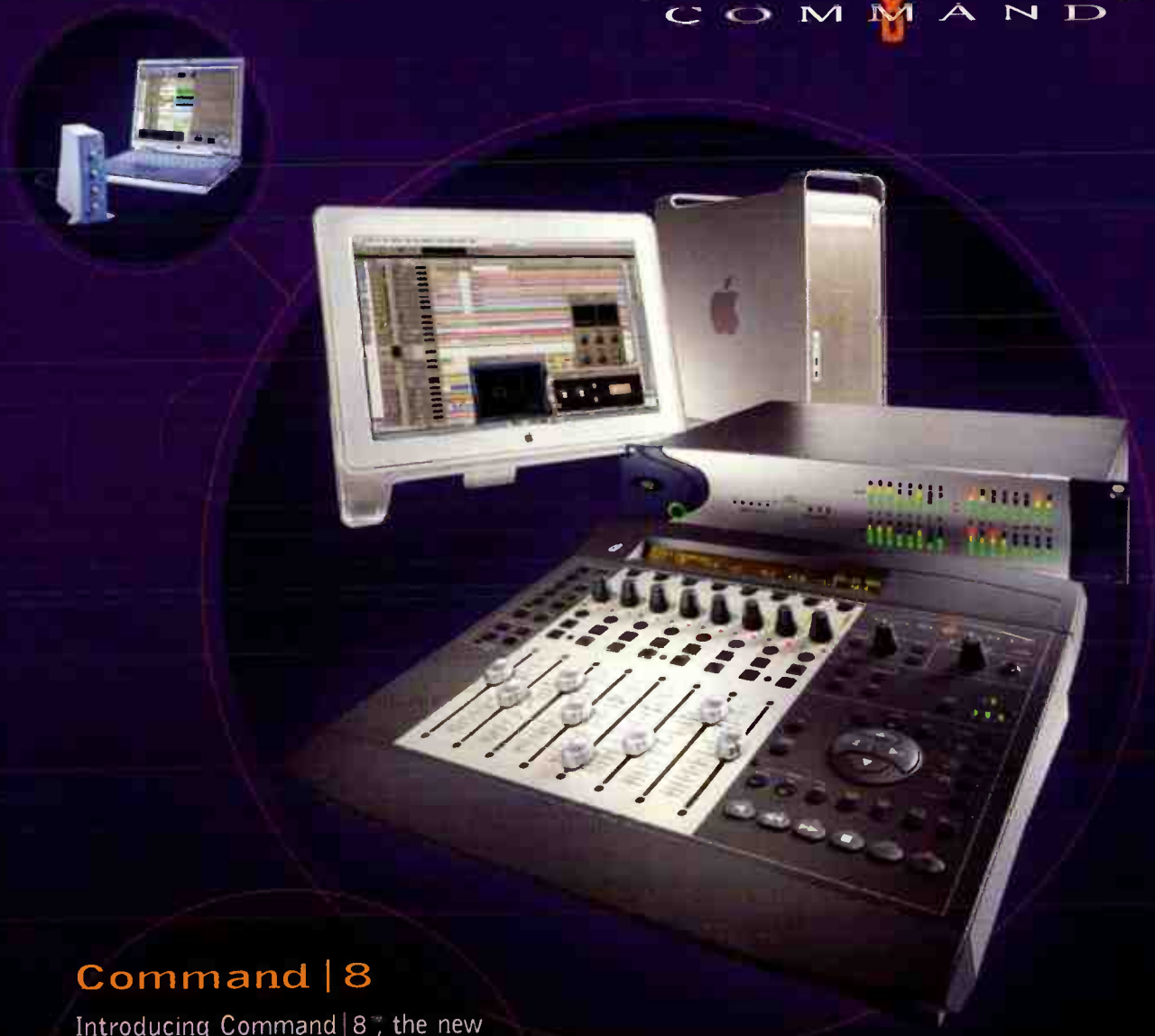
COMMAND 8



## Command | 8

Introducing Command | 8™, the new compact control surface designed specifically for Pro Tools® TDM and LE systems. Featuring analog monitoring and a single USB connection to your PC or Mac, Command | 8 puts you in touch with your mix effortlessly and affordably.

- Fully-featured control surface for Pro Tools TDM or LE systems
- Simple USB connection to your PC or Mac
- Eight touch-sensitive motorized faders
- Eight rotary encoders for pan/send/plug-in control
- Easy-to-read display for common track parameters
- Focusrite onboard monitor system
- Onboard 1-IN/2-OUT MIDI interface
- Stand-alone MIDI controller mode — Works with your favorite MIDI software

Focusrite

digidesign

For more information on Command | 8, visit www.digidesign.com.

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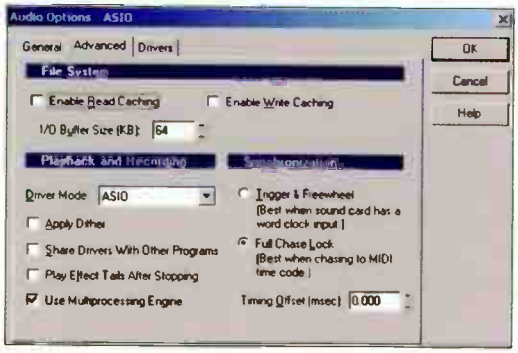
## Free Bomb Factory Plugs

If you use Pro Tools TDM supported by Pro Tools 6.x software and LE systems running on Windows XP or Mac OS X, you're in luck. Go to www.digidesign.com, and download seven full-featured (not just trial version or demos) Bomb Factory plug-ins — Bomb Factory BF76 (formerly Bomb Factory 1176), Bomb Factory BF Essentials (five plug-ins), and the Funk Logic Mastererizer "lo-fi" processor. (Note: Bomb Factory BF76 supports TDM, RTAS, and AudioSuite; all other plug-ins support HTDM, RTAS, and AudioSuite.) Warm up your modem or turn on your DSL, and go grab 'em.

### SONAR GOES MULTI

Sonar's 3.1 update offers Hyper-Threading/multiprocessor optimization that allows the audio engine to distribute mixing tasks across multiple CPUs when using multiprocessor PCs. But to enable it, you have to know where to find it. Go *Options* > *Audio* > *Advanced* and under "Playback and Recording," make sure that "Use Multiprocessing Engine" is checked. Yes, it's just that simple. The 3.1 update is free to registered Sonar 3 users at www.cakewalk.com.




## Surfboard

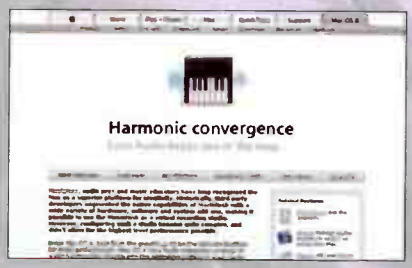
**As we peruse the inner recesses, nooks, and crannies of the web, we're constantly flagging sites, news items, and useful tidbits that we feel will be of interest to you. Such as:**

■ **www.elipsis1.com**

Attention Reason fans: If you want some reasonable (and unreasonable!) rhythms, surf on over and download the file **random beat generator.rns**. It doesn't generate random rhythms *per se*, but sets up a bunch o' Matrix sequencers with ReDrum and signal processing so you can doodle with the Matrix curves and create different drum parts. It's fun, but you can also get some really cool rhythms out of it.

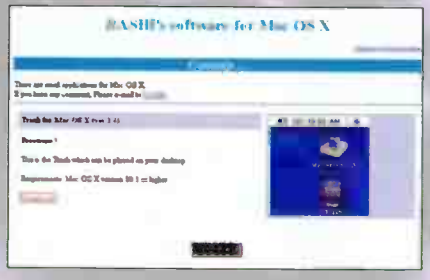
■ **www.apple.com/macosx/features/audio/**

If you're using Mac OS X and audio, here's the site for you — straight from Apple itself. Whether you're interested in news, technical tidbits, downloads, developer tools (*e.g.*, Software Development Kits), info on industry specs such as MIDI and audio over USB/FireWire, and stories on what pros in the field are doing with the Mac and OS X, this is your one-stop website.




■ **www2s.biglobe.ne.jp/~kyanagi/mac/en**

Okay OS X fans, here's what you've been waiting for: A trash can you put on the desktop! Best of all, it's freeware — just surf over and do a quick download. So whether you're having a hard time shaking off old habits from Mac OS, or just want an alternative to dragging to the Dock, you're good to go.



### Disc Makers Launches Web-based DVD Duplication Service

Disc Makers now gives DVD customers, including filmmakers and studios, the opportunity to create their own DVDs and place short-run duplication orders online, with turnaround times as fast as two business days.

DVD Self Service offers DVD-R duplication and printing for projects of 300 DVDs or less with no minimum order or setup fees. The service comes with free online storage of audio and graphic content, full-color on-disc printing and inserts, web-based 24/7 ordering, and a choice of five packaging options (Amaray-style packaging available soon).

For more information, visit www.discmakers.com/selfservice.



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# DON'T TAKE OUR WORD FOR IT...

## Here is what the PRO'S are saying about the latest microphone from MXL:

The MXL V69M Mogami Edition large diaphragm, Tube microphone, has a classic sound that will enhance vocal and instrument performances in any recording environment. The extremely low noise FET output circuitry, wide dynamic range and warm, airy, tube sound makes the V69M a perfect complement to all analog and digital recording devices. The V69M is internally wired with Mogami cable and is supplied with Mogami Tube and low-noise studio microphone cables. All at a price that's unbelievable! Audition one today at your local music or pro-audio retailer. You will not believe your ears.

"It was detailed throughout the frequency spectrum, and from a near-whisper to a wail, the V69 caught every nuance. The Marshall MXL V69 Mogami edition is an excellent microphone, and when you factor in the low, low price, the price performance becomes downright amazing."

**Scott Burgess, Pro Audio Review**

---

"So, we tested the V69 against—count 'em—11 other popular condensers, ranging in price from $169 to $5,000 list.... both the engineer/producer and the singer picked the V69 over the other 11 mics. None of them had the same combination of classic tube warmth and top-end air of the V69."

**Fett, Songwriter Magazine**

---

"If you're looking for a mic that performs like it costs a bunch more, give the V69 a very close look. You'll be thrilled at how little money you have to shell out, and you'll be even happier at how well it does it's job."

**Mitch Gallagher, Editor EQ Magazine**

---

"Soundwise, I was very impressed that the V69 could hold its own against an industry standard like the U47. It struck me as very versatile and of higher quality than other budget tube condensers."

**Pete Weiss, Tape Op Magazine**

MXL

Tel.: (310) 333-0606
Toll Free: (800) 800-6608
www.MXLMics.com

World Radio History

News

# Beware! Another Software Scam

We all know about sites that sell illegal software. But as people start to recognize the moral and legal problems in patronizing these sites, the thieves are taking another tack: Claiming to sell full, "real" versions of software, but substituting a CD-R instead with a cracked version of the program. You won't get a refund, the site will probably be gone by the time the manufacturer or online auction finds out about them, and you're stuck with software that has no support and will likely be flawed in some way. As always, when a deal seems too good to be true, it probably is. Before purchasing, at least check with the manufacturer whether someone is an authorized distributor.

# A Surround First for the Grammy Awards

What did it take to make the 46th Grammy Awards 5.1/HDTV Telecast look and sound so amazing? Basically, a whole lotta pros behind the scene.

This year's production generated two completely distinct soundtracks: A 5.1 discrete surround mix that was married to the HD broadcast and delivered to the home viewer as Dolby Digital, and (new for this year) a surround soundtrack for standard definition broadcast, encoded in Dolby Pro Logic II. As a result, this year every viewer in America received a surround sound track — now if only they all had surround setups to take advantage of this technology!

*Pictured from left, in the Effanel L-7 truck minutes before the broadcast: Eric Schilling, Member of the TV Committee; Hank Neuberger, Supervisor of Broadcast Audio; Jay Vicari, Music Mixer; John Harris, Music Mixer; Randy Ezratty, 5.1 Sound Designer; Phil Ramone, Chairman of the P&E Wing for The Recording Academy and Supervisor of Broadcast Audio; Leslie Lewis, Director of the Producer & Engineer Wing and Producer of the 2004 Grammy Nominee CD; photo by Lester Cohen/WireImage.*

# PR of the Month

Most PR we get is, shall we say, somewhat less exciting than waiting for 200GB of data to transfer from one hard drive to another. So when something like the following comes across our desk, we feel we just have to share it with our fun-loving, avidly anti-tedium readership.

"March 1, 2004, Santa Barbara, CA: David Hetrick, Event's former National Sales Manager, returned from an extended latté break today and abruptly proclaimed himself Vice President of Sales. 'Look,' explained Hetrick, 'I called some reps. I visited a couple of stores. I even filed an expense report. And don't forget, I was the one who came up with the scam to get the whole company's Starwood points credited to my account. When you're that creative, you deserve a fancy title.'

'I know the way it came about is a bit unusual,' mused Event President Ted Keffalo. 'But David had purchased a large brass "David Hetrick: Vice President of Sales" plaque with his corporate credit card. In today's economy, I'm not about to let a big expense like that go to waste.'

No one knows for certain just how the new title will affect David's day-to-day duties. But generally speaking, the Vice President of Sales would have direct responsibility for maximizing the company's worldwide sales and managing their growth. With David at the helm, it's unclear whether this will come to pass. But one thing is for certain: The new title will undoubtedly make it easier for David to get free stuff from other companies."

**OBITUARY**

**Andrew Brakhan, former president and CEO of Sennheiser Electronic Corporation, led SEC as president from 1989 through 1998 and continued to serve the company after his retirement as a consultant through 2003.**

**In 1991, Brakhan played a key role in acquiring Neumann Microphones and paving the way for distribution of other brands; InnovaSON digital consoles, True Systems preamplifiers, HHB Communications, and Turbosound loudspeakers testify to the Brakhan legacy.**

**Brakhan was also instrumental in introducing Sennheiser wireless microphone systems into the US market; his dedication to wireless RF technology paved the way for the company to garner the Emmy Award in 1996 for Outstanding Achievement in the Sciences of Television Technology. His overall philosophy on products was simple: "We listened to what the market wanted, built it, and filled an obvious need." www.sennheiserusa.com**



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## Shouldn't making music on your computer be easy?

Programmer Julian Storer thought so. So he wrote Tracktion, a radically simple solution for professional music production on a Mac or PC. Built upon a clean, single-window graphic interface, Tracktion is the ideal software for musicians, DJs and remixers who want to make music – not learn software. With unlimited audio and MIDI tracks, a built-in sampler, drag-and-drop editing, VST and ReWire plug-in support, and integrated CD ripping, Tracktion ain't no toy. It's just a faster, simpler way to create music on your computer.

Download the Tracktion demo today at **www.mackie.com/tracktion**.

Viva la Revolución. Programmer Julian Storer wrote Tracktion as a refreshingly simple creative tool for music making on a Mac or PC.

800.258.6883 (Toll free within U.S.)
425.487.4333 (Outside U.S.)
info@mackie.com

MACKIE.
www.mackie.com/tracktion

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# Tool Box

BY KEVIN OWENS

## PSP Nitro

### Multimode filter plug-in

PSP's new **Nitro ($149)** filter plug-in for Mac (VST) and Windows (VST/DirectX) offers a wide variety of analog-inspired filters, as well as other effects such as a phaser, a bit-crusher/downsampler, a waveshaper, and more. Features include four sound processing operators, flexible internal routing, two LFOs with sync possibilities, advanced MIDI control, and virtual cables for connecting modulation sources to processing parameters. RTAS for Windows and AU and RTAS versions for Mac are in development.
**PSP, www.pspaudioware.com.**

## Furman PowerFactor Pro

### Power conditioner

**The PowerFactor Pro ($299.95)** instrument and amplification power conditioner is designed to protect your equipment — and precious digital presets — from voltage spikes and other bumps in the AC road. PowerFactor Pro's Clear Tone technology continuously delivers over 45 amps of instantaneous current reserve to your amp or instrument, and its Linear Filtering Technology (LiFT) lowers AC line noise to unprecedented levels.
**Furman, www.furmansound.com.**

## Wave Arts WaveSurround Pro v4.0

### Spatial enhancer

**WaveSurround Pro 4.0 ($99.95; $20 upgrade)** is a spatial enhancer that uses binaural processing and crosstalk cancelling technology to create virutal speakers around the listener, expanding the conventional stereo field. Highlights of version 4.0 include built-in spectral shaping filters, a reverb module based on Wave Arts' MasterVerb plug in, full automation of controls through compatible host apps, a new user interface, undo and A/B buffers, and a cross-platform preset manager.
**Wave Arts, www.wavearts.com.**



World Radio History

# Acoustic Sciences PCAD

## Studio acoustic panel

**PCAD (Polycylindrical Absorber/Diffuser, $350 and up)** panels use acoustic fiberglass curved around an air chamber to provide a wider absorption range than standard foam panels. They also feature inset midrange and treble diffusers to help balance studio acoustics by back-scattering higher frequencies. The convex-curved panels, which range in size from 2'x4' to 4'x8', can be used at reflection points or as part of a complete wall/ceiling treatment package.

**Acoustic Sciences, www.acousticsciences.com.**

## Primera Bravo II Disc duplicator

**Bravo II ($2,195)** is designed for hands-free, automated production of up to 25 CDs or DVDs per job. Bravo II sports a robotic mechanism that automatically transports blank discs into the built-in 52x recorder (or optional Pioneer combo DVD/CD recorder, $500 extra) and then to the unit's full-color, direct-to-disc printer. New features include a USB 2.0 interface, faster throughput, and AccuDisc technology, which uses advanced LED optics instead of mechanical components to eliminate disc-picking problems.

**Primera, www.primera.com.**

# Audio Damage Mayhem

## VST plug-in package

**The Mayhem** VST plug-in suite **($149)** is a collection of four different effects designed exclusively to abuse your audio. Included weapons are: Filterpod, a lowpass filter with LFO; Crush, which the company hails as "the world's most dangerous compressor;" Master Destrukto, a plug-in featuring four distortion algorithms; and TimeFnk, a delay unit with sample rate reduction and LFO-driven panning. Mayhem is available for Mac (OS 9, OS X) and Windows.

**Audio Damage, www.audiodamage.com.**

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# HHB PDRDSUF
## Docking station

Designed to work in conjunction with HHB's PortaDrive location sound recorder, **the PDRDSUF ($349)** is a USB 2.0/FireWire docking station designed to facilitate file transfer with Mac- and PC-based digital audio workstations. The PDRDSUF accepts PortaDrive's removable HD caddy via a slot in its front panel, features a universal power supply (allowing you to operate it anywhere in the world), and ships with USB and FireWire cables.
**HHB, www.hhb.co.uk, dist. by Sennheiser, www.sennheiserusa.com.**

# Metric Halo Mobile I/O ULN-2
## Audio interface

**The Mobile I/O ULN-2 ($1,195; 1,895 with DSP)** is a single rackspace FireWire interface that features four inputs, eight outputs, 24-bit/96kHz A/D/A conversion, two channels of ultra low noise preamps, AES and S/PDIF I/O, balanced send/return path, and monitor and headphone outputs with front-panel level controls. The ULN-2+DSP features an onboard processing chip that allows you to use Metric Halo's signal processing effects without sacrificing your computer's processing power. The unit can be powered by any 9–30-volt DC power source or via FireWire bus.
**Metric Halo, www.mhlabs.com.**

## Violet Audio M-Patch
### Passive volume control

**Violet's M-Patch ($179)** is a passive volume control device for mixerless DAW and nonlinear video production environments. The half-rackspace unit features rotary controls for two input sources (combo XLR/TRS, RCA), and features two stereo output channels with an A/B selector switch. The M-patch's controls allow adjustments from 0 to -40dB with ±5dB inter-channel accuracy to –60dB.
**Violet Audio, www.violetaudio.com.**



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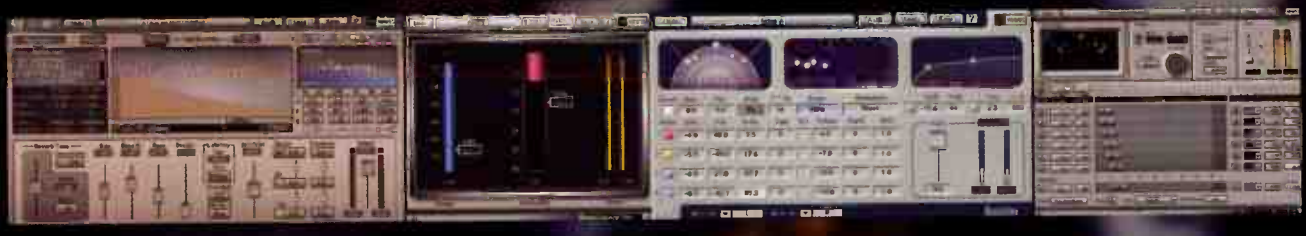
# Come Hear the World

# through Waves...



Waves signal processing software and hardware has become central to professional production for Music Recording, Mixing and Mastering, and in production for Television, Film and Broadcast. Waves is committed to the continued development of the finest tools for audio signal processing available. Waves has a comprehensive selection of Award winning bundles to suit your needs including: The New IR-1, and Musicians bundle and Diamond, Platinum, Gold, Transform, Restoration, 360°, Surround, Renaissance Maxx bundles, and more. Waves has the right tools for the job, and Sweetwater can help you determine which if those tools to use to get the job done.

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Knoxville, TN 37917, phone: 865-909-9200, fax: 865-909-9245

WAVES

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## MacAudioLab Mobile Macintosh Recording Studio

### Instructional video

If you're a Mac user who's unsure about going mobile or are just looking for some new techniques to take on the road with you, check out the **Mobile Macintosh Recording Studio ($79.95)** instructional video. Industry Insiders from Twerk, Cycling '74, Furman, and Millennia Media discuss cache memory, ancillary gear, sample rates, word clocks, A-to-D conversion, RFI noise, mics, preamps, USB controllers, and more, and offer insights into such issues as latency reduction, mobile recording, microphone placement, stereo miking, and eliminating AC problems.
**MacAudioLab, www.macaudiolab.com.**

## Coyote Two-Can

### Digital audio workstation

**The Two-Can ($1,595 and up)** is a 2U digital audio workstation with room for up to three internal hard drives that's configured to run sequencers, digital audio editors, and soft synths. The base unit ships with a thoroughly optimized version of Windows ME (upgradeable to XP), an AMD XP 2800+ processor, an 80GB main hard drive, a 120GB secondary hard drive, a DVD combo drive, Acousi-Therm control for automatic monitoring of temperatures and fan speeds, and more. Connections include a serial port, a parallel port, a VGA output, a 10/100 base-T Ethernet port, three FireWire ports, four USB 2.0 ports, 1/8" audio I/O, and mouse and keyboard connectors. Click to the company's website for more details and a complete list of upgrade options.
**Coyote R&D, www.coyoterd.com.**

## ClearSonic Sorber Baffles

### Acoustic treatment panels

Available in light and dark gray, **Sorber S5-2L panels ($180 each)** are 24"x66"x1.6"-thick freestanding acoustic absorption baffles made from two sections of compressed fiberglass inserted into a heavy-duty Velcro-receptive cloth case with a hinge sewn down the middle. The panels have handles for easy transport, set up in seconds, and can be joined together to grow with your studio's needs.
**ClearSonic, www.clearsonic.com.**



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# Create. Record. PROduce.

D32XD

With the new D32XD and D16XD (Xtended Definition) Digital Recording Studios, Korg has all but erased the line between "home" recorders and full-blown professional studio hardware. The easy-to-use XDs deliver true pro sound, advanced mixing, editing and recording features and built-in CD-RW burners - right at your fingertips using Korg's intuitive TouchView interface. So now, you can finally PROduce at the hottest studio in town - yours.

COMING IN APRIL - Version 2 OS with more simultaneous record tracks at 24-bit resolution, a new noise reduction function, the ability to load backup data from other D-Series recorders and much more!

**FEATURES:** Up to 24-bit/96 kHz resolution • 8 simultaneous record tracks @ 48/44.1 kHz (16 with optional AIB-8) • 32 track playback, 80GB hard drive (D16XD: 16 track, 40GB) • Built-in analog compressor on each Input • Final effect, two Master effects and 24 insert effects (D16XD: 8 Insert) • 100 scene automated mixing • Motorized flying fader event automation (D32XD only) • Pinpoint editing, including audio scrubbing • USB and S/P DIF; plus MMC, MTC (all formats) • Import & export .WAV files • Options: 8-input expander, 8 additional analog compressors, ADAT I/O

D16XD

KORG

WWW.KORG.COM

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Recorders shown with optional AIB-8 analog input board.

Other recorders available from Korg: D1600mkII, D1200mkII, PXR4, CR-4.

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## JLH AxeTrak

### Rock guitar recording device

**The AxeTrak ($329)** is an analog isolation box that lets you capture the big rock sound of overdriven and distorted guitar amps without sacrificing your hearing — or the quality of your recording. Simply plug a guitar amp into the AxeTrak, plug the AxeTrak into the recording console, mixing board, or computer soundcard, and let it rip. The birch plywood box is covered with heavy-duty carpet for sound dampening, and is capable of handling up to 120 watts RMS.

**JLH Products, www.axetrak.com.**

## LinPlug Albino 2

### Virtual synthesizer

Released as a follow-up to the "dream synth" co-developed by LinPlug and sound designer Rob Papen in 2002, **Albino 2 ($199; $49 upgrade)** for Mac (OS X 10.2) and Windows (95 or higher) features a 32-step arpeggiator, a new preset browser, more than 1,100 presets, chord memory mode, an oscillator sync option, new digital spectrum waveforms, and a new GUI. Other key features include 32-voice polyphony; four individual LFOs; up to four oscillators per voice; a modulation matrix with eight routings, 27 sources, and 33 destinations; eight envelopes, and more.

**LinPlug, www.linplug.com.**

## Audix I-5

### All-purpose instrument mic

**The I-5 ($179)** is a dynamic, moving-coil microphone with a frequency response of 50Hz–16kHz that can handle sound pressure levels in excess of 140dB. Intended for stage and studio use on a wide variety of instruments, the I-5's cardioid polar pattern allows it to focus on the instrument that is being miked without picking up other instruments or unwanted ambient noise. The mic features a cast zinc alloy body and a black finish, and ships with a heavy-duty mic clip and a carrying pouch.

**Audix, www.audixusa.com.**



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# BUYING GEAR?

## You Owe it to Yourself to Call Sweetwater!

**RØDE NT2000**
The most flexible studio condenser under $600!

**dbx DriveRack Studio** The Swiss Army knife of studio monitoring!

**Digidesign Mbox**
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**ADAM Audio P11A**
Uncompromising studio monitors!

**Kurzweil K2661**
VAST power in a portable package!

**We know that great prices are important.** It's the first thing that most people look at when deciding where to buy their gear, and we've worked hard to offer our customers prices that are as good as or better than you'll find anywhere.

With most retailers, a good price is the end of the story, but at Sweetwater, it's just the beginning. In addition to great prices, our customers get the benefit of an expert sales staff, an incredible selection of music technology gear, the largest website in music retail, access to a factory-authorized service center for the biggest names in pro audio and the best technical support staff in the industry.

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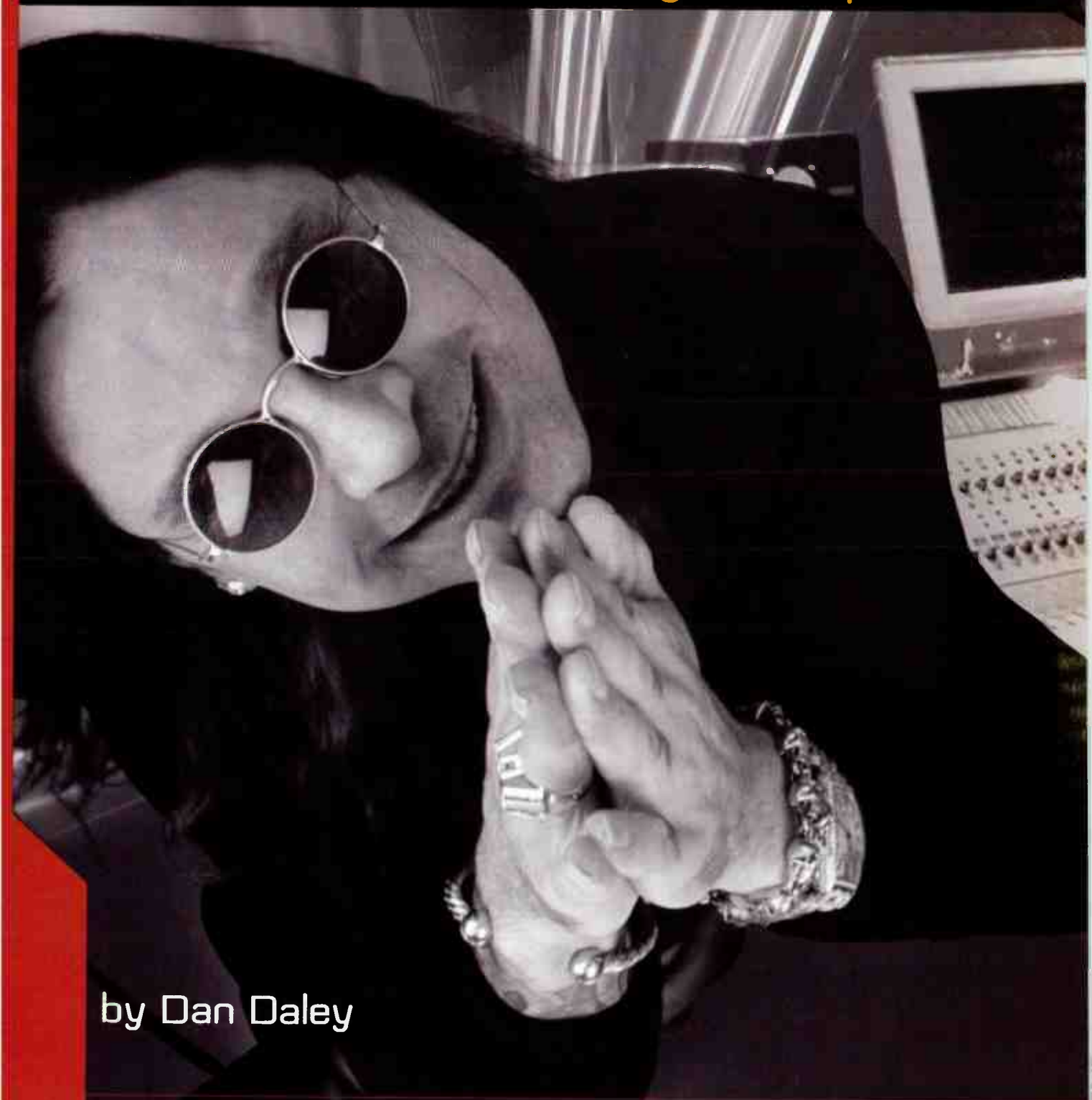
# STUDIO DIARY OF

## Ozzy Osbourne's crazy train pulls into



by Dan Daley



Ozzy photo by Robert Matheu. Digital background manipulation by Doug Gordon

World Radio History

# A MADMAN

## the home studio station

**In an episode of this season's MTV hit series *The Osbournes*, the man for whom OzzFest is named roams the halls of his palatial Los Angeles home asking visitors, "Do you want to see my studio?" It's not Ozzy Osbourne obsessing. Rather, it's the singer's way of reveling in what is, after a career spanning four decades, his very first personal studio.** ➤



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"I have to tell, you, Ozzy was very, very emotional about this," says David Frangioni, president of pro audio design, sales, and service company Audio One and Osbourne's designer of choice for this project. "It was actually kind of touching. Here is a guy who helped define an entire genre of music, who's recorded in the finest studios in the world, and for the first time he's going to be able to bring together all of his experience and vision into one space. You can see why it was emotional for him."

As it turns out, it would be a challenge for Frangioni, his right-hand man Dan McCabe, and a group of experts to execute that vision and do it within the tight timeframe of three months dictated by Osbourne's touring schedule. Frangioni had been referred to Osbourne by Mark Hudson, the singer's producer, for whom Frangioni had done several home studios. Frangioni flew to Los Angeles from his home in Florida last July and surveyed the site: a guesthouse in back of the Osbourne home with a bedroom, living room, bath, and closet. The complicating mandate was that the guesthouse not be significantly changed inside or out, that it be able to serve as a guest residence, and that it could be reverted back to its original state if the building were ever no longer needed as a studio. And the project, from concept to completion, had to be done by October, when Osbourne returned from the last stop of the year's tour in Europe.

Talking it over in the guest house, Frangioni recalls that Osbourne laid out both his practical and conceptual expectations. "He said he wanted a space in which he could write and record without one interfering with the other," he remembers. "It had to be ergonomically laid out to make access to everything easy, and also comfortable — a place he would feel at home writing and also listening to music. He was very intense about the studio — he said it had always been a dream of his. That day was a defining moment, because it put something very human and emotional into the process of designing a recording studio. I realized from day one that this was going to be a labor of love."

Sam Cavitt, design engineer at Audio One's Los Angeles location, took digital photos of the space and sent them along

THE MAN BEHIND OZZY'S STUDIO, DAVID FRANGIONI, TWEAKS THE SYSTEM INTO PERFECT SHAPE.



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# Magic Wand

The cold, hard facts of room acoustics challenge every studio, large and small. JBL engineers thought it was time for a little magic. Introducing the LSR6300 Studio Monitors, the first reliable solution for tackling the real-world problems inherent in every room. Featuring the exclusive JBL RMC™ Room Mode Correction system, you can accurately measure boundary-induced low frequency modes with the included hand-held acoustic analyzer and then adjust each speaker's 1/10th octave parametric equalizer to correct problems in your room. Designed from the ground up, the LSR6300's uncompromising specs and features give you total control of your music production. See your JBL Dealer today and experience the power of LSR6300 Studio Monitors with RMC - magic you can really put your hands on.

**LSR6300 Studio Monitors – Mix Without Boundaries.**

**Learn more about the power of the LSR6300 Studio Monitors and RMC at www.jblpro.com/LSR**

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**A GREAT DEAL OF EMPHASIS WAS PLACED ON THE STUDIO'S "FRONT END"; THE RACKS ARE WELL-STOCKED WITH PREAMPS, COMPRESSORS, AND EQS FOR TRACKING.**

with precise measurements to Frangioni. In fact, much of the project's development and planning used documentation converted to PDF files and emailed between Frangioni, Osbourne, and subcontractors such as Miami-based studio designer John Arthur and Nashville-based designer Chris Huston, who had input on specific aspects of the acoustical design, and manufacturers' reps such as Jeff Madison of RPG, who built custom diffusors to Frangioni's specifications. "A good example of a specific use of drawings sent via email was how we set measurements for the custom speaker stands," Frangioni explains. "I would do a drawing and send it as a PDF to Ozzy, to the contractors, and to KK Audio, which was making the stands. As the speaker stand [requirements] changed, we round-tabled it via the Internet and that way everyone was always up to date on design changes."

The total space available was about 1,200 square feet. The existing interior layout needed to be accommodated, so the largest room, the bedroom, was chosen as the control room. "It had to be large enough to be comfortable with at least two people working in it," Frangioni explains. "Ozzy isn't interested in becoming an engineer. He's an artist. So the ergonomic intent was that of a conventional studio — one in which an artist, a producer, and an engineer work together with musicians. It didn't need the kind of layout in which everything — keyboard and consoles — had to be reachable by a single person." The rest of the design overview fell into place from there. An iso booth would be constructed within the control room, large enough for guitar amp overdubs and isolated enough for vocals. The living room would become a studio lounge, complete with a 16-input mic/line panel in one of its walls (and video tie lines for MTV's camera crews when the studio would inevitably become part of the show), and the closet would become a computer-based "machine room."

A key initial consideration was acoustical isolation. Ozzy's rapport with his neighbors has been well documented on *The Osbournes*; the intent was to keep what took place in the studio from escaping and to keep the rest of the world at bay. "It's a busy household, as you can see on TV," says Frangioni. "Ozzy didn't want the creative process interrupted by barking dogs and lawnmowers, and he didn't want to have his own work curbed at midnight. This is the first place we hit the challenge that the space remain structurally as it was and still become a viable studio space."

The dictum that the interior not be significantly changed meant that floors couldn't be floated. Fortunately, the exterior walls are made of concrete, giving them some inherent mass. A key component of the acoustical and isolation design was wall paneling and liquid sealants from Quiet Solution, which convert mechanical energy generated by sound waves into more easily dissipated heat. "That let us achieve an STC rating in the 60s without losing significant interior floor space," Frangioni says. Other ways around the requirement that no interior dimensions

## Ozzy's Toys

**CONSOLE:** Digidesign Control|24
**RECORDERS:** TASCAM DA-45HR DAT, A700 CD/cassette, CD burner
**MONITORS:** Genelec 1038, 1032, 7070 subwoofer; KRK V88, Yamaha NS10m
**AMPLIFIERS:** Bryston 4B
**OUTBOARD:** Chandler Limited LTD-1, LTD-2; Universal Audio 1176, dbx 165
**EFFECTS:** TC System 6000, Lexicon 960L
**MICROPHONE PREAMPS:** Chandler Limited TG-2, Brent Averill 1073 mic pre/EQ [2], 1081 mic pre/EQ [2]; Digidesign PRE
**MICROPHONES:** Neumann M49, U87 [2]; AKG C414TLII, Sennheiser 421 [2], Shure SM81, SM57
**COMPUTERS:** Apple Macintosh G4/933MHz with 1.5GB RAM, Cinema Display, Magma expansion chassis, Rorke and Glyph hard drives, networked SNS Fibre Channel hard drive system, Runco CW-43MC plasma TV (can be used as HDTV or as a second computer monitor)
**DAW:** Digidesign Pro Tools HD3 Accel, 192 I/O [2], 8-channel analog input and output expanders, 192 Digital I/O, Digidesign Sync I/O
**SOFTWARE:** Digidesign Pro Tools, Waves Platinum bundle, McDSP FilterBank, URS Everything ED bundle
**AC POWER CONDITIONING:** Richard Gray power 1200S, Monster Power AVS2000 voltage stabilizer, Equi=Tech power conditioning on all outlets
**STUDIO NOTES:** According to David Frangioni, "Ozzy made sure that we had plenty of high quality mic preamps, microphones, compressors, and EQs for recording. The main focus of the room is to record parts, so therefore, the quality of capturing the sound was of paramount importance. Pro Tools HD Accel sounds great as a recording/editing/mixing medium so the entire recording chain is strong — no weak links here!

"The power conditioning in Ozzy's studio is first rate. All outlets are balanced using a 100 amp Equi=Tech power panel. Monster Power provides voltage stabilization — a must with computers. Also, the Richard Gray 1200S is amazing. It delivers power-on-demand current, which has a profoundly positive effect on the dynamic response and overall sonic quality. The noise floor of the studio is so low that the sound is virtually transparent. Very accurate and clean, while being musically pleasing. Even with a giant pool system next to the studio, there are no annoying hums or buzzes.

"The studio is very flexible in the storage formats that it can handle. There is removable SCSI, FireWire, and Fiber hard drive storage to accommodate any type of session that lands here. AIT-2 serves as the backup format. The SNS Fibre Channel system can be networked in the event that a second user wants to work on sessions in the other room." — *Mitch Gallagher*



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**IN OZZY'S DRUM ROOM, PANELS CAN BE CHANGED TO MODIFY THE ACOUSTICS.**

be changed was the placement of subs on rubber mats, minimizing mechanical coupling of low frequencies. The control room used two layers of Quiet Solution's Solitude 4 x 8-foot paneling throughout, augmented by intermittent applications of Quiet Glue and Quiet Seal.

Frangioni describes himself as both designer and design manager of the control room acoustics. "We had a few people working on it," he says. "It was complex — we also had a fireplace that couldn't be moved in one side of the room."

Between Frangioni, Arthur, and Huston, aided by Madison and Audio One design engineer Matt LaPlant, an acoustical footprint of the room was worked out. The approximately 18 x 24-foot room was wider in the rear than the front, a kind of sideways

**Ozzy is in touch with technology but he goes by what he hears, and his ears are amazing.**

compression architecture. Custom RPG devices included wall-mounted diffractals and Abfusors, BAD panels, and Modex bass traps in the walls and ceiling. In the drum room, fabricated from an area near the bathroom, diffractal panels can alternate with BAD panels to change the room's acoustics quickly and dramatically. John Arthur had suggested RPG Skyline diffusors for the space, as well. The ceiling of the room is especially heavily treated. "It's hard to make a shoebox-sized room sound big and tight," says Frangioni. "The intent of the acoustical treatment was to get whatever ambience the room does generate to flow in a controlled, consistent, musically pleasing manner."

In the rear of the control room an 8 x 6 x 8.5-foot iso booth was built from Quiet Solution panels with custom doors made by carpenter Jesse Blyler. John Arthur, president of Redwerks Goup, a Miami media facility design-and build company, was asked by Frangioni to take his virtually finished design and refine it, staying true to Osbourne's goal of a lively drum room in a small space. "The other considerations were that there be no architectural modifications to the house," says Arthur. "Ozzy also said he didn't want the drum room to be harsh-sounding." Working remotely from plans sent by Frangioni, Arthur suggested the use and placement of RPG Skylines. "The Skyline 2' x 2' panels have blocks set at different heights that give you polar diffusion in both a vertical and horizontal plane," he explains. "And it does it in a very cost-effective way. Also, the panels are very light, so we could attach them to the ceiling without being concerned that they were adding weight to the structure." A combination of Modex, flutter-free panels and BAD panels already decided upon by Frangioni rounded out the solution. Some of those same solutions were used on the iso booth in the control room, adding a combination of 705 fiberglass panels and BAD panels. "The point there was to achieve tonal neutrality in a very small space," Arthur says. "We were able to do it all using these kinds of acoustical solutions and also achieve another goal, which was to make the acoustic solutions modular, so that they could go in easily and also be removed quickly if needed in the future without permanently altering the house structure."

Since the structure couldn't be modified, the existing HVAC had to be used. Frangioni extended and baffled some of the airflow outputs to reduce air flow noise, but still keep sufficient air flow throughout the control room and electronics closet.

## Technology & Monitoring

The core technology for the studio is Pro Tools, an HD3 Accel system with 48 channels of input and output. Osbourne personally specified Neve modules for the signal chain. All wiring is Monster Cable, using Neutrik Black Gold connectors. All signal — analog, digital, and word clock — is routed through the custom-made patch bays. Pro Tools is controlled using a Digidesign Control 24 built into an Argosy console enclosure.

"Ozzy is in touch with technology but he goes by what he hears, and his ears are amazing — he knows a great performance when he hears one," says Frangioni. "He definitely likes the sound of analog, but he's worked enough with Pro Tools to know that he can make it sound as analog as he needs it to."

Initially, monitoring was going to be solely nearfield, with Yamaha NS-10Ms paired with Bryston 4B amplifiers as the core system. A second system comprising Genelec 1032 speakers and a 7070 sub was added. "But Ozzy wanted it louder," says Frangioni. "So we went first to KRK V88 speakers, then to Genelec 1038B monitors on stands with a 7071 sub. Now, it's *loud*." Other tech touches include Lexicon 960L and TC Electronic System 6000 multichannel processors, Digidesign PRE 8-channel mic preamps, Brent Averill-modified Neve mic pre/EQs, and a closet full of Shure, AKG, and Neumann microphones.

The final touch was, fittingly, Ozzy Osbourne's: the choice of a red and black color motif to complement the interior design by the Jonathan Barnett Design Group. "They're also colors found in Ozzy's paintings," notes Frangioni. "He's a great artist, which I didn't know about until I met him. And every great artist needs a great studio." EQ



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# BETTER MONITORING = BETTER MIXES

By Ethan Winer

**No matter what type of room you record in, or even if you record all instruments through a direct box, your monitoring must be accurate to make mixes that sound correct outside your own control room. When a mix you create in your control room sounds the same, or at least similar, in other rooms, it is considered to *translate* or *travel* well. Indeed, creating portable mixes is one of the biggest problems facing most home and project studio owners.**

In a previous article ("Room Acoustics: Good or Bad Vibrations," Feb. '04 *EQ*), I showed the terrible low frequency response that's typical in all small rooms. Numerous variations up to 30dB — or even more — are common throughout the entire low end. Most small rooms have a deep null somewhere between 70 and 120 Hz right at the mix position, so many people compensate when mixing by adding too much bass. This leads to the common complaint that mixes that sound good in your room sound too bassy and boomy when played in other rooms or in a car.

As explained in that article, the solution for a skewed low frequency response is acoustic treatment, especially bass traps. Installing bass traps in a room reduces the reflections that cause low frequency peaks and dips, thus flattening the response. But bass traps are also useful for solving another common acoustic problem — excessive low frequency reverb and ringing that obscures detail and makes it difficult to distinguish notes played by bass instruments. Let's investigate the subject of control room reverb further.

## THE IMPORTANCE OF A UNIFORM REVERB TIME

We all know what reverberation is — both the natural reverb that occurs in rooms and the electronic kind used as an effect — and we all know that too much of it harms the clarity of music and speech. The general specification for reverb is Reverb Time, or RT60, which is the number of seconds it takes for the reverberant sound to decay by 60dB. In practice, it's difficult to measure RT60 directly because that requires a very quiet room whose residual noise is more than 60dB below the test signal. Therefore, reverb time is more often measured until the sound decays by only 15dB. Since reverb decay rate is constant, it's easy to convert RT15 to RT60. However, these reverb times are an average of the decay rates at all frequencies. Just as important is how the reverb time varies in different frequency ranges.

I often see people attempt to treat their rooms by placing moving blankets, egg crates, acoustic foam, or other thin materials over all their walls. Although these materials do reduce reflections, they absorb only higher frequencies. So while they do eliminate the most obvious echoes and ambience — clap your hands and the room sounds clearer — thin materials do nothing to stop low frequency reflections, which are just as damaging. A room treated entirely with thin materials sounds dead and lifeless, yet it is still boomy and muddy due to excessive ringing at low frequencies. Unfortunately, you can't assess low frequency muddiness by clapping your hands. Rather, the main symptom is the difficulty in discerning which notes a bass instrument is playing.

Small room reverb is far more complex than many people realize. In particular, at low frequencies the room's natural resonances sustain some frequencies more than others, as opposed to true reverberation, which sustains a broad range of frequencies. Further, the acceptable range of reverb time for a given room varies with its volume. According to the *Master Handbook of Acoustics* by F. Alton Everest, the ideal reverb time for a typical control room is about 400–500 milliseconds, and a studio live room is usually about 100–200 milliseconds longer.

Rooms designed for surround mixing or listening are generally less live sounding than regular control rooms and living rooms. One reason is that movie soundtracks often contain more embedded ambience. Another is that the additional loudspeakers require absorption in more places to trap early reflections coming from more source locations. Therefore, surround playback rooms often have more diffusion than regular control rooms and living rooms, in addition to having more absorption. To be sure, there is no one "correct" reverb time for any room, and the personal taste of the recording engineer or listener is also a consideration.

Lately professional control rooms tend to use less and less mid and high frequency absorption, relying instead on angling the walls and ceilings sufficiently to deflect damaging reflections away from the mix position. This lets the room retain a big, bright, live sound while still avoiding early reflections. In fact, modern thinking places at least as much importance on eliminating early reflections as it does on controlling overall reverb time. Most of us do not enjoy the luxury of angling the walls and ceiling, but it's still possible to obtain stellar monitoring in a normal rectangular room. Let's take a closer look.

## EARLY REFLECTIONS AND IMAGING

Early reflections are echoes that arrive at your ears within about 20 milliseconds of the direct sound from the loudspeakers. When a direct sound is followed immediately by an echo, the ear does not distinguish the echo as a separate sound source. Rather than perceiving the reflections as echoes or ambience, multiple sounds arriving quickly appear to fuse together, which obscures clarity and confuses the stereo image. Just as damaging are reflections from the left speaker that arrive in the right ear, and vice-versa. You can tell when an instrument is panned hard left or right, but the in-between positions are poorly defined.

To maintain proper stereo imaging, a control room must be perfectly symmetrical and must also avoid all early reflections. For perfect symmetry, the left and right loudspeakers need to be the same distance from their adjacent side wall, and both side walls should have the same type of surface and acoustic treatment. Early reflections are avoided either by applying absorption to key places on the side walls and ceiling, or by deflecting them away from the mix position. When you eliminate all early reflections, the effect is quite striking, and not unlike listening through headphones with their almost magical sense of added width and spaciousness. (Although of course, mixing on headphones is not recommended.)

Figure 1, viewed from above, shows the layout of a symmetrical control room. The



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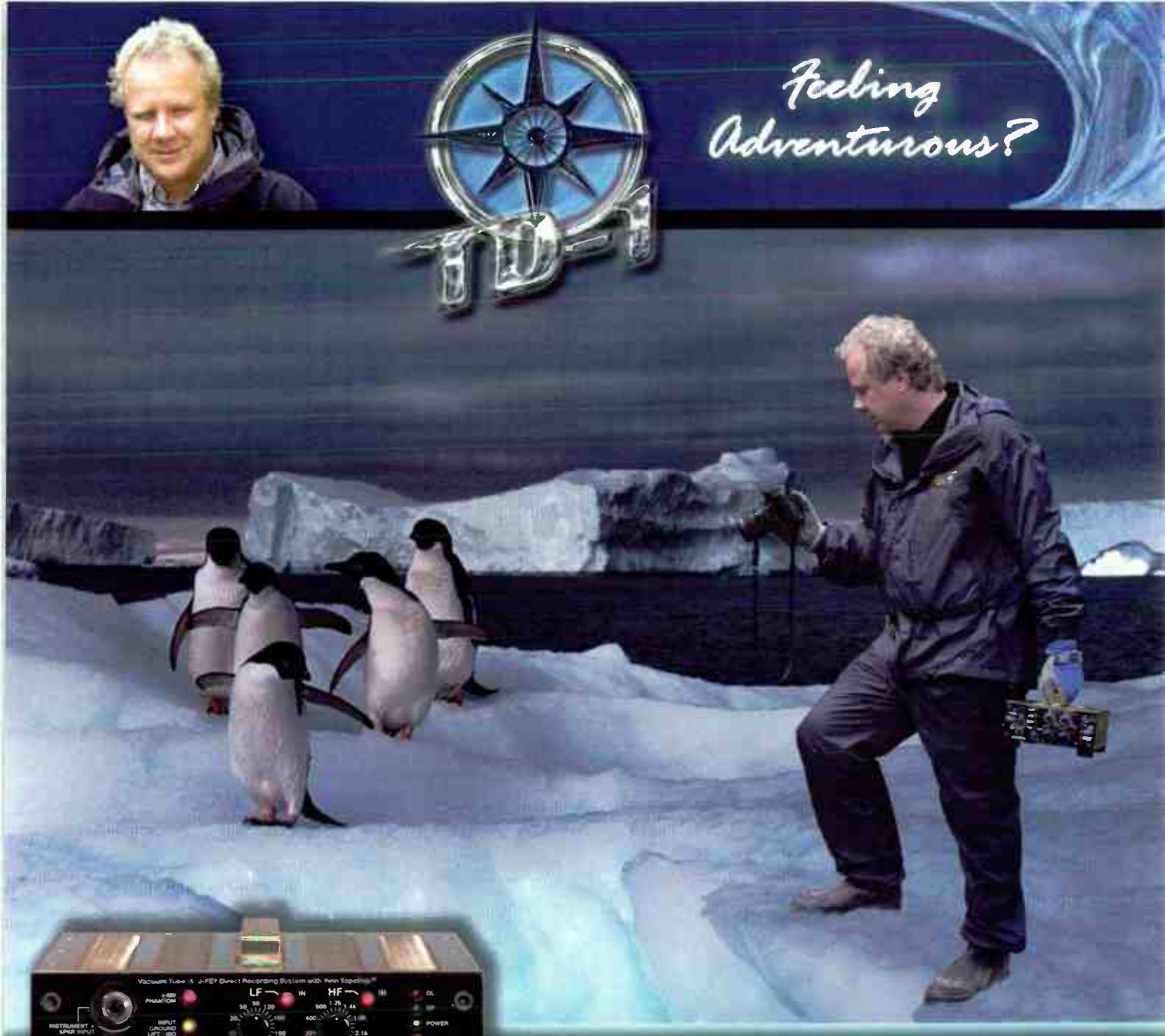

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black lines represent the path of direct sound from the loudspeakers to your ears, and the red lines show the undesired early reflections. Reflections off the rear wall, shown in blue, are not a problem as long as the rear wall is at least ten feet behind the mix position. Sound travels at a speed of roughly one foot per millisecond, so the 20-foot round trip delays those reflections enough so they're perceived as ambience instead of combining with the direct sound. If your rear wall is closer than 10 feet, it should be treated with absorption.

It's easy to determine the correct placement of 2x4-foot absorber panels to avoid early reflections. As long as the walls and ceiling are not angled, simply place the panels along the side wall so they're halfway between your ears and the front of the speaker cabinet. Then place each panel vertically so its center aligns with the tweeter. As early reflections also arrive from the ceiling, you need to apply absorption there as well. Again, the panel should be centered left to right, and placed halfway between you and the

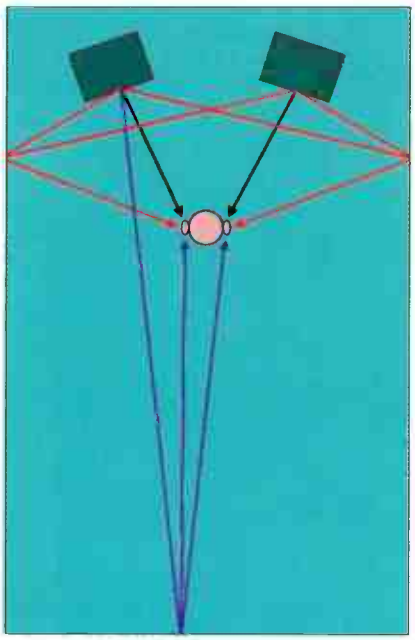

**Fig. 1: Early reflections are echoes from the side walls and ceiling that arrive within 20 milliseconds of the direct sound from the loudspeakers.**

loudspeakers. By the way, another source of early reflections is the top surface of the mixing console. These are difficult to avoid unless you're willing to get rid of your console! Sometimes you'll see engineers place a large sheet of acoustic foam over the entire console, leaving only the faders exposed, while making final mix decisions.

### ROOM MEASUREMENTS

Professional acousticians use a variety of hardware and software to help them evaluate the frequency response, reverb time, and early reflections in rooms. Most of these tools are far too expensive for the average project studio owner. However, one terrific solution is the popular ETF program from Acoustisoft (www.acoustisoft.com). ETF performs all of the important acoustic measurements, yet sells for a very reasonable price. You can read more about ETF at the Acoustisoft website; here are some highlights.

ETF runs on any Windows computer and works well even with ordinary consumer-grade soundcards. The program plays test signals through the computer's soundcard, which are routed to your loudspeakers. The result is then recorded through your omnidirectional microphone for analysis. ETF offers two types of test signals — swept sine waves and MLS (Maximum Length Sequence, sounds similar to pink noise). Further, each signal type can be

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either broadband or band-limited for increased resolution at low frequencies. Figure 2 shows the ETF graph of reverb time versus frequency in my home studio, and this is just one of many available reports.

One big problem with standard 1/3-octave measurements is that they hide the true extent of a room's response variations. As you can see in Figure 3, the 1/12-octave response (red line) reveals the room's peaks and nulls far more accurately than the same data plotted at 1/3-octave resolution (blue line). Also note that at higher resolutions,

ETF imposes a low frequency limit, so the 1/12-octave display stops at about 800Hz.

**Fig. 2: This graph shows reverb time versus frequency for the author's home studio, where recording and mixing are combined in a single large room.**

You can measure with high resolutions at low frequencies, but that requires a separate low frequency test.

Besides measuring detailed frequency response, reverb time, and the arrival of early reflections, ETF has many other useful features, such as displaying energy/time curves and overlaying multiple test results onto a single graph. For example, one of

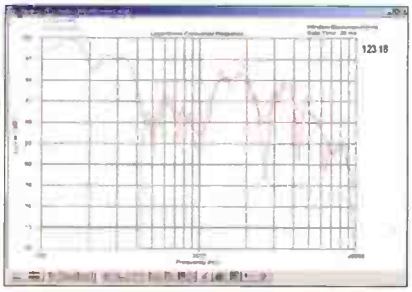


**Fig. 3: Standard 1/3rd octave testing hides a lot of detail, as you can clearly see when the same data is displayed at 1/12th octave resolution.**

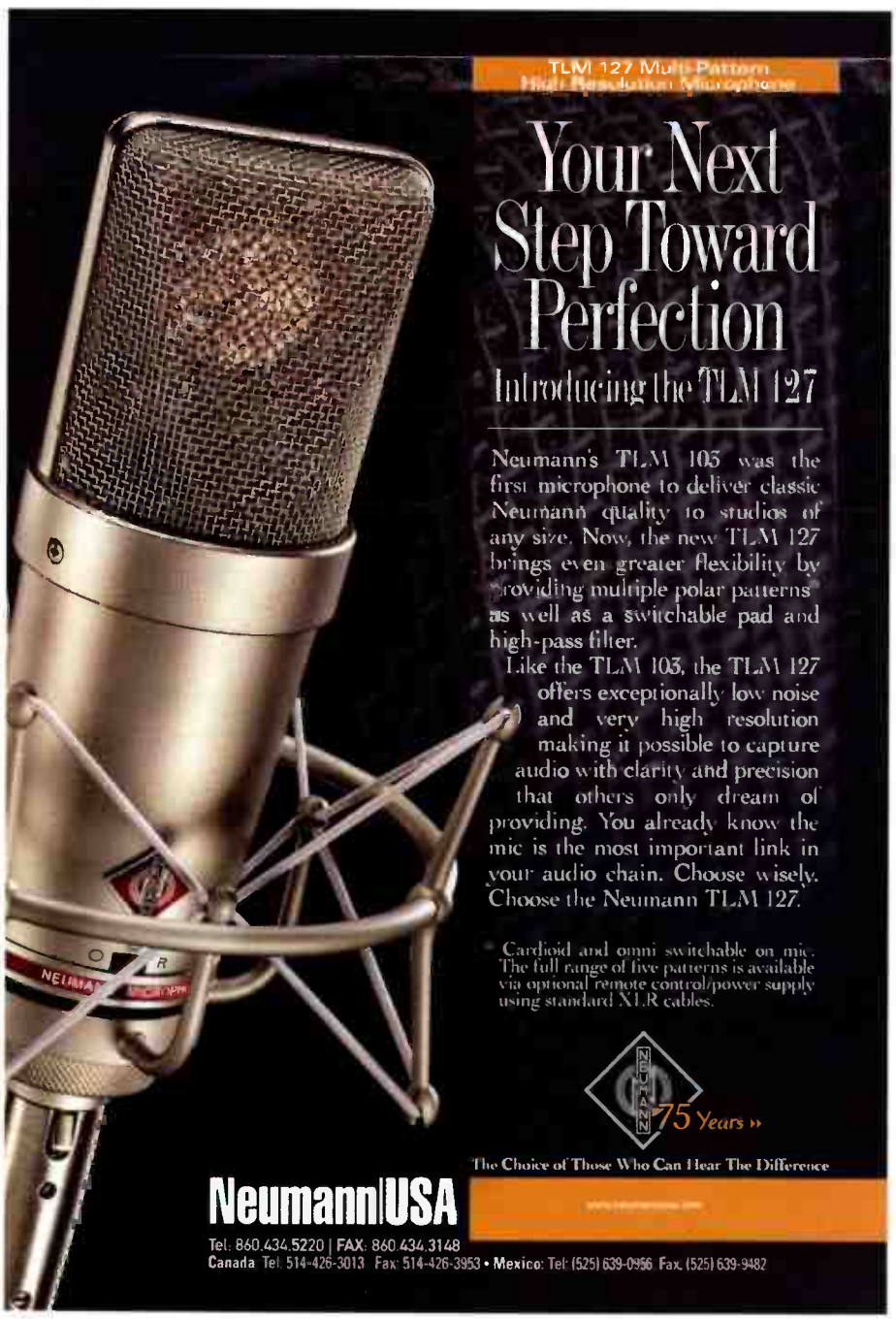
the tutorials on the Acoustisoft web site shows the low frequency response for a subwoofer at eight different locations, so you can easily see which placement is the most accurate. There's also a Device Designer that helps you build Helmholtz resonator bass traps and QRD diffusors.

Finally, ETF allows you to run a test once, then analyze and report on the data in many different ways later. When you run a test and save the result, *all* of the data is stored in the file. That data can then be manipulated later using all of the ETF options.

## AL FINE

As we've seen, the key to creating excellent mixes is being able to hear clearly and accurately — even the best monitor speakers in the world are of little use if your control room is lying to you. I'll leave you with one final word about acoustic measurements: Worry most about the big deviations and don't sweat the small stuff. If you can get your control room flat to within ±10dB, you're doing really well. And no, I'm not kidding!

*Ethan Winer has been writing about audio technology since the 1970s. He now heads up RealTraps, which manufactures acoustic treatment and bass traps. Stop by www.realtraps.com, or visit Ethan on his acoustics forum at www.eqmag.com.*



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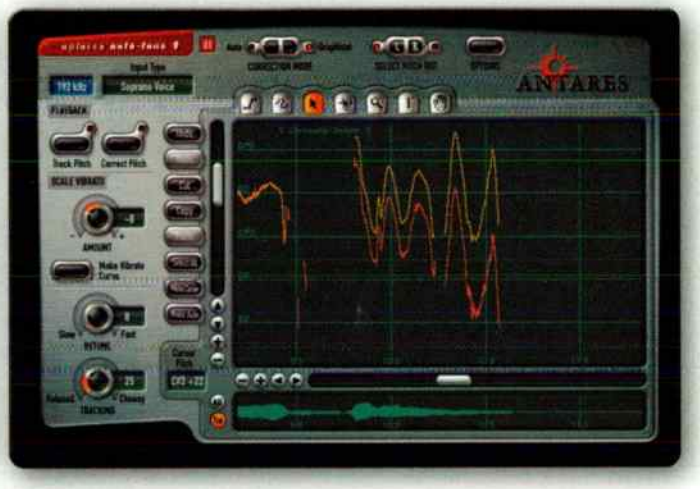
# Four!

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## 1820m $499.99*

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- Two TFPro Mic/Line/Hi-Z preamps (w/48V phantom power)
- Six 1/4" Balanced Inputs
- Eight 1/4" Balanced Outputs
- Turntable Input (w/ground lug and hardware RIAA preamp)
- 24-bit/192kHz ADAT In/Out (switchable to S/PDIF)
- 24-bit/96kHz coaxial S/PDIF In/Out (switchable to AES/EBU)
- 24-bit/96kHz optical S/PDIF Out (switchable to AES/EBU)
- Two sets of MIDI In/Out
- Four stereo 1/8" Speaker Outputs (configurable from stereo to 7.1)
- Stereo Headphone Output
- FireWire® Interface

### Sync Configuration:

- Word Clock In/Out
- SMPTE In/Out
- MTC Out

## 1820 $399.99*

### I/O Configuration:

- Two TFPro Mic/Line/Hi-Z preamps (w/48V phantom power)
- Six 1/4" Balanced Inputs
- Eight 1/4" Balanced Outputs
- Turntable Input (w/ground lug and hardware RIAA preamp)
- 24-bit/192kHz ADAT In/Out (switchable to S/PDIF)
- 24-bit/96kHz coaxial S/PDIF In/Out (switchable to AES/EBU)
- 24-bit/96kHz optical S/PDIF Out (switchable to AES/EBU)
- Two sets of MIDI In/Out
- Four stereo 1/8" Speaker Outputs (configurable from stereo to 7.1)
- Stereo Headphone Output
- FireWire® Interface

## 1212m $199.99*

### I/O Configuration*

- Two 1/4" Balanced Inputs
- Two 1/4" Balanced Outputs
- 24-bit/192kHz ADAT In/Out (switchable to S/PDIF)
- 24-bit/96kHz S/PDIF In/Out (switchable to AES/EBU)
- MIDI In/Out
- FireWire® Interface

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# The Art of Recording: One dB Quieter at a Time

## Sometimes the little things add up to big things

**The whole is equal to the sum of its parts . . . as anyone who ever used analog tape will attest. Who can forget that feeling of hearing yet another contribution to the noise floor whenever you brought up a fader, as one more track of tape hiss worked its way to the output?**

by Craig Anderton

With today's digital recorders, tape hiss isn't an issue any more. But our standards are now more stringent, too. We expect 24-bit resolution and noise floors that hit theoretical minimums. As a result, every little extra decibel of noise, distortion, or coloration adds up, especially if you're into using lots of tracks. A cheapo mic preamp's hiss might not make a big difference if it's only used to capture a track of the lead singer in the punk band Snot Puppies of Doom, but if you're using it to record 12 tracks of acoustic instruments, you *will* hear a difference.

**Fig. 1. The Autogate section of Cubase SX 2's Dynamics module includes all of the traditional functions, but also offers gating based on frequency so that only particular frequencies open the gate. This makes it useful as a special effect as well as for reducing noise.**

I've often stated that all that matters in music is the emotional impact, but still, it's even better when that emotional impact is married with pristine sound quality. So, let's get out the "audio magnifying glass" — headphones (even though they don't work for mixing, headphones are great when you need to really pay attention to details on a track), and clean up our tracks . . .one decibel at a time.

### PREVENTING THE NOISE PROBLEM

Even in today's digital world, there's hiss from converters, guitar amps, preamps, direct boxes, instrument outputs, and more. The individual contribution in one track may not be much, but when low-level signals aren't masked by noise, you'll hear a much more "open" sound and improved soundstage. (And if you don't think extremely low levels of noise make that much of a difference, consider dithering — it's very low level, but has a significant effect on our perception of sound.)

The first way to reduce noise is *prevention*. Maybe it *is* worth spending the bucks on a better mic pre if it's going to shave a few decibels off your noise figure. And what about your direct box? If it's active, it might be time for an upgrade there as well. If it's not active but transformer-based instead, then that's an issue in itself as the transformer may pick up hum (first line of defense: re-position it).

Here are some additional tips:

- Gain-staging is vital to minimizing noise, as you want to send the maximum level short of distortion to the next stage. But be careful. Personally, I'd rather lose a few decibels of noise figure than experience distortion caused by an unintentional overload.
- Crackles can be even more problematic than hiss. Use contact cleaner on your patch cord plugs, jack contacts, and controls. Tiny crackles can be masked

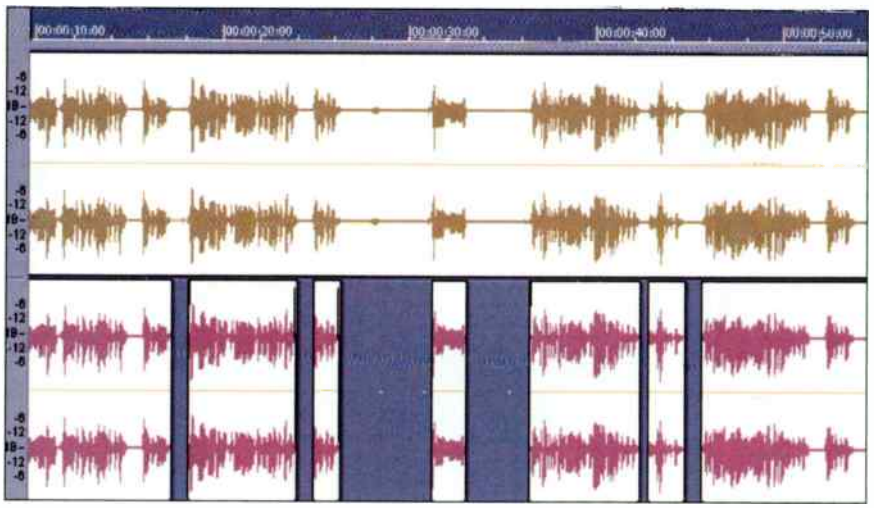

**Fig. 2. The upper track is the original version; the lower track has had the noise reduced manually by cutting out the spaces between chunks of audio.**



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# WHY PAY LESS?

## I'm amazed at the recent price drop of entry level condenser microphones. $99, $49.

## Is the $1.99 microphone coming?

Electronic Musician 2004 EDITORS CHOICE

Are they any good? Well the short answer is yes!

Today, there are many cheap guitars, drums and keys for sale. These novice instruments serve a purpose by allowing kids and those who want to begin to experience music, to do so at a relatively low cost. If they don't continue playing, they haven't lost a lot of money. The cheap microphone does the same thing for recording.

The **NT1-A** was not designed for this purpose. The **NT1-A** is a studio quality microphone designed for people who are serious about their music. This is a creative tool that can be relied upon to capture your art.

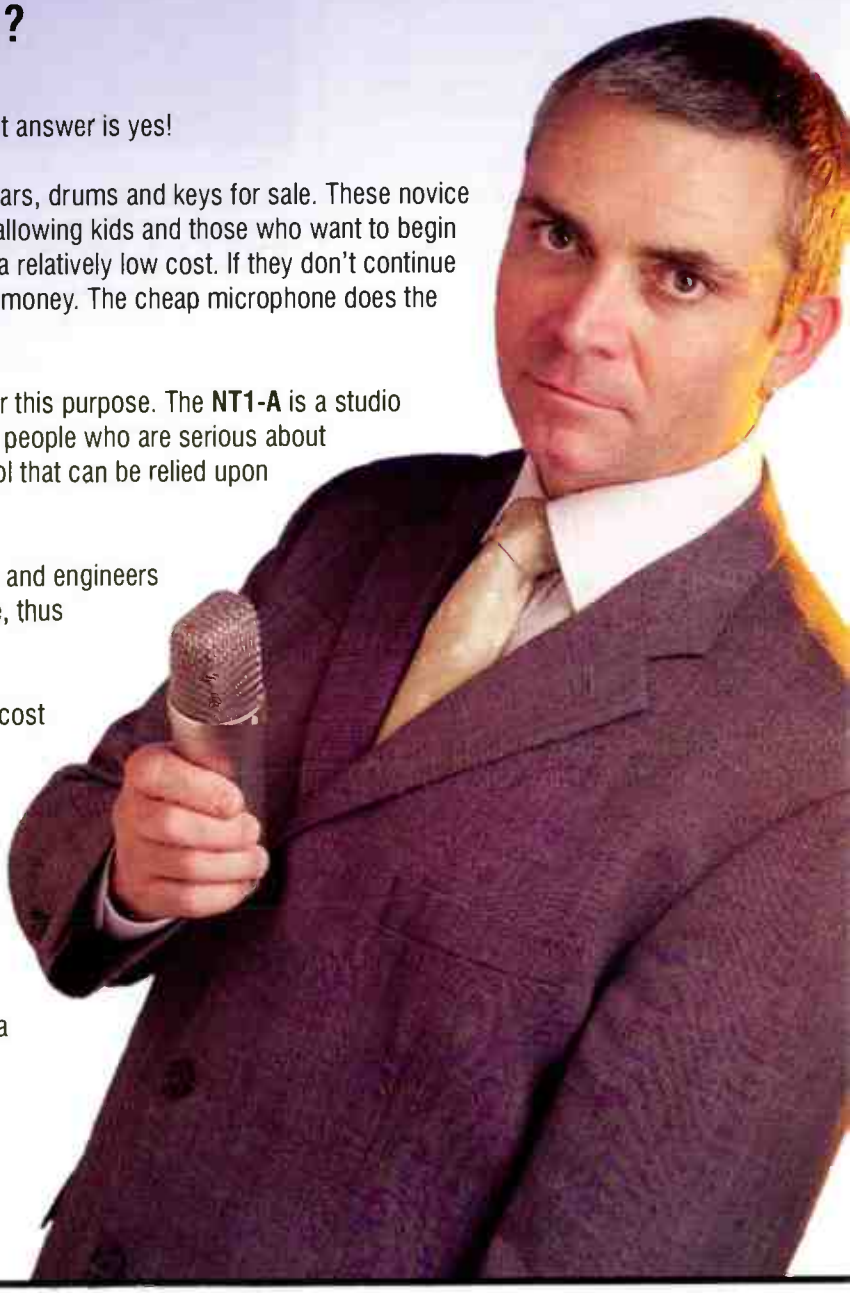
Thousands of serious musicians and engineers have invested in this microphone, thus making it an industry standard.

While the **NT-1A** isn't the lowest cost microphone available, its worth every penny and continues to win prestigious awards for quality and performance.

Please listen to the **NT-1A** before you buy any microphone, and you too will hear why you should invest just a little more for the real thing.

**Peter Freedman**
President

**Røde Microphones**

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during the recording process by everything else that's going on, but may show up under scrutiny during playback. In a worst-case situation, the surfaces of dissimilar metals may have actually started to crystallize. Not only can that generate noise, but those crystals are all potential miniature crystal radios, which can turn RFI into audio that gets pumped into the connection. Not good.

- Make sure any unnecessary mixer channels are muted when you record. With my digital mixer, I have a preset specifically for recording vocals that turns off all channels except the one for vocals. Every unmuted channel is another potential source of hiss.
- Unless you have a really high-end sound card like the Lynx line, avoid sending any analog signals into your computer. Use digital I/O and a separate, remote converter.
- If you use a CRT monitor, or even have a CRT on while you're recording, don't forget that it's pumping out a high frequency signal (around 15kHz). This can get into your mics and add more noise. Turn it off while recording if possible, or get an LCD monitor.
- When recording electric guitar, pickups are prone to picking up hum and other interference. Try various guitar positions until you find the one that generates the minimum amount of noise. If you have a Line 6 Variax, consider yourself fortunate — it won't pick up any hum at all.
- Ground loops are another source of noise and hum. Explaining how to track down and eliminate ground loops is beyond the scope of this article — maybe we'll cover this subject in the future. But suffice it to say you don't want them.

No matter how hard you try, though, some noise is going to make it into your recorded tracks. That's when it's time to bring out the heavy artillery.

## DEALING WITH NOISE AFTER THE FACT

With a typical hard disk-based DAW, you have three main ways to get rid of constant noise (hiss and some types of hum): noise removal, noise gating, and noise reduction.

**Noise gating** (Figure 1) is the crudest method of removing noise. As a refresher, a noise gate has a particular threshold level. Signals above this level pass through unimpeded to the gate out. Signals below this threshold (*e.g.*, hiss, low-level hum, etc.) cause the gate to switch off, so it doesn't pass any audio and mutes the output.

**Fig. 3. BIAS SoundSoap Pro is a standalone program for the Mac designed to take a sample of noise, then subtract that from the audio signal. It also offers a other noise reduction tools, including noise gating.**

Early noise gates were subject to a variety of problems, like "chattering" (*i.e.*, as a signal decayed, its output level would criss-cross over the threshold, thus switching the gate on and off rapidly). Newer gates have controls that can specify attack time so that the gate ramps up instead of slamming on, decay time so the gate shuts off more smoothly, and a "look-ahead" function so you can set a bit of attack time yet not cut off initial transients. Noise gates are effective with very low-level signals and tracks with defined "blocks" of sound, but the noise remains when signal is present — it's just masked.

**Noise removal** (Figure 2) is the manual version of noise gating. It's a far more tedious process, but can lead to better results with "problem" material. With noise removal, you cut the quiet spaces between the audio you want to keep, adding fades as desired to fade in or out of the silence, thus making any transitions less noticeable. However, doing this for all the tracks in a tune can be pretty time-consuming; in most cases, noise gating will do an equally satisfactory job.

**Noise reduction** (Figure 3) actually takes the noise out of the entire track, rather than simply masking it. Because noise reduction is a CPU-intensive process, you'll usually need to use a standalone application, or a plug-in within a waveform editor. Adobe Audition has very effective noise reduction tools, and Sonic Foundry makes a great noise reduction plug-in. For the Mac, BIAS's SoundSoap Pro is an equivalent type of program.

Note that you'll likely have to export the track in your DAW as a separate audio file, process it in the noise reduction program, then import it back into your project. Also, you will generally need a sample of the noise you're trying to remove (called a "noise print," in the same sense as a fingerprint). It need only be a few hundred milliseconds, but should consist solely of the signal you're trying to remove, nothing else. Once you have this sample, the program can mathematically subtract it from the waveform, thus leaving a de-noised waveform.

While this all sounds good in theory — and 90% of the time, it's good in practice too — there are a few cautions.

- Noise reduction works best on signals that don't have a lot of noise. Trying to take out large chunks of noise will inevitably remove some of the audio you want to keep.
- Use the minimum amount of noise reduction needed to achieve the desired result. 10dB is usually pretty safe. Larger values may work, but may also add some artifacts to the audio. Let your ears be the judge; like distortion, I find audible artifacts more objectionable than a little bit of noise.
- You can sometimes save presets of particular noise prints, for example, of a preamp you always use. This lets you apply noise reduction to signals even if you can't find a section with noise only.
- In some cases you may obtain better results by running the noise reduction twice with light noise removal rather than once with more extensive removal.

So is all this effort worth it? I think you'll be pretty surprised when you hear what happens to a mix when the noise contributed by each track is gone. Granted, it's not the biggest difference in the world, and we're talking about something that happens at a very low level. But minimizing even low-level noise can lead to a major improvement in the final sound. EQ



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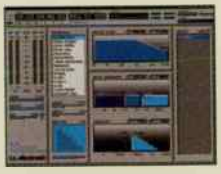

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* The VS8F-3 Expansion Board is compatible with Roland's VS-2000CD/2400CD/2480 series recorders. Support for the VS-1680/1880/1824 is planned for summer 2004. Five Roland plug-ins are included with the VS8F-3 (Stereo Reverb, Tempo Mapping, Pre-Amp Modeling, Mastering Toolkit, Vocal Channel Strip). All other plug-ins, VGA output, and monitor are sold separately.

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# mLAN: The Music Network

By Steve Garth

It was 1983, and MIDI had just been born. At the time I worked for Sequential Circuits, so I ripped open two Prophet-600s, plugged a strange 5 pin DIN cable from the first one's MIDI Out to the second's MIDI In . . . and that's when the magic started. Suddenly, these keyboards weren't standalone instruments, but part of a *system*.

Dave Smith (Sequential Circuits' President) saw MIDI as connecting synthesizers and effects by sending note on/off commands, patch changes and controller information. Few realized that a revolution had started, and new industries would change the way we made music. Even now, over 20 years later, there's a new MIDI-based market of MIDI ring tones for cell phones.

mLAN (music Local Area Network) has the same potential to change the music production landscape. Like MIDI, it's a technology that connects products from various manufacturers in ways that haven't been done before. The result is new creative choices, and different workflow environments.

Also like MIDI, it's a technology based on one cable. A FireWire/IEEE 1394 cable passes multiple channels of audio and MIDI, word clock, and the mLAN control protocol. The goal is to minimize installation and troubleshooting headaches by removing layers of complexity and expense, thus creating a more seamless artistic experience.

## mLAN BEGINNINGS

mLAN was born in 1993 when Yamaha began to explore existing network technologies for use in high performance audio/MIDI networks. They selected IEEE 1394, on which Apple had based their FireWire protocol. It could carry multiple types of data down a single cable and interface easily with computers — a perfect fit with Yamaha's design goals.

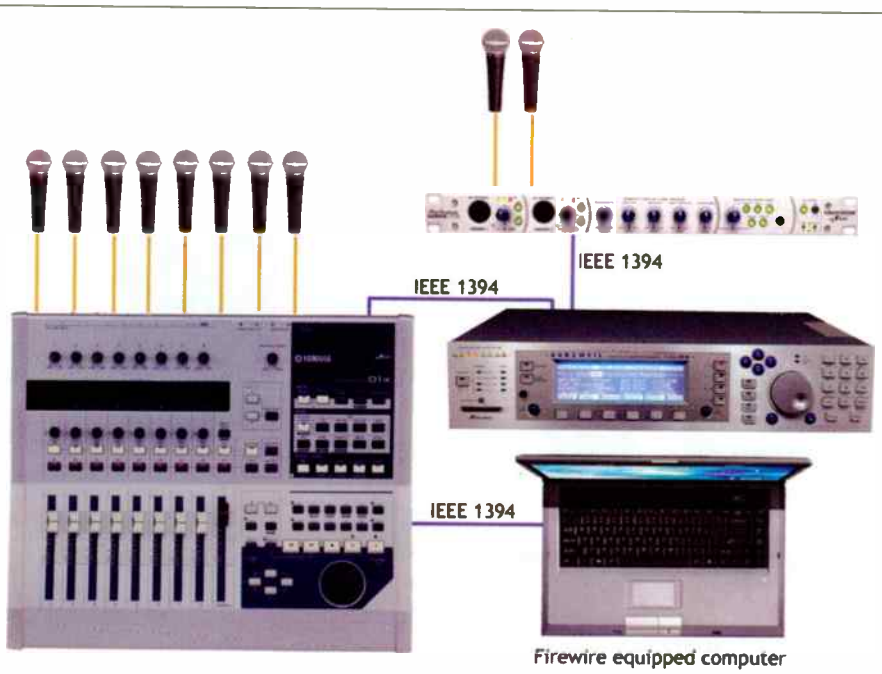
Yamaha worked for several years on the technology that would allow for transmitting/receiving audio and MIDI over IEEE 1394, eventually producing a body of work called the Audio and Music Protocol. This work was contributed to the 1394 Trade Association, and is the standard used for streaming audio and music data over FireWire. It was standardized in IEC (International Electrotechnical Commission, www.iec.ch) as the IEC61883-6 open standard.

In addition, Yamaha and other companies worked together to create a network connection management protocol. This was eventually contributed to the 1394 Trade Association as the AV/C Digital Interface Control Set, and allows for the simple point-to-point connections possible with the majority of the currently available, non-mLAN FireWire devices.

## DOES mLAN = MIDI + FIREWIRE?

mLAN is actually quite different from FireWire. For the "big picture," imagine a network of interconnected water pipes. The water is the data (digital audio and MIDI), the pipes are the FireWire, and mLAN represents the pumps, valves and spigots that direct and control that water. mLAN provides the intelligence that FireWire doesn't have, and combines the ability to transport and control multi-port MIDI and multi-channel digital audio.

Most FireWire audio solutions are either simple point-to-point solutions (one audio product connected to one computer), or company-specific proprietary designs that tweak the FireWire specification to




**This typical mLAN system hooks together a Yamaha 01X mixer/controller, PreSonus FireStation, Kurzweil KSP8, and laptop computer. Note how all these elements interconnect with a single cable, which carries audio, MIDI, and word clock.**



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# Freedom

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Based on the Access Virus Indigo hardware synthesizer, the Virus|PowerCore plug-in transforms your system into a synthesizer featuring 16 voices, three main oscillators, two filters, three LFOs and two envelopes for every voice. With built-in effects like chorus, phaser, ring modulators, multiple distortion, delay and reverb, your imagination is the limit!

**V-STATION | POWERCORE - by NOVATION**
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The V-Station PowerCore is built on the award winning K-Station from Novation and the plug-in comes with three powerful oscillators, liquid analog filters, and 6 simultaneous FX per instance like reverb, chorus, phaser, delay, panning & distortion and EQ Filter. There are phatt Novation synth sounds, an arpeggiator with programmable speed, synchronisation and sweep range, and an 8-12 note polyphony per instance giving a total of 32-48 voices. It's all there....

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meet their own needs. Unfortunately, the latter results in incompatibility issues.

Unlike AV/C, mLAN provides very sophisticated connection management for an audio/MIDI network with multiple devices. Audio and MIDI can be routed in any configuration; saving a configuration creates a template that can be recalled at any time. Configurations are automatically re-established if a device is disconnected from the network and then reconnected. mLAN also manages word clock for all connected devices, as the Audio and Music Protocol allows for the distribution of multiple sample rates on a single bus.

### CHANNEL SURFING

Several factors influence the number of audio channels mLAN supports. Bus speed directly affects network bandwidth; current S400 (400Mbps) network speeds should easily support 150 or more audio channels with 24-bit/48kHz resolution. As S800 bus speeds become more common, channel counts will double.

However, these numbers reflect the network's *total* audio traffic. For example, a device with 128 channels of audio I/O would nearly fill the network with traffic; a dozen 8-channel devices would take up the same bandwidth. mLAN can also support tens of thousands of MIDI channels, as MIDI requires far less bandwidth than audio. Again, this reflects the capabilities of the total network, not individual pieces of gear.

### Links

**For additional info, check out:**

**www.mlancentral.com — the official mLAN information site**

**www.1394ta.org/Press/2003Press/january/White_paper.pdf — Oxford Semiconductor's white paper on moving audio over IEEE 1394**

**www.semiconductors.philips.com/buses/1394/background/ — background info on IEEE 1394 from Philips Semiconductor**

**www.1394ta.org/ — the official IEEE (Institute of Electrical and Electronic Engineers) Trade Association site**

### THE MAC/WINDOWS CONNECTION

mLAN works at the driver level on your computer, so it's compatible with just about any modern sequencer/DAW software. In Mac OS X version 10.3.3, mLAN streaming services are closely integrated into the Apple FireWire audio driver and published through Core Audio.

In Microsoft Windows XP, you can use DAW software that supports multi-channel ASIO drivers, and simultaneously use mLAN for any application that supports WDM stereo audio. So, you can use mLAN's WDM portion for your standard Windows sounds, games, or PCM editing software without switching drivers.

### THE SINGLE CABLE ADVANTAGE

MLAN's bi-directional cable means there's no difference between in and out. Furthermore, there's no need to invest in different types of cables, nor in "mLAN patchbays" — all patching can be handled in software. This makes wiring up a studio pretty easy.

Another advantage is super-simple troubleshooting. As mLAN sends audio, MIDI, word clock, and control data down one IEEE 1394/FireWire cable in both directions, if you think you have a cable

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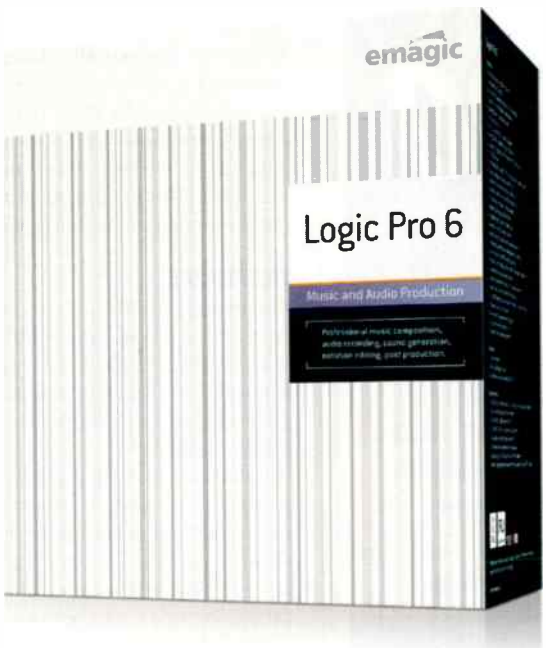
# All in one box.



The most widely used program of its kind for professional music creation and audio production is now more attractive than ever before. The new Logic Pro 6 contains all Emagic's superb plug-ins and software instruments, making it not only the best-equipped music production software available, but also the one with the most unbelievable price/performance ratio. Emagic's considerable expertise and experience in music composition, audio recording, sound generation, notation editing and publishing, post production, and film scoring is now all in one box – in Logic Pro 6.

www.emagic.de or www.apple.com/software/pro

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problem you know exactly which cable it is. Pop in a new one, and keep on going.

### THE INTELLIGENT NETWORK

mLAN's real power lies in the control protocols for creating and controlling musical connections on a true network. Because all devices are active and have control at all times, the workflow is very different from conventional setups where the computer is always the master control — you can jump to any point on the network and work from there at any time.

The intelligence lies in the autoconnect process; when you first set up your network, you configure it on a computer with virtual patchbay software. This recognizes each device automatically, and a simple drag-and-drop sets its position in the network. For example, you can assign digital mixer I/O, drop in insert effects, or add a synth — all without having to plug or unplug a cable. After completing a set up, you can save it as a template.

One really cool feature is that if you have to physically break down the network to take your keyboard and effects box off to a gig, upon returning you can plug them back in with your FireWire cable and they automatically remember their network position and routing upon power-up. So unlike USB, you don't need a computer in the system to have an mLAN network. Once you initially set up the mLAN network using the computer, you can take the computer out of the system, plug the gear together by itself, and it will re-connect in the last saved configuration.

### ONE STANDARD – MANY COMPANIES

Over 60 companies (including chip designers, hardware makers, software developers, and OS vendors) support and license mLAN, and their number is growing. Because mLAN is an open networking standard protocol, it can adapt to new technologies and architectures.

Some current mLAN-compatible products include the Kurzweil KSP8, Presonus Firestation, Apogee AD-8000 and Trak2, Yamaha 01X, Yamaha i88X interface, Yamaha mLAN 16e, Otari ND-20 Network Audio Distribution Unit, Qolle izm125 digital surround field mixer, and the I/One Modular mLAN I/O Breakout box — with many more on the drawing boards.

### THE FUTURE

Where does mLAN go from here? It's a little bit like asking where MIDI was going to go in 1983. Who would have anticipated MIDI control of virtual software synthesizers, MIDI Show Control, or MIDI ring tones?

Wireless is one possibility; imagine you and your buddy collaborating on a project with your laptops in an airport terminal. The mLAN specification also accommodates timecode, which has applications in professional environments. And just as MIDI drifted down into consumer-oriented devices, the same might happen with mLAN.

As more manufacturers adopt the mLAN protocol, users will be able to spend more time on artistic endeavors and less on setup. In today's world of complex gear with mind-boggling possibilities, anything that simplifies hooking them up, and using them in an efficient, ergonomic fashion, is certainly welcome. EQ

*Steve Garth is currently heading up the mLAN Alliance, a collective of companies and organizations that support mLAN technology. Prior to that he was with Steinberg for 18 years — first in the UK, then Germany, and then in the U.S. as president and CEO of Steinberg North America.*

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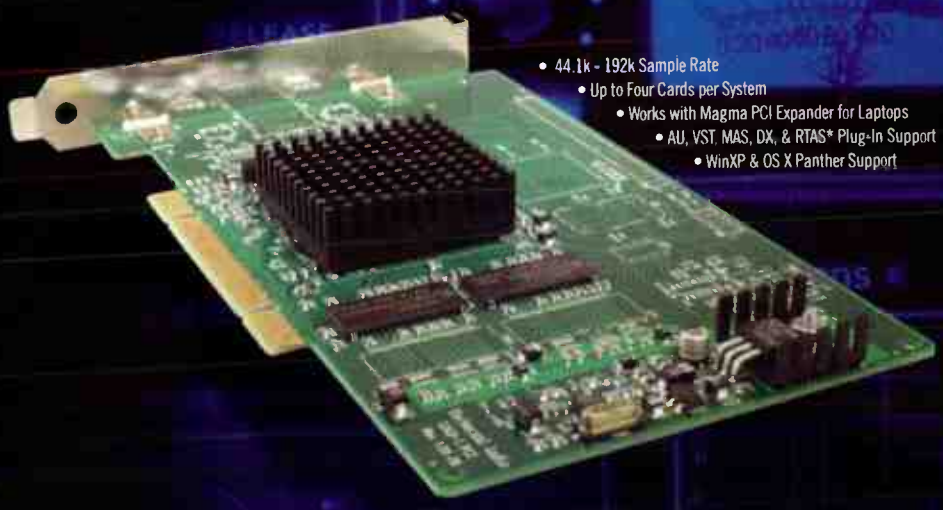
# Ultimate Upgrade for Digital Audio Workstations



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LA-2A LevelingAmplifier

Pultec EQP-1A Program Equalizer

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Mike Clute - Pro Sound News, October 2002

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| DM-1/DM-11 Delay Modulators | • | • |
| RS-1 Reflection Engine | • | • |
| EX-1 EQ & Compressor | • | • |
| Nigel | • | • |
| RealVerb Pro | • | • |
| Pultec EQP-1A | • | • |
| 1176 SE Limiting Amplifier | • | • |
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World Radio History

# Primacoustic London 15

## Acoustic Treatment System for Project Studios

by John Krogh

**Type:** Foam acoustic material
**Price:** $750 (as tested), $450 (London 12), $1,175 (London 16)
**Contact:** Primacoustic, www.primacoustic.com

**Included panels/components:** 4 bass traps, 1 flutter wall panel (6' x 3'), 2 side panels (3' x 3'), 24 wedges (12" x 6")

If you're anything like me, your project studio is set up in a spare bedroom, converted garage, or some other space that's essentially a square or rectangular box. In other words, not an ideal acoustic space. Box-shaped rooms can create all sorts of problems from slap-back echoes to seriously resonant frequencies. Wall and floor surface materials might also accentuate the acoustic anomalies even further. This all equates to a poor monitoring and tracking environment. Unfortunately for most of us, building new rooms or remodeling our existing rooms is out of the question. So what's a project studio owner to do? One of the best options is to "tune" our recording and mixing spaces using DIY or commercially available materials designed to compensate for and correct problems created by working in a boxy room.

There are a dozen or more manufacturers that make acoustic treatment, and Primacoustic is one of the few that sells complete systems aimed at controlling low, mid, and high-frequency issues. These systems come in a variety of configurations based on room size and shape. For my studio — a 12.5' x 24' room off the basement — Primacoustic sent a London 14 package, along with extra small wedges for additional "spot" treatment.

I've been battling with excessive slap-back and resonant low frequencies, so I was looking forward to installing the London 14. But would it spell the end of my studio's acoustic warts?

### PLANNING & INSTALLATION

Unlike some other acoustic treatment devices, the Primacoustic systems require a bit of assembly. The wall panels are created by gluing smaller strips and blocks of foam into one of several patterns. Liquid Nails adhesive is included and the installation instructions provide a variety of interesting patterns to choose from. It's also suggested that you purchase a strip of drywall corner bead (available at any Home Depot, Orchard Supply Hardware, or other similar store). This is supposed to be used as a horizontal edge along the bottom of the foam. As you glue the panels to the wall, the corner bead helps support and level the foam.

I had installed a London system exactly as instructed for a friend, and found that using corner bead was helpful, but we still had problems with the foam sliding around after we'd stuck it to the wall. It was especially difficult to keep things lined up properly — pieces would shift, which made the panels look crooked.

So for my studio I decided I would glue the foam to separate pieces of 1/4" pressed board. That way I could work with the foam on a flat surface (gravity wouldn't pull the foam out of position). It also meant I could move panels around the studio for optimal placement.

PRIMACOUSTIC'S ACOUSTIC PANELS ARE MADE BY ATTACHING FOAM PIECES TO A WALL OR BOARD WITH LIQUID NAILS, AS SHOWN HERE.

I HUNG THE BASS TRAPS (SHOWN HERE) FROM RING HANGERS ATTACHED TO PIECES OF 1/4" BOARD GLUED TO THE BACK.



World Radio History

THE PORTABLE FREEPORT PANELS ARE SOLD IN PAIRS AND ARE DESIGNED TO BE USED FOR MIXING AND TRACKING.

With my plan in place, I laid out the foam on the boards. After trying several arrangements, I found patterns for the main panel behind the speakers and the side panels. I created a 1' x 2' shape with four of the small Scandia blocks (small 12" x 6" blocks) — I made eight of these units, which would become my spot treatment panels. (Note: The bass traps are solid pieces, so no assembly was necessary.) ➤

## Freeport

**Primacoustics' Free Standing Portable Acoustic Panel (a.k.a. Freeport; $300 per pair) is a lightweight acoustic absorber. The unit consists of acoustic foam affixed to a corrugated backing panel, and mounted on a stand made from PVC pipes. The stand arrives disassembled; putting it together is simply a matter of pushing the pipes into elbow and "T" fittings. No glue is required, which means that you can take the panels apart for storage and transport. I received six Freeports for review, and had them leisurely assembled in 30 minutes.**

**The Freeport provides an easy solution for acoustic absorption in studios. My studio is well-treated, but I experimented with placing the Freeports around my monitors, as described in the manual. I was surprised with the results. Imaging, in particular, became even better, and the upper midrange cleaned up nicely.**

**Next I used the Freeports to create a recording "space" for vocals and for acoustic guitar. By placing the Freeports in a ring around the mic, I was able to remove the room from the equation, as well as block out some computer fan noise. The Freeports are 6' tall, about 2' off the floor. You can order 8" PVC pipes if you need the Freeports lower to the ground for, say, guitar amp baffling.**

**Freeports won't totally isolate a source, but they do a great job of cutting room effects and controlling ambience. They're light, mobile, and they work. I'm hooked.** *—Mitch Gallagher*

A FINISHED LONDON INSTALLATION — SHOWN HERE ARE TWO BASS TRAPS, A FLUTTER WALL, AND A SIDE PANEL. NOTE: THE FOAM CAN BE PAINTED TO MATCH YOUR STUDIO'S INTERIOR.



World Radio History

# Primacoustic London 15

FIG. 1. I MARKED THE RING-HANGER SCREW LOCATIONS BY PRESSING AGAINST THE PANEL WITH THE RULER TAPED TO THE BACK.

It took a full day just to glue all the panels, and after I finished I was faced with the challenge of how to hang them. I finally ended up using a combination of ring hangers and heavy-duty Velcro to fasten the panels and bass traps to my studio walls. It was tricky getting the panels to hang level — I devised a tool (a ruler with a wood screw screwed half-way through) to mark the place where the ring hangers would connect to the wall (see Figure 1).

I wasn't sure where to place all of the panels, though, because I have such a long room, and the documentation didn't give any suggestions for rooms of this size. There weren't any general guidelines or tips for placement, either, so I called Peter Janis at Primacoustics. He recommended additional treatment at the mix end of my room, and suggested I stack the bass traps on top of each other instead of putting one in each corner.

I took his advice, but left an "open area" on the right and left sides of the speakers. This way I could experiment with different panel positions, and fill in with spot panels, if necessary.

## RESULTS

With the bass traps, main flutter wall, and additional spot panels fixed to the wall behind my speakers and a 3' x 3' panel placed on either side, I was ready to start my listening tests. I cued up a variety of rock and pop CDs, including U2 *All That You Can't Leave Behind*, Third Eye Blind *Blue*, and Gary Numan *Hybrid*, as well as few intimate cuts from Norah Jones and Miles Davis. Immediately I noticed an improvement in the bass. Kick drum "woof" was tight and clear without sounding boomy or feeling over-exaggerated (a problem I had prior to installing the treatment). It seemed high-frequency slap-back was virtually eliminated, resulting in a noticeable improvement in imaging. So far so good, but I knew exactly which frequencies had given me problems in the past.

Curious to quantify what I thought I was hearing, I patched in a Neutrik

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# Primacoustic London 15

Minirator, which generates sine and square waves and pink and white noise, and my Radio Shack level meter. I also fired up Logic's ES1 soft synth and selected a simple sine wave patch so I could locate specific offending frequencies from a MIDI keyboard.

I set up the monitors and levels for an average listening level of about 85dB; the meter registered several bumps and dips of roughly 6dB in the mid and lower frequencies. In particular, I found a bump around 800Hz, a dip at 500Hz, another bump from 250Hz–150, and another dip at roughly 80Hz. I tried moving the monitors a little closer and farther from the wall, but this didn't seem to improve things. Feeling discouraged, I moved over to my MIDI controller.

Previously, MIDI notes G0 and F#0 (*i.e.*, 49 and 46.2Hz, respectively) would cause the room to rattle with resonating bass. While the meter measured an increase in level, the bumps weren't more than 2dB, and nothing rattled. Nice — even though the low-end response wasn't completely flat, as my earlier experiment had revealed, it was an improvement.

I spent the next few days reviewing mixes I made before installing the London 14, and was able to hear details — reverb characteristics, low frequency material from kick drum samples, etc. — that were previously unnoticed. Though the room wasn't tuned to the demanding specs of an acoustician, and the bass response was far from linear, I was able to hear more, and I was able to record tracks that weren't tainted by high-frequency slap echoes. Color me impressed.

## CONCLUSIONS

Primacoustic doesn't claim that their acoustic treatment systems will completely fix any and all room problems — only that they can help control what might be getting in your way (from a monitoring perspective, that is). In my case, there was a lot of slap-back echo that needed taming. The London 14's odd-shaped foam paneling is exactly the kind of thing to fix this, and indeed, my room's side-to-side "chatter" was virtually eliminated. And while certain bass frequencies still resonate in my studio, it's much less noticeable than before, which means I'm hearing something that's closer to a flat response. It might not be perfect, but without spending hundreds or even thousands more, I can't think of a more effective solution to the acoustic problems plaguing the average project studio. EQ

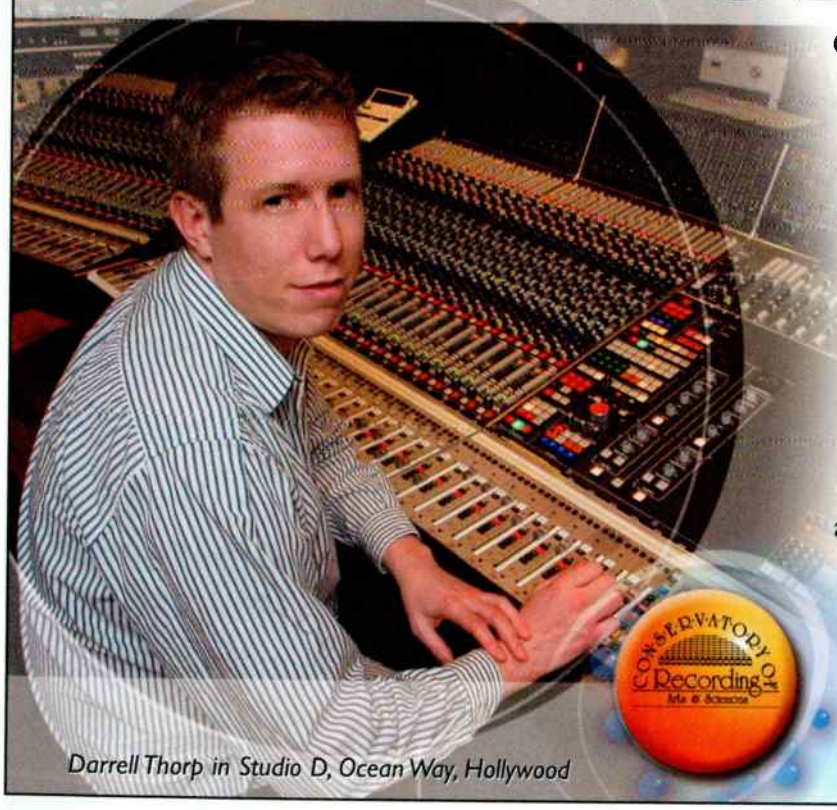
**Strengths:**

- Affordable solution for dealing with low, mid, and high frequencies.
- Multiple patterns allow you to "customize" the look of the panels.
- Especially effective at controlling mid- and high-frequency problems.

**Limitations:**

- May be less effective for lower frequency problems.
- Some assembly required.


CONGRATULATIONS!



Darrell Thorp in Studio D, Ocean Way, Hollywood

Conservatory graduates Darrell Thorp and Moka Nagatani were recently awarded Grammys for:

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- **Album of the Year, "Speakerboxxx/ The Love Below" OutKast.**

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"More than a loudness maximizer or a colorless compressor, Digidesign's Impact earns an *EQ* Award for bringing the ability to tighten up and add punch to mixes to the TDM plug-in world."

# Digidesign Impact

## A new source of punch for your Pro Tools mixes

by Mitch Gallagher

**Type:** TDM dynamics plug-in
**Price:** $695
**Contact:** Digidesign, www.digdesign.com

**Format:** Pro Tools Accel TDM
**Platform:** Mac OS 9/OS X, Windows XP
**Version reviewed:** 1.02 and 1.1 Beta 1
**Supported sample rates:** 44.1–192kHz
**Copy protection:** iLok authorization (iLok not included)
**Input:** mono, stereo, multi-channel
**Output:** mono, stereo, multi-channel
**Controls:** Ratio, Threshold, Attack, Release, Make-up gain, External On/Off, Sidechain listen
**Compression ratios:** 2:1, 4:1, 10:1, 20:1

For many styles of music, compression is a vital element in creating the sound, the vibe . . . the *impact*. Various types of compressors are available, but especially when mixing down, pro engineers often use the compressor built-into a certain large-format mixing console to glue the mix together, to add punch, and to raise the average level. Now Digidesign has created a virtual version of this well-known compressor, aptly naming it "Impact."

### STRAIGHT ON

Impact is straight-ahead and simple. If you've used a compressor before, it will make instant sense to you. The controls are standard compressor fare: Ratio, Threshold, Attack, Release, and Make-up gain. There are also switches for turning the sidechain on and off, and for monitoring the sidechain.

Metering is quite good. There's a gain reduction VU meter that's linear to –20dB, non-linear to –40dB. For mono and stereo instances of Impact, there are separate input and output level meters with clip lights. If you instantiate Impact on a multi-channel track or Master Fader, there's only room to show one multi-channel level meter; you can switch it between input and output level display.

That's it, simple and easy!

### THE SOUND

If you're looking for a transparent compressor, Impact may not be your cup of tea.

> I loved Impact for punching up electric guitar tracks, especially crunchy rhythm tones with some chunky low end.

Likewise, Impact isn't a "clean" level maximizing processor like Waves' L1 or L2 or Digidesign's Maxim. (Although Impact can certainly be used to cleanly crank up the level if that's what you

YOU CAN TRIGGER IMPACT'S COMPRESSION USING A SIDECHAIN. THE SIDECHAIN CAN TAKE AS ITS SOURCE EITHER A PRO TOOLS TRACK OR AN EXTERNAL INPUT SIGNAL. A HANDY FEATURE IS THE ABILITY TO LISTEN TO THE SIDECHAIN SIGNAL SO YOU CAN VERIFY EXACTLY WHAT'S TRIGGERING COMPRESSION.

IMPACT PROVIDES ALL THE CONTROL YOU NEED TO DIAL IN ADDED PUNCH FOR YOUR MIXES. GAIN REDUCTION AND INPUT AND OUTPUT LEVEL METERING ARE AVAILABLE. STRAIGHT-AHEAD, BUT EFFECTIVE.



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# Digidesign Impact

really want. . . .) Rather Impact is a compressor with some personality. You'll find that it adds punch and tightens up the bottom end.

I loved it for punching up electric guitar tracks, especially crunchy rhythm tones with some chunky low end. It also worked well for me on drums; kicks tightened up and had added, uh, impact. Likewise, snares and toms tightened up and came forward in the mix. On gentler acoustic tracks, I found Impact to be less effective. Classical guitars were tough to dial in, and steel-string fingerpicking sounded compressed, even with small amounts of gain reduction. For hard strummed acoustic guitar parts Impact worked fine, but on delicate tracks there are other compressors I'd reach for first.

As much as I liked Impact on tracks such as electric guitar and drums, I was even more thrilled with it as a mix-bus compressor. For rock 'n' roll, it adds that punch and tightness we're often searching for in our mixes. Even on softer acoustic-based songs, Impact adds a drive and presence that's nice — I'm not just talking about an increase in volume (which you may or may not choose to add) but a tonality that jumps out of the speaker more.

While you can squash tracks and mixes with Impact, I preferred using it more discretely; for most applications, I dialed in around 5dB of gain reduction on the peaks and compensated by using Make-up to raise the output level a suitable amount.

Given how well it works, Impact is surprisingly DSP efficient. Of course, it was also coded from the start to take full advantage of Accel DSP cards (see

## Accelerate

The latest DSP hardware from Digidesign is the Accel card — long-time Digi-philes can think of it as a Mix Farm or HD Process card on steroids. Like the earlier cards, Accel provides processing power for running TDM plug-ins and for the virtual mixer in Pro Tools. The Accel card offers significantly more DSP power than the previous HD Process card — almost twice as much — and four times the power of a Mix Farm card.

The HD Core card remains the same; you can either purchase a new Accel system, which includes a HD Core and one (Pro Tools|HD 2 Accel, $10,995) or two (Pro Tools|HD 3 Accel, $13,995) Accel cards, or you can add Accel cards ($4,995 each) to your existing HD system. All existing HD-compatible interfaces will work with Accel systems. Mac OS X or Windows XP and Pro Tools v6.2 or higher is required to run Accel systems.

The Accel card has two "legacy" chips that can run HD-compatible plug-ins, but to take full advantage of the more powerful DSP, plug-ins need to be updated for Accel compatibility. In addition to providing more power for running plug-ins, the Accel card also doubles the track count at all sample rates — you can now max out at 192 voices at 44.1 or 48kHz, for example. Like the HD cards, Accel cards can handle up to 32 channels of I/O.

I added an Accel card to my existing Pro Tools|HD 2 system; installation went without a hitch — the new card plugs right in and connects to the old. I updated several of my plug-ins, including those from Digidesign as well as the Massenberg Design Works EQ, Waves Diamond bundle, and others.

While you won't notice a sonic difference just by adding an Accel card to your system, you'll definitely notice the difference in the plug-in count. What previously took a full HD Process chip now only requires half a chip. You can load *tons* of plugs that support plug-in sharing. Plug-ins designed for efficiency can get a lot of mileage from Accel: I could load 39 of URS's A series EQ or 30 N series, for example.

And while it's wonderful that older plug-ins are being updated to take advantage of the increased plug-in counts, what I'm most anxious for is to see what developers come up with now that they have all that dedicated DSP power to play with. The first "ground-up" plug-in available exclusively for Accel is Digidesign's Impact (see main review); I'm sure we're going to see lots more as developers sink their teeth into the new cards.

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Digidesign
Impact

If you're an Accel-user looking to add punch to your mixes and to tighten up the lows, Impact is going to make you very happy.

sidebar), which helps. At 44.1 or 48kHz, you can run 25 mono instances of Impact on a single Accel DSP chip; in stereo you'll get 19 instances. These counts drop roughly in half at 88.2 or 96kHz. At 176.4 or 192kHz you can get five mono or four stereo Impacts on a single chip. With multi-channel instances, the counts are predictably lower. You can, for example, get twelve 5.1 Impacts per chip at 44.1 or 48kHz. Since there are seven Accel DSP chips per card, suffice it to say that you can run a *lot* of instances of Impact if you want or need to.

### COUNTDOWN TO IMPACT

If you're an Accel-user looking to add punch to your mixes and to tighten up the lows, Impact is going to make you very happy. It's not a do-everything generic compressor, but what it does it does extremely well. Highly recommended for those mixing rock, pop, country, blues, or any style of music that would benefit from added "jump out of the speaker" factor. EQ

**Strengths:**

- Adds punch
- Tightens up bass
- Glues mix together
- Easy to dial in

**Limitations:**

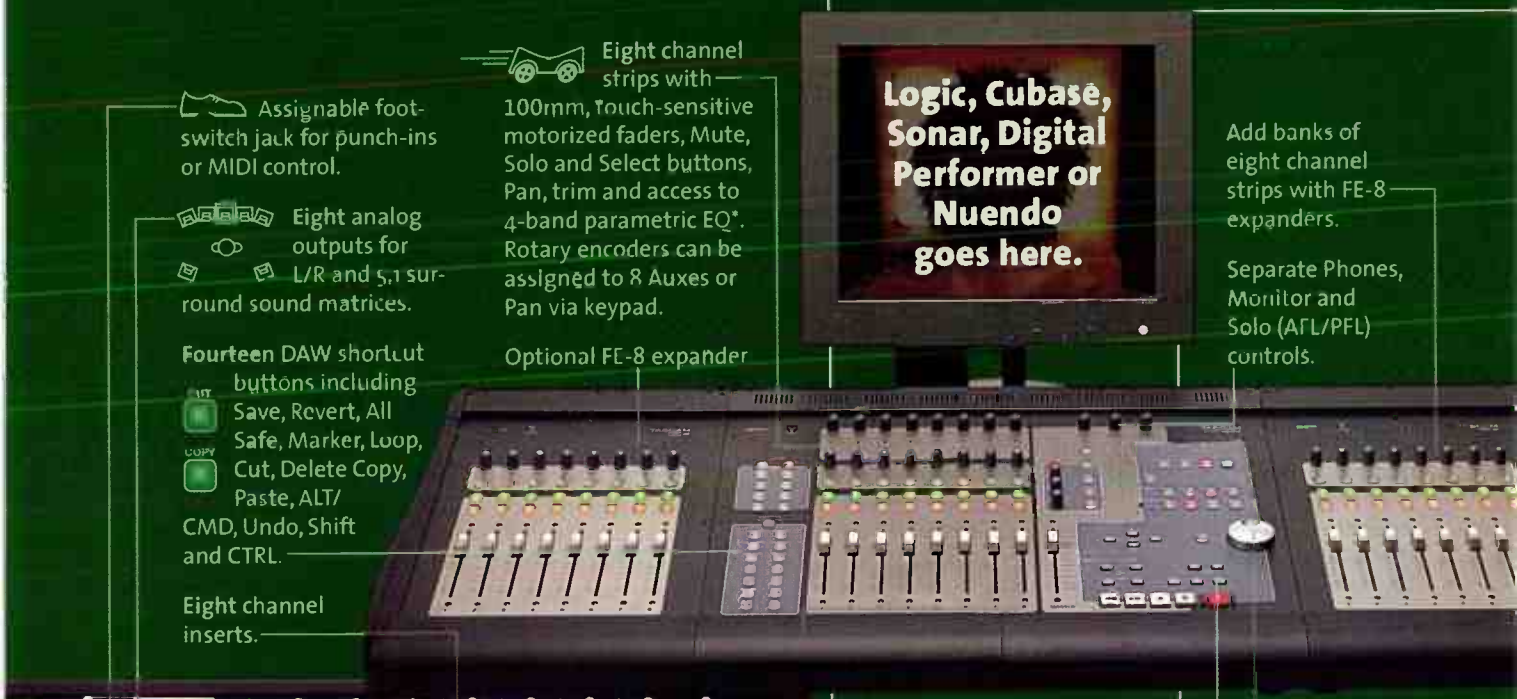
- Only works with Accel-equipped TDM systems

World Radio History

# FW-1884

## "TASCAM's FW-1884 is the answer for desktop musicians who like the Digi 002 design concept but don't want to switch to a new DAW."

ELECTRONIC MUSICIAN MAGAZINE NOVEMBER 2003

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# Eventide Octavox and Reverb

## Kick it up a notch with these two powerful plug-ins

by Mitch Gallagher

**Type:** Mac-based TDM plug-ins
**Price:** Reverb, $695; Octavox, $595
**Contact:** Eventide, www.eventide.com

**REVERB**
**Type:** reverb/multi-effects
**Format:** Pro Tools TDM (Mix, HD, and Accel)
**Platform:** Mac OS 9/OS X
**Copy protection:** iLok smart card authorization (iLok not included)
**Effects:** 9 reverb types with filters, dual delays with filters, pre- and post-reverb 3-band fully parametric EQ, pre- or post-reverb compressor, Lo-fi (bit reducer)
**Input:** mono or stereo
**Output:** stereo

**OCTAVOX**
**Type:** Harmonizer plug-in
**Format:** Pro Tools TDM (Mix, HD, and Accel)
**Platform:** Mac OS 9/OS X
**Copy protection:** iLok smart card authorization (iLok not included)
**Effects:** 8-voice Harmonizer, up to 4.8 seconds of delay per voice (depending on Pro Tools hardware)
**Input:** mono or stereo
**Output:** stereo
**Pitch shift type:** diatonic
**Pitch shift range:** ±2 octaves

If TDM users, it's time to have some fun! Eventide's Reverb and Octavox plug-ins for Pro Tools (Mix, HD, and Accel) may seem like utilitarian units — yet another 'verb and a pitch shifter — but there's a lot more going on than you'll see at first glance. There's unexpected depth and capability lurking within these processors that makes them powerful sound design tools.

Both plug-ins were derived from the algorithms in the company's Orville and Eclipse hardware processors, mixed with a bit of inspiration from the H949's Random Pitch algorithm. The result is a pair of plug-ins that go beyond the ordinary to become creative tools.

## REVERB

Reverb is actually more of a multi-effects processor than a straight reverb plug-in. Yes, you can strip it down to just do 'verbs, but it's capable of much, much more. The plug-in comprises a compressor, four EQs/filters, a Lo-fi processor, two delay units, and, of course, a reverb. The compressor can be placed either in front of the other processor modules or as the last processor at the end of the chain.

The two delays (with either in- or out-of-phase feedback) operate in parallel with the reverb section, and each has a 2-band high-/low-shelving filter. There's also a pre-reverb and a post-reverb 3-band parametric EQ, and the reverb has its own 2-band high-/low-shelving filter. If that seems to add up to five, not four, EQs, well, the two delay filter sets operate as a single unit, so it looks like four on the user interface. The graphic display shows curves for all four EQs, but you have to use the numeric entry fields in order to change settings; you can't click and drag the curves in the display screen.

The Lo-fi processor is used for bit reduction — you can grunge things up nicely, simulating what Eventide calls "vintage digital" reverb sound. The compressor can be used for either controlling the dynamics of incoming signals or for processing the output signal. The compressor's graphic display gives a good idea of the response you've set it for, and LCD meters read out gain reduction. You

EVENTIDE'S REVERB PROVIDES MULTI-EFFECTS-LIKE CAPABILITIES, INCLUDING DUAL DELAYS, FOUR EQS/FILTERS, AND A COMPRESSOR. IT CAN CREATE EVERYTHING FROM SUBTLE AMBIENCE TO BIG 'VERBS TO UNIQUE SONIC EFFECTS.



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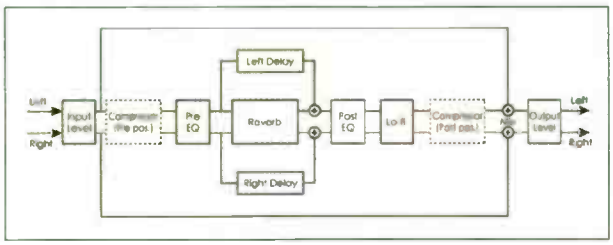


REVERB'S SIGNAL FLOW IS QUITE FLEXIBLE. THE COMPRESSOR CAN EITHER BE THE FIRST OR LAST ITEM IN THE CHAIN. TWO INDEPENDENT DELAYS CAN OPERATE IN PARALLEL WITH THE 'VERB, AND THERE'S ADDITIONAL LOW AND HIGH FILTERS FOR BOTH THE REVERB AND DELAYS. A LO-FI PROCESSOR PROVIDES BIT REDUCTION FOR GRUNGING UP THE SOUND.

can bypass the compressor separately from the overall plug-in. It would be nice if you could also bypass the EQs and delays separately.

One of the cool user-interface features of Reverb is its 32 front-panel "Snapshots." These are divided into two user-modifiable banks of 16. The first bank is "Global," which is stored as a preference file, and shows up whenever an instance of Reverb is opened. Think of this bank as your 16 favorite patches, or as default patches, which are always available in every song. The second group, "Current," are specific to the instance of Reverb that's open. If you have more than one instance of Reverb in a session, each has its own bank of Current patches. An added bonus to this arrangement is that the 32 Snapshots can be recalled with MIDI program change messages, allowing you to automate preset changes. You can, of course, also save as many presets as you want as standard Pro Tools save/recall preset settings.

## THE SOUND

Taken as a straight reverb, Reverb sounds fine — not surprisingly, it's reminiscent of Eventide's hardware 'verbs. There's variety in the algorithms (halls, plates, etc., etc.), and you're given plenty of control for shaping the sound exactly as you want it — even before you start applying EQ. The Mod Rate and Mod Depth controls let you add randomness to the reverb tail; even if you send static samples through it, the reverb will vary in a natural-sounding way. This helps Reverb move beyond the artificial and become more real sounding. No, it won't give a convolution reverb direct competition, but it does offer a nice alternative flavor.

But there are lots of good-sounding reverb plug-ins out there. Where Reverb kicks it up a notch or two is with its other processing modules: delays, EQ, and compression. In one case, I was able to create some very cool rhythmic delays layered with a smooth reverb that had its tail "squooshed" by the compressor, which was set post-reverb. Unfortunately you can't sync Reverb's delays to tempo, but it was easy to calculate the delay times I wanted based on Pro Tools tempo. The result? A very dynamic rhythmic delay/reverb effect that worked perfectly on a snare track.

# OCTAVOX

If you're looking for a straight pitch shift or harmonizing effect, Octavox has it in spades. The plug-in

BOTH REVERB AND OCTAVOX FEATURE 32 FRONT-PANEL-ACCESSIBLE "SNAPSHOTS." SIXTEEN ARE GLOBAL — SAVED IN AN EXTERNAL PREFERENCE FILE FOR USE IN ANY SONG. THE REMAINING 16 ARE LOCAL TO CURRENT PLUG-IN INSTANCE. SNAPSHOTS CAN BE CALLED UP USING MIDI PROGRAM CHANGE MESSAGES. OF COURSE, THERE ARE ALSO "NORMAL" PRO TOOLS PLUG-IN PRESETS AVAILABLE VIA THE PRESET PULLDOWN MENU.

OCTAVOX HAS AN AWESOME USER INTERFACE. THE UPPER HALF FUNCTIONS AS A MIXER FOR THE EIGHT HARMONY VOICES, AS WELL AS A SECTION FOR NUMERICAL ENTRY OF DELAY AND HARMONY SETTINGS. IN THE LOWER CENTER IS WHERE THE FUN IS: YOU CAN SET THE DELAY AND HARMONY FOR EACH VOICE USING MUSIC NOTATION — A VERY INTUITIVE AND FAST WAY TO WORK.



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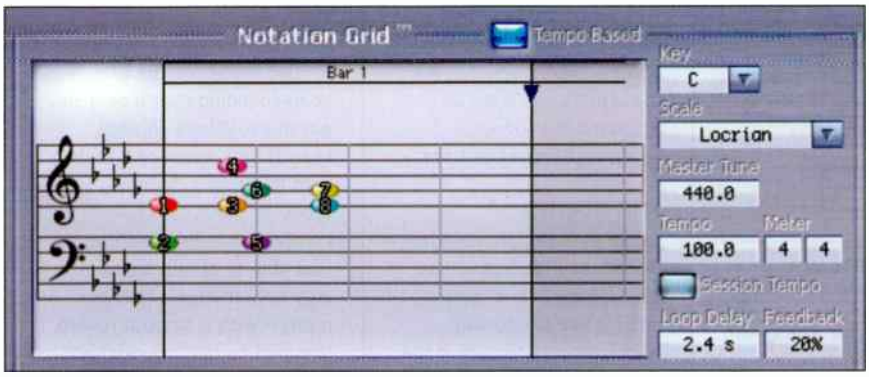
# Eventide Octavox and Reverb




**OCTAVOX'S NOTATION GRID IS A FAST AND EASY TOOL FOR SETTING UP PITCH-SHIFT AMOUNTS AND DELAY TIMES USING INTUITIVE MUSIC-STYLE NOTATION. THE NUMBERED "BALLS" REPRESENT THE EIGHT VOICES; DRAG VERTICALLY TO SET PITCH SHIFT, DRAG HORIZONTALLY TO SET DELAY TIME, WHICH IS QUANTIZED IN MUSICAL RHYTHMS BASED ON THE METER SET TO THE RIGHT. OCTAVOX CAN HAVE ITS OWN TEMPO — USED FOR DETERMINING DELAY TIMES IN THE NOTATION GRID — OR IT CAN LOCK TO THE PRO TOOLS SESSION TEMPO.**

can shift eight different voices (not counting the original signal) independently. It can do this over a ±2 octave range for each voice, with the harmonies being diatonic (the harmonies stay in key with the original track).

To optimize pitch tracking, you can tell Octavox what the source is: tenor or baritone voice, instrument, etc. You can specify the lowest note the source will play or sing, which helps Octavox avoid false triggering. For more realistic effects, you can have each voice glide to its new pitch, and you can also add a small amount of random detuning to each voice. Both of these are helpful when using Octavox to generate thick chorusing effects.

Each voice has its own level and pan settings, and its own delay time with feedback. Feedback allows you to create spiraling effects: Each time the echo repeats, it's pitch-shifted by the interval amount. So if the voice is set to pitch-shift up a third, each time the delay repeats, the voice will go up another third. You get a cool stair-stepping effect.

At the lower center is the coolest part of Octavox: The Notation Grid. Using the Grid, you can set each voice's pitch and delay using musical notation and quantized rhythms. Each voice has a little numbered icon; drag it up and down the music staff to set the harmony interval. Drag it horizontally across the staff to set delay. You can set the delay based on musical tempo and meter, and you can lock tempo to Pro Tools' tempo as well.

In addition to each voice having a delay time and feedback amount, there's also a global Loop Delay. This repeats the notes in the Notation Grid by the length of the Loop Delay; a Loop Feedback control sets the number of repeats. The Loop Delay allows you to create repeats that don't re-pitch-shift on each iteration the way that the delays on the individual voices do.

> Reverb is capable of complex ambience/delay/compression effects while Octavox can generate all kinds of pitch-shifting and delay effects.

Octavox also includes the Snapshot features that are found in Reverb.

## THE SOUND

Like Reverb, Octavox can serve as a straight-ahead example of a pitch-shifter. Harmony voices sound fine as long as you stay close to the original pitch, but Octavox doesn't have formant shifting, so Munchkin-izing sets in quickly.

And again, like Reverb, Octavox works fine in straight-ahead applications, but its real strength is when you start using its extended feature set to create new sounds and effects. The plug-in makes an awesome thickener and chorus; be sure to add a bit of random detuning in these applications.

I had a blast creating new sounds with Octavox. For one track, I had a bubbling sustained synth tone playing in the intro and during a break. I programmed Octavox to create a harmonically-related group of pitches around the original tone, with the various voices entering at different tempo-related points, and panned across the stereo field. The result? A swirling "cloud" of almost-but-not-quite chords that followed the synth tone around, filling space with an ethereal vibe. Spiraling pitch streams, delayed pitch clusters, full choirs, lush sonicscapes, Octavox can easily provide them all. This is a plug-in that can create a complete pad by processing just a single note.

## BIG FUN

So here we have two TDM plug-ins, each of which can compete as a straight-ahead example of their kind. But in both cases, that's the bare minimum. Reverb is capable of complex ambience/delay/compression effects while Octavox can generate all kinds of pitch-shifting and delay effects. Yes, they're good at the basics, but where they truly shine is when they're used for sound design applications. If you're looking to take reverb to the next level, Reverb is for you. And for rich, new sounds and harmonic effects, Octavox is hard to beat. I liked them both, but I have to admit that Octavox took complete hold of my imagination. The hard part is finding the discipline to stop spending hours trying all the possibilities. EQ

**Strengths:**

- Intuitive user interfaces
- 32 easy-access front-panel Snapshots
- Snapshots can be called up with MIDI patch change commands
- Reverb: Flexible effects routing
- Octavox: Notation Grid
- Octavox: Tempo-based delay times

**Limitations:**

- Octavox: no formant shifting
- Reverb: can't tempo-lock delay times
- Reverb: can't bypass EQs/filters and delays separately



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# RME Multiface Mobile Interface

## A top-of-the-line system for recording on the go

by Craig Anderton

**Type:** High-resolution audio interface
**Platform:** Windows, MacOS (Linux forthcoming)
**Price:** $999
**Contact:** www.synthax.com

**Supported operating systems:** Windows 98/ME (MME with multi-client operation, ASIO 2.0, GSIF), Windows 2000/XP (multi-client operation of MME, GSIF, and ASIO 2.0 plus ASIO multi-client), Mac OS 8.6 or higher (ASIO 2.0, OMS MIDI) and Mac OS X (Core Audio, Core MIDI).
**Analog I/O:** 8 balanced line ins/outs (1/4" TRS, 24-bit/96kHz conversion), analog line (for submix)/headphone out
**Digital I/O:** ADAT optical (with sample split technology for 4-channel 24/96 record/playback), S/PDIF coaxial (or use AOAT port for optical), ADAT sync in, word clock (BNC), MIDI (16 channels I/O)
**Buffer sizes/latencies:** 1.5/3/6/12/23/46/93/186ms
**Included software:** TotalMix 720 channel mixer with 40-bit internal resolution, DIGICheck Analysis Software (PC only)
**Tested with:** Mac G3 PowerBook running MacOS 9.1

I love my laptop. It's a faithful companion that lets me write books on airplanes, go online when I'm away from home, and even provide entertainment by playing CDs and MP3s. But a recording powerhouse it's not, what with its slow drive and even slower processor. Sure, I can play back lots of tracks with Ableton's Live or Propellerhead's Reason, and I've had good luck with a simple ESI interface for doing stereo field recording. But I figured the odds of doing remote multitrack field recording were pretty, uh, remote.

Then I saw the RME Multiface package, which includes its own DSP so it doesn't load down your CPU. Would this be the answer? I placed a quick call to the *EQ* Review Command Center, and a few days later, UPS knocked on my door.

### FIRST IMPRESSIONS

I received the Mobile Kit package, which if nothing else, deserves a packaging award. It's a solid, compact flight case with all the required Multiface bits: PCMCIA CardBus card, external breakout box with I/O and DSP, AC adapter, and card-to-breakout box cable. If you're *really* mobile, you'll also find a power cable for plugging into a car cigarette lighter, and another power cord with two standard battery connectors — lantern batteries, anyone?

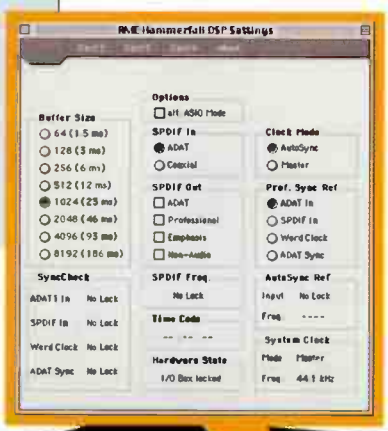
There was also the requisite CD-ROM with drivers, PDF documentation (which I printed out immediately), demo software, and the like. I wondered what RME had done to justify the $999 price tag, but looking over the system certainly answered that question.

Installation was a snap, thanks to excellent documentation. It's rare that documentation takes you through step-by-step and accurately anticipates everything along the way, but the instructions were very specific and helpful. A quick reboot, and the system was good to go.

### USING IT

This became a difficult product to review, because there was no real story. Everything worked. There were only two head-scratching moments: I wondered why the red pilot light on the front panel kept going out, until further in the manual, I realized it was actually an error indicator and is *supposed* to go out if things are working.

The other was when I booted up Ableton Live to try recording and playback — the graphics looked like they had been soaked in molasses, then force-fed Valium. I

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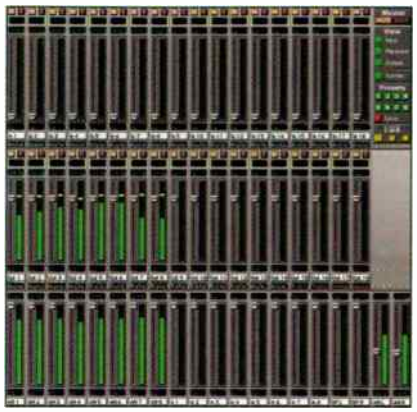
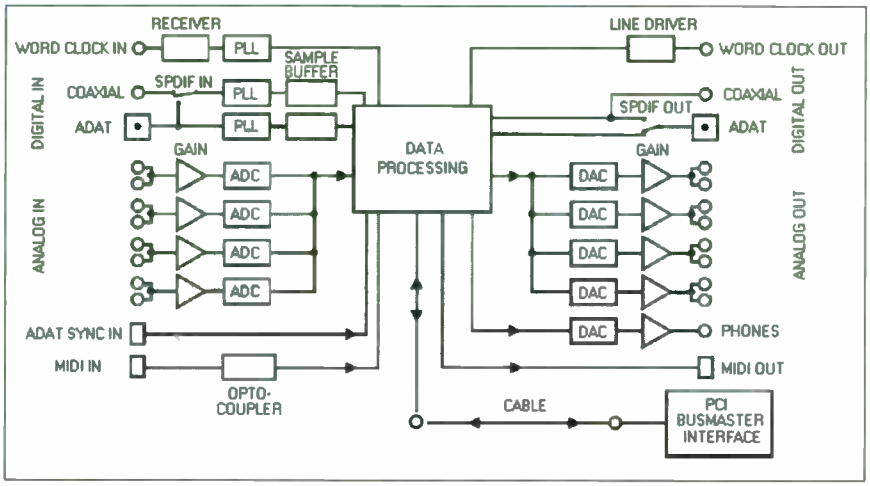


THE TOTALMIX SOFTWARE LETS YOU MONITOR AND ROUTE THE MULTIFACE'S AUDIO INS AND OUTS. THIS SHOWS FOUR STEREO PAIRS PLAYING OUT OF ABLETON'S LIVE, AND THROUGH THE HARDWARE OUTS.




THIS MULTIFACE BLOCK DIAGRAM SHOWS WHAT'S HAPPENING UNDER THE HOOD.

checked Live's audio preferences, and found that all ins and outs were enabled. With the Multiface, that's a whole lotta I/O, especially with a slow computer. Disabling all but the stereo ins and outs restored normal performance. I then enabled multiple outputs, and that worked equally well. Four channels of recording pushed my computer to the very edge, but it coped.

There are a lot of little high-quality touches. The cable between the PCMCIA card and breakout box is a comfortable 14.5' long, making it easy to locate the laptop behind a sound baffle or remotely from

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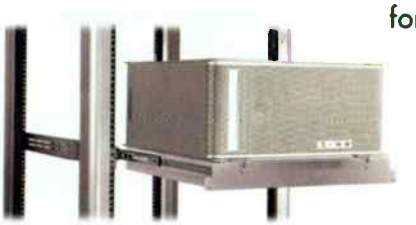

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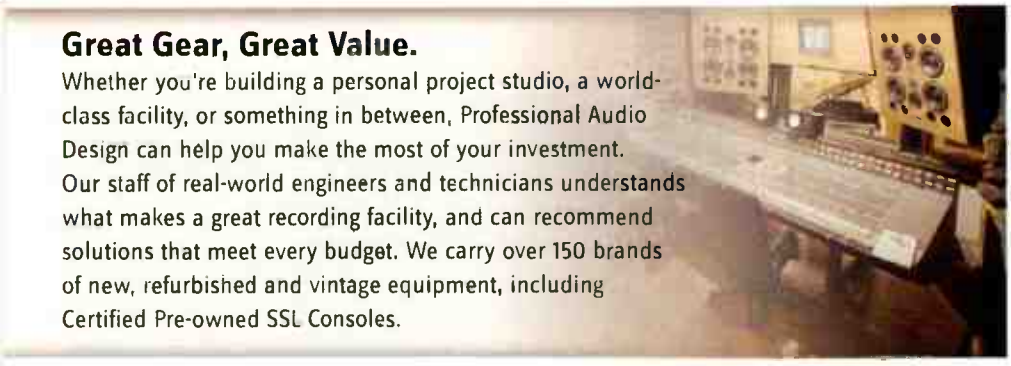

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# RME Multiface Mobile Interface

where recording occurs. The documentation includes info on making an adapter to use AES/EBU digital signals with the S/PDIF coax in, but also points out that the digital I/O uses transformers to promote ground loop-free operation.

Granted, there are no input level controls; RME assumes you're going to be using a mixer or mic preamp to adjust gain, or a line-level device with an output control (however, the TotalMix software lets you trim ins when doing direct monitoring). Nonetheless, there are internal jumpers if you're working within a particular signal level environment (+4dBu, –10dBV, and "lo gain," designed for those use high-level balanced signals). You want to set these once, though, because it involves taking the box apart and is not for the ham-fisted.

## TOTALMIX

The included TotalMix software is worth mentioning. It shows input levels, playback levels from software, and output levels. There are mute, solo, and pan controls; useful keyboard shortcuts (including "fine tuning" levels and pairing faders); and a "quick access" panel with eight presets. And get this: Meter calculations are all done in hardware, again reducing CPU load.

## SO IS IT FOR YOU?

If all you want is stereo I/O for quick recording/playback, there are far less expensive solutions that still deliver high-resolution audio. But those who want a full-blown portable solution with a ton of I/O, minimal CPU stress, solid construction, and 24/96 operation will find the Multiface a perfect solution with true attention to detail. Certainly, even my Bronze Age Mac had a new lease on life with the Multiface. I can only imagine what it could do with a really hot laptop.

I was talking with some friends in Germany about my dual processor Windows machine, and how fortunate I was that it worked well with numerous audio interfaces. They just looked at me kind of quizzically, and one said "Well over here, we just buy the cheapest computer we can find and use an RME interface." I'm beginning to understand what they were talking about: In my experiences with the Multiface, it was bulletproof. EQ

**Strengths:**

- Cross-platform, supports multiple operating systems
- Excellent build quality
- 24-bit/96kHz converters
- Zero CPU loading
- Multiple analog and digital I/O
- Serious attention to detail

**Limitations:**

- This kind of quality doesn't come cheap

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# SONAR 3

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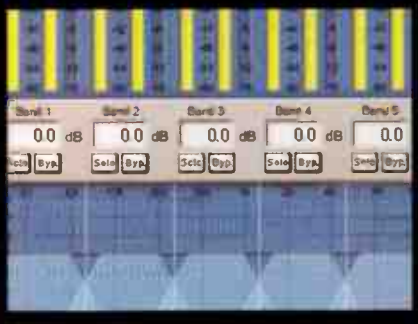

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**MachFive reads just about anything, works with just about anything, does surround and hi-res audio, has lots of extras, and is priced right. What's not to like?**

# MOTU MachFive

## Software sampler goes surround, but doesn't stop there

by Craig Anderton

**Type:** Virtual sampler plug-in
**Price:** $395
**Contact:** MOTU, www.motu.com

**Platform:** MacOS 9/X 10.2 or higher, Windows 2000/XP
**Minimum system requirements:** 256MB RAM, Mac 500MHz G3, Windows 800MHz P3
**Copy protection:** PACE iLok dongle
**Versions reviewed:** 1.07 (Mac), 1.00 (Windows)
**Internal resolution:** 32-bit floating point
**Supported sample rates:** Up to 192kHz (16- or 24-bit)
**Plug-in support:** (Mac) MAS, VST, HDTM, RTAS, AU; (Windows) VST, DXi, HTDM, RTAS
**Included effects:** 28 delays, 22 reverbs (including gated types), 6 choruses, 4 flangers, 8 phasers, 3 tremolos, 3 autopan, 7 rotary speakers, 4 auto wahs, 9 filters, six 3-band EQ, five 2-band EQ, 10 drive, 13 dynamics (limiters, compressors, gates), 13 non-standard (decimators, ring modulators, "robotizers")
**DSP:** Normalize, volume, reverse, fade in, fade out, silence, truncate, clear, crop, crossfade
**Soundbank import:** Akai S1000/3000/5000/6000, Akai MPC2000/3000, E-mu SoundFont, Kurzweil K2xxx, GigaSampler/Studio, Digidesign SampleCell, Emagic EXS24, Creamware STS, SoundFont, SoundFont 2, Kontakt, VSampler
**File Import:** AIFF, WAV, and SDII; all support standard or interleaved files, and multi-file (2, 4, or 6) formats; also RIFF ("acidized") WAV and REX/RX2
**Sound library:** 4.3GB DVD-ROM (keyboards, guitar/bass, drum kits, 192kHz percussion, surround church organ, synths, loops, mini GM bank, others); 470MB Bosendorfer piano on installer CD
**Tested with:** MOTU Digital Performer 4.1 with dual G5 Mac/OS X 10.2, Sonar 3 (DXi plug-in) and Cubase SX 2 (VST plug-in) on dual Athlon/Windows XP

Aside from live performance — where hardware still rules — samplers have joined the virtual world. MOTU's entry, MachFive (M5 for short), is billed as a "universal" sampler that plugs into just about anything, can read several sample formats directly (and convert others through the included UVI-Xtract utility), and even does 5.1 surround with high resolution audio . . . but there's more to the story.

### THE BIG PICTURE

The GUI is *big*, and takes up most of a 1024 x 768 screen — a few show/hide controls for interface elements would be welcome. The upside is you get a unified interface where everything is accessible without page-flipping. M5 looks *très* cool too, in a graphic novel kind of way (although some of the type is hard to read). ➤

EXPANDING THE KEYGROUP WINDOW MAKES IT EASY TO SEE VELOCITY-SWITCHED SAMPLES, AND SAMPLE MAPPING ACROSS THE KEYS.

THE LEFT STRIP IS ALL ABOUT SOUND SELECTION AND CREATING PARTS. THE MIDDLE HAS DISPLAYS FOR WAVEFORM EDITING AND SAMPLE MAPPING, WITH SYNTHESIZER-TYPE PROCESSING PARAMETERS BELOW. THE RIGHT STRIP INCLUDES MASTER CONTROLS, LFO MODULES, AND THE EFFECTS SECTION.

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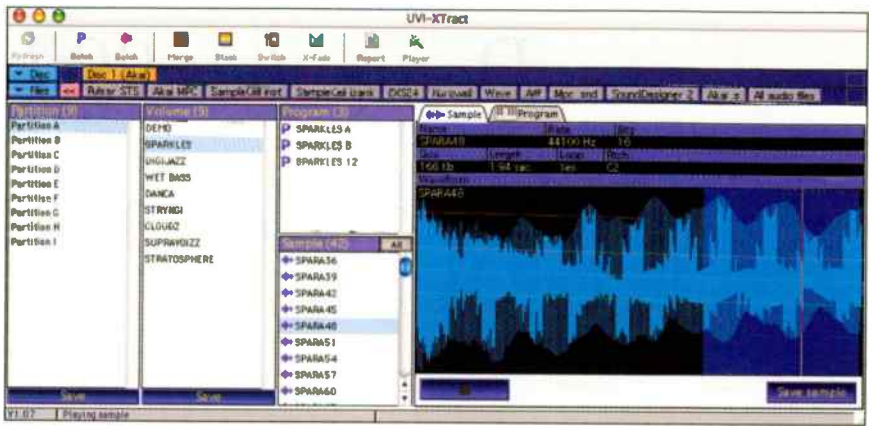
# MOTU MachFive




UVI-XTRACT ACTS AS MACHFIVE'S TRANSLATOR FOR A VARIETY OF SAMPLE LIBRARIES.

But there's also a question of philosophy. M5 is clearly meant to be a "production" type of sampler where you can load up just about anything (assuming sufficient RAM — even with streaming, it's necessary to pre-load part of the sample into RAM), add effects, and create lots of parts. The unified interface encourages that kind of approach, with M5 acting like a program of its own within the host program.

## THE JOY OF SIX

There are six main screen elements (see screen shot). The File Browser chooses sounds, which end up in the Part section (M5 is 16-part multitimbral). The display does waveform editing and keymapping, but also shows the included spectrum analyzer and tuner.

FThe master section provides various global functions, while the FX section adds extensive processing to M5. You'll also find the expected synthesizer-type parameters for any selected keygroup(s) — filter, VCA, envelopes, LFOs, etc.

## EFFECTS

There are lots of effects and ways to apply them. For example, there are four insert effects; each keygroup (or even each sample) can insert any *one* of these in its output (furthermore, the same effect can appear in multiple keygroups or samples). Each keygroup also has four send controls for four aux send effects. You can process entire Presets with up to four series effects (which can be different for each Preset *and* saved with each Preset); finally, a chain of four master effects processes the overall output. That's a lot of options.

If you want to add plug-ins not included in M5, you can simply send the individual outs to busses/auxes, and process within the host program. But frankly, there's enough in M5 to satisfy most of its processing needs.

## MIDI CONTROL

Only crucial parameters are controllable by MIDI continuous controllers (and therefore, also automatable): volume, pan, part volume, filter resonance, filter frequency, overdrive, coarse tune, fine tune, LFO1 rate, and LFO2 rate. There's no "learn" mode; controller assignments are fixed to specific numbers.

## PERFORMANCE

Given a fast computer, M5 has a responsive feel. Streaming on the Windows platform was transparent; the Mac version I tested didn't incorporate streaming, so all sounds had to play back from RAM. However, an update is imminent that will bring the Mac version in sync with the Windows version. Note that streaming can be enabled or disabled for each part (the default is RAM playback), so if your hard disk gets too stressed out, you can switch some parts over to RAM. You can also experiment with several streaming-related preferences, although the defaults worked fine.

UVI-Xtract is very effective. I used it for successful Akai, Creamware, SoundFont, SoundFont 2, and Giga sample CD conversions on both platforms. The Windows version offers additional translations for Kontakt and VSampler

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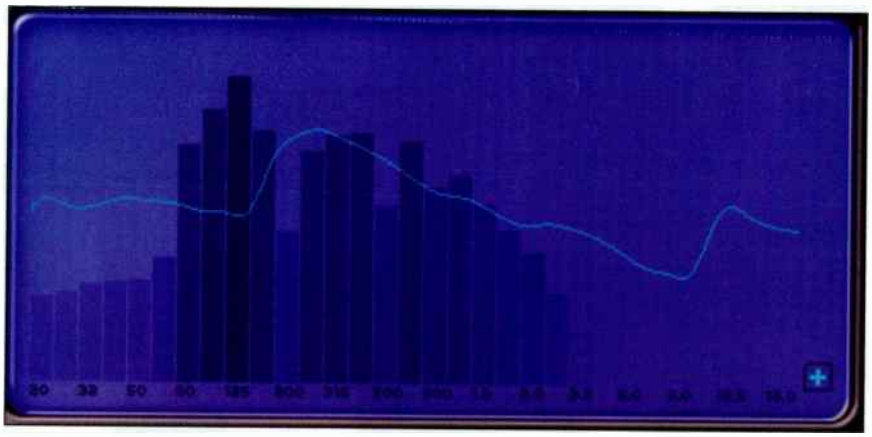
# MOTU MachFive



THE BUILT-IN SPECTRUM ANALYZER TELLS WHAT'S UP WITH A SAMPLE'S FREQUENCY/AMPLITUDE RESPONSE.

format sound banks, as well as REX format samples (which are mapped across the keyboard), but the Mac version will reportedly include these too with the next update. There are also some advanced extraction features, such as merging programs during conversion, or separating out programs into different velocity ranges.

M5 is very well behaved about file management. An imported sound bank gets saved to a dedicated sounds folder, so M5 always knows where to look for its sounds — even when plugged into a different host. Although the manual advises you to choose the "MachFive Sounds" folder location wisely, you can move the folder anywhere you want and simply reselect the folder's new location.

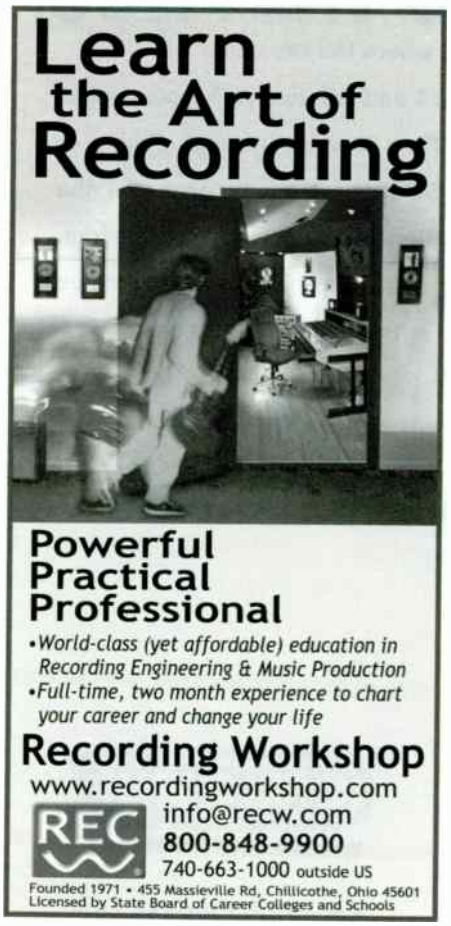
## THE COMPETITION

So how does MachFive compare to "virtual ROMplers" like Steinberg's Hypersonic and IK Multimedia's SampleTank 2? Actually, they're very different animals. The ROMplers are optimized to provide the same functionality as a sample playback synth, such as a Korg Triton or Yamaha Motif. Although these keyboards sample, their main function is to provide a lot of sounds at your fingertips, with instant access.

The danger, of course, is that you may like some sounds and not others, or some sounds might become dated over time. This is why both programs have "trap doors" — Hypersonic's "Hypermodules" are conceptually similar to "expansion cards" in hardware synths, while SampleTank 2 can load Akai sounds and lets you create your own sample presets, albeit without M5's flexibility.

M5 is more like the software equivalent of something like an Akai S-series sampler or E-mu Emulator, which are designed as much for the creation and importation of samples as for playback. Toward that end, M5's "expert" mode restores much of the sophistication previously lacking from software samplers, and the looping and crossfading options also recall pricier hardware devices. It takes a little more work to get M5 set up than a virtual ROMpler, although it's not hard to create a general-purpose, recallable performance that loads up to 16 parts with your favorite sounds. Also, given M5's ability to import just about anything, it's highly unlikely to wear out its welcome over time, and is adaptable to changes in musical genre and even platforms.

Comparisons to other virtual samplers are more difficult, because each follows its own muse and has a different feature set. Native Instrument's Kontakt has many more sound design possibilities and more automation/MIDI control options, but is more complex to use. SpeedSoft's VSampler has much to recommend it, yet the haphazard interface is a major drawback compared to M5's tightly organized workspace. Steinberg's HALion 2.0 is a fine general-purpose sampler that also does 5.1 surround; the filters sound excellent, and it supports 96kHz. On the downside, it imports fewer formats than M5 and doesn't come with as much content. The interface is less cramped, but that's because it's spread over multiple pages. ➤







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## MOTU MachFive

THE TUNER MAKES IT EASY TO TWEAK SAMPLES FOR PERFECT PITCH.

### THE BOTTOM LINE

Like most software samplers, M5 doesn't sample. And while it seems (again like other soft samplers) it can't do positional crossfades so keygroups fade into one another, expert mode allows crossfading between presets to accomplish this, and much more. Kudos for including this important feature, and expert mode in general — you can make thick, complex, atmospheric patches if you put a little effort into it.

For those working with high-resolution audio, at 192kHz M5 is the sampler to beat. Too bad there's only one included surround preset (organ) — it's impressive. The synthesis options are comprehensive, and the effects, expert mode, waveform editing, and extra goodies (spectrum analyzer and tuner) lift M5 out of the ordinary. The bundled sounds are useful, and given the price and import abilities, having this much free content (especially the dynamically responsive piano) is a nice bonus.

I remember spending thousands of dollars for hardware samplers that couldn't do a fraction of what M5 does. Times have certainly changed, and in this case, for the better — M5 is an impressive production tool with a creative slant. EQ

**Strengths:**
- Compatible with just about anything
- UVI-Xtract utility accommodates lots of sample libraries
- Large number of built-in effects
- Expert mode allows techniques such as positional crossfading
- Decent waveform editing, DSP, and looping tools
- Useful content included in package

**Limitations:**
- No stand-alone mode
- Few parameters respond to external MIDI controllers/automation
- No show/hide options for various interface elements



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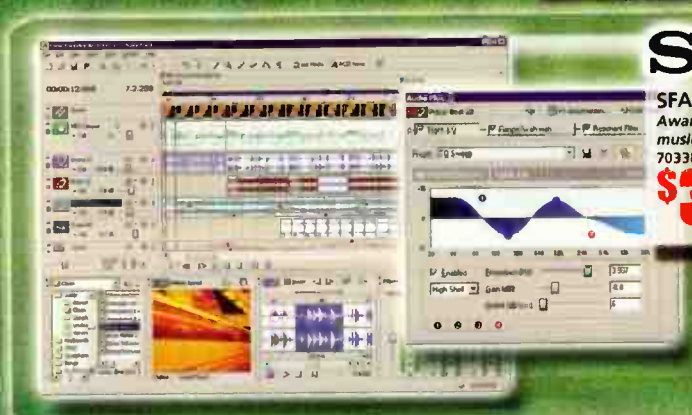

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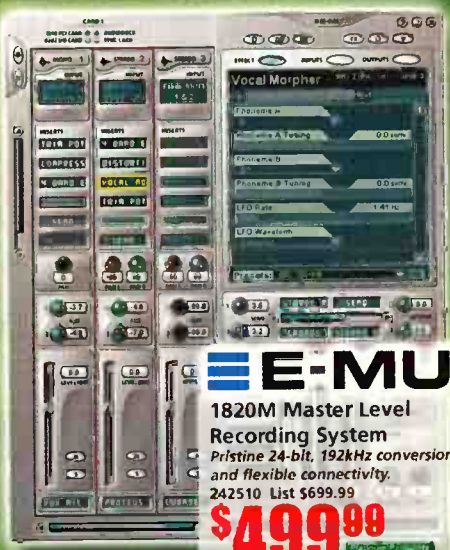


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**With its extensively sampled collection of modern and vintage electric basses, Hardcore Bass is the undisputed low-end champ for aggressive low end.**

by John Krogh

# East West
## Quantum Leap Hardcore Bass
### Kontakt/Kompakt–format multisampled electric basses

**Type:** Software sample-playback instrument
**Price:** $299 ($99 upgrade for registered V1 users)
**Contact:** East West, www.soundsonline.com

**Minimum system requirements:** PC: Windows XP/ME/98, Pentium III/Athlon 500 Mhz, 256 MB RAM; Mac: Mac OS 9.2, OS 10.2.6 or higher, G3 500 Mhz, 256 MB RAM; 5.2GB of free HD space
**Plug-in compatibility:** VST, AU, DX, RTAS
**Audio driver compatibility:** CoreAudio, ASIO2, MME, Direct Sound
**Number of multitimbral parts:** 8
**Polyphony:** CPU dependent

It's a joke among session and live musicians that if you can learn to play bass you'll never be without a gig. This notion is rooted in the fact that solid bass players capable of producing great tones and keeping a deep pocket can be hard to find (unless you're located in a major music town such as L.A. or New York, that is). But now, thanks to the combined

UP TO EIGHT PATCHES CAN BE LOADED AT ONCE, ALLOWING YOU TO ASSEMBLE A PALETTE OF PERFORMANCE SAMPLES SUCH AS SLIDES AND FINGER NOISE ALONG WITH "MAIN" MULTISAMPLED BASSES.

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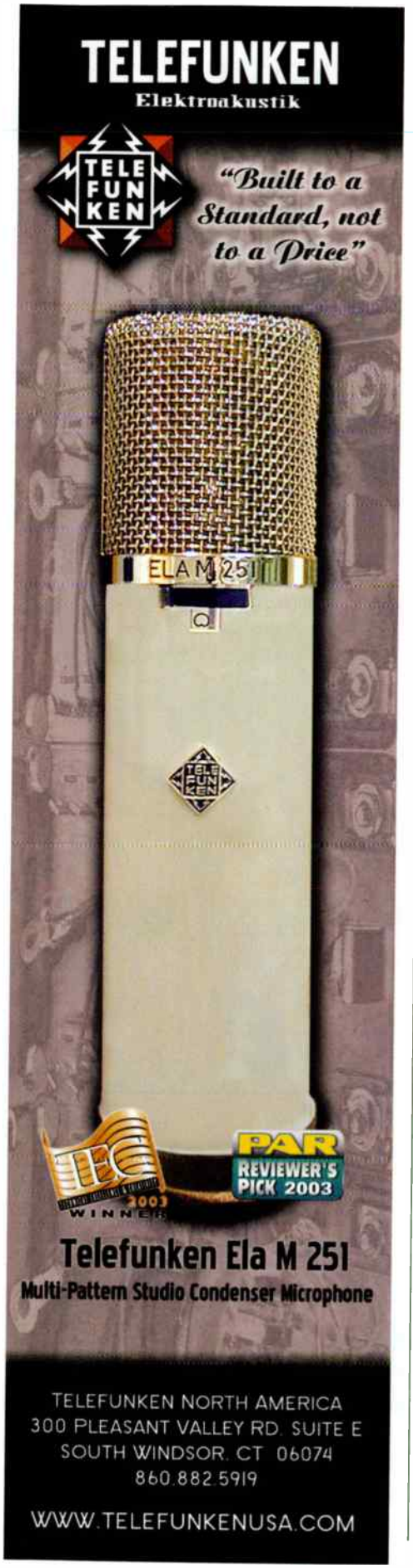


## East West Quantum Leap Hardcore Bass

efforts of respected soundware developers EastWest and Quantum Leap, anyone with decent MIDI sequencing chops and an ear for tasty bass lines can turn out low-end tracks that rival the quality and vibe of real live bass players caught on tape (or hard disk, as the case may be).

### OVERVIEW

Like many of the newer titles in East West's catalog, Hardcore Bass (HCB for short) combines a multisample library wrapped up inside a customized version of Native Instruments Kompakt sample player. This means you don't have to worry about format compatibility — HCB will run standalone or as a plug-in with a Mac and a PC (VST, DXi, AU, RTAS). Be forewarned, though: You'll need 2.3GB of free HD space for the first edition samples, and an additional 3.9GB for the vintage expansion set, which was released just in time for this review.

Kompakt is a capable instrument with built-in reverb, chorus, and delay, all of which are rich, tasty, and useable, but I couldn't help wishing distortion and/or amp simulation were included in the effects palette. After all, this *is* an electric bass library intended to give you both old- and new-school rock tones. (Good news for Native Instruments Kontakt users: HCB patches can be loaded and processed using Kontakt's formidable effects section, which includes distortion.) Compression isn't on hand either, but by adjusting the velocity response you can approximate the type of even, compressed sound you'd expect from a good rig matched with a skillful player.

Kompakt features two multimode resonant filters — one applied per voice and another at the output stage for overall tonal shaping. Both sound smooth, and can be pressed into service for extreme filtering effects. As with the delay, filter LFO can be synced to BPM.

Up to eight patches can be loaded into a multi setup. The obvious advantage here is the ability to switch among several variations of the same instrument (fingered, picked, slides, fret noise, etc.) or among entirely different basses. Another advantage: Each part can have its own audio channel output, so you can further mix and process basses using your sequencer's virtual mixer.

### INSTRUMENT CHOICES

HCB's main soundset is divided into two sections, the first of which is based

**Hardcore Bass has got the kind of bite and girth you can only get from sampling top-notch instruments through a killer signal path.**

around two 5-string basses: a Musicman Stingray and a Lakland 5594. The Musicman was played with a pick and presented in "hi-fi" and "vintage" flavors. Hi-fi is exactly that — a clean representation with plenty of attack, whereas the "vintage" patches have more of a grungy, buzzy quality. In fact, buzzes and instrument noises have been left intact, which proved to help sequenced bass parts sound more life-like. Velocity switching is used to good effect; upper velocities trigger slides, trills, etc.

While the Musicman patches have a distinct American rock characteristic, I found the Lakland a better general-purpose bass, partly because it's available in picked and fingered versions. The tone is round, solid, and certainly modern (think Korn in the lower register), without being too locked into a specific style or application.

In the second section you'll find more retro sounding basses, which complement the first two basses nicely and make HCB more of a general purpose tool rather than a "genre-specific" instrument. (These instruments were originally part of an add-on option that was consolidated into one complete instrument as we went to press.) One of the advantages with the vintage basses is that they were recorded through two different amps simultaneously. On the right channel is the sound of a '50s Ampeg cabinet miked with an RCA 44 ribbon mic, whereas the left channel is the sound of an '80s Ampeg cab miked with a Sennheiser 451. Via Kompakt's Pan control you can blend the tone to taste. In practice, this works remarkably well.

For sheer variety, the vintage patches rock, no pun intended. They can cover



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ground from Brit rock to Tom Petty and the Heartbreakers and more.

## CONCLUSIONS

Hardcore Bass is the best sounding, most flexible instrument in its class for modern and classic rock and R&B applications. It's got the kind of bite and girth you can only get from sampling top-notch instruments through a killer signal path. On top of this, the way instruments are mapped on the MIDI keyboard makes it possible to assemble sequenced tracks that approach the nuance of a live performance. If you can't hire a real bass player, HCB may be the next best thing. No doubt, East West and Quantum Leap have a hit on their hands. EQ

> Thanks to the combined efforts of respected soundware developers EastWest and Quantum Leap, anyone with decent MIDI sequencing chops and an ear for tasty bass lines can turn out low-end tracks that rival the quality and vibe of a real live bass player.

**Strengths:**

- Well-recorded and well-rounded set of basses
- Expertly programmed patches
- Multiple amp choices
- Runs standalone and as a plug-in

**Limitations:**

- Choice of basses and recording techniques may limit the instrument's usefulness for jazz and other non-rock applications
- Requires a lot of hard drive space

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World Radio History

# Propellerhead ReCycle 2.1

## From loop tool to music toolkit

by Craig Anderton

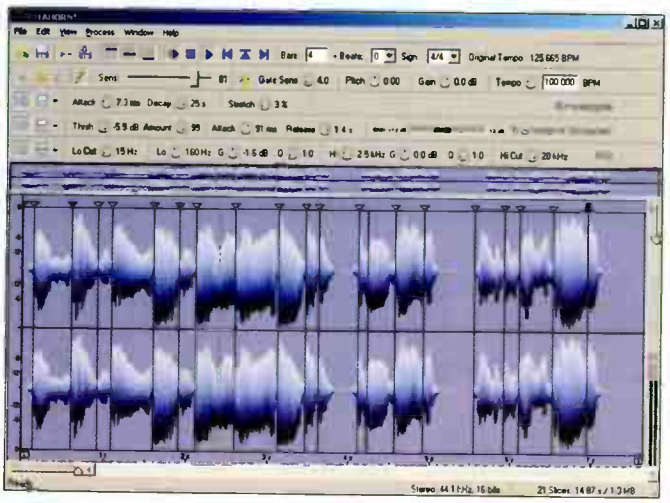
**Type:** Time/pitch-stretching/looping software
**Platform:** Mac OS X, Windows 2000/XP
**Price:** $229 (free upgrade to registered 2.0 users)
**Contact:** Propellerhead, www.propellerheads.se

**Minimum requirements:** (Mac) Power Mac G3, 128MB RAM, Mac OS X 10.2.8; (Windows) 300MHz Pentium, 128MB RAM, Windows 2000/XP
**Copy protection:** Serial number provided with CD (or download)
**Version reviewed:** 2.1
**Demo:** Downloadable Mac/PC demos
**Hosts with REX file support:** Reason, Logic Audio 6, Cubase VST 5 and SX, Nuendo 2, Digital Performer 4, Project5, Mixman Studio
**Samplers with REX support:** EXS24 and EXS24mkII, HALion, Mach5, Kontakt, Intakt, Kompakt, Battery, Orion, Unity Session, AS-1, SampleTank, Akai S-5000/6000/Z-series

ReCycle 2.1 creates time-stretchable loops of digital audio files, particularly percussive material, by "slicing" the file into discrete sections of audio (*e.g.*, kick, kick+share, hi-hat, etc.). The faster you play these back in sequence, the faster the loop; playing back more slowly slows the tempo. With the right audio — no ambience, clean percussive transients, and no sustained sounds — the results can be indistinguishable from the original over a fairly wide range (pitch can also be transposed, albeit less successfully regarding fidelity).

The program generates REX2 format stereo files, which are compatible with a growing number of host programs and samplers. Although overshadowed a bit by Acid's seemingly effortless time-stretching abilities, the REX2 format is gaining support as users discover that with the right source material, the fidelity can be better than "acidization."

**RECYCLE'S INTERFACE IS PRETTY SIMPLE — ADD SLICES WHERE NEEDED, AND SET TEMPO AND PITCH AS DESIRED. BUT WITH MOST FILES, TWEAKING IS ESSENTIAL FOR BEST RESULTS.**



### WHAT'S NEW

ReCycle hasn't changed much since v2.0, although OS X and 24-bit audio support is appreciated. 2.1 also offers multiple undos (and under XP you can now "float" windows across dual monitors), but some "wish list" items — offset multiple slice markers by a certain amount, or create a short attack/decay around a slice for "problem" files — remain fodder for future updates.

ReCycle 2.1 bundles Reason Adapted, a ReWire-compatible, "lite" Reason variant with three Dr. Rex Loop Players, one NN-XT sampler, one RV7000 reverb, 14-channel stereo automatable mixer, sequencer, and a decent-sized sound bank. This is more than enough to get you going with loops, but lacks Reason's synths, drum machine, and matrix sequencer.

You also get ReLoad, which converts Akai S1000/S3000 sample CDs to NN-XT format (with WAV audio files suitable for other programs); you can save these in any folder or in a new Reason ReFill. If you already have Reason, ReCycle 2.0, and have downloaded Reload, ReCycle 2.1 may leave you yawning. However, as 2.1 is a free upgrade to 2.0 users, it's worth upgrading if for no other reason than the 24-bit file and Mac OS X support.

### CYCLING AROUND

I've put in a lot of time on ReCycle over the years while creating REX files for my various sample CDs. Like other Propellerhead programs, about the only way to get it to crash is a direct lightning strike to your computer, and its set of tools — greatly expanded in the jump to 2.0 — does the job, and then some. But creating a REX file that will stretch over a truly wide range can be a time-consuming undertaking for sound sources other than percussion. Horn stabs and guitar notes are relatively easy to do; sustained sounds verge on the impossible, because of the difficulty in finding clean splice points.

For those who think outside the box, ReCycle can be a useful signal processor. For example, I was about to give up trying to REX a guitar power chord when I added slices at every eighth note, then trimmed the decay time to about 250ms (this affects all slices). The result was a pulsing, throbbing sound, accented by the onboard Transient Shaper (basically, a dynamics control).

Bottom line: If you create loops, this program is essential. Try the demo and you'll see what I mean. EQ

**Strengths:**

- Does more than just create loops from audio files
- Includes Reason Adapted and Reload
- Growing number of compatible programs
- With the right files, can preserve sound quality well
- Handles 24-bit files and OS X

**Limitations:**

- Not suitable for all types of audio material
- Few functionality improvements compared to 2.0
- Better for speeding up material than slowing it down



World Radio History

# STEP UP TO ADK!

"I have become a huge fan of ADK Mics lately. After hearing the ADK TT, I was not surprised that Ray Charles and Johnny Matthis selected two of the TT tube mics for their vocals. The fact that the TL Decca-Tree set-up works well on Grand Piano was a nice bonus. But what surprised us the most was how many uses we found for the original model A-51s. Tracking Guitars for James Taylor to Drums and Horns, these mics were everywhere!"

***-Terry Howard, Recording Engineer: Ray Charles, James Taylor, Michael McDonald, Willie Nelson, Pancho Sanchez, Ellis Hall.***

---

"The Vienna is an absolutely beautiful sounding microphone! It has all the warmth of a rare vintage mic, but adds a slight presence boost in the high end that just screams 'expensive'!"

***-Ted Perlman, Producer, Arranger, Composer: Ron Isley, Bob Dylan, Burt Bacharach, Young MC, Chicago, Kellie Coffey***

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"I've now used the ADK Model "S" on almost everything including vocals, guitars, and drums. They remind me of very expensive German mics I have tracked with before."

***-Adam Kasper, Producer/Engineer, Cat Power, REM, Pearl Jam, Soundgarden, Foo Fighters***

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"ADK Commemorative Tube Mics are a Gas! We used them with the Cincinnati Pops Orchestra and our Vocals Really Soared!!"

***-Tim Hauser, Vocalist, Manhattan Transfer***

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"I use ADK LE Matched Pairs for recording my toms, and two ADK Transformerless for overheads. Warm and accurate, the perfect complement to my sound!"

***-Joel Rosenblatt, Spyro Gyra Drummer***

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"The sound is huge and wide open when tracking vocals. The accurate and transparent sound reproduction, especially on the acoustic grand piano, is nothing short of amazing!"

***-Dale Sticha***
***Piano Tech for Sir Elton John***

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# MXL 992

by Mitch Gallagher

**Price:** $299
**Contact:** MXL Microphones, www.mxlmics.com

**Strengths:**
- Present, bright sound
- Good dynamics
- Big, beefy construction
- Nice price

**Limitations:**
- Poor shock mount

The latest in the MXL is the 992 (available exclusively from Musician's Friend), a large-diaphragm, solid-state condenser mic.

The 992 offers a lot to be pleased with. It's physically a big, beefy mic with a cardioid polar pattern and FET electronics. There's a 150Hz lowcut filter (too high for my taste, but effective nonetheless) and a 10dB pad. The mic offers ruler-flat response to 3kHz, then there's a rise to +6dB at 8kHz and a fall to –3dB at 20kHz. This peak helps with clarity and presence, but it sidesteps added harshness. The 992 can handle up to 130dB SPL without the pad, and has a signal-to-noise ratio of 80dB (A-weighted). All internal wiring is Mogami.

The 992 comes in a silver metal case that also holds the included shock mount. The first shock mount performed poorly. I was unable to tighten it enough by hand to stay put and the 992 sagged on the elastic bands. The replacement mount worked fine. One shock mount caution: The mic falls out easily if you bump the release arms — I had a couple of close calls.

Shock mount aside, I kept returning to the high-quality sound of the mic. On vocals, presence was good, with great top-end detail. You'd have to be careful with a sibilant voice, but for most applications, the highs were nice — no EQ required. For in-your-face, intimate tracks, the 992 excelled. Dynamics were natural, without compression. Proximity effect was controlled, and the lows were tight.

On electric guitars, the tone was beefy, with strong punch. On nylon-string guitar, the sound was realistic and open. Self-noise was never an issue.

The MXL 992 competes very well with other mics in its price range. And at its $199 street price, the 992 offers amazing value when compared against more expensive transducers. The shock mount had some problems, but the mic sounded great on a variety of sources, and did so at a price you can't argue with. If you're in the market for a low-dollar, high-value mic, give the 992 a listen. EQ

# Triple P Designs Pyramid Speakers

by John Krogh

**Price:** $299
**Contact:** Triple P Designs, www.triplepdesigns.com

**Strengths:**
- Small footprint
- 2-year no-questions-asked warranty
- Reliable broadcast reference

**Limitations:**
- None to speak of

Post production and music houses have relied on Auratone speakers as a "real world" reference since the late '70s. But times have changed: Auratones are hard to come by, and modern TV sets don't sound much like those speakers anyway. Which is why Triple P developed the Pyramid speaker.

They're squarely aimed at supplanting Auratones as the *de facto* reference for anyone mixing music and audio for broadcast. A variety of television sets, boom-boxes, and other lo-fi consumer products were researched for the Pyramid design, which isn't fashioned after any one particular device. Instead, it's something of an "average" of all the various speaker models Triple P tested.

As a composer of TV commercials, I've worked with Auratones, and over the last year I've been relying on two TV sets equipped with RCA audio ins for additional references.

When the speakers arrived, they posed a challenge: They're passive, which meant I'd need a power amp (something I haven't needed in years). Fortunately, I had an old Crest power amp available, but the lesson here is that if you don't have a spare amp, you'll need to purchase one for the Pyramids — something to factor into the cost.

I cued up six mixes (all of which have been on the air in the last year) and played them through the Pyramids, which, true to their intent, sounded boxy, and exhibited a forced midrange. Okay, so it sounded like a TV set. But how would mixes translate that were made using the Pyramids?

I loaded the corresponding sessions and remixed the tracks, working primarily with the Pyramids. Then I burned a CD of my original tracks and the new mixes. I A/B'd the mixes on two TVs, plus a JVC boom-box with Hyperbass, and my car stereo. I was impressed by how well kick drum, piano, acoustic guitar, and vocals translated, especially on the TVs.

You could spend 300 bucks on a TV from Best Buy that would work equally well as a consumer reference, but it comes down to this: Pyramids have a smaller footprint, have a longer lasting warranty than most TVs, and represent a "standard" reference that's easy to purchase from a variety of music retailers. So if you're looking to outfit your facility with a reliable "real world" broadcast reference, Triple P's Pyramids are the best game in town. EQ



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# Alesis ProLinear DSP Studio Monitors

# Create Your Own Environment

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Alesis ProLinear DSP monitors feature 28-bit DSP for performance unattainable by an all-analog design. Bi-amplified with 120 watts of power, each incorporates a digital crossover for superb efficiency and time-alignment. Use the built-in LCD interface or a PC to adjust parametric EQ for precise monitor tuning—even from a "sweet spot." In addition to eight rewritable user presets, eight more programs allow emulation of popular monitor types. So you can create mixes that stand out in any environment.

*Program directly with LCD interface, or graphically with PC software*

- Eight emulations of popular speaker models
- Link monitors to adjust DSP from one interface
- Adjust from sweet spot with included software
- Up to 16 discreet channels of control—perfect for surround
- Apply EQ to compensate for room resonances
- Eight editable user presets

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# Sounds

### BIG FISH AUDIO
Dub Basis

**Contact:** Big Fish Audio, www.bigfishaudio.com
**Format:** 1 CD-ROM acidized WAV, 1 CD audio
**Price:** $99.95

The throbbing sound of dub conjures up images of Kingston, ganga haze, and . . . really heavy-duty signal processing. Is it truly possible to capture the processed, organic dub sound in canned samples? At least with *Dub Basis*, the answer is yes.

However, be aware that if you're looking for the old school, Burning Spear type of dub, that's not exactly what's happening. *Dub Basis* is more hip-hop/rap meets dub; the tracks themselves lean more toward hip-hop, while the processing (with the emphasis on filtering and lo-fi) reach into the dub zone. Interestingly, some of the tracks and parts work well in a chill-out or smooth jazz context. I even jacked up some of the 85-90 BPM material to 140 BPM, and it slid into dance music grooves as if it had been designed with that in mind. It's rare to find tracks that are so versatile.

The CD-ROM offers 50 construction kits, each with a full mix and 5-20 individual tracks (several loops and lots of one-shots). The sounds are indeed full, deep, and creative, but overall I was less thrilled with the full mixes than with the individual tracks. I find the CD more useful for those "hey, I need a couple cool loops for this tune" situations than when you need something that will provide the backbone for a piece, with extras overlaid on top. (It's also worth noting that some of the one-shots are pretty cool — if you're willing to take the time to go through all of them, you'll find some nice tidbits to round out your sampled drum kits.)

> Is it truly possible to capture the processed, organic dub sound in canned samples? At least with Dub Basis, the answer is yes.

Unfortunately, one thing that works against the "mix and match" approach — and I hate to keep nagging companies about this — is that the acidization is wildly inconsistent. Some loops stretch well, but the majority have missed transients or misplaced markers that limit the ability to stretch tempo. Another problem is that some of the one-shots have tempo-synched delay, and really should have been acidized loops so they would work at multiple tempos.

Overall, these sounds get high marks for creativity and useability, and I'll be using this CD a lot in the future. But I'll need to tweak most of the acidization markers when I do. —CRAIG ANDERTON

### SONIC REALITY
Volume 7 — Reality Drums

**Contact:** U.S. dist. by M-Audio, www.m-audio.com
**Format:** 1 CD-ROM containing ReFill and raw WAV/AIFF samples
**Price:** $49.95

If you thought Reason was just for dance producers, think again. Known for first-call sampleware, Sonic Reality has served up a complete line of Reason-specific libraries aimed at songwriters, producers, and musicians whose tastes run more toward rock, funk, country, and R&B than four-on-the-floor anthems. I checked out *Volume 7 – Reality Drums*, which features an impressive collection of 37 drum kits. The samples were recorded at multiple velocities (up to 8-way switching) and mapped across a 3-octave range for the NN-XT, and organized similarly for ReDrum.

Programming is uniformly excellent: You'll find right- and left-hand snare hits, ride cymbals that go from a whisper to a ring, ghosted notes, and snare rolls and roughs. In a few cases, mod wheel is used to control the amount of ambience. NN-XT's alternate feature is used to alternate between snare samples when repeating notes. Nice.

The documentation doesn't detail which kits or drums were used, but fortunately patch names are suggestive of their respective musical applications. There's no question, for example, that "Maximum Rock" is meant for hard beats.

All of the kits have a polished, punchy, contemporary sound — tuning is tight, drums were recorded close, etc. Some of the NN-XT kits sound like effected versions of other drier kits in the collection, though. I feel there could have been more variety — you won't find any brushed snares, flat, slappy disco kits or other "vintage-type" sounds, for example. But I guess that's what SR's *Vintage Drums* is for.

Rounding out my wish list, I would have liked a few "song starter" sessions or REX'd grooves to go along with the kits. (Some of SR's refills include this type of material.)

I can't complain too loudly, though. *Reality Drums* is a superb resource for injecting big, studio-ready drums into Reason's sonic palette. And it gets better: All the samples are included in a separate folder on the CD-ROM, so you can load them in any of your other favorite samplers. Now that's what I call serious bang for the buck. —JOHN KROGH

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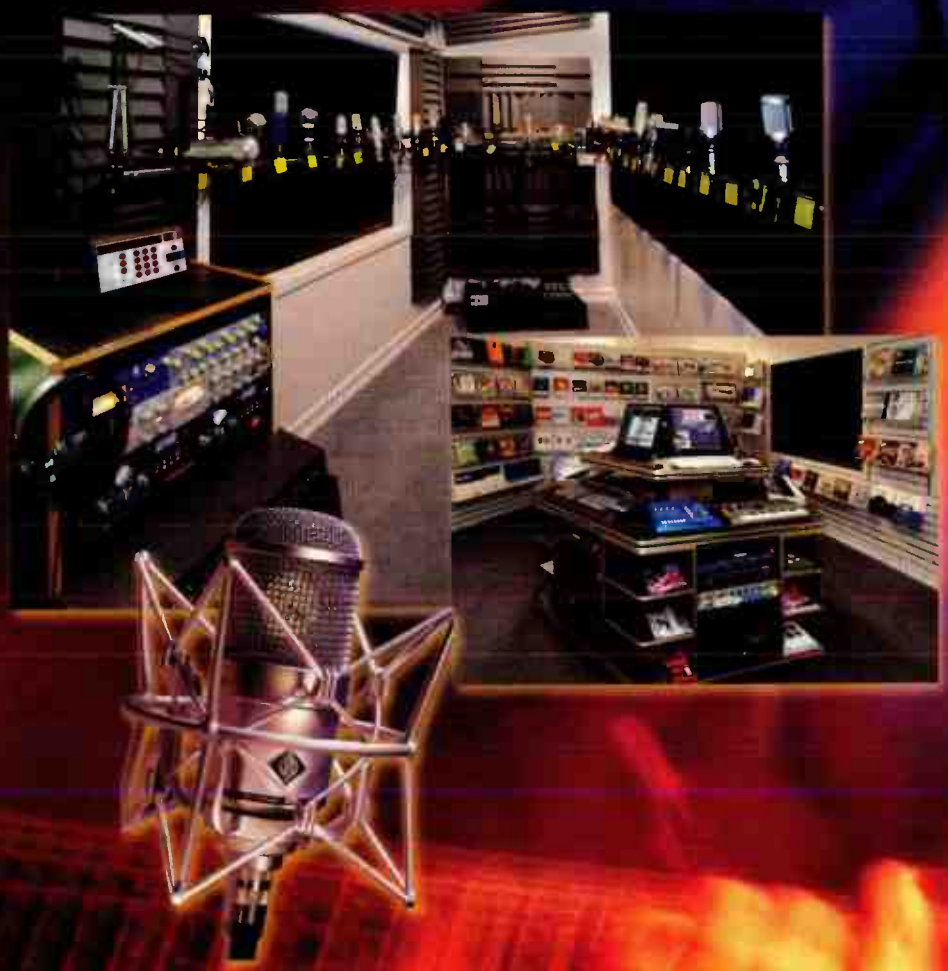

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"Coming Attractions" are previews of new products that haven't arrived in the marketplace. These aren't product reviews, but are designed to bring you up-to-the-minute information on the next generation of cool recording tools.

# COMING ATTRACTIONS

## Blue Sky MediaDesk

### Big sound, little package

by Mitch Gallagher

**What is it?** A micro-sized full-range 2.1 or 5.1 powered monitoring system

**Who needs it?** Anyone who needs a compact full-range stereo or surround monitoring rig designed for extremely close-field listening.

**Why is it a big deal?** MediaDesk is a professional studio monitoring system in a compact package. It is designed to be used for very close (less than one meter) monitoring distances, making it ideal for placement near a computer monitor. The 2.1 version is expandable to full 5.1 surround capability.

**Shipping:** June 2004

**Retail Price:** MediaDesk 2.1, $599, MediaDesk 5.1, $1,198. MediaDesk 2.1 to MediaDesk 5.1 upgrade, $599

**Contact:** www.abluesky.com

As our studio lives become centered more and more around our computers, many of us have found an increasing need for compact monitors that can be positioned close to our computer screens. Unfortunately, the vast majority of what is available is either too large, or is aimed at MPEG-playing consumers and video gamers — not what an audio engineer or producer would consider "reference" speaker systems. If you've been searching for an ultra-compact, full-range, studio-quality monitor system that can sit on your desk, the latest from Blue Sky International will be of interest to you.

The Blue Sky MediaDesk is a full-range "micro-nearfield" monitoring system aimed at audio professionals. There will be two versions: The MediaDesk 2.1, which consists of two 2-way satellites equipped with 4" woofers and 1" soft-dome tweeters, and a subwoofer with an 8" driver. The subwoofer contains bass-management circuitry, as well as three 60-watt amplifiers, one for each satellite and one for the sub.

The second version will be the MediaDesk 5.1 — a 6-channel surround system featuring five satellites and the sub. The MediaDesk 2.1 can also be upgraded to a full 5.1 system later. The upgrade will include three additional satellite speakers, an upgrade card for the sub providing an additional three channels of 60-watt amplification, a +10/0dB LFE gain switch (for video and post mixing applications), 5.1 bass management, and a wired remote control with channel adjustments for all speakers.

The MediaDesk systems are said to be optimized for very close-range monitoring — distances of one meter (39") or less. Both XLR and RCA inputs are provided. A full range of audio levels are supported as the RCAs operate at –10dBv, while the XLRs can be switched from 150mV to +4dBu. All speaker-level connections are via gold-plated binding posts, and all required speaker cables are included with the system.

The MediaDesk satellites are magnetically shielded and can be placed adjacent to CRT monitors without fear of distorting the picture (this isn't an issue with LCD monitors).

Their compact size, complement of features, and ultra-close monitoring designs should make the MediaDesk systems ideal for situations where small editing systems are required, for space-limited home and project studios, and as a compact full-range alternate reference system for studios with large main speakers and/or "traditional" nearfield monitoring.

The *EQ* staff was treated to a closed-door sneak preview of MediaDesk at NAMM, and was genuinely impressed with the clarity and punch coming from such a diminutive rig. From top to bottom, the stylish little system performed well beyond its weight class. Admittedly it was only a few songs in a hotel suite, but our first impression had us smiling. Stay tuned for a full *EQ* review in a future issue.



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World Radio History

by Todd G. Tatnall

# Both Sides of the Phone

We've all been there; something isn't working and nothing you try helps. You're frustrated because you've got an important deadline and you're at a standstill. It's time to contact tech support. If you're lucky, it will be a quick and painless experience. If you're not so lucky, you could end up more frustrated than before. Understanding what to expect and how to be prepared can help you get back to work faster.

**THE OTHER SIDE OF THE PHONE**

Tech support agents do their jobs for two primary reasons: First, they love music, recording, and gear. Second, they like helping people make music. For techs in our industry, it's rewarding to help someone record their music for the first time, or get things working after all was thought lost.

Generally, support agents know a lot about gear and music technology. But sometimes there's a lack of basic customer service skills. They can solve your problems, yet make you feel like you're bothering them. How should you deal with this? Our instinct is to get mad and combative. I find as an end user this approach simply doesn't work. Start by killing them with kindness. Ask how they're doing or how the weather is where they are. Sounds cheesy, I know, but it works. Second, be prepared. Know what your problem is and what your system components are. (More about this later.)

> As frustrated as you might be, remember the tech is there to help.

You may also encounter techs who are knowledgeable, polite, and friendly; however, presented with a problem that's foreign to them, they quickly give up. While not every problem has an easy solution, you should expect the stumped tech to make some kind of commitment to research and get back to you later. Ask them if there's another tech who might be able to help. Perhaps there are other resources the tech can suggest where you might find answers.

In the music industry, we're often integrating systems with products made by a variety of manufacturers. This can lead to compatibility issues. Beware of the tech at manufacturer A who blames manufacturer B for the problems you're experiencing. Contact the second manufacturer and compare answers.

One of the most important skills for a tech is the ability to explain things in a way the end user can understand. The same answer might require a different explanation for different users. If you get a vague answer, ask for a better explanation. Challenge the tech to offer an example or to make an analogy to clarify the answer.

**ON YOUR SIDE OF THE PHONE**

This will be news to some: The essentials of getting an effective solution lie squarely on the end-user's shoulders. Know what you've got. Understand what it is and how to use it. Before you undertake a recording session, read those manuals. Yes, you must. Spend time getting acquainted with your equipment. If you haven't really learned about your investment, you won't be able to use the gear to its fullest potential, nor will you be able to communicate your questions when you do contact technical support. If the tech doesn't understand what the problem is, you'll spend lots of unnecessary time identifying the problem.

So you know your gear, but now you have a problem. How do you get a solution to your problem? Be prepared. Inform your tech about the details of your system and your problem. Don't assume they know everything you've got. If you have a computer, know the model and operating system. Know software versions. Then document the problem. If you get an error message on your computer or workstation, write it down completely. If you've experienced odd gear behavior, be ready to describe it as clearly as possible.

Above all, be positive. As frustrated as you might be, remember the tech is there to help. Rather than taking your frustrations out on the tech, offer the same kind of encouragement you'd expect them to give you. It's guaranteed he or she will do his or her best for you.

**WHY?**

While a tech might be able to help you with something you don't understand, phone training is the least effective method of learning your gear. At the point when someone on the phone is telling you where to move your mouse or what button to push, you've stopped comprehending reasons for these actions. Instead, you've begun listening to commands and carrying them out. Regardless of how effective this might appear at the instant when your equipment begins to work properly, the moment will be fleeting if you don't understand why the problem was solved. Be sure to ask "why"! EQ

*Todd G. Tatnall is the Senior Tech in Sweetwater's Technical Support department.*



World Radio History

8th Annual

# The John Lennon SONGWRITING CONTEST

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**www.jlsc.com**

Mail your entry to: **John Lennon Songwriting Contest**
**620 Frelinghuysen Avenue Suite #131**
**Newark, NJ 07114**

### Each entry must consist of:

- **Completed and signed entry form (or photocopy). All signatures must be original.**
- **CD(s) or audio cassette(s) containing one song only, five (5) minutes or less in length.**
- **Lyric sheet typed or printed legibly (please include English translation if applicable). Sheets not required for instrumental compositions.**
- **Check or money order for $30.00 per song (U.S. currency only) payable to John Lennon Songwriting Contest. If paying by credit card, $30.00 per song will be charged to your account.**

Entries must be postmarked no later than September 28, 2004.

**Please read all rules carefully, and then sign your name in the space provided. If entrant is under 18 years old, the signature of a parent or guardian is required.**

1. Each song submitted must be contestant's original work. Songs may not exceed five (5) minutes in length. Songs may have multiple co-writers, but please designate one name only on the application. **Contestant may submit as many songs in as many categories as he/she wishes, but each entry requires a separate cassette, CD, or MP3 file, entry form, lyric sheet, and entrance fee. One check or money order for multiple entries/categories is permitted.** (Entrance fee is non-refundable. JLSC is not responsible for late, lost, damaged, misdirected, postage due, stolen, or misappropriated entries. The JLSC is not responsible for faulty file uploads accompanying online entries.)
2. Twelve (12) Grand Prize winning songs (words with music or instrumentals) will receive $5,000 in Yamaha project studio equipment, a $5,000 advance from EMI Music Publishing, and 1,000 CDs in full color, premium 4-panel Digipaks, worth $1,990 courtesy of Discmakers. One (1) Grand Prize winning song (words with music or instrumentals) will receive $20,000 for the "Song of the Year" courtesy of Maxell. Thirty-six (36) Finalists will receive $200 gift certificates from MusiciansFriend.com.
3. One (1) Grand Prize winner of the Lyrics category will have their words set to music and recorded on board the John Lennon Educational Tour Bus, and will receive 1,000 CDs of their winning song courtesy of Discmakers.
4. Contest is open to amateur and professional songwriters. Employees of JLSC, their families, subsidiaries, and affiliates are not eligible.
5. Winners will be chosen by a select panel of judges comprised of noted songwriters, producers, and music industry professionals. Songs will be judged based on melody, composition and lyrics (when applicable). **The quality of performance and production will not be considered.** Prizes will be awarded jointly to all authors of any song; division of prizes is responsibility of winners. Void where prohibited. All federal, state, and local laws and regulations apply.
6. One (1) winning songwriter's band will be selected by WARPED TOUR '05 organizers to tour and perform for one week on WARPED TOUR '05. Performance will be considered.
7. Winners will be notified by mail and must sign and return an affidavit of eligibility/recording rights/publicity release within 14 days of notification date. The affidavit will state that winner's song is original work and he/she holds all rights to song. Failure to sign and return such affidavit within 14 days or provision of false/inaccurate information therein will result in immediate disqualification and an alternate winner will be selected. Affidavits of winners under 18 years of age at time of award must be countersigned by parent or legal guardian. Affidavits subject to verification by JLSC and its agents. Entry constitutes permission to use winners names, likenesses, and voices for future advertising and publicity purposes without additional compensation.
8. CDs, cassettes, and lyrics will not be returned. Winners will be announced on January 18, 2005 on the contest's website www.jlsc.com.

**I have read and understand the rules of the John Lennon Songwriting Contest and I accept the terms and conditions of participation. (If entrant is under 18 years old, the signature of a parent or guardian is required.)**

SIGNATURE DATE

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**Design:** Baree Fehrenbach

World Radio History

by Lisa Roy

# Trumpet: Chris Botti

When Sting's trumpeter Chris Botti decided to record his third solo record he didn't head for his usual studio haunts. Botti and his producer, Steve Lindsey, sought out an entirely new sonic temple. "When I first approached Steve about making a record together, his first reaction was, 'Just come out to this garage in Silver Lake and let's play music,'" remembers the trumpet master.

Botti would later applaud Lindsey's suggestion as having, "a really organic cool vibe . . . the way it is led the music to be the most important thing. We went out there for a couple afternoons and really jammed in that space and it felt so natural."

Roll out the cars, motorcycle, and lawnmower; we're making a record!

"Joe [Chiccarelli] came in and tricked the garage out and made it not only natural but super high-end at the same time," brags Botti.

**DATE:** May–August 2003
**STUDIO:** Keefus' Garage
**LOCATION:** Silver Lake, CA
**ARTIST:** Chris Botti
**PROJECT:** tracking trumpet with Chris Botti on *A Thousand Kisses Deep*
**PRODUCER:** Steve Lindsey
**ENGINEER:** Joe Chiccarelli
**ASSISTANT ENGINEER:** Dave Ashton

### MAP FOR A SIGNAL PATH

"I made it a point to spend a fair amount of time planning out how I was going to set up," says Chiccarelli who knew he had to make the garage sound as close as possible to a pro facility. "The great thing was that we turned everything on and it all worked and sounded fantastic. The tricky thing was the acoustics of the room weren't perfect. So it was a bit challenging making judgments about low end, reverb, even about frequency clashes. We had so much stuff cramped in the garage with weird angles. I ended up listening to a lot of reference tapes to get familiar with the way the monitors sounded in the room. I found that the bottom end sounded a certain way on the left side of the room and different on the right side, and made adjustments accordingly.

**In the Garage (L–R): Dave Ashton (assistant engineer), Keefus (programmer/co-writer), Chris Botti, Steve Lindsey (producer), and Joe Chiccarelli (engineer)**

"I brought in all my racks of gear and rented a few things. I had my Pro Tools HD system set up and rented a Trident 65 console as a playback desk and routing of headphones only. All the signals went from API 312, Focusrite ISA428, or Neve 1073 preamps direct to Pro Tools. A lot of the keyboards went in the Presonus Digimax 8-channel interface and straight into Pro Tools. One of the advantages of this setup was that everybody was in such close quarters, you could run a 10' microphone cable from Chris' trumpet to a preamp and another 5' cable from a preamp to Pro Tools and have the shortest run of cable possible. The whole setup was designed as three stations. I had one group of keyboards going into a rack of preamps over on the left wall. The trumpet and piano (center of the room) were going into another stack of preamps, and Steve's keyboards were set up on the right side going into a third set of preamps."

### GARAGE TRUMPET MIKING

"The Harmon muted trumpet was recorded with a Royer 121 to a Martech MSS10 preamp via Monster Studio 1000 cable," shares Chiccarelli. "Some trumpet tracks were done with the Blue Kiwi mic for a brighter sound. Chris really wanted a few of the muted trumpet sounds to be bright and airy, so on a few songs where we felt the Royer was a little too warm, we used the Blue Kiwi.

"Leakage into the trumpet mic was never an issue. There was just enough rejection that it worked out really fine. With a Royer, which is bi-directional, I put Chris so he was a little off to one side of the room, about six feet from the monitors, and got the null of the microphone to be where the speakers were aimed so their leakage into the trumpet was never an issue. The only thing we had real leakage challenges with was the piano overdubs. We had to keep the monitors really soft or sometimes use headphones, because this particular piano sounded best when you played it really softly in the middle register. We used Audio-Technica AT4047 mics and Focusrite preamps on the piano."

### FINAL WORD

"The thing I will say for live acoustic music, is there really is nothing that compares to a great sounding room, a great sounding recording studio," concludes Chiccarelli. "Of course there could be a great sounding room in a house, but there really isn't anything that compares to an Ocean Way, Cello, or a Capital 'B.' These are rooms that were built with live musicians in mind.

"In the end we did do some tracks in the studio. We could never put a drum set in the garage; there wasn't enough space. We did put an upright bass in the bathroom a couple times and it was tricky getting a sound on it, because no matter what you did it sounded like a bass in a bathroom. A guitar amp in the bathroom didn't sound so bad. The point I want to make is that for certain projects a real professional recording studio is the way to go and in the end several tracks on the album were done very traditionally: three to five guys in a room all collaborating. The interesting thing is when we went to a professional studio, Chris didn't want to be in an iso booth, He wanted to be out in the middle of the room with the other musicians. To some extent he wanted to recreate the garage in the 'real' studio." EQ



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World Radio History

by Craig Anderton

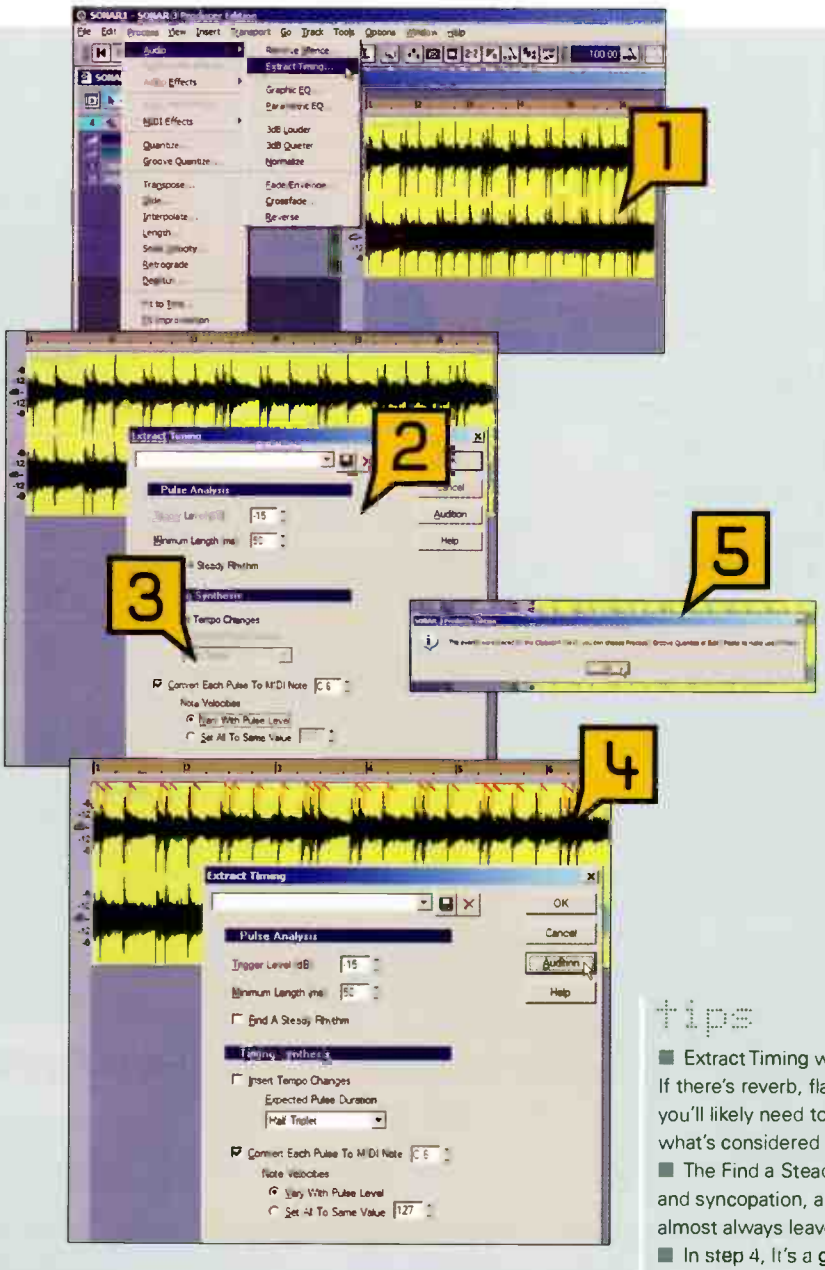
# Cakewalk Sonar

## Extract rhythmic timing from audio files

***Objective:*** Extract the timing data from an audio file, and use it to control the timing of MIDI parts.

***Background:*** Sonar's Extract Timing function can analyze transients in a digital audio clip (but not a Groove Clip, only standard audio), and create MIDI notes at these transients. These notes become a groove template that can be applied to MIDI parts, such as drums or bass.

***Step by Step:*** You will probably need to repeat steps 2-4 several times, while experimenting with the parameter values in step 2, to have notes fall accurately on the audio file's transients.




1 **Select the audio that provides the timing data to be extracted, then go *Process > Audio > Extract Timing*. Arrange your windows so you can see this dialog box and the selected audio.**

2 **For drum loops, set Pulse Analysis Trigger Level to around –10 to –20, and Minimum Length (which prohibits re-triggers during the specified time) to 50ms. When analyzing a long piece of digital audio, check Insert Tempo Changes to keep the sequence playing in time with the rhythm track. Under Expected Pulse Duration, enter a value for the general rhythm (*e.g.*, 8th notes for a simple rock drum part).**

3 **Check Convert Each Pulse to MIDI Note and choose the desired note. Under Note Velocities, check Vary with Pulse Level to have the notes retain dynamics; to set them all to the same velocity, check Set All to Same Value and enter a MIDI velocity value.**

4 **Click on Audition to see notes overlaid on the audio where Sonar detected transients. If there are too many notes, decrease the Trigger Level setting; if Sonar didn't catch enough transients, raise the Trigger Level setting and/or shorten the Minimum Length so Sonar doesn't miss closely spaced transients.**

5 **Click on OK to place MIDI data on the clipboard, then click OK in the dialog box that appears. Paste the data into a MIDI track, or use it as a source file for the Groove Quantize edit option.**

### tips

- Extract Timing works best on audio with strong, defined transients. If there's reverb, flamming, or other elements that muddy tight timing, you'll likely need to raise the threshold and be more selective about what's considered an event.
- The Find a Steady Rhythm function ignores variations such as flams and syncopation, and locks to elements that are right on the beat. I almost always leave this unchecked.
- In step 4, it's a good idea to choose a very high or very low note so that if it's pasted into a track already containing data, it's easy to differentiate it from the other MIDI data.



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World Radio History

by John Krogh

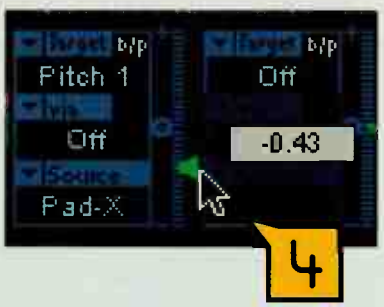
# Emagic Logic ES2 vector+wavetable synth

## Demystifying this interesting soft synth

***Objective:*** Come to grips with how sounds can be shaped in the ES2.

***Background:*** As of Winter NAMM 2004, Apple/Emagic will be bundling all of their formerly optional plug-in synths with Logic. One of the instruments — the ES2 — differs from traditional subtractive synths in that it offers wavetable and vector control for shaping its raw oscillators and filters. Because of its graphic interface, the ES2 can be tricky to program. From this first installment of a two-part column you'll learn the basics of how sounds can be controlled. In part two we'll explore the wave sequencing section, which can be used to create step sequence-like patches that sync to BPM.

***Step by Step:*** Start sculpting the ES2's tones into your own creations with these techniques.



1 **Start by initializing the ES2 by choosing Default from the patch menu.**

2 **Now select a different waveform for each of the three oscillators, as shown in step 2 (left). Drag the center point to each tip of the triangle located just to the right. Notice how the timbre changes as you get closer to each tip — from this triangle you can mix (blend) the oscillators (these moves can be recorded as automation data).**

3 **The square along the right-hand side of the plug-in is a similar graphic controller, but is freely assignable to modulate any ES2 parameter, not just the mix of the oscillators. From the Router section choose Pitch 1 as a target, and Pad X as the source.**

4 **Drag the small green triangle along the side of the Target/Source window down to a value of –0.43. This will create an interval of a major third between the pitch of Osc 1 and the remaining two oscillators.**

5 **To hear the interval, drag the control point from within the X/Y square to the extreme left or right. Notice how the pitch of one oscillator changes as you drag. This motion can also be recorded as automation data.**

### tips

- Now that you've seen how the triangle and square control pads work, try assigning other parameters such as filter cutoff, FM amount, attack time, etc. as targets.
- The X and Y axes values can be modulated from an external source, which means you can assign a controller such as modwheel to change the X value and a rotary encoder knob to affect the Y value — a tweaky-yet-powerful realtime performance technique.
- Pick a patch you like and deconstruct it by bypassing each modulation routing one by one, making notes as you go along. When the patch is reduced to its basic elements, rebuild it from your notes — you'll learn a lot about how each parameter can be controlled to shape the sound.



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World Radio History

by Craig Anderton

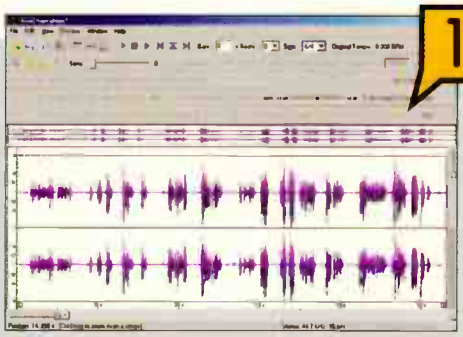
# Propellerhead ReCycle

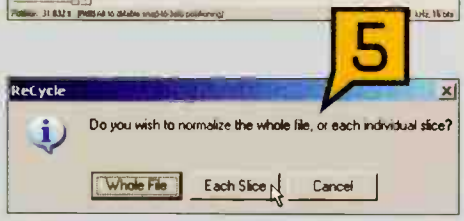
## Phrase-by-Phrase Normalization for Voice

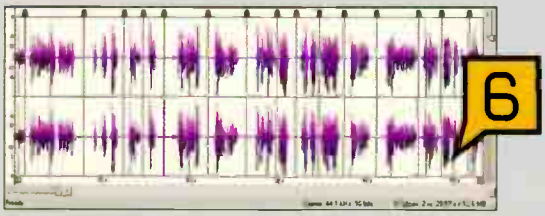
***Objective:*** Normalize vocals and narration on a phrase-by-phrase basis.

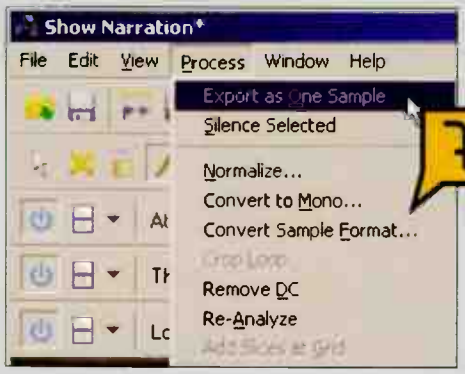
***Background:*** With vocals, narration, and spoken word projects, it's often useful to normalize on a phrase-by-phrase basis rather than normalizing the entire file. Once the file is normalized in this manner, compression and EQ (if needed) can be done more efficiently, with more consistent results. ReCycle is ideally suited for this type of application; ReCycle 2.1 even handles 24-bit files.

***Step by Step:*** Follow each step in sequence, but to verify that each slice contains a complete phrase, audition each slice in Step 3 before moving on to Step 4.






1. **Load the narration file into ReCycle.**
2. **Select the Pen tool.**
3. **Using the Pen tool, click in the space between phrases to create a "slice" for each phrase.**
4. **Go to the *Process* menu, and select *Normalize*.**
5. **When given the choice to normalize the whole file, or each individual slice, choose Each Slice.**
6. **Your file now has each phrase normalized to the maximum available headroom.**
7. **To save your file, first go *Process* > *Export as One Sample* or each slice will be saved out individually. Then go *File* > *Export* and choose the desired file format and resolution.**

### tips

- If you want to use ReCycle's processors, enable the Preview toggle and enter any number of Bars (the exact number doesn't matter). But do not change the tempo by even the slightest amount, or ReCycle will attempt to time-stretch the file.
- Be careful not to isolate breath noises and other sounds, or they will be normalized. Include them with a phrase to be normalized.
- The Transient Shaper can provide some useful compression effects if you want more punch.
- EQ can also be useful; the LoCut control is good for getting rid of p-popping and excessive proximity effect.



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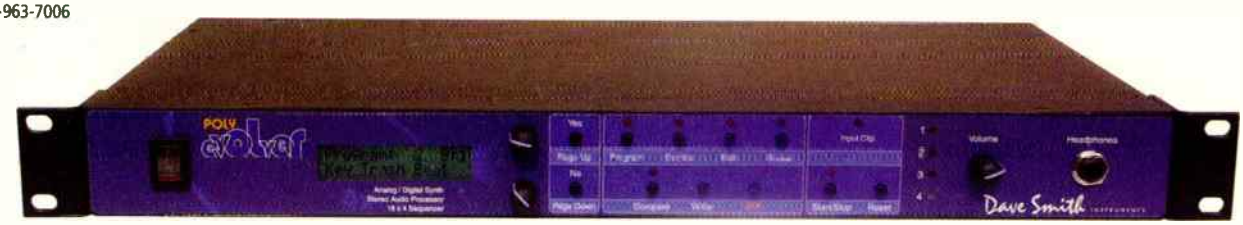

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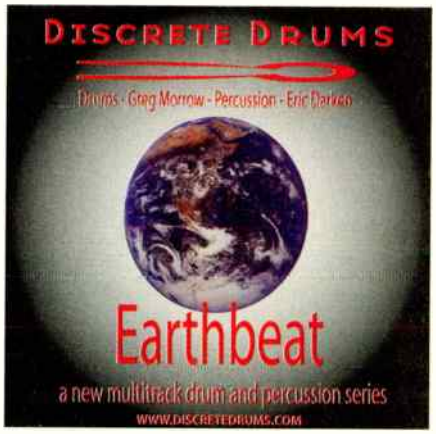


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World Radio History

by John Krogh

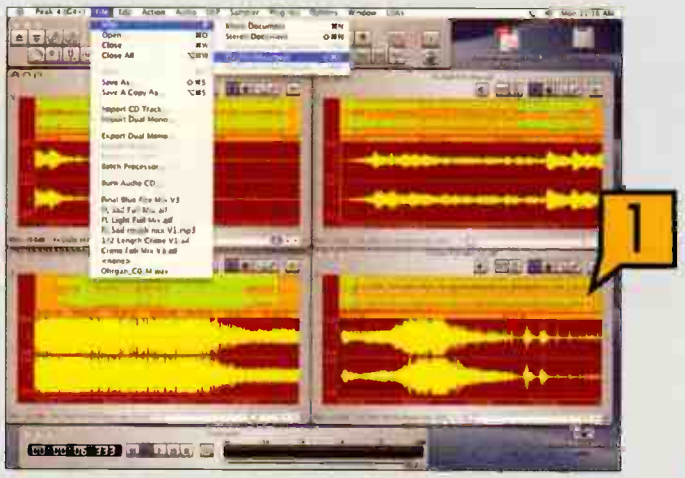
# BIAS Peak

## Polish your CD playlists with V-box effects

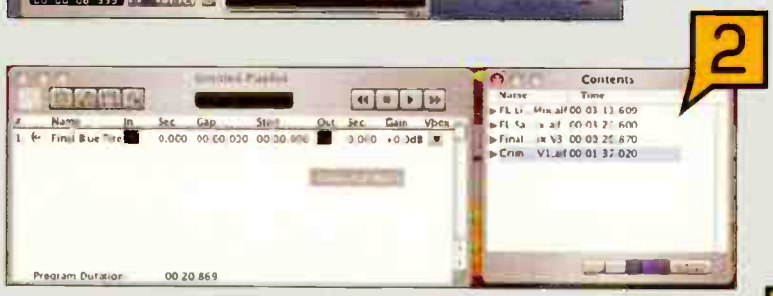
***Objective:*** Apply mastering plug-ins on a track-by-track basis using Peak's built-in effects matrix.

***Background:*** The process of assembling songs in a playlist is straightforward enough, but Peak's documentation doesn't clearly detail how to apply effects on a track-by-track basis to ensure consistent levels or balanced high, mid, and low frequency characteristics across an entire collection of songs. The secret is V-box, a plug-in effects matrix that can process audio in series and parallel simultaneously.

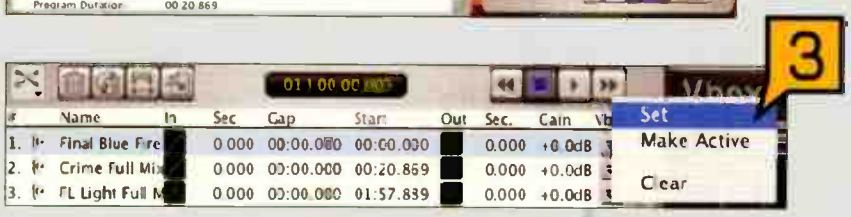
***Step by Step:*** Fine-tuning tracks in a CD playlist is just four steps away.



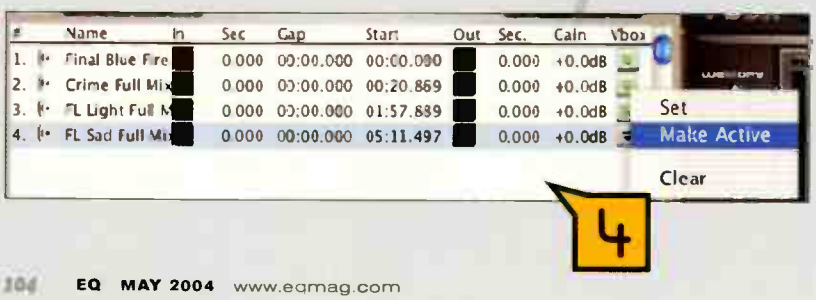

1 **Start by opening all the tracks you'd like to include on your CD (for example purposes I've opened a total of four files), then create a new playlist (*File > New > Playlist Document*).**




2 **Choose Contents from the Window menu, then drag the song names from the Contents window into the playlist window. With your songs organized in the playlist, choose V-box from the Plug-in menu. From within V-box, insert whatever plug-ins you'd like to use for processing each track in the top row.**




3 **Each track can have a "snapshot" of the plug-ins' settings, including bypass, level, and parameter values. To set this up, start by selecting the first track from the playlist, then tweak the plug-in settings for this particular track. When you're finished, choose Set from the drop-down menu located next to the track's name. Do this for each region in the playlist.**




4 **Now that you've created the plug-in snapshots, they need to be enabled for each track. (Otherwise, the plug-in settings won't change from one song to the next.) To do this, choose Make Active from the drop-down menu located next to each playlist region. Now when you audition the playlist or burn a CD, your plug-in snapshots will be recalled.**

### tips

- Create presets for all the plug-ins applied to each track. That way if you change the song order or want to use one or more tracks in another playlist, you can simply recall the track's plug-in settings and get to work.



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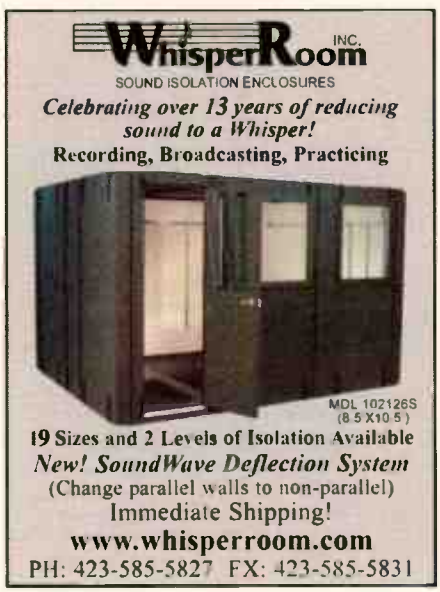


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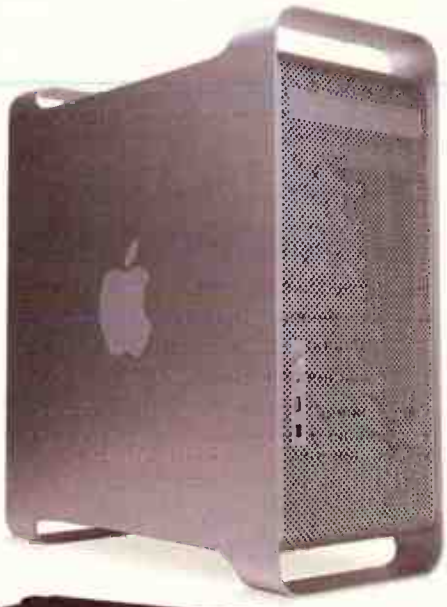

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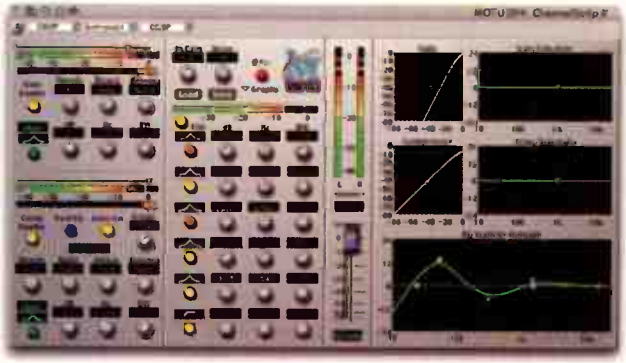

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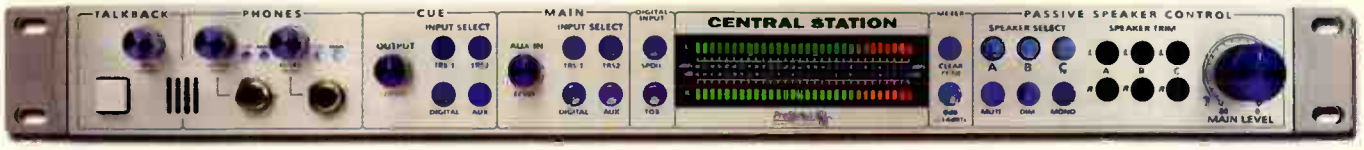


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# Room with a VU

by Mitch Gallagher

**STUDIO NAME:** Omega Studios, Inc.
**LOCATION:** Long Island, NY
**CONTACT:** www.djgproductions.com
**KEY CREW:** Chris "The Greek" Panaghi (owner/producer/engineer), Michael Nigro (keyboardist/programmer), Jeff Hanc (keyboardist/writer), Mike Manicone (keyboardist/programmer)
**CONSOLE:** D&R Triton with Optifile Automation 3-D
**RECORDERS:** TASCAM DA-30 mkII, CD-A630
**MONITORS:** Yamaha NS-10M, JBL LSR 32
**OUTBOARD:** Focusrite Voicemaster, Compounder; UREI LA-4, Behringer Composer, dbx 163X, 263X [2], 266; BBE Sonic Maximizer, Aphex Aural Exciter
**EFFECTS:** Lexicon LXP 15, LXP 5, MRC, Alex, MPX-100; Sony D7, F7, M7; Electrix Filterfactory, Ibanez SDR1000, Roland SDE1000, SRV3030, Yamaha SPX90, Ensoniq DP4
**MICROPHONES:** Neumann TLM 103, AKG C1000S, D310; Sony F-99S, ElectroVoice RE-20, VTL CR-3A
**COMPUTERS:** Pentium 4/2.8Mhz with 1GB RAM, 80GB SCSI-2 hard drive [2]
**DAW:** MOTU 2408 [3], Universal Audio UAD-1
**SOFTWARE:** Steinberg Cubase SX 2.0, VST 5.1, Halion 2.0, Halion String Edition, The Grand; Sonic Foundry Sound Forge 6.0, Acid 4.0, Vegas Video 3.0; Saw Plus Pro 32, Fast Eddie Editing Software, Cakewalk Sonar 2.0, lots of plug-ins.
**KEYBOARDS/MIDI:** Access Virus C, Akai S3000XL with 32MB RAM [2], Emu Orbit v2, Classic Keys, Planet Phatt, Proteus F/X, Vintage Keys, Audity 2000; Vintage Synth, Dance Module, Juno-106, Juno-2, JV-1080 (Techno, Hip Hop, Special F/X, House cards), JV-880, JP-8080 [2], TR-727, TR-909, R-8; Kawai K5000, Nord Rack 2, Novation K-Station, Korg 03RW, EX800; Yamaha CS1-X, CS2-X, TX81Z, AN1X, Motif-Rack; Steinberg Midex 8
**CABLES:** Planet Waves
**ACOUSTIC TREATMENT:** Auralex
**STUDIO NOTES:** Omega Studios owner Chris Panaghi says, "When the studio was under construction I paid a lot of attention to the research and development of the room size, treatment, and acoustics. A lot of emphasis was also placed on creating a warm, creative, and inspiring vibe. The space is very clean and has a lot of great lighting."

With a control room and isolation booth, Omega Studios is set up for a natural vocal sound. The control room and isolation treatment is by Auralex and is a floating room design. It has a very true room sound acoustically. "What you hear is what's being recorded," Panaghi says.

Chris's arsenal of gear, ranging from a vintage TR 909 and UREI LA-4 to the latest sound modules, synths, and samplers is one of the room's attracting and distinguishing factors. As a DJ and in-demand producer and remixer, Panaghi keeps his room on the cutting edge. "What makes my room top-notch is taking the classic sounds and combining them with a new school approach and DJ ears. I love my toys — what can I say?"

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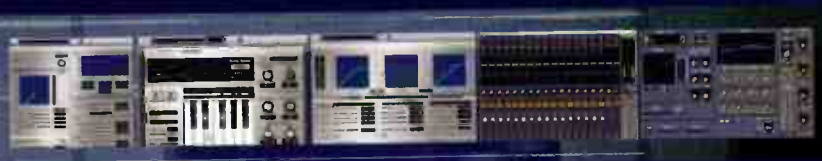

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