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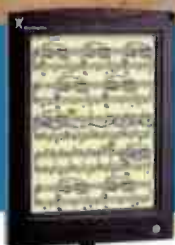
MUSIC PLAYER PUBLICATION



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*I like the ISA 428 very much indeed. It looks good, sounds fantastic, is completely bombproof and is a joy to use. In terms of technical performance, the card at least equals – and in most cases outperforms – other comparable converters.*

– Hugh RobJohns, *Sound on Sound*, May 2003

respect the past

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An established industry classic, Focusrite's revered transformer-based ISA pre amp is at the heart of this new package, which combines vintage Class A attributes with the ultimate in digital technology.

The new ISA 428 Pre Pack features four ISA mic pre's with selectable impedance including the famous ISA 110, eight line inputs, four instrument inputs and Focusrite's latest eight-channel, 192kHz A-D converter option protected by our new optical Soft Limiter circuit – the perfect future-proof interface to your DAW or digital console.

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ISA430 PRODUCER PACK

ISA 428 PRE PACK

ISA220 SESSION PACK

# Talk Box



## EQ EVOLUTION

We're now three months into the new *EQ* era, and we'd like to send our heartfelt thanks to all who have tuned in. It's a particularly exciting time for us. We can feel the momentum building, and greatly appreciate all the feedback we've received — it's invaluable in helping us shape the magazine's direction. But there's little time to look back. The deadlines come fast and furious around here, and our studios are busting non-stop to bring you the content you crave.

So let's recap. Our June issue (*Matrix Reloaded* cover) emphasized cutting-edge software tools and techniques, mixed with a few analog essentials and how-to features. July (*New Directions in Mixing*) was a hardware heavy month, and explored the tactile side of recording via control surfaces, mixers, and guitars. The issue you're holding now balances new digital tools, mics, monitors, and processors, as well as an in-studio interview, a load of recording tips, and a monster DIY tech feature. Next month we'll take you straight to the heart of the art, as we explore options for capturing the perfect vocal — and, as you've come to expect from us, a ton of techniques articles and product reviews.

So which is the "new *EQ*"? Answer: They all are. Today's recording blends software and hardware, analog and digital, proven techniques and daring experiments — and our coverage reflects that. But there is one constant: Every page of *EQ* is geared toward the forward-thinking pro-project producers, engineers, and musicians who want to make the best possible recordings — from a technical *and* emotional standpoint — using today's techniques and tools.

To better acquaint you with the main content providers aboard the new *EQ*, we're serving up a monthly "Band Stand" question and answer sidebar on this page. Hey, how else would you know that Craig Anderton once risked being jailed to capture the perfect sound? But this is no one-way show. We want to hear from you as well. Which loops back to the top of this letter. Send us email, sound off, and log onto our [EQmag.com](http://EQmag.com) forums if you haven't already. We're in there regularly, and what you say is important to us — and part of the process of making this *your* magazine, not just ours.

See you next month. —Greg Rule

## The BAND STAND

### What's the most-memorable thing you've miked?



**Greg Rule, Executive Editor**

A shouting, hellfire and brimstone-style preacher at my college recording studio. It was a great lesson in limiting, but it sure sucked having to clean the spittle off the vocal-booth glass afterward. We also had a troop of yodelers in once. Ah, those were the days.



**Mitch Gallagher, Editor**

A seething mass of junior-high kids chanting "school sucks" at the top of their lungs. It was hilarious watching the producer attempt to get the kids to fade in and out. "Let's try it again, but this time, like you really mean it..."



**Craig Anderton, Editor at Large**

The Atlanta airport security message, but the only place with good acoustics was the men's room. So there I am, mic shoved up next to the PA speaker, when a guy walks in while the announcer says, "Report any suspicious persons, or unusual activities..."



**John Krogh, Technical Editor**

Doing commercial ad music. I've had my share of strange sessions. Like the time I tracked Latin percussion and guitar from my wheezy old Optigan. What a funky toy! But it was perfect for the lounge vibe we were going for, and the clients thought it was great.



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*"The KSM44 has amazing presence on vocals. It's a great all-around condenser mic."*  
-Eddie Kramer (Jimi Hendrix, Led Zeppelin, Kiss, the Beatles, ...)

*"I found the KSM44 to have an excellent natural quality with good presence and a nice open top end. This mic is so smooth in the midrange, even a banjo sounded good!"*  
-Joe Chiccarelli (Beck, U2, Elton John, ...)

*"I tested the KSM44 on vocals, bass, guitar, and drums, and haven't stopped using it since. It's hard to describe, but there is an immediacy to the KSM44 that is very appealing – sort of like a dynamic mic, but more elegant."*  
-Brad Wood (Smashing Pumpkins, Liz Phair, Better Than Ezra, ...)

***For a mic with such low self-noise, it sure creates a lot of buzz.***

*"The KSM44 is the quietest microphone I have ever used, and one of the best sounding too."*  
-Tom Jung (Pro Audio Review, DMP Records, ...)

*"As I compared the KSM44 to a mic I consider to be an old favorite, my ear immediately chose the KSM44. Shure has a fantastic studio mic that I can use for critical recordings – it's going to become a standard, very fast."*  
-Bil VornDICK (Alison Krauss, Bela Fleck, Mark O'Connor, ...)

*"My first impressions of the KSM44 were warm, round, full – dare I say it? Fat!"*  
-Bob Ross (Recording Magazine)

*"The KSM44 is a remarkable achievement. I am especially impressed with the versatility of this microphone and have yet to find its limits."*  
-Steve Albini (Nirvana, Page and Plant, PJ Harvey, ...)

*"I was given the KSM44 prototype early-on, not knowing its intended purpose - so I tried it on everything. Guess what, it worked on everything!"*  
-Chuck Ainlay (Trisha Yearwood, Mark Knopfler, George Strait, ...)

**SHURE**  
It's Your Sound™



The KSM44 multi-pattern studio condenser microphone has become quite the conversation piece in studios around the world. Maybe that's because its incredibly low self-noise (7 dB) lets you record only what you want to hear. Or maybe it's the three polar patterns and the design of the externally biased dual-diaphragm cartridge. Once you experience it for yourself, you'll be talking, too. To discover what makes the KSM44 so buzzworthy, call 1-800-25-SHURE or visit [www.shure.com](http://www.shure.com).

# Punch-In

Tips & News You Can Use  
BY CRAIG & GREG



Seated at API console is engineer Ryan Hewitt; standing is Blink-182 bass player Mark Hobbus.

## News

### Blink-182 API in the House

Platinum-selling punk/pop trio Blink-182 recently teamed with long-time producer Jerry Finn, engineer Ryan Hewitt, and assistant Sam Boukas to record their follow-up to *Take Off Your Pants and Jacket*. They also collaborated with Luis Arteaga of Signature Sound Recording Studios and David Lyon, president of pro audio dealer Sonic Circus, to set up the temporary studio in a rented San Diego house where the sessions took place. "They just wanted to have privacy, and not have to watch the meter run in a studio," says Lyon. And who can blame them?

But did the neighbors mind the rock invasion? Not all, it turns out, as all studio windows and walls were temporarily but effectively soundproofed. "Working in a house was awesome," Hewitt says. "The drum sounds are probably better than any drum sounds I've gotten in a studio. It's such a big room, and there are hallways leading off in all different directions, so we could mic those and get really great, spacious sounds."

Gear trucked in for the sessions included the classic API analog mixing console pictured, which was assembled and installed by Tony Lopez of Studio Support Services. "It's a 48-input, 24-monitor desk," says Hewitt. "The console is serial #3, and came out of Soundtrack New York. Given the fact that we're on 2-inch tape and high-resolution Pro Tools HD, the headroom and the frequency response of the console is really important.

"Even though it's a relatively simple console," he continues, "having two stereo busses is a fantastic thing. It's allowed us to do rough mixes the way we really want to. And the aux send situation is really nice, linking the channel and monitor sides of the desk." Finn's Tannoys and Hewitt's own Proac nearfields were used for monitoring.

Following the completion of the Blink project, the API is scheduled to be installed at Signature Sound, a premier recording facility in San Diego where clients such as U2, POD, and New Found Glory have worked in the past.

## Advice from the **bench**

### When Software Cracks Up

As if the ethical and legal issues in using stolen software aren't bad enough, there's also the Pandora's box of technical problem that "cracked" software can open up. An example: Robin Vincent, Technical Director of Carillon Audio Systems (who make computers optimized for audio), related the following story:

"A gentleman brought his computer back to us, complaining that the parallel-port MIDI interface we sold him wasn't working. He was a Cubase VST user, and could not get any MIDI input into the system. I tried

the system out, reinstalled the drivers a number of times, fiddled with the parallel-port settings in the BIOS — all the usual stuff that normally kicks these things into life, but to no effect.

"Concluding that it must be a faulty interface, I reached to remove the cable connected to the printer port, when it suddenly dawned on me that there was no Cubase dongle. I asked the customer where his dongle was, and how was it that he was able to run Cubase; he sheepishly admitted that it was stolen software.

"At this point I put down my tools and told him that the cracked version of Cubase was the only reason the MIDI interface wasn't working, and his choice was either to take his computer away or buy Cubase. It makes a certain amount of sense that the cracking of a parallel-port dongle might also do something that would prevent the MIDI interface from working. Anyway, he said that he would buy a copy of Cubase right now if I could get it working. So, I uninstalled his crack, installed Cubase VST, and the MIDI interface worked immediately."

## tip

### HAVE YOU DRIVEN A RIBBON MIC LATELY?

Ribbon mics have a reputation for smooth-as-silk sound quality but also for fragility. As a result, a lot of engineers tend to shy away from adding them to their mic collections. However, advances in technology have caused across-the-board changes in all aspects of recording technology, and some ribbon mics, such as the R-121 from Royer Labs (pictured), have been designed to be far more rugged than their predecessors. The R-121 also has a field-replaceable ribbon just in case you do blow one out. In addition to the ribbon's traditional role recording brass and other acoustic instruments, engineers are finding out that they sound great with guitar amps — an application that would have been unthinkable with older ribbon designs.



Royer R121 ribbon microphone

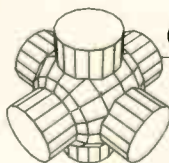
## tip



### SONAR ANTI-FREEZE

Ever have Cakewalk Sonar freeze up when you exit? Here's why. When it exits, it releases control over any drivers it's using, so the main reason for a freeze would be a lack of communication with a device's drivers. Normally, you can just deselect all the MIDI I/O from Options > MIDI Devices, deselect all audio devices from Options > Audio Drivers, and restart Sonar. Enable each driver one at a time, and exit after each enable — if the computer freezes, you've found out which driver is causing the problem. However, in one tough case merely deselecting a MIDI driver from MIDI Devices still caused my computer to freeze, which implied a problem with a MIDI driver. To solve this kind of stubborn problem:

1. With Sonar closed, delete the TTSEQ.INI file from your system (normally found in the Sonar folder).
2. Open Sonar; it will prompt you to select MIDI devices. Don't choose any, then continue.
3. Close Sonar and see if it freezes. If it doesn't, then the problem is indeed MIDI driver-related.
4. Open Sonar, and select drivers one by one until you find the one that breaks the system. In my case, it was one labelled "Generator Synthesizer," which was a holdover from a product I had reviewed on the same computer. I disabled it, and all was well.



### Gadgetphile

## SonicEye Instrument Level Checker

Feast your fingers on this affordable mini-tool. The SonicEye Level Checker gives performers, techs, and studio users a quick and reliable way to test signal integrity and ward off those pesky "audio blackouts." To use, simply plug SonicEye into an output to be tested, press the black button in the center of the eye, and watch the meter. Check the signal strength at each suspected output, then remove, replace, or repair source of blackout.

SonicEye costs approximately \$36, and can be purchased from [www.soniceye.co.uk](http://www.soniceye.co.uk) or [www.fongelectronic.com](http://www.fongelectronic.com). (International orders accepted.)



## CD of the Month Radiohead

**Hail to the Thief**, Capitol Records

Produced by Nigel Godrich, the follow-up to the acclaimed *Amnesiac* has all the makings of a summer blockbuster. And there's substance behind the buzz, as we learned when spinning the advance copy of *Hail to the Thief*. Emotion, energy, and vibe drip from this disc. No edits-gone-wild, at least not enough to detract from the organic essence of the band. The core components are vocal, guitar, bass, drums, and some piano, but with a generous smattering of moody, ambient layers and deep-space retro FX. Like the Massive Attack release profiled in June, this one can take you straight to numbsville at times, but before your eyelids can slide shut, the band slaps you across the face with a surprise blast of raw rock energy. Just when you'd worn your copy of Coldplay's *A Rush of Blood* down to a nub, along comes *Hail to the Thief*. Hurrah!

tip

**INVENTORIED YOUR PLUG-INS LATELY?**

If you've installed any new plug-ins lately and use Cool Edit Pro 2 or Cakewalk VST-DX Adapter, don't forget that you need to refresh the list of effects. For CEP2, with the program open, just go to Effects (from the Menu bar, not the Tab in the left window) and choose "Refresh Effects List." For VST-DX Adapter, start the program and hit "Next" until scanning is complete.

Sometimes either program will exit in the middle of a scan, or appear to crash during a scan. There is no cause for alarm, just reload CEP2 or re-scan with VST-DX Adapter. You may need to do this a few times. It seems some companies have plug-ins where for some reason, the scanning software can't "absorb" more than one listing at a time from the same company. So it scans the first instance, but on reaching the next one, aborts the scan. When you re-scan, it has already recognized the first instance, so it can go on to recognize the next one.

News



**M-Audio Cancels Surface One Controller**

The Surface One project, M-Audio's innovative controller that turned heads at trade shows, has been canceled. According to M-Audio's Adam Castillo, "When we started development on this two years ago, there were few low-cost hardware controllers available. We felt this was an essential accessory for those using programs like Reason and Live, which we distribute. We knew at the outset it would be a complex product to pull off, but not only did it take longer to develop than we anticipated, during that time a host of quality, low-cost controllers appeared. Rather than produce something that was no longer as unique as we hoped it would be, we decided to channel our resources toward future products that will continue the tradition of product innovation for which we are best known."

**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.linplug.com/Download/download.htm](http://www.linplug.com/Download/download.htm)

**FreeAlpha Synthesizer**

For Mac and PC, this kickin' little VST instrument aims to re-create the warmth and feel of the early '80s-era analog subtractive synthesizers. It offers two oscillators per voice, with a choice of 20 waveforms per oscillator, plus a multimode filter, LFO, a modulation matrix, portamento, and more!



■ [www.transaudiogroup.com](http://www.transaudiogroup.com)

**Free SoundField 5.1 Microphone Demo DVD**

A free DVD-Video Demo Disc is now available from the Transamerica Audio Group, Inc., the exclusive importer of SoundField microphones to the U.S. All you have to do to get your free DVD is log-on to the site above and register. To make the demo disc, a SoundField microphone was used to record various types of sources, including live concerts, sound effects, and local bar bands. The results of these recordings can be heard on this free SoundField Demo DVD in 5.1 played through a Dolby 5.1 Decoder, which is built into most receivers and DVD players. Also included on the disc is an overview of the SoundField microphone product line. For more info, visit: [www.soundfieldUSA.com](http://www.soundfieldUSA.com).

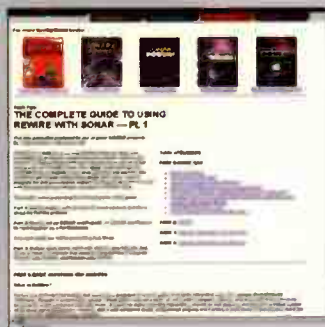
■ [www.PlanetZ.com](http://www.PlanetZ.com)

A fantastic site for Pulsar users. Not only are there useful forums, but some cool synths and effects for free — that's right, for \$0. You can browse the user reviews of these devices, as well as find sites that offer a variety of commercial plug-ins. A lot of the discussions touch on using CreamWare products with specific programs like Cubase, Logic, Sonar, etc., as well as computer issues and answers. If you're using anything by CreamWare and haven't bookmarked this site, you're missing out on an extremely valuable resource.



■ [www.cakewalk.com/tips/April03\\_AndertonPt1.asp](http://www.cakewalk.com/tips/April03_AndertonPt1.asp)

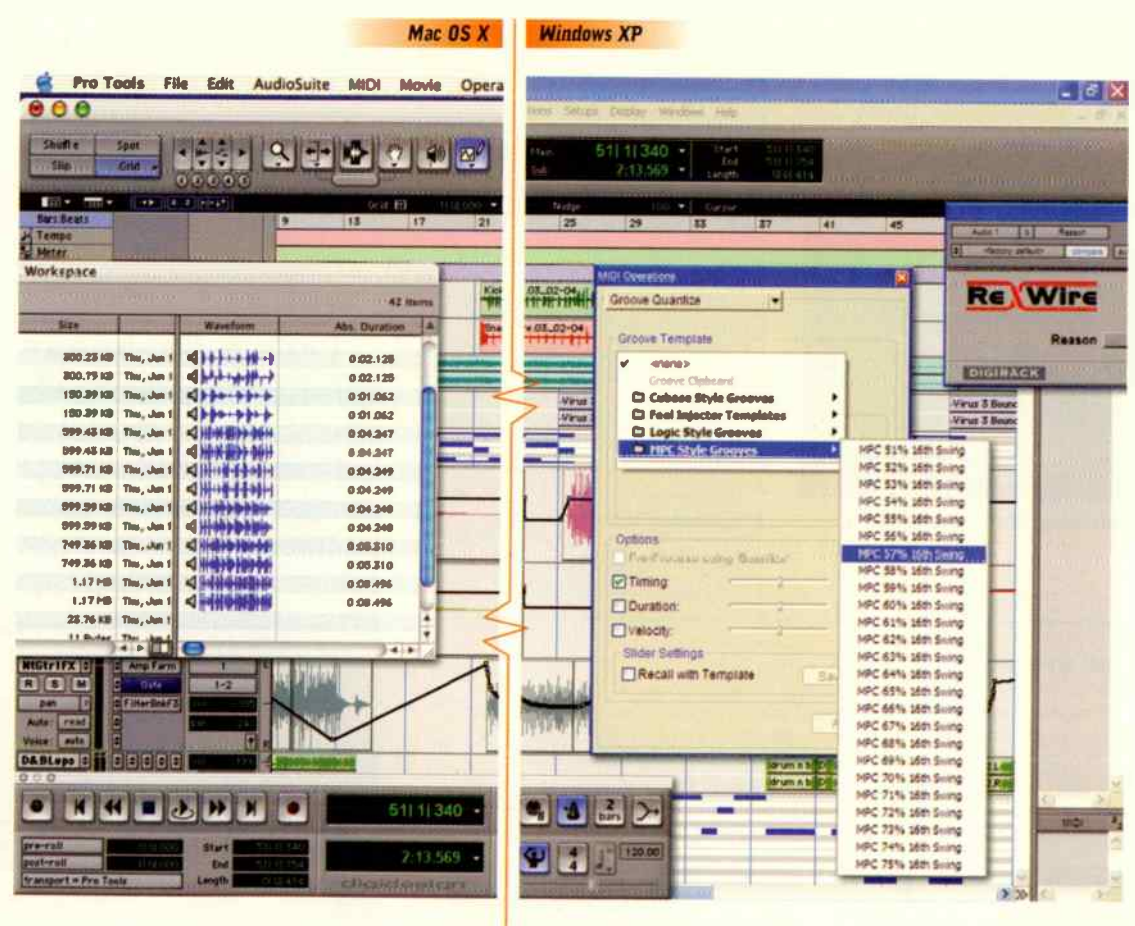
What's the Deal with ReWire? Curious about this amazing protocol that allows programs to integrate seamlessly with each other (e.g., use Reason's soft synths inside of Cubase or Pro Tools, or Project5's MIDI and soft synth tools within Live — or use Live's looping abilities with Cubase)? For the full story, check out the ReWire tutorial on the Cakewalk web site written by EQ's own Craig Anderton. It not only describes the basics, but also gives lots of practical examples. While Cakewalk-centric, it's not hard to apply the basic principles to any ReWire-compatible program.





# Why Pro Tools?

ReWire 2.0. DigiBase. AAF interchange. Groove manipulation.  
All cross platform.



## Introducing Pro Tools 6.1 software.

- ReWire 2.0 support
- DigiBase file management
- Feature parity across Windows XP and Mac OS X systems\*
- Fresh look with new UI
- New groove manipulation tools
- Advanced Authoring Format (AAF) interchange support\*\*

\* DV25 video playback via FireWire not supported with QuickTime on Windows XP; support for MIDI I/O and MIDI Time Stamping with external MIDI devices on Windows XP expected Q2 2004; support for Unity on Mac OS X expected Q3 2003

\*\* Requires DigiTranslator 2.0 option



Visit [www.digidesign.com](http://www.digidesign.com) now to witness all of the new features in Pro Tools 6.1 software.

News

**Village Turns 35**

Our hearty congrats to The Village, as Jeff Greenberg and team celebrate their 35th anniversary. Located in West L.A., The Village has racked up an amazing number of platinum session credits since its inception in 1968: the Rolling Stones' *Goat's Head Soup*, Fleetwood Mac's *Tusk*, Eric Clapton's *After Midnight*, most Steely Dan records including *Aja*, numerous Bob Dylan records, the Red Hot Chili Peppers' *By the Way*, the Foo Fighters' *One By One*, Nelly's blockbuster *Nellyville*, and we're only scratching the surface. See more at: [www.villagestudios.com](http://www.villagestudios.com).



Jeff Greenberg, CEO of The Village

tip

**FEAR OF FRYING**

It's summertime, and if you live in a place where thunderstorms are common, you probably know to use an Uninterruptible Power Supply (UPS) to help isolate your computer from the AC line, and to turn off your computer during threatening weather. However, you may not be aware that many motherboards aren't fried during thunderstorms by power line surges, but by surges coming in via your modem line, particularly if you have an internal modem. Some UPS models include surge suppressors for phone lines; if not, invest in a surge suppressor designed for phone use. And if you really want to play it safe, unplug the phone line from your modem when it's not in use, especially during stormy weather.

tip

**THE OL' SPEAKER MIC TRICK**

Chris Vrenna deconstructed his Enter the Matrix song "Take the Pill" in our June cover story on the Matrix Reloaded. What you didn't see in that article, however, was Chris's drum room, which houses this lethal little Yamaha silver sparkle kit. But, hold on a minute . . . what's that raw speaker doing wired up in front of Chris's bass drum? It's the woofer from a Yamaha NS10M, custom-wired to a mic cable, and used as a secondary microphone. The result is a woofy boom that, when layered with the close-mic'd signal, adds some Grade-A beef to the mix.



News

MIDI evolves?

Imagine our surprise (and intrigue) when we saw this recent news post on [www.macmusic.org](http://www.macmusic.org): "The upcoming IEEE P1639 MIDI standard is coming! The IEEE Standard Association is preparing a general wrapping standard to unify by the end of the year MIDI transmission over Ethernet networks or IEEE 802.11 wireless devices. The standard is still based on the oldie-but-goody — well, sort of — old MIDI standard. But now the interfacing is no longer linked to a particular hardware, so *hasta la vista* to the old 31,250 bits per second from the beginning of MIDI, and hello to 10 megabits of MIDI data per second." Stay tuned.

Forum Exchange

EQmag.com Post of the Month

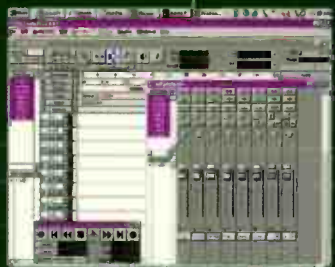
**Question: What songs do you use as benchmarks to reference mixes, or to get a feel for room response and monitor setups? "I love Steely Dan's 'Treasure Island' track to check the sound on almost anything. I also used to like 'Mustang Sally' from The Commitments." —John F.**

Hey, EQ readers what tracks do you use for this purpose? Email [gregrule@musicplayer.com](mailto:gregrule@musicplayer.com).



# DM-24 v2.0

## The incredibly powerful digital console that doubles as a DAW control surface.



### ↑ DM-24 does **Pro Tools**®

16 mic preamps, 16 balanced mic/line inputs on XLR and TRS jacks and 16 Inserts.

LED ring encoders for hands-on "analog" adjustments of digital parameters.



### ↑ DM-24 does **Performer**™

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tip

**TRANSFERRING TRACKS**

Mike McKnight, who's known in Hollywood as the go-to guy for major high-tech tour programming, sent along the following tip. Thanks, Mike!

I've often lamented the time it takes to transfer Pro Tools audio to Digital Performer. But now I've found a quicker way to transfer audio from Pro Tools to your sequencer of choice.

If the tracks in question don't have plug-ins or automation:

- Select the tracks.
- Be sure to set the start time to bar 1, beat 1, or a point where all of the audio will begin at the same time. That makes it easy to drop it into your other sequencer later. Make sure the end time will include all of the audio.
- Go to Edit > Consolidate Selection. This will put all of the tracks' current playlist audio into one file, beginning at the same place.
- If you need to convert the finished audio to a different sample/bit rate, select the consolidated tracks, go to the menu above the playlists, select Export Selected As Files; select the destination folder and the desired format. I use the Tweak Head setting for conversion in Pro Tools. You can also do this conversion in your sequencer of choice.
- If there is automation and plug-ins, then you still have to do a Bounce To Disk. As I was doing my most recent transfer from Pro Tools to DP for a Madonna MTV special, this worked well. If you get an Error 39 message, do a Bounce To Disk of the file instead of consolidating. Be sure to trash the file that resulted during the error 39 transfer. It will contain some extremely loud digital noise that no human should be subjected to! I think this had something to do with the Firewire I was using, but for the most part it worked great and saved me a lot of time.

[Visit Mike online at [www.mcknightsoundsinc.com](http://www.mcknightsoundsinc.com).]



**News**



**Win a Blue Mic!**

It's not too late to join the tail end of Blue Microphones' Seriously Demented Silly Summer Songfest: "This summer Blue Microphones is hosting the Silly Summer Songfest. The staff at Blue came up with a list of 25 demented words that they're certain will result in some seriously demented songs. Simply use at least ten of the ridiculous words chosen by Blue in a 3-minute song and send it to them on a CD. The more demented the better, because the top 10 finalists will have their songs judged by none other than radio legend **Dr. Demento!**"

The Blue Silly Summer Songfest will run through August 31, with finalists chosen by Dr. Demento in early September. The prizes are, no joke:

- **First prize:** A Blue Baby Bottle Microphone with shock mount and pop filter and a Blue Blueberry Mic Cable (retail value: \$832.95).
- **Second Prize:** A Blue Ball Microphones and a Blue Blueberry Mic Cable (retail value: \$313.95).
- **Third Prize:** Three Blue Blueberry Mic Cables (retail value: \$104.85).

All top ten entrants will receive a Blue T-Shirt, as well as a personal word of congratulations/sympathy from Dr. Demento!

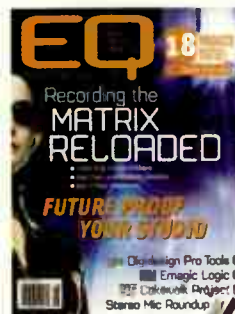
How to enter? Go to the Blue website: [www.bluemic.com/contest](http://www.bluemic.com/contest) for the official entry forms and complete contest rules . . . and of course, your 25 seriously demented words. Then get busy recording!

**UPDATES/CORRECTIONS**

- In the June installment of Session File, we profiled ace producer Michael Beinhorn and Carl Bell as they tracked guitars for the latest Fuel single. A slip of the editing knife left an important detail on the cutting room floor: Lavry Engineering (formerly dBTechnologies) converters played an essential link in Beinhorn's signal path. Lavry tells us he relies on the LE Blue 4496 8-channel A/Ds and D/As — as does platinum producer Frank Filipetti, profiled in this month's Session File.
- Yamaha's mLAN protocol is a hot topic these days. Turn to page 82 for the latest piece of mLAN gear news. Our Digital Connectivity feature in the June issue (page 48) included a section on mLAN, but we need to update and clarify: mLAN is protocol that not only uses standard Firewire-compatible cables, but uses standard 1394/Firewire interfaces.

Also note that the latest generation mLAN devices are capable of 400Mbps speeds and up to 63 devices may be connected in a single mLAN network. Stay tuned for more mLAN news as it unfolds.

■ In the Yellow Tools Culture review (June 2003), [www.soundsonline.com](http://www.soundsonline.com) was listed under contact information. Please note that this is the website for the distributor, which is EastWest. The manufacturer, Yellow Tools, can be found at [www.yellowtools.com](http://www.yellowtools.com).



➤ Where do you want to take your music?



## FireWire 410

M-Audio's legacy in building high-quality, affordable PCI and USB audio interfaces is legendary. Now our highly anticipated **FireWire 410** delivers the most compact **FireWire audio/MIDI interface** available—not to mention the best price/performance value around (just **\$499 MSRP**).

**4-in/10-out** operation includes **two mic/instrument preamps**, eight discrete analog outs, digital I/O and MIDI I/O. The on-board **ASIO compliant mixer** and **software control panel** provide total flexibility in routing inputs and outputs—perfect for applications like monitoring with external effects. FireWire 410's eight direct outs and AC3/DTS-encoded digital outs also make it perfect for **surround sound mixing**. You also get ultra-low latency software monitoring and **zero latency** hardware direct monitoring—and two headphone outs with independent level controls let you collaborate with a partner anywhere, anytime. FireWire 410 can even be completely **bus-powered** for total mobile operation. **Where do you want to take your music? Wherever you want to go.**

2x8 24-bit/96kHz analog I/O

2x2 digital I/O w/ S/PDIF and optical

2 FireWire ports

1x1 MIDI I/O

phantom power for condenser mics

2 independent headphone outs

2 mic/line inputs w/ preamps

dimensions: 6 in x 1.75 in x 9.25 in

weight: 2.95 lbs



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[www.m-audio.com](http://www.m-audio.com)

# Tool Box

BY KEVIN OWENS

## Steinberg Nuendo 2.0 Media production software

Steinberg is now shipping version 2.0 of their popular DAW **Nuendo** (\$1,499.99 full version; \$299.99 upgrade). The new version is Windows 2000/XP and OS X compatible, and features new multi-channel architecture, a completely re-engineered 32-bit floating-point mixer, extended effects routing, customizable environments, and more.

**Steinberg,**  
[www.steinberg.net](http://www.steinberg.net)



## Sage Electronics SE-Pre 1 Mic preamp

Handcrafted on a 1-off basis and modeled after vintage mic pre's of the '60s and '70s, the stand-alone **SE-Pre 1 (\$469 per channel)** features discrete class-A circuitry, hand-selected and hand-wired components, "unclippable" input, 26 dB output capable of driving a 600-ohm load, 48-volt phantom power, and gold plated, balanced XLR I/O connectors. It also sports an exotic wood (purple heart or oak) front panel with vintage-style knob and switch, and features a shock-mounted, steel internal chassis for better noise shielding. The Pre 1 is available as a stand-alone single-channel module or with up to eight channels (four as pictured here) in a 19", 3-rackspace configuration.

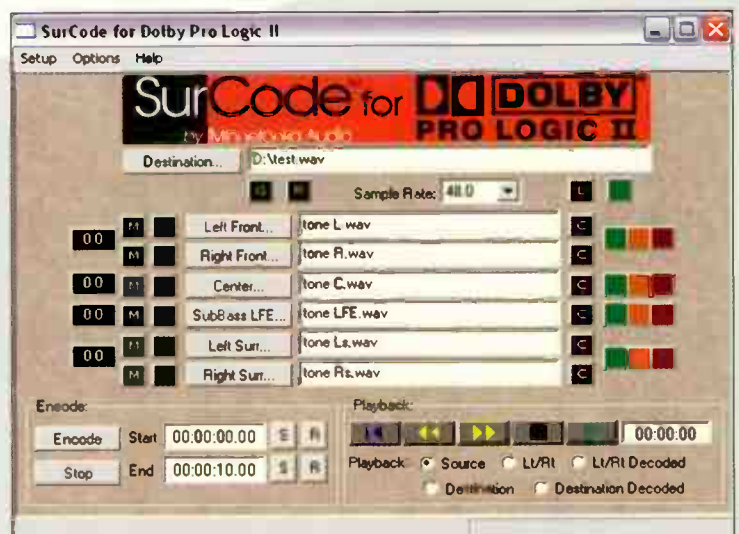
**Sage, [www.sageelectronics.com](http://www.sageelectronics.com)**

## Minnetonka SurCode Software encoder

### **SurCode for Dolby Pro Logic II (\$495)**

encodes surround sound into stereo-compatible delivery formats for games, television, music apps, and other formats. The encoder is currently available as a standalone Windows-based app; Mac and VST plug-in versions are coming soon.

**Minnetonka, [www.minnetonkaaudio.com](http://www.minnetonkaaudio.com)**





## PSP VintageWarmer RTAS compressor plug-in

PSP has released a RTAS version of its **VintageWarmer compressor (\$149)** for OS 8/9/X. The plug-in comes with a library of presets, and can be used for both single- and multi-band "analog-style" compression, and as a limiter. Other features include VU and PPM metering, and 96 kHz and 192 kHz compatibility.

**PSP, [www.pspaudioware.com](http://www.pspaudioware.com)**



## Roland VS-2480 2.011 Software

VS-2480 system upgrade

**Version 2.011 Software (Free)** adds a Control Surface mode that allows use of the buttons, knobs, and faders of Roland's VS-2480HD and VS-2480CD (pictured) digital workstations to control selected recording and sequencing programs. Version 2.011 includes templates for Logic 5, Cubase, Pro Tools, and Digital Performer, and also lets users design templates for controlling and editing other programs and hardware that respond to MIDI control. Click to [www.rolandus.com/support/updatesdrivers](http://www.rolandus.com/support/updatesdrivers) for the free update.

**Roland, [www.rolandus.com](http://www.rolandus.com)**



## Ivie IE-33 Acoustic analyzer

**The Ivie IE-33 (\$1,399)** acoustic analyzer performs such RTA functions as SPL measurements, seat-to-seat level variations, polarity checking, scope, signal generating, and more. The IE-33 software comes bundled in a Compaq iPAQ pocket PC with a custom sleeve that houses the mic and line inputs, an instrumentation grade preamp, a 20-bit A/D converter, and battery management circuitry. A version of the package without the iPAQ is available for \$899.

**Ivie, [www.ivie.com](http://www.ivie.com)**



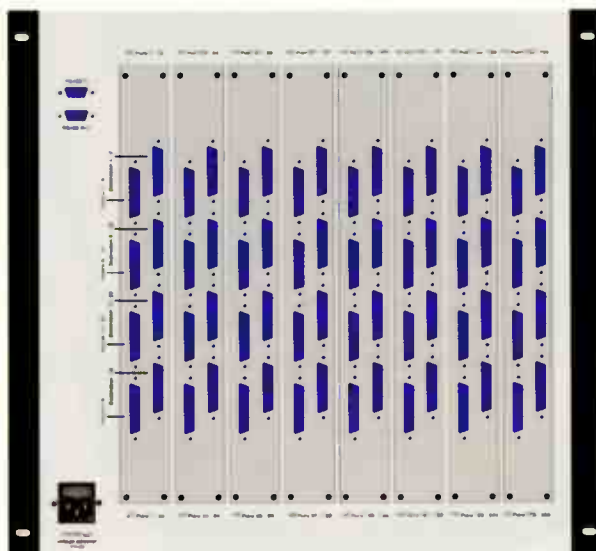


## Z-Systems Digital Detangler Pro

Audio routing system

Designed to eliminate the problem of interconnecting converters, effects processors, recorders, and workstations that operate at different sampling rates and use different digital formats, the **z-256.256r Digital Detangler Pro (\$4,800 and up)** is modular in increments of 16x16, and accommodates up to 256 stereo/2-channel inputs routing in any combination to a total of 256 outputs. Asynchronous sources and destinations can be either 24-bit AES/EBU or S/PDIF format, at sampling rates to 192 kHz and beyond. I/O crosspoint assignments can be selected via a dedicated serial port, using Z-Systems' dedicated hardware remote or Mac and Windows-compatible control software.

**Z-Systems, [www.z-sys.com](http://www.z-sys.com)**



## Hot House PRM 165

### Passive reference monitors

Designed for non-fatiguing critical monitoring, **Hot House's PRM 165s (\$1,299 pair)** are computer-modeled and lab-tested to provide flat, accurate presentation in real-world studio environments. The monitors utilize a custom hybrid alignment designed to increase definition, extension, and depth of image while reducing group delay. Other features include a 6.5" expansion woofer, a 1" dome tweeter, hand-wired crossover, minimal front baffle area, and a heavily braced, rear-vented enclosure. Amplification of at least 100 watts per channel into 8 ohms is required.

**Hot House, [www.hothousepro.com](http://www.hothousepro.com)**

## Mackie UAD-1 version 3.1 & Cambridge EQ

### Software upgrade and powered plug-in

**Mackie's new UAD-1 v. 3.1 software (Free to registered owners)** features multi-card support for OS 9 (OS X support coming soon), the improved 1176 SE compressor plug-in, optimized LA2A and DirectX functionality, and compatibility for **Universal Audio's new Cambridge EQ (\$149)**. Cambridge was patterned after several high-end analog EQs, and boasts five bands of switchable parametric or shelving EQ, high- and lowpass filters, advanced editing features, and more.

**Mackie, [www.mackie.com](http://www.mackie.com);**

**Universal Audio, [www.uaudio.com](http://www.uaudio.com)**





# Introducing Nuendo 2.0 - The professional solution

**Nuendo 2.0** forms the core of a complete solution for today's audio professional. Nuendo's superior audio quality is combined with advanced mixing, routing, editing, and networking capabilities as well as professional components such as the new ID Controller, Time Base Synchronizer, 8 I/O 96k AD/DA Convertors, and DTS and Dolby Surround Encoding Plug-ins. A system so scalable - from laptop to installation - the choices are endless.

## Nuendo 2.0:

- A new configurable mixer, toolbar, and transport control
- Multiple 12 channel busses for "stem" monitoring up to 10.2
- Multiple output configurations for multiple speaker set-ups
- Plug-in delay compensation throughout entire audio chain
- Flexible routing: any input to any output at any point
- Hyper-threading support for optimum performance
- Automation that moves with the audio data
- Support for Microsoft's WMA Pro (audio and video)
- Multiple time-lines and multiple VST directories
- VST System Link and TCP/IP networking
- Unlimited Rewire 2 channels
- Comprehensive MIDI functionality

## Nuendo 2.0

The solution is clear. The choice is now yours.



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# MOTU MIDI Express 128

## MIDI interface

Built around the same technology as MOTU's MIDI Timepiece, the **MIDI Express 128 (\$249)** adds plug-and-play connectivity to any USB-equipped Mac (OS 9/X) or Windows (Me/2000/XP) computer. The Express 128 features eight independent MIDI ins and outs for a total of 128 MIDI channels, and is expandable by adding additional interfaces.

**MOTU, [www.motu.com](http://www.motu.com)**



# Elemental Audio Firium, Eqium, and Inspector

## Plug-ins

Elemental Audio added Windows VST and improved OS 9x, OS X, and Audio Units support to version 1.1 of their **Firium linear phase EQ** with built-in spectrum analyzer, **Eqium EQ Toolkit with 11 adjustable filters (\$99 each; \$129 bundled)**, and **Inspector Audio Analysis (Free)** plug-ins. Inspector features a user-configurable alarm setting that sounds when "undesirable audio events" occur. The upgrades (and Inspector) are free to registered users

**Elemental Audio, [www.elementalaudio.com](http://www.elementalaudio.com)**



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World Radio History



## TC Works Spark XL 2.8 Audio Editor

**Spark XL 2.8 (\$599; \$99 upgrade from v2.0-2.6; free upgrade from v2.7)** features Audio Units compatibility for its included VST plug-ins, and will host AU plug-ins. Version 2.8 also includes a new loop window with crossfade looping, edit tools, a "set tempo" option, key mapping for samplers, "overview" file management, an improved batch converter, user-assignable key commands, and support for long file names.

**TC Works, [www.tcworks.de](http://www.tcworks.de)**

## Wizoo Cubase SX/SL – Mixing & Mastering Cubase tutorial

**Cubase SX/SL – Mixing & Mastering (\$40)** by Craig Anderton and Christian Deinhardt is an easy-to-read guide to help users of Steinberg's Cubase XS/SL improve their arranging, mixing, and mastering skills. The 500+ page book gives a basic introduction to the world of sound engineering, provides tips and tricks on getting the most out of Cubase, and comes with a CD packed with audio examples and skill-building projects.

**Wizoo, [www.wizoo.com](http://www.wizoo.com)**



## M-Audio ProSessions Sound and loop libraries

M-Audio splashes into the soundware waters with their new **ProSessions Sound and Loop Libraries (\$49.95 each)**. Each of the 15 CDs — which cover genres such as hip-hop, dance, pop, Latin, R&B, rap, drum & bass, techno and world beat — contains more than 400MB of AIFF, Acidized WAV, and REX2 formatted samples for Mac and PC.

**M-Audio, [www.m-audio.com](http://www.m-audio.com)**



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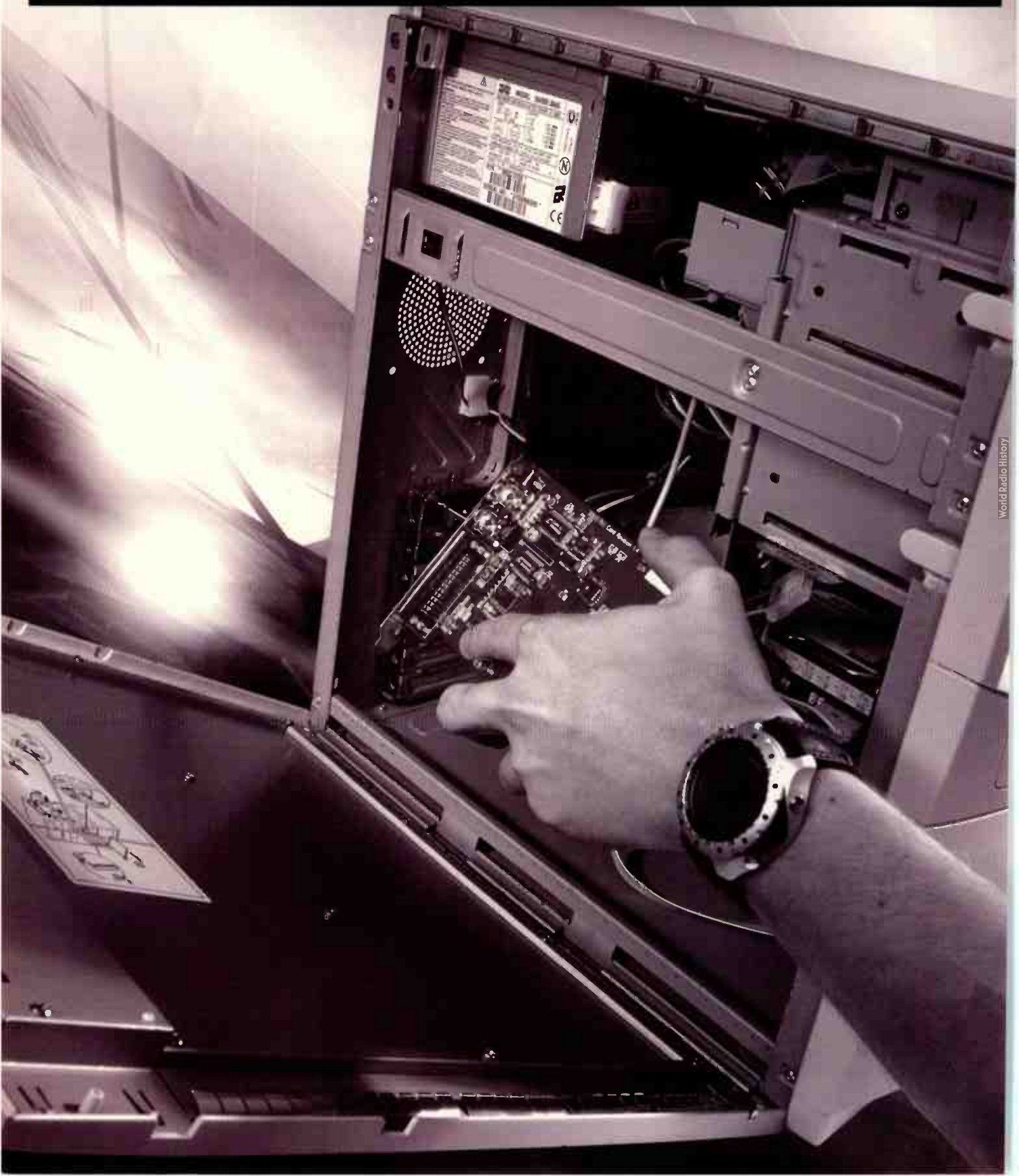
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# Build Your Own



# Budget PC

Assemble a Music Computer  
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for under **\$400**

Computer prices keep plunging, but you can save even more — while optimizing your computer for music in the process — by building your own. However, unlike the do-it-yourself computer presented in the August 2002 issue (a dual-processor Athlon speed monster, designed by Pete Leoni to be the ultimate music computer), we're going to go low-budget and get the most bang for the buck. In the low- and mid-priced range, you can typically save \$200–\$400 with the *à la carte* approach (i.e., purchasing components separately) than by buying a similarly configured machine as a complete system.

Even if you already have a computer, this can be the ideal second, dedicated music computer for your setup. Maybe you're a Mac fan who wants a PC for Windows-specific programs, or use VST System Link to offload some work from your main computer; or maybe you just need a dedicated computer that your roommate/kid/spouse won't use to play games or download questionable images from the Internet. Whatever the reason, here's a machine that gives you maximum performance — with minimum damage to your cash flow.

Keep in mind that what's described in this article is only one solution; there are many possible variations. However, as this article shows the general principles of assembling a computer, not just the specific model I put together, you'll be armed with the know-how to customize the machine for your needs.

Furthermore, some routines — such as installing processors, memory, and peripherals — are nearly identical on Macs as they are on PCs, so you may learn a few tricks to spiff up your Mac as well.

## SYSTEM COMPONENT CONSIDERATIONS

A system is an *integrated* collection of parts. For example, you can't choose a case for your computer without knowing the type of motherboard you want, because cases come with predrilled holes according to motherboard types. But you can't choose a motherboard without knowing the processor, because motherboards accommodate certain processors and not others.

So first decide on your computer's processor type and speed, following the guidelines given later. Then, budget permitting, choose either 256 or 512 MB of RAM, and at least a 40 GB hard drive.

## BUILD YOUR COMPUTER, STEP BY STEP

Before you begin assembling your computer, gather your parts. (I bought the components for this PC from [dealtime.com](http://dealtime.com) and [tigerdirect.com](http://tigerdirect.com).) When you define your particular system's basic requirements, purchase the components separately or in combination. For example, many cases will include a power supply, saving the need to purchase and install one separately (I opted for a built-in 400 watt power supply; 300 watts is the bare minimum for a music production computer). Similarly, many processors come with the associated heat sink and/or fan already attached.

Search for websites related to building PCs to keep up on the latest info (as well as good sources to find parts), but also remember that the Internet is a great source of misinformation as well as information.

For a basic audio computer, you'll need only the following materials; the parts I used are in parentheses.

- Case with power supply (Hairong H620 ATX-compatible minitower case, \$65)

by Jon Chappell

# Build Your Own Budget PC

- Motherboard (Amptron 810LMR, AMD Athlon XP-compatible, \$89)
- Processor with heat sink and fan (AMD Athlon XP 2100+, \$60)
- RAM (256 MB SDRAM module, \$30)
- Hard drive (Maxtor 60 GB, 7200 rpm ATA/133, \$80)
- CD-RW and floppy drives (Optorite 40/12/40 CD-RW, \$49; Sony floppy, \$25)
- Windows XP installation discs (Microsoft Windows XP Pro)
- Tools (handheld flathead screwdriver; some components may require a Phillips head screwdriver as well)

Note that you don't need any special tools, and that no soldering is involved. All components snap easily in place, requiring very little technical aptitude. The entire process should take no more than a couple of hours, and it's a great activity to do with a family member or friend. Now, on to the assembly!

## Step 1: Choose and Prepare the Case

Computer cases come in several different shapes (form factors), but the best choice for music is a minitower, as it provides lots of open space for airflow, expandability, and accessibility. A minitower has several places to install fans — an important consideration when you load up your case with peripherals and upgraded processors, which generate more heat. Note that the case must be ATX-compatible (an industry-wide specification that dictates the arrangement of the motherboard's components), which most modern cases are.

I don't recommend a desktop case (the flat-looking box on which you set your monitor) because its horizontal orientation makes it less versatile with respect to drive bays and slots, and it's generally not as good for airflow. Besides, because fan noise is the enemy of critical listening, we're not going to place our case on the desktop anyway, but well away from our ears. A server tower may be a good choice because it has lots of room; however, it takes up a lot of space.

I chose a case with four bays in the front, a slot for the floppy disk drive, and front-loading ports for two USB devices, a mic input, a headphone output, and a game port (Fig. 1). I'll be using only the USB and audio ports, but it's nice to have the others for possible future use.



Fig. 1

**The front panel of the project case has several front-access ports, which makes it more convenient to plug in temporary devices.**

The case's back panel (Fig. 2) reveals six slots for various cards (AGP and PCI), plus additional ports for integrated components (i.e., built in to the motherboard). I've removed the covers for the integrated components (the ones on the motherboard) plus the top slot in the PCI card location, where the modem will go.



Fig. 2

**The back panel reveals ports for integrated as well as add-on devices. The upper part shows the power supply on/off switch, voltage selector, fan grate, and 3-pin AC power-cord port.**

The inside of my project case (Fig. 3) has the power supply (upper left) already installed but nothing else, except for the empty cages (right) that will house the drives. Any multicolored cable bunches, which terminate into a white plug, attach to the motherboard and disk drives. Other parts that need powering (such as LEDs) take their current from the motherboard and don't connect directly to the power supply.



Fig. 3

**The inside of the project case, showing the power supply (upper left) and drive cages (right).**

Open the case by removing any screws that attach the left side panel (as you face the front of the computer). Lay the case flat on a workbench or table so the motherboard mount is on the bottom (Fig. 4).

Check your motherboard to see what connections will stick out of the back of the case, then remove the associated metal covers by prying them off with a flat-head screwdriver. Don't bend or distort the case while removing the covers.



Fig. 4

**Remove the left side panel and place the case flat on a table top. The power supply is in the upper-left corner; the drive cages (empty now) are along the right side.**

## Step 2: Install the Motherboard

The motherboard is the flat circuitboard with the electrical stuff sticking out of it. Its home base for all your components. In addition to what's already attached to the motherboard, it will hold the processor, the memory, the controller and power connections, plus any expansion cards, such as a PCI soundcard, an AGP graphics card, or an NCR modem.

The motherboard must be designed for the processor you've chosen. The motherboard will also determine the type of RAM you'll need (such as DDR SDRAM). I used an Amptron 810LMR (Fig. 5) for the AMD Athlon processor, my choice for this



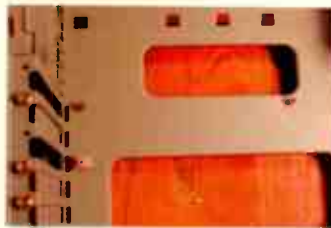
project. It's not a particularly deluxe motherboard, but the price is right (about \$90).



**Fig. 5**  
**The Ampttron 810LMR motherboard isn't fancy, but it works well.**

This particular motherboard has only two PCI slots, which is not a lot, but adequate for an audio-only computer. It also has integrated video for my monitor, so I didn't have to buy an AGP graphics card. If you plan to do any video scoring — where you'll be monitoring an image while you create and edit audio — you should add an AGP- or PCI-based videocard.

The motherboard attaches to the case via screws and *standoffs*, brass sleeves (included with your case) that hold the motherboard to the case chassis like miniature pylons (Fig. 6). Screw the standoffs into the case at the precise location for your motherboard's particular holes; apply even pressure so all the standoffs are the same height, so the board will be parallel to the chassis when attached. Make sure no stray standoffs protrude from the case. If they contact the motherboard's circuitry anywhere except the designated spots, they could short out the board, causing permanent damage.



**Fig. 6**  
**Attaching standoffs to the motherboard mount is the first step in installing the motherboard.**

Before screwing the motherboard into the standoffs, place it on top of the standoffs.

## Integrated vs. Built-in Features

Integrated means the features are built in as part of the motherboard and will not have to be added later (for example, with an add-on PCI card). Integrated components are as a rule not as good as the PCI add-on variety; for example, integrated video will not perform as well as a PCI video card or an AGP graphics card. So if you buy a motherboard with integrated video processing, and then buy an AGP graphics card (highly recommended for music applications), you'll have paid for something you're not going to use.

What's more, integrated components take processing power away from other parts of the computer, because they share the processor's power. PCI and AGP cards provide their own processing.

In practice, it's hard to buy a budget motherboard without integrated features. And I find it's handy to have integrated audio and video, even though I might supplant them with better add-on devices; in this model I particularly appreciate the integrated Ethernet port, which allows using my cable modem without having to give up a PCI slot. It used to require a lot of expertise to disable the integrated processing in favor of a peripheral-based solution, but in Windows XP, it's easy. No snipping of jumpers required!

So don't fret unnecessarily about integrated features. Focus on the processor, memory type, number of PCI slots (three as a minimum is safe, even though mine has only two), and your own budget constraints.

Check that the holes line up, and that the integrated components with ports sticking out of the back of the case all line up with the holes (Fig. 7). Knock out any remaining covers on the case's back, if needed.



**Fig. 7**  
**Make sure the ports will fit through the holes in the back of the case by placing the motherboard on the standoffs.**

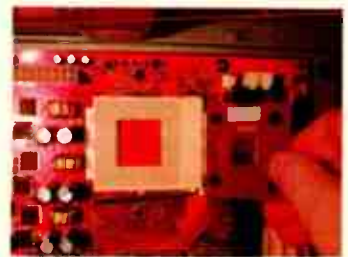
Also, check to see whether you'll be able to plug cables in and out of the rear ports without catching on the case edges. As a final step, connect the power supply to the motherboard with the appropriate clip (Fig. 8).



**Fig. 8**  
**Completing the motherboard installation. After screwing the motherboard into the standoff centers, attach the power supply,**

### Step 3: Install the Processor

The processor, or *CPU (central processing unit)*, is the square-shaped chip that easily fits in and out of a special socket on the motherboard (see Fig. 9). For audio, use an Intel Pentium IV or AMD Athlon, not their equivalent budget versions (Celeron and Duron, respectively; they will work, but aren't necessarily your best choice for audio applications).



**Fig. 9**  
**The CPU chip and the socket on the motherboard that holds it.**

Choosing between the Pentium and the Athlon is largely a matter of personal taste. The Pentium is more widely established, but the AMD is less expensive. Though there are technical differences between the two lines, these change with every update, and realistically, either is up to the job.

I selected the AMD Athlon 2100+ XP, with a 1.73 GHz clock speed. It's more than adequate for running a decent amount of multitrack audio, MIDI, and virtual effects. Faster processors are available, but I'm watching my budget, and because my music projects don't

# Build Your Own Budget PC

require more than about 16-24 tracks, 1.73 GHz is fine.

Be very careful when installing the processor and its heat sink. The following describes the Athlon installation process, but it's similar to working with Pentiums. Consult the manual regarding your specific processor and heat sink before attempting this crucial step.

1. Open the motherboard processor socket by releasing and lifting the silver locking arm. You'll have to move it slightly to the side first and then lift it up, so proceed carefully. With the locking arm up, you're ready to insert the processor (Fig. 10).



Fig. 10

Open the socket by pulling the locking arm to the side slightly and lifting it up.

2. Handle the processor with extreme care, making sure you've discharged any static electricity from your body and avoiding contact with the pins on the underside of the chip (see sidebar below). Position the processor so it's correctly oriented to the processor die (the square plastic frame with the holes). Note that the processor can be inserted into the socket only one way (check the pins in

the corner and look for the corresponding holes on the socket). When correctly aligned and placed into the socket straight, the processor will slip right in with almost no effort.

3. Close the locking arm gently and tuck it back against the die, locking the processor in. The processor will shift slightly, but you shouldn't feel too much resistance. Fig. 11 shows the processor seated correctly on the die.

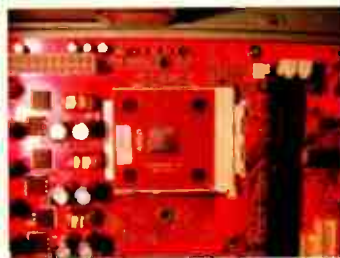


Fig. 11

A locked and loaded microprocessor.

## Step 4: Install the Heat Sink

All processors are covered by a heat sink, a radiator-like device designed to draw heat away from the processor. Without a perfectly installed heat sink, the processor can overheat, possibly resulting in permanent damage. Heat sinks have a fan that aid in the cooling process.

Installing the heat sink is not difficult, but it's a little trickier than installing the processor.

1. Remove the paper cover over the adhesive-like pad on the bottom of the heat sink (the flat side). This exposes the

*phase-change thermal compound*, which enhances heat transfer by making airtight contact with the top of the processor. Full contact between the thermal interface material and the processor is absolutely critical, so don't let the exposed pad touch anything, and work quickly to place the heat sink over the processor.

2. With the indented portion over the right side of the socket, lower the heat sink steadily and evenly until it comes into contact with the processor. Hook one side of the mounting bracket over the plastic tabs. Use a screwdriver to help you push the metal bracket into place, if necessary. Then hook the other side of the metal bracket. This will require exerting more force because the other side of the bracket is held in place by the tabs and offers resistance. *Make sure the screwdriver doesn't slip and graze the motherboard's surface.* When both sides of the brackets are locked in place, you're done! Your heat sink is held fast to the processor socket tabs and the phase-change compound is touching the top of the processor (Fig. 12). ➤



Fig. 12

The processor in the motherboard with the heat sink attached.



## Safety First

Do not work on your computer while it is connected to the AC line. *Any kind of work involving electricity is potentially hazardous.* If you have *any* doubts whatsoever about your ability to build your own computer safely, consult with a knowledgeable technician. Safety is *your* responsibility!

Also, pay attention to the health of your components, many of which can be damaged by static electricity charges. *Before touching, handling, or installing any of your computer's components, make sure you discharge any static electricity buildup from your body.* Radio Shack carries an inexpensive grounding strap that wraps around your wrist and attaches to the grounding screw of a wall socket plate. Or you can periodically touch a metal object (*e.g.*, doorknob, filing cabinet, etc.) to release voltage that is potentially harmful to sensitive computer components. Keep memory and processor chips in their static-resistant bags until the instant before you're ready to install them, and discharge yourself before handling them.

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3. Plug the fan's three-cord power cable into the appropriate power pins, located next to the memory slots on the motherboard.

## Step 5: Install the Memory

The more memory you can put into your computer, the more available tracks you have for recording and the more simultaneous effects you can have. Memory is packaged in long, flat circuit boards, slightly larger than a piece of gum.

You specify your memory requirements in megabyte increments of 128, 256, or 512. Depending on the type of memory your motherboard takes (e.g., 168-pin SDRAM or 184-pin DDR SDRAM), a 256 MB chip costs between \$30 and \$50. After the processor, memory is the single most important component in boosting your computer's capabilities.

Fig. 13 shows the insertion of a 256 MB SDRAM memory chip into the appropriate slot. Notches on the chip help you line it up correctly in the slot, making it easy to see the proper orientation.

You can install as much memory as you have sockets for, and though I've installed only a single 256 MB chip in my board, for best results install another, yielding a respectable 512 MB of memory.

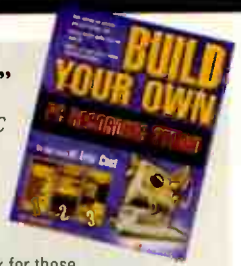


Fig. 13

**Place the memory chip into the socket with the gold tabs pointing downward. Press the chip into the slot gently and evenly so all the gold-colored tabs go in together straight and not at an angle. When the chip feels seated, snap the side clips together to lock the chip into place.**

## "Build Your Own PC Recording Studio"

This article has been adapted from Chapter 3 of the book *Build Your Own PC Recording Studio* (ISBN 0-07-222904-7; \$29.99 USA) by Jon Chappell, published by McGraw-Hill Osborne. Other chapters cover Music and Audio Peripherals; Recording on a Computer; Editing, Mixing, and Processing Your Music; Mastering, Burning, and Packaging Your CD; Home Studio Considerations; and Maintaining and Caring for Your Recording Studio. Overall, it's a great book for those starting out in computer-based recording — it cuts through the hype, focuses on techniques and results, and speaks with the kind of authority born of experience. —Craig Anderton



## Step 6: Install the Hard Drive

Next, hook up the drives. The three drives I'm using are:

- A Maxtor 60 GB, 7200 rpm ATA/133. It has both the capacity (60 GB) and speed (7200 rpm) for reliable audio performance
- An Optorite 40/12/40 CD-RW drive
- A generic internal floppy drive

The minimum requirement in a hard drive for audio is a spindle rate of 7200 rpm — a step up from the older 5400 rpm drives. The recommended seek time is 9 ms or under, which all modern drives can attain. For this project, I've chosen a 60 GB Maxtor drive (Fig. 14) that meets these specs.



Fig. 14

**This 60 GB, 7200 rpm Maxtor hard drive provides ample capacity, seek time, and speed for audio applications.**

Right behind the hard drive in priority is some sort of a removable drive, preferably a CD-RW drive, so you can load in new programs and burn audio CDs of your creations. The Optorite 40/12/40 CD-RW drive writes to both CD-R and CD-RW formats. The three numbers separated by slashes refer to its different speeds for writing and reading. The first number

refers to how fast the drive writes to the CD-R format (in this case, 40 times faster than real time). The second number is the rewrite mode, when you're using the disc for a subsequent writing in the CD-RW mode. The third number is the read rate.

There are a variety of ways to install your drives; sometimes you have to remove the drive cage or bracket to install the drive, while others just let you slide the mechanism in.

For this project's hard drive, I just slipped the unit into a lower shelf, leaving the power and controller connections exposed. I don't need front-panel access to the hard drive, so I put it in a location that has no removable front cover on the case, and secured it with four screws (Fig. 15).



Fig. 15

**Installing the hard drive on a lower shelf, where no front-panel access is necessary.**

The hard drive connects through two cables: a power cable (actually a bunch of separate wires) and a controller cable (a flat, gray ribbon cable that transfers data). To hook up the hard drive cables:

1. Hook one end of the controller cable (the gray ribbon-like one) to the hard drive (Fig. 16). Note the connector key, that allows the plug to insert only one way into the port (which has a corresponding notch).



Fig. 16

**Hook the controller cable into the hard drive by aligning the cable's key with the hard drive port's notch.**

2. Plug the other end of the cable (also keyed) into the ATA/133 controller port on the motherboard (Fig. 17). If necessary, consult your motherboard's manual to find the primary IDE port into which your hard drive should connect.



Fig. 17

**The other end of the hard drive's controller cable hooks into the primary IDE controller port on the motherboard.**

3. Connect the power supply's power cable to its four-pin receptacle on the hard drive (Fig. 18).



Fig. 18

**Complete the hard drive hookup by attaching the white plug from the power supply to the four power pins on the hard drive.**

### Step 7: Install the CD-RW and Floppy Drives

The CD-RW and floppy drives are installed from the front to allow for disk insertion and removal. The process is roughly the same for each drive.

Assuming you've read the Safety sidebar on page 26, here's how I recommend

installing the drives:

1. Detach the drive bay covers from the case by pressing the plastic tabs that hold them into place. The CD-RW drive is wider than the floppy drive, so it goes in the wider, top-position slot. The floppy drive goes into the lower slot (Fig. 19). ▶

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Fig. 19

**Drives with removable media, such as CD-RWs and floppies, require front-panel access. Remove the drive bay covers and slide the drives in from the front.**

- Slide the drives in gently until their faces are flush with the front of the case. Usually there's some leeway here, as the drives can go all the way back until they're stopped by the cage sides themselves; if that's too far, bring them forward a bit and then hold each one steady while you screw it in from the side (Fig. 20).



Fig. 20

**Slide the drives in, then screw in place from the side.**

Connecting the CD-RW and floppy drives is similar to connecting the hard drive.

## Tracking Registry Changes

Installing a device (or any other significant system change) stamps the Registry file with the date and time the change was made. To troubleshoot effectively, it's a good idea to restart your computer after each new setup change. In the event you have to "roll back" to a state where things were working fine, you will have a clear idea of when that was.

Each drive gets its own ribbon cable and controller port on the motherboard, and each requires a white-plugged cable from the power supply.

For the floppy drive, plug one end of the controller cable into the back of the drive, and the other end into the motherboard port labeled "Floppy" (Fig. 21).



Fig. 21

**The floppy drive controller cable connects from the back of the drive into its own port on the motherboard. In this case, it's labeled "Floppy."**

Hook up the power cable from the power supply into the back of the floppy drive (Fig. 22). This connector is smaller than the one for the hard drive.



Fig. 22

**The power connector inserted into the floppy drive.**

To connect the CD-RW drive, use a three-plug controller cable. Plug one end into the drive and the other end into the motherboard's secondary IDE port (Fig. 23). The unused connector can be used if you decide to add a CD-ROM drive later on. If you do, set its jumpers for slave configuration. Drives ship with their jumpers in the master position; because that's what we want our CD-RW to be, we don't need to change it.



Fig. 23

**Connect the CD-RW drive by hooking one end of the controller cable into the drive and the other into the secondary IDE port of the motherboard.**

## Step 8: Check Your Cable Connections

Now re-check the cable hookups. Whether it's a power cable (emanating from the power supply) or a controller cable (which connects to the motherboard), the receptacles are made such that you can hook them up only one way — the right way. So look at the shape of the plug and at the connector on the component, making sure it's matched to the pin configuration and seated securely. Plugging in shouldn't require that much effort, and you'll know when you've established a good connection. If you're having trouble, check to see that the plug and port are at the right orientation to each other and that the pins themselves are straight and not bent.


Refer to your motherboard's manual to ensure that you're attaching the correct controller port to the desired drive. When you're finished, the inside of your case should look like Fig. 24. ➤



Fig. 24

**The assembled computer, with all the cables hooked up. Some cables from the power supply remain unconnected, which is fine. They're available for future components.**

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It's time for the "smoke test," so power up. You now need to format the hard drive and install the operating system, which you'll do with the included CDs and the onscreen guidance of the installation wizards. To perform the next steps, you'll have to hook up a monitor, mouse, and keyboard to navigate the various screens and options.

## Step 9: Format the Hard Drive and Install the OS

For my hard drive, I used MaxBlast 3, Maxtor's setup program that came with the hard drive. It allowed me to format and partition the drive with an easy-to-use wizard. Remember, there's no operating system on the drive yet, so this operation

can be achieved only with the hard drive's accompanying CD-ROM.

I then used the Windows XP Pro installation discs to install the operating system onto the hard drive; I won't spend precious space on details of installing Windows, but if you encounter problems, use Microsoft's online help system at [www.microsoft.com/windowsxp](http://www.microsoft.com/windowsxp).


When your computer has a formatted hard disk loaded with a working operating system, all that remains is to configure your system for the specific components you've installed, such as the CD-RW and floppy drives.

If you're using reasonably up-to-date devices from established manufacturers, Windows may already have the proper drivers resident on the hard drive from the installation process (this is especially true with printer drivers). If not, load the installation CD that came with your device into the CD-RW drive and follow the prompts in the Add New Hardware Wizard to find the appropriate drivers. After the wizard reports the successful installation of each device, test it by reading and writing data to it.

## ALL SYSTEMS GO

Double-check all your work, including cable connections, and make sure all the drives and peripherals work; if so, congratulations — you've built a working computer!

Before you start installing software, register anything that needs to be registered, send in warranty cards, and store any associated manuals, driver disks, and so on in a safe place. Maintain a text file with any serial numbers or passwords, keep it updated, and print a hard copy occasionally.

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*Jon Chappell has served as editor-in-chief of both Guitar and Home Recording magazines, and is the author of several books, including Rock Guitar for Dummies (John Wiley & Sons) and The Recording Guitarist: A Guide for Home and Studio (Hal Leonard). He has written extensively for Keyboard, EQ, Guitar Player, Men's Health, and The New York Times. He also composes and produces music for film and TV.*



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BY JOHN KROGH

# CRABTRAP STUDIOS

JOHN ALAGIA



John Mayer's *Room for Squares*, certified triple-platinum. Dave Matthews Band *Listener Supported*, certified double-platinum. This is just scratching the surface of the projects producer John Alagia has been involved with. But to chat with him you'd never guess he's reached the level of success most producers and

engineers only dream of. Alagia is "good people." Relaxed, easily engaged, and gracious, he's also one of those rare talents capable of balancing the demands of wearing several hats on a record. Looking closely at the liner notes of some of his recent work, you'll find his name attached to production, mixing, and engineering.

He often contributes additional keyboards, guitar, and percussion, too.

Over the past 15 years he's produced music for a range of high-profile artists such as Emmy Lou Harris, David Gray, Ben Folds Five, and most recently Jason Mraz, whose debut, *Waiting For My Rocket To Come*, has been steadily climbing up the

# How this triple-threat mixer/engineer/producer puts out chart-topping records in the comfort of his East coast home studio

charts. Not too shabby for a guy operating out of his well-stocked home studio along Maryland's Eastern shore.

I recently caught up with Alagia at his place, lovingly dubbed Crabtrap Studios, to discuss his approach to making records. His engineering partner in crime, Jeff Juliano, was also on hand, so I was able to pick both of their brains about ProTools versus analog, the secret to capturing inspired takes, and why these two have abandoned working with a large format console.

## COLLABORATION

**A lot of your credits are combined — you wear several hats simultaneously as a producer, engineer, and mixer. How do you keep a fresh perspective when you're so immersed in a project?**

**Alagia:** I wouldn't be able to do it without Jeff here. Early on when I was mixing on my own I would call Jeff in to listen, and he'd say, "Sounds great man, don't overthink it." And of course if you're by yourself to go down that road where you start analyzing: "I wonder if that bass is a little too heavy or too light. . . ." Four ears are better than two. Jeff is the voice of reason, and helped me from overmixing.

Before I met Jeff I worked with a guy named Doug Derryberry, who's a musical genius. When we worked together we tried to work the way Jeff and I do now, but it didn't work as well as our current arrangement, because Jeff's strength is working on the soundscape, not necessarily the music. On top of that, Jeff jumped on the Pro Tools bandwagon early on, so he came up with that. Now our brains have sort of merged into one.

I come from a more singer/songwriter background, whereas Jeff comes from a harder, more rock background. The Beatles greatly influenced me, and Jeff was all about Van Halen. I think the convergence of the two really makes the final outcome stronger.

**How do you divide the workload?**

**Alagia:** I used to be the fader hog, but slowly I started to trust Jeff, and now I've really

learned to trust his instincts when it comes to getting the balance in a mix right — we've influenced each other very much. I was working in [iZ Technology] RADAR, and he was in Pro Tools. I'd start the editing on RADAR, and then he'd start balancing tracks, then we'd jump in together and do the mixing.

**You'd be doing comps and other edits on RADAR?**

**Alagia:** Yeah, we'd have two stations. We used to work with both of us at the console, back when we had a console, but as things have evolved it turns out that I work more on the overall focus and production of a song, and Jeff focuses more on the tones.

I've done a couple of projects without Jeff, and I've tried to do it as quickly as possible because it's easy to overthink a mix. In fact, the producer told me to do it quickly for that reason. Some of those mixes on *Busted Stuff* [Dave Matthews] I did in three hours.

**And you're happy with those — you don't wish you'd taken more time?**

**Alagia:** No, I'm happy with them. I did

one song in a half hour — it was a rough mix for David to sing to and the band liked it so much that they kept it as-is on the record.

**What was better about that mix that made it stick?**

**Alagia:** I think it was probably because I wasn't being too analytical when I was doing it. I was at the Plant [in Sausalito, California], and I was in the garden. It's kinda like my place here on the Eastern shore. The producer, Steve Harris, didn't put any pressure on the sessions, and it was such a relaxed environment. I think that's partly why there were so few recalls, and the tracks that were recalled were tracks I wanted to have recalled anyway. But in the end I was still happier with the initial mixes [laughs].

That's the thing now, with Pro Tools, you can go down that path where you try to perfect a mix. But what the hell does that mean, "perfect the mix?" Of course, when you have everything on the screen, it's easy to think, "Hmm, I can do one better."

**Juliano:** What's been really great about Pro Tools is you can have a whole record on the hard drives and get every song about

75% mixed, and jump to another song when you start getting burned out, then finish up with a fresh head later on.

And we use a bunch of outboard gear, which gets patched in. For recall we just take pictures of the knobs and patching with a digital camera, so we can recreate that without too much work.

**Tell us more about how you interface the outboard. Describe your setup.**

**Juliano:** We run Pro Tools 5.2. Everything runs at 24-bit, and we use the RADAR II as our front end for A/D conversion. Those converters sound great. How it works is, we have three 888s, and we open up all the AES channels on those in Pro Tools, then pipe all 24 tracks from the RADAR into Pro Tools.

**So you're using RADAR as a "tape" machine.**

**Juliano:** Well, not really. We're just using the converters. We used to record onto the RADAR, but now we just use the converters and route live through it into Pro Tools via AES.



## CRABTRAP STUDIOS GEAR LIST

### Preamps & EQs

(12) API 512A, (2) API 512B, (1) Neve 1073, (1) Neve 1066, (1) Focusrite Blue 215 (2 Channel), (4) Drawmer 1960, (1) Avalon U5 DI, (4) API 550B, (2) API 560B

### Compressors

(2) Tubetech LCA 2B (Stereo), (1) Tubetech CL2A (Stereo), (2) Empirical Labs Distressor, (1) Focusrite Red 3 (Stereo), (1) Alan Smart CL-1 Compressor (Stereo), (1) dbx 160X, (2) API 525 Compressors, (1) UREI LA22 Compressor (Stereo), (2) API De-Essers

### Processors, Effects, Misc.

(1) Eventide DSP 4000 w/sampling upgrade  
(2) TC Electronic M2000  
(2) TC Electronic D-TWO delays  
(1) Sony R7 reverb  
(1) Yamaha SPX 90  
(3) Electrix Filter Factory  
(1) Ensoniq DP4  
(1) Line 6 delay modeler pedal  
(1) Sans Amp PSA-1  
(1) Sans Amp Bass driver DI

### Recorders

(1) Otari RADAR II 24-bit w/remote and meter bridge (full analog in and out, plus AES I/O) (2) Digidesign Pro Tools 5.2 TDM Mix equipped with: Apogee PSX 100 SE, Rosendhal Master Clock, (3) Digidesign 888s, (2) Expansion Chassis with 5 Mix Farm Cards in each (Total of 10 Mix Farms), (2) Apple Macintosh Quicksilver 733 G4 computers, (2) Apple Cinema Displays, Digidesign Pro Control with extra Fader Pack, Digidesign USD

### Microphones

(1) Neumann M147 Tube, (1) Gefell UM92S Tube, (1) Gefell UM70, (3) AKG 414B ULS, (1) Neumann U87, (4) AKG 460, (1) Shure SM7, (4) Sennheiser 421, (1) AKG D112, (2) Audio-Technica AT 4033, (1) EV RE-20, (2) Shure SM-81, (10) Shure SM57, (1) Shure Beta 57, (1) Shure Beta 58

### Monitors

Yamaha NS-10 Studio with Yamaha powered sub woofer, Hafler Power amp, Auratones

We tracked the John Mayer record [*Room for Squares*] on the RADAR and transferred everything into Pro Tools for mixing, but now we're using Pro Tools for recording and mixing. We also use an Apogee PSX-100 for listening back.

If we want to go to outboard, we'll go out of the 888s sometimes, or we'll get a couple of Apogee AD-8000s. We like to do that a lot because we have some great compressors and EQs; these sound much better than plug-ins in a lot of cases. For example we use an Alan Smart C1 compressor on the stereo bus — going out of an 888 into that and back in again, there's a noticeable improvement. Of course, it's not good to go in and out of converters too much because it'll start sounding worse. Not to trash the 888s, but they're not the same as an AD-8000.

**Alagia:** I still swear that the RADAR II [with Classic converters] sounds better than pretty much anything else out there. Steve Lillywhite is the man responsible for my feeling — he loaned me his 48-track RADAR system because I was recording Dave Mathews *Listener Supported*, and Steve said, "You've gotta try this." I used it for about three weeks and I've been hooked ever since.

**Juliano:** Basically, we have a console's worth of outboard mic preamps, and we feed everything into the RADAR.

**So you don't have a console?**

**Juliano:** No, we have mic pre's of every sort — API, Neve, Focusrite — all kinds of stuff.

**Alagia:** Instead we have 16 channels of Pro Control, although I've very much considered getting a console again.

**Why's that?**

**Alagia:** In my experience with actual consoles, I think it's a more musical way to mix. You can mix faster, you don't have to think about things so much, it's more intuitive, it's not so clinical and technical.

**Juliano:** Honestly, you get an old SSL or Neve console or API — they all sound better, but the recallability of Pro Tools is beautiful.

**Alagia:** It's funny, I had a Mackie 32•8 back when we were working on John Mayer's record, and I brought up a mix of "Why Georgia" on the Mackie and burned it to disc. It sounded great [laughs], and



These two towers house the bulk of Crabtrap's plentiful selection of outboard. For details, check out the gear list on page 35.

John and I were driving up to New York together and we were thinking, "Why wouldn't we do something like this for the whole record?" And it made me realize you could dial in a mix so quickly on analog, even using a console like that.

**But these days you're mixing completely in Pro Tools — do you bounce or mix down to a separate device such as a Masterlink or 2-track deck?**

**Alagia:** We used to bounce rough mixes to give to labels, because we found that the mixes would be a little more narrow, and we could always make it sound better just by going out and back into the interface.

**So you'd do it to cover your ass?**

**Alagia:** Yeah, exactly!

**Juliano:** Right, 'cause you don't want demo love to set in, so we'd give them those mixes, knowing we could make it sound better.

**Alagia:** But I can definitely hear more width and depth by going to something like a Masterlink or HHB. I was skeptical at first, but after I spent some time A/Bing, I definitely noticed the difference. So now what we do is go out and back in stereo at 24-bit/48 kHz.

**Juliano:** Those are the mixes that we take to mastering.

**Alagia:** We had a conversation with Ted Jensen, Stephen Marcussen, and Bob Ludwig — they all seem to agree that bouncing doesn't sound as good.

**Do you go out analog into some sort of 2-channel device such as your Alan Smart C1?**

**Juliano:** We usually have that inserted on the stereo bus, so it's actually going out and coming back in on the master fader, which goes out on AES channels 1–2. We bring that back in on AES channels 3–4. It's nice because it's locked into the session, so if we do something to bars and beats, we can quickly and easily go in and do a radio edit, for example — cut out four bars or whatever — and it's done.

**Do you worry about running in the red at all?**

**Juliano:** We've seen overs before, sure, but I don't worry about the fader meters and just use my ears. As long as I don't hear the distortion, I don't worry about it. It's like with outboard gear. Sometimes

when we're tracking with our Tube Tech, we'll look at it and the needle is just buried — we want to put tape over the meter so we don't worry about what it's registering because it sounds great.

John Siket [Sonic Youth, Guster, Paul Westerberg, etc.] once told me he put a Fairchild all the way back at the left on the VU. He said, "Kid, don't look at the meter. Does it sound good? Then don't worry about it." [Laughs]

**Alagia:** That's right! That was also the first time I ever saw somebody just pummel compression. He was hitting the Fairchilds as hard as he could. We were mixing the Moe record, *Tin Cans and Car Tires*. There was this track we were mixing at nine in the morning, and we had a Smart on the bus — the meter was going back to about eleven o'clock! [laughs], but it sounded great.

## SINGER/SONGWriters VS. BANDS

*Alagia's most recent recording work has him paired with young, up-and-coming singer/songwriters, but his past shows a trail of numerous full-band projects by Dave Matthews, Ben Folds Five, Vertical Horizon, and others. "I love putting bands around solo artists," confesses Alagia. "Maybe it's*



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*selfish, but I think for a producer it helps create the entire picture — I like to fill in the blanks around a singer/songwriter. Maybe that's also because I was a musician before I got into recording."*

**Do you prefer working with solo artists over bands?**

**Alagia:** Not necessarily. We might be

working with a band coming up that's so phenomenal, that a lot of it is going to be editing the songs a little bit and letting them go live in the studio. I think that's the best way to make a record, to record as much of it live as possible.

We take that approach with singer/songwriters too, as much as we

can. With John Mayer, Jason Mraz, and Josh Kelley, all the bass and drums went down live. In John's case, even some of the live vocals were used.

When we listened to the roughs, these guys sounded like a band. That's something that we tried to achieve in preproduction.

**That brings up a good question: How much do you involve yourself in preproduction? Do you get hands-on with the song structure and musical parts?**

**Alagia:** Absolutely. Every project has a varying degree of preproduction. For example, on Jason Mraz's record, we cut 19 tracks in four days, with preproduction and production basically happening at the same time. I'd be out in the studio with Jason and the rhythm section and we'd talk about the arrangement right there, and go over new ideas or whatever, then we'd just cut the tracks. That approach definitely helped keep things fresh, which translated to the recordings. You can get a little nutty with tempos during preproduction, and I definitely did that to a degree. Like, I must have cut "Curbside Prophet" 15 times with everything from 79 to 92 beats per minute. Tempo can make or break a tune. In this case, it was one of those things where the rhythm section was so great and tight, they would have subtle interpretation differences with each tempo. I guess as a producer, you have to trust your instinct and know when you've hit the right tempo, and you hope the guys in the band are feeling that as well. It's usually pretty obvious within a couple of beats per minute.

For tempo and keys, preproduction is huge — arrangement isn't so critical to nail early these days because it's possible to change the arrangement in the final mix by editing it differently.

It's obviously important to have a tight and spontaneous rhythm section, where everybody feeds off each other. But the way we try to create records is to make sure the performances don't sound like they've been rehearsed a hundred times, so you have to be careful in preproduction not to overdo things.

**INSPIRED TAKES**

*Being removed from a major metropolitan area has its advantages and disadvantages when it comes to making records. For Alagia, being "out in the boondocks" is an important ingredient in creating the right*

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kind of atmosphere for getting the best performances from artists. In fact, he's not afraid to try some unconventional tactics when it comes to capturing inspired moments.

**Alagia:** For getting vocals done, we'll do things like switching the phase on the

speakers in the control room and have them sing right there. That way they don't get freaked by working in headphones. Because the music coming out of the speakers is out of phase, we can have it as loud as they need it to deliver the song. We can go back in and flip the phase on the vocal so you don't hear any

of the bleed, plus we use mics with good rejection. You know, we'll use a Shure SM7 and have the singer faced directly at the speakers. Then we go into Pro Tools and clean up the noise between the phrases. Once the music is blended in you're fine.

We did half of John Mayer's record that way — it was cut with him in the control room right in front of the monitors.

**In addition, do you have a separate tracking room?**

**Alagia:** No, not really. We use the living and dining rooms — they're one big room, actually — something like 24 x 14 feet, with a ceiling height close to nine feet. We can get great drum sounds from there.

**You're not concerned about having an acoustically designed space?**

**Alagia:** Absolutely not. Once again, Steve Lillywhite changed my outlook on this.

**Juliano:** We had Ben Peeler [pedal steel player for the Wallflowers] out to play on Josh Kelley's record, and Ben wanted to be out on the deck because he wanted to feel the leaves blow by his feet while he played. We ran headphones out the door, put a Neumann on the deck, and went for it. Planes going overhead, wind blowing — who cares? We could filter it out later.

We've worked in a bunch of great studios, but before John and I met, we were making records the same way: throwing our gear in the backs of our trucks, going to the band's rehearsal space and doing it right there, so we've learned how to deal with less than ideal recording conditions.

**Alagia:** That's right. I became an engineer by default — we had a band and we wanted to make our own records, so any money that would come in we'd spend on getting our own recording gear. We just started building it up, and we learned by trying.

We'd move the mikes around and try different preamps until we found something that worked — it was a great education. I think it's a dying art. People don't take mike placement as seriously as they should. That and considering the room they're recording in — it makes a huge difference. **EQ**

For a list of credits or to find out what John and Jeff will be working on next, point your browser to [www.johnalagia.com](http://www.johnalagia.com) or [www.jeffjuliano.com](http://www.jeffjuliano.com). If you'd like to read more from our conversation, including detailed notes from the John Mayer Room For Squares sessions, go to [www.eqmag.com](http://www.eqmag.com).

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## Whaddya Mean, "Sample Accurate"?

Make your timing tighter than Trinity's latex suit

If you think that "sample accurate" has something to do with random drug tests, you're probably reading the wrong magazine. But if you've heard the term applied to digital transfers, loop timings, edits, and more, you're in the right place. Our mission here is to get to the bottom of sample accuracy, and explain how it affects our world of recording and editing.

First, the basics: When dealing with digital audio, the most fundamental element of a signal is an individual *sample*, which has a certain duration and value. For the purposes of this article, we don't care about the value, just the duration. For example, with a 44.1 kHz sample rate, there are 44,100 samples per second. Thus, each sample is exactly 0.02267573696 milliseconds long (you can trust me on this), and there are 44.1 samples per millisecond.

### SAMPLE ACCURATE TRANSFERS AND EDITS

Let's consider sample accurate transfer as it applies to transferring an ADAT tape to a Digital Audio Workstation (DAW). Suppose that starting from the zero point on the tape, a guitar starts playing 670,020 samples into the tape, and stops playing at 900,347 samples into the tape. With a sample accurate transfer, if you select the "samples" time ruler calibration on your DAW, you'll see that the guitar starts playing 670,020 samples into the project referenced to the beginning (zero) point, and ends at (you guessed it) 900,347 samples from the beginning.

Why does this matter? With transfer methods that aren't sample-accurate, such as SMPTE, there could be "slippage" where tracks would be off by a few samples. Normally, this wouldn't be too big a deal, but what if you were transferring a drum track that had leakage on another track? Any variations could cause comb-filtering effects due to additions and cancellations between the two tracks.

As applied to edits, sample accurate editing means that you can edit a file length, split point, or whatever with single-sample precision. In other words, the resolution is far better than, for example, being able to edit a file to the nearest millisecond.

### SAMPLE ACCURATE LOOPS

As to why you'd need to edit to single-

sample accuracy, consider the use of loops in music. By definition, loops repeat; if a loop's length is not precise, there can be timing drift as it repeats.

For example, suppose you record a loop from a groovebox set to 120 BPM. There's no guarantee this tempo is exact (they don't use atomic clocks, y'know); it might actually be 120.035 BPM, meaning that the loop will be a little faster than the ideal. Assuming a 44.1 kHz sampling rate, a 120.000 BPM one-measure loop lasts 88,200 samples, whereas a 120.035 BPM loop lasts 88,174 samples. That means there is a timing discrepancy of around 0.58 ms.

Now, suppose you import that 120.035 BPM loop into a DAW where 120 BPM is indeed 120.000 BPM, and copy the loop 16 times (by butting the beginning of one instance of the loop against the end of the previous instance) to fill out part of the song. Only problem is, the loop you imported runs slightly fast, so at the end

"This leaves a tiny bit of space, but trust me — no one will care"

of the 16 measures, it's (16 x 0.58 ms) out of sync, thus ending 9.28 ms before it should. This is enough to be noticeable.

Of course, some programs, such as Acid, Live, Sonar, and Project5 can automatically

time-stretch a loop to fit a desired duration, and thus run at a specific tempo. But if your program doesn't do automatic time-stretching, or if you don't like the artifacts that time-stretching sometimes produces, you can trim that "almost there" 120.035 BPM loop to be sample-accurate, and hit 120.000 BPM exactly.



In Cool Edit Pro, simply typing a new value into the Length field (outlined in yellow for clarity) can trim a file to a specific number of samples.

To do this, load the loop into a program such as Cool Edit Pro, which can indicate the loop length in samples. Because the 120.035 BPM loop (with 88,174 samples) runs short of the desired 88,200 samples, add some silence to the end of the loop to extend it, then trim to exactly 88,200 samples by typing that number in the Length field (this, of course, assumes the ruler calibration is set to samples). Now, if you paste these trimmed loops end to end for 16 measures, they'll fit perfectly. Granted, there will be a tiny error within each loop because you had to add that half-millisecond of silence, but I bet you won't hear it. It's more important that all the loops add up to the correct overall duration in the context of a song.

When you see a loop library described as having "sample-accurate loops," it means that the person doing the library calculated the number of samples used by a loop of a particular rhythmic value playing at a particular BPM, and made sure the loop was exactly that duration. For example, if the loop is claimed to be 120 BPM, then it will be exactly 88,200 samples long.

The one "oooops" is that sometimes the math works out so that each loop should theoretically have a fractional number of samples. There are several ways around this:

- Switch to a higher sampling rate, which gives better resolution. You may still end up with a fractional sample value, but it will represent a really, really tiny amount of time.
- Just ignore any difference. That's right, live dangerously! For example, suppose your song tempo is 120.035 (we'll say you did this to match the groove box tempo mentioned above), so a one-measure loop should be exactly 88,174.28 samples. Therefore, your groovebox loops fit perfectly, but suppose you also have a sample-accurate 120.000 BPM loop you want to use. You trim it to 88,174 samples, the best resolution you can do at 44.1 kHz; however, that means the 120.000 BPM loop is short by 0.28 samples. Multiply that by 16, and the total amount of error is 4.48 samples — about 1/10th of a millisecond, or hardly enough to get excited about.

■ Snap the loop to a measure boundary each time you copy it. This leaves a tiny bit of space at the end of the loop, but as it's only 0.28 samples, trust me — no one will care. I certainly don't, and neither should you.

### DO THE MATH — OR BETTER YET, DON'T

I use a lot of loops in my music, and have developed quite a few loop libraries, so I need to relate particular rhythmic values to a specific number of samples when creating sample-accurate loops. After reaching for a calculator one too many times, I created an Excel 3.0-compatible spreadsheet where you enter the tempo in BPM (note that the chart assumes a 4/4 time signature) and sampling rate in kHz. The program then generates a listing of durations, in both milliseconds and samples, for different rhythmic values.

This is really handy; even if you're not into sample accuracy, it's a great way to set delay times so they match tempo. But it's even handier for you, because you won't have to set up this spreadsheet yourself! The cross-platform Excel file is

posted at [www.eqmag.com](http://www.eqmag.com), so you should be able to put theory into practice with a minimum amount of effort. EQ

| BEATS | MS        | SAMPLES    |
|-------|-----------|------------|
| 32    | 14,400.36 | 635,055.88 |
| 18    | 7,200.18  | 317,527.84 |
| 8     | 3,600.09  | 158,763.97 |
| 4     | 1,800.05  | 79,381.98  |
| 2     | 900.02    | 39,690.99  |
| 1     | 450.01    | 19,845.50  |
| 1/2   | 225.01    | 9,922.75   |
| 1/4   | 112.50    | 4,961.37   |
| 1/8   | 56.25     | 2,480.69   |
| 1/16  | 28.13     | 1,240.34   |
| 1/32  | 14.06     | 620.17     |
| 1/64  | 7.03      | 310.09     |

The Excel spreadsheet calculates durations in milliseconds and samples for particular rhythmic values at a given tempo and sample rate. To get a free copy of the Excel file, surf to [www.eqmag.com](http://www.eqmag.com).



# Grab Some Soul

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**Joe Chiccarelli**

Producer/mixer/engineer, Joe Chiccarelli loves the Natural Sound of the Martech MSS-10 mic preamp; *"I'm totally blown away by the realism and detail."* His recent use includes sessions with Elton John (vocals), Kronos Quartet (strings), Tim Easton (vocals, acoustic and electric guitars), and Tracy Bonham (drums).

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# The Performance Curve

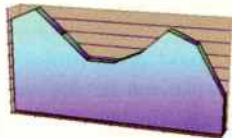
How do you know which take is *the* one?

The essence of recording comes down to this: capturing great performances. All related tools, techniques, and technologies become irrelevant without that crucial element.

Granted, some tools help promote better performances, such as the way loop recording allows the performer to get into a "groove." But ultimately, a good performance also has much to do with production skills, and knowing how to get the most out of a performer. However, is that process based solely on gut feelings, or is there some quantifiable element that can help ensure getting the best possible take?

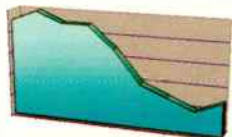
## CURVES UP AHEAD

After years of recording composite vocal, guitar, and keyboard parts, then picking the best sections, I happened to notice that the quality of my takes follows a definite pattern. The first couple takes are pretty good, then they start to go downhill before taking an upward path again. Eventually they hit a peak that sometimes exceeds the initial one, then past a certain point, deteriorate at a pretty rapid rate. I call this a "double-peak" curve because it has a peak at the beginning, and a peak toward the end.



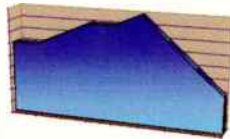
It's uncanny how often this happens. It doesn't even matter which instrument I'm playing. But that's just me; I've also produced quite a few artists over the years, and noticed other distinct patterns.

**The quick starter:** This performer starts strong, has several good takes in a row, then doesn't really improve on the performance over time. Many times, these are musicians who play live a lot. They're conditioned to get things right and "give it their all" because live, you get only one take.

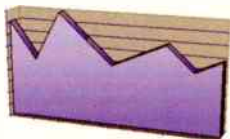


**The long ramp-up:** In this case, the performer takes a while to "warm up" and

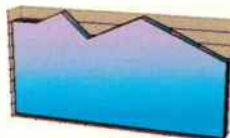
get into the groove. This often happens with musicians who compose in the studio. As they feel their way around the part, they become more comfortable with it. After they hit their stride, sometimes you'll get a killer take; sometimes you'll get a series of takes that are all pretty good, and when composited together, produce a definitive performance.



**The anything goes:** This is the kind of performer who goes strictly from the gut. Rather than follow a particular curve over the course of several takes, they hit high and low points within individual takes, as the mood hits them. These are the most time-consuming performances to comp, because you might end up taking different phrases from early, middle, and late takes. Yet the final results can be really good, because there are a series of spontaneous moments that produce multiple high points during a take. However, you want to make sure it "breathes," and has some less intense sections to provide contrast with the moments of high emotion. In any event, these are people where you record everything because you never know. . . .



**The rock steady:** I first encountered this type with classical guitarist Linda Cohen. All her takes are consistently good, so the only real question is whether she can do one that's better.



There are other patterns as well, but these are main ones I've recognized

## WELL, SO WHAT?

This may sound a bit abstract, but there are practical ramifications. For example with Linda, she knows when she's done a good

take, at which point she tends to want to move on (classical guitarists don't get huge budgets for studio time, so time is of the essence). I usually agree with her, but once I had heard her perform a song better in rehearsal than how she did it in the studio, even though her take was technically flawless. I wanted to ask her to do another one, but knew she'd think it was superfluous.

So, I said into the talkback mic that unfortunately, the record button hadn't been enabled on her previous take. She was kind of bummed but she's a pro, so she did another take. However, my "mistake" sort of shook things up; while her part was again perfect, it had a little more feel (I presume it was because she had gone through these conflicting emotions of thinking she'd done a real good part, only to find it hadn't been recorded). Of course, the previous take *had* been recorded, so if the newer one wasn't as good, there wouldn't have been any problem.

However, you wouldn't try that approach with the "long ramp-up" performer, because it takes them so long to get where they're going that they'd likely strangle you if they thought you'd made such a major mistake. With their type of curve, you're best off saying "the last take was really good, but they keep getting better, so let's try just one more."

The "quick starter" is something else. If the takes aren't happening, I prefer to move on to a different song entirely, then return to the one where I want a better take. Coming back to it seems to sort of "reboot" this type, which takes advantage of their "quick starter" mentality.

For the "anything goes" style, I usually don't ask for new takes, but tend to go more for punches in specific sections: "That was good, but I think there needs to be a bit more energy when the second verse comes in." These performers seem to break performances down into smaller pieces rather than thinking in terms of takes, so they fit well with a punch-in oriented approach.

With the "double peak" type, as long as the takes keep getting better in the second series of peaks, keep recording. Once you hit two or three takes in a row that don't improve on previous takes, move on. It's unlikely you're going to get anything more that's worth recording.

## THE VOLUME JUMP TRICK

Here's another sneaky trick I was taught by an extremely talented engineer: Just

when you think the performer is about to peak, turn up the headphone volume ever so slightly — no more than a dB or so. This raises the person's energy level an extra little bit, and often inspires what ends up being the best take.

But you only get one or possibly two chances to do this. It's the novelty of the change that makes the difference. So, you have to gauge precisely when that Cartier-Bresson-like "perfect moment" is about to occur. Knowing the performance curve helps you decide. With "anything goes," I wait until I have enough takes in the can that I know it's possible to put together a good part. Then I'll goose the volume a tad and do a few more takes. Sometimes these are ideal for adding that slight extra "edge" on the final verse or chorus, or elsewhere for that matter.

The "long ramp-up" type is the most difficult to anticipate. You have to choose the moment that's *just* before their best take. Some performers have such consistent performance curves you can almost do it by the numbers — for example, you know that the 9th or 10th take is almost always the best one. In other cases, you just

have to trust your feelings about when to do the boost.

With a "double-peak" performer, it's usually pretty obvious when the second peak is happening. That's when to do the level boost.

For the "quick starter," I record a take or two, then bump up the volume a tad to see if I can get that "magic take" just before things start to fade. For the "rock steady," I'll say, "Okay, we have what we need, but let's do one more for luck," and turn up the volume a bit. Hey, if it gets a good performance. . . .


#### BREAK TIME

The performance curve also influences when the performer should take a short break, which most musicians feel the need to do occasionally during the course of a session. With the "quick starter" type, have the glass of water set up next to the mic; once you start, you don't want to stop. The "long ramp-up" performer can sometimes benefit from working breaks into the process. This seems to impart a somewhat fresh perspective when the performer returns; they'll proceed in the

direction they were going, but with a slightly different "vibe." This may give more options in the final composite performance (e.g., you can drop in the second verse from one of the post-break takes to add a bit more variety).

With the "double-peak" type, the best place to work in a break is if the second peak is slow in coming. Sometimes a break will "break the ice" and cause the second peak to shake loose. If it doesn't, then it's probably best to move to a different song. Sometimes the planets just are not in alignment to do the perfect performance, and part of producing is recognizing when that happens.

#### THAT'S A TAKE

Granted, there are a lot of variables, so the above are more guidelines to get you thinking than ironclad rules. Having said that, once you become aware of this phenomenon you might be surprised at how often it *is* an ironclad rule. Just like some people are night people and some are day people, it seems some people settle naturally into a performance curve that doesn't vary much, if at all. 

Beck  
George Jones  
Johnny Mathis  
Lloyd Cole  
Norah Jones  
Tracy Chapman  
Aimee Mann  
Carly Simon  
The Thorns  
Jason Mraz  
Dave Matthews Band  
Diana Krall  
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Tony Bennett  
Joe Jackson  
Tom Petty  
Ben Harper  
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**KMS 105** VOCAL PERFORMANCE MICROPHONE

Debbie VanStory photographer



by John Krogh

# Propellerhead Reason 2.5

## The ultimate software instrument and effects studio?

**Type:** Cross-platform software instruments/effects studio.

**Platform:** Mac OS 9/X, Windows 98/ME/XP/2000

**Price:** \$449, \$99 upgrade from version 1.0, free to registered version 2 users

**Contact:** [www.propellerheads.se](http://www.propellerheads.se)

**Audio resolution:** up to 24-bit/96 kHz

**Compatibility:** CoreAudio, CoreMIDI, ASIO, ReWire,

**Number of included instruments:** 6

**Number of included effects/processors:** 13

Often imitated but never quite outdone, Reason has become the premiere software instruments/effects studio. No, you can't record audio into it, but this hasn't stopped thousands of Reason-heads from turning out professional-level tracks (albeit mostly dance-oriented) with little more than a computer, an audio interface, and maybe a MIDI controller.

One year ago (in production cycle-speak) we scrutinized the first significant update to Reason. Back then, reviewer Craig Anderton applauded version 2, saying it "puts an astonishing amount of power, sophistication, and stability behind a simple interface." The good news is, version 2.5 continues the legacy. That said, the competition has certainly

heated up over the last year, and the Propheads have been taking note. They've addressed some of Reason's primary shortcomings in 2.5, but is this enough to keep them ahead of the pack?

### OVERVIEW

Where version 2 brought more instruments into the picture, the thrust of v2.5 is effects. In fact, outside of new effects, very little has been changed or improved upon. With this in mind, I'll sacrifice going into detail about the components we've reviewed in the past (for more details, see the August 2002 issue). You want to know about the new stuff, right?

■ **RV7000.** It's only fitting that I start with the RV7000. This highly programmable

and professional reverb unit is the star player among the items introduced with v2.5. RV7000 is a true stereo unit and offers nine algorithms ranging from rooms and halls to special effects and two flavors of delay. Depending on the algorithm, up to seven parameters on the remote are available for tailoring the verb, plus three parameters on the main panel. In addition, RV7000 has separate EQ and gate sections, allowing for more customization.

A total of 53 presets are included, which are divided into six categories: All, Ambience, Drums, Effects, Echo, and Vocals. After only a cursory audition of several presets I was immediately impressed by the quality of the RV7000. It's leaps and



THE RV7000 IS CAPABLE OF BEAUTIFUL, LUSH REVERBS, AS WELL AS MULTITAP DELAY AND VINTAGE-STYLE ECHO. NOTE THE REMOTE PROGRAMMER: ALL THREE SECTIONS OF THE RV-7000 ARE ACCESSIBLE THROUGH THIS PANEL. HERE WE SEE THE REVERB AND EQ DISPLAYS.

bounds beyond RV7, the original reverb unit included with Reason.

You could easily browse through the presets, finding one that's close enough for just about any application, then use the decay, high frequency, and EQ controls for broad-stroke tweaks. You'd be missing the point, though. A Remote Programmer is available by expanding the 1U RV7000 faceplate. When expanded, the programmer automatically patches itself into the front panel.

From the programmer you can access parameters specific to each of the sections. Flanking the generous display, eight knobs are used to

make adjustments. While it's a sensible interface, I found myself trying to contour the EQ by dragging in the display. To my dismay, this is for visual feedback only. I can deal with using knobs, but I have to admit I'm spoiled by EQ plug-ins that let me "draw" or drag the EQ curve. Oddly enough, the vocoder's display lets you shape an EQ curve by dragging in its display (more on this below).

As you might expect, the RV7000 excels at conventional reverb — rich, dark, sparkling, and creamy, are words I'd use to describe its palette. I processed guitars, vocals, drums, and synths

with hall, room, and plate algorithms all with exceptional results. Just using the reverb section without enabling the EQ or gate, I was able to dial-in very satisfying sounds. Along these lines, the multitap and tape-style echo algorithms are equally impressive. Whether you're into dub, or you like to create rhythm patterns with multitaps, you won't be disappointed.

While the EQ is a useful tool for fine-tuning and sculpting the verb's overall color, the gate section puts the RV7000 over the top. With the gate, only the portion of a signal that crosses a user-definable threshold will be processed. This is a fea-

ture typically reserved for expensive outboard effects. One possible application is for effecting only accented notes of an acoustic guitar line or the loud syllables of a vocal. In practice, I found it a little tricky to dial in the settings so only specific phrases of a vocal track would be processed, but I was able to make it work.

The gate was also effective for adding delay to synth stabs, while keeping single bass lines from the same patch bone dry. Also worth noting, the gate can be opened from a CV signal, which means you could bypass setting up threshold altogether and use another source signal to control the gate. If that's not enough control, you can always automate a CV source or the threshold level to give you exactly the right amount of verb at exactly the right moments in your song.

■ **Scream 4.** Billed as a "Sound Destruction Unit," this module is the answer many lo-fi enthusiasts have been waiting for in Reason. As with the reverb unit, Scream 4 has three sections; Damage, Cut, and Body. According to the documentation, Damage is where "you select a sound mangling algorithm." Um, okay. There are ten of these to choose from, and they run the gamut from subtle overdrive and tape saturation to ring mod, bit-reduction, and rectified effects. Indeed, Scream 4 can take sound from warm and fuzzy to pinched and viciously edgy and back again.

You can think of Damage Control as a drive knob — turn it up for more distortion, turn it down for less. Two more knobs, P1 and P2, are tied to algorithm-specific parameters, which are listed next to the algorithm



# Propellerhead Reason 2.5



**SCREAM 4 SOUND DESTRUCTION UNIT — RUDE AND ROCKIN'; THIS UNIT HAS JUST THE RIGHT COMBINATION OF TOOLS FOR SERIOUS SONIC SHREDDING. CHOOSE THE "DESTRUCTION" TYPE FROM THE DAMAGE SECTION, THEN SCOOP OR PUSH THE LOWS, MIDS, OR HIGHS WITH CUT. FOR HYPER FILTER RESONANCE SOUNDS, TURN ON BODY AND START TWISTING KNOBS.**

names. For example, P1 and 2 will affect tone and presence for Distortion.

As its name suggests, Cut is a 3-band EQ with 18 dB of boost/cut. Telephone vocal effects anyone? To be fair, there's more to be done with Cut than obvious, overused clichés. In fact, I found this humble 3-band to be just the carving knife I needed for making overlapping synth and bass lines exist cohesively in a mix.

Body is a cabinet or "resonant body" simulator that lets you add more dimension and interest to a sound after it's been run through Damage and Cut. There are five body types (A–E) to choose from; the documentation isn't clear on what each is supposed to do or sound like. They all tended to add a resonant filter-type effect, which I didn't mind, but I wouldn't classify it as having a believable speaker enclosure sound. It was great on drums, vocals, and electric guitars for creating Lenny Kravitz-inspired '70s effects.

■ **BV512 Vocoder.** Yep, it does vocoding, and it does a decent job at it, too. It has a variable number of filter bands; from four up to 512 bands. Translated, this means the BV512 is able to produce vintage (*i.e.*, lo-fi) as well as rich, modern vocoded textures. There's no built-in carrier, but this isn't a problem. I had good results patching both Subtractor and Malström in as the carrier being modulated by REX file loops and ReDrum patterns.

Operating the BV512 is fairly straightforward. The Shift knob moves the carrier filters up or down, which when modulated by CV signal, will sweep the output — a classic breakdown effect. If the vocoded output isn't clear enough, use the High Frequency Shift knob to boost the highs of the carrier signal. This will improve intelligibility.

By itself, the BV512 can be great fun, but modulating Shift and Hold with CV sources such as a square wave LFO takes things to another level. With just such a setup I was able to make all sorts of

sample-and-hold effects, which I later turned into REX loops. You can get even crazier by modulating the level of individual frequency bands. Warning: This can become a serious time suck, so don't attempt these maneuvers under heavy deadline conditions (such as when writing a product review . . .).

■ **Unison, Spider CV Merger/Splitter, Spider Audio**

**Merger/Splitter.** I've lumped these last modules together because, well, there's not much to say about them individually. Unison stacks an input signal, detuning each layer (from four to 16 voices) to create a fat, chorused sound. In short, it's the thickening agent I've been missing from Subtractor. For synths, Unison can add considerable width and juice. You're welcome to apply it to samples as well. Used sparingly, Unison helped fill out thin-sounding drums, but with a full voice count of 16 the attacks were "smeared." As they say, your mileage may vary.

Spider Audio is a handy widget that many users have been asking for. Previously, to process a single source in parallel you had to configure an overly complex mixer setup. Now with Spider, a mono or stereo signal can be sent out to four destinations. Conversely, four input signals can be merged to a single stereo out — useful for applying the same insert effect to a group of instruments, for example.

Spider CV is a bit more involved than its audio counterpart, but only slightly so. It has two functions: to output one merged CV signal from up to four CV input sources, and to split up to two CV or gate signals into several outputs. According to the documentation, the A and B inputs are *each* given four outputs, "where one of the outputs will invert the polarity of the control signal." This makes it possible to split gate and note CV messages for controlling multiple instruments via one Spider. Also, the inputs have

trim controls — they come in handy for making a separate mix of control signals (some instruments only send full CV output.)

**CONCLUSIONS**

I've been using Reason since 1.0, so I was quite familiar with the program before this review. When 2.5 arrived, I was psyched, of course, but not overwhelmed. After all, there were only a couple of major additions. Even so, after spending weeks with the latest rev I have nothing but positive experiences to report.

Initially, I was concerned about installation — I wasn't sure what I should do with all the sound data that the previous version installed. Thankfully, the 2.5 installer simply replaced the necessary components, so no additional hard drive space was wasted with duplicate sample data.

I've already documented my impressions with specific modules, so keeping things on a more global level, I had no crashes whatsoever — I can't claim the same with most software. I tested Reason under OS 9 and OS X. Under both systems it was solid.

Criticisms? Well, these are more of the "wish list" variety: I wouldn't mind seeing control surface support added. Already it's incredibly easy to assign continuous controllers for automating any number of parameters in Reason. But going one step farther by adding support for a variety of control surfaces would put Reason even deeper into the pro arena.

Also, the sequencer is bare bones. There's no event list, for example. Multiple groove quantization templates would be nice, too. And a single, unified edit tool that incorporates the different tools would be nice.

That said, we're only at V2.5 — no doubt 3.0 is around the corner, so I'm keeping my fingers crossed. Bottom line: With version 2.5 Propellerhead has made a good thing even better. **EQ**

**Strengths:**

- Loads of instruments and effects
- Outstanding new reverb
- Bullet-proof performance
- Elegant, musically intuitive interface

**Limitations:**

- Can't record/play back linear audio tracks
- Sequencer is merely functional
- No support of third-party plug-ins



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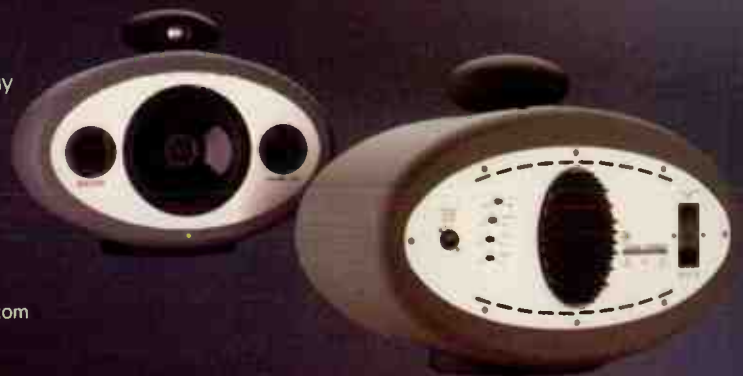
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## TL Audio VP-1

has four bands: high and low shelves with frequency and gain knobs, and two parametric bands with bandwidth, frequency, and gain knobs. The output limiter simply has a threshold control and indicator LED. Rounding things out are a master output knob, cool round VU meter, meter function switch (input level, output level, gain reduction), and power switch. There are switches to turn each section on and off, but you can't quickly switch off all the processing with an overall bypass switch — a feature I missed.

But there's more to the VP-1 than meets the quick glance. The mic preamp section can switch from tube operation (transformer-balanced) to discrete class A solid-state — the tonal change is significant. The input's highpass filter is fully variable from 25 Hz to 1 kHz, and is active on all inputs. Being able to "tune" the highpass filter is a godsend for removing unwanted low-frequency garbage.

The compressor can be switched from TL Audio's trademark "transconductance" solid-state operation to optical; not quite as significant a change as the preamp, sound-wise, but another color that can be applied. In either mode, the compressor makeup gain is tube-driven. The equalizer is a tube design, as well — all in all there are seven tube stages in the VP-1 — and the EQ can be switched before the compressor in the signal path. The limiter is an optical design, and is positioned after the output control. It's intended to be used to prevent overdriving the input of whatever piece of gear is being fed from the VP-1, and operates in both the analog and digital (if the DO1 is installed) domains.

### IN USE

The VP-1 is tremendously powerful, yet TL Audio has laid it out in such a way that it's easy to navigate — the front panel makes sense. My only complaint in this regard is that some of the switches and knobs are positioned a bit tightly for the thick-fingered among us. I've also got classical guitar-player fingernails, so operating the pushbutton switches (which are flush with the front panel when depressed) was awkward.

But these are minor quibbles — the VP-1, in a word, rocks. It sounds great, and the ability to switch the preamp from tube to class A is wonderful. In the tube mode, the sound has more presence, with a rounder upper midrange, and fatter



The optional DO1 A/D converter offers resolution up to 24-bit/96 kHz, and the extra I/O you see here.

sound. In class A mode, the sound has a harder attack, a less-colored midrange, and a clearer high end. Both modes are eminently usable; having access to them in one box is pretty cool.

As has been my experience in the past with other units, I found the expander/gate to be fiddly to use — if your input signal has any kind of dynamics, it takes a lot of playing around to get the gate operating without chopping off the desired signal. The de-esser works quite well, and can be tuned over a broad range of frequencies and bandwidths; this makes it handy for more than just de-essing. It can be used to control frequencies from 700 Hz to 7 kHz; useful for dynamically shaping the mids and upper-mids of any signal.

The compressor likewise sounds great, and is quite versatile with hard and soft knee operation and solid-state and optical modes; when driven hard it fattens up nicely. The EQ, with a separate tube stage for each of its four bands, somehow manages to be clean and fat at the same time. I really liked the sound of the high shelf in particular; it seemed to round out and warm up the tone, even when boosting the high end significantly. The limiter, like most such devices, is best used sparingly as a protection device. Nice to have it to prevent accidental overs, but too audible to be used all the time.

Don't forget that the VP-1 can handle instruments in addition to mic-level signals — it has a round, natural DI sound with both electric and acoustic guitars and with bass — as well as line level signals. This means you can use it to EQ, compress, de-ess, and gate tracks during mixdown. All

told, a very versatile box that should see use in your studio from tracking all the way through final mixdown.

### VALUE QUOTIENT

At its original price of \$3k, the TL Audio VP-1 was a pricey box — especially for a single channel — but the price was recently reduced by \$600 to \$2,399. For that money, the value offered is excellent, especially if you look at what you'd pay for a collection of similar-quality separate components. Combining a multi-flavored preamp stage with gating, de-essing, solid-state or optical compression, tube EQ, and output limiting, the VP-1 is an all-in-one solution for just about any single-channel application — and you can chain two units if you're working in stereo.

The audio quality is excellent, the functionality is exemplary, and having multiple "sounds" available in the preamp and compressor is a great bonus. With the VP-1, TL Audio has hit it right on the mark for digital recordists. **EQ**

### Strengths:

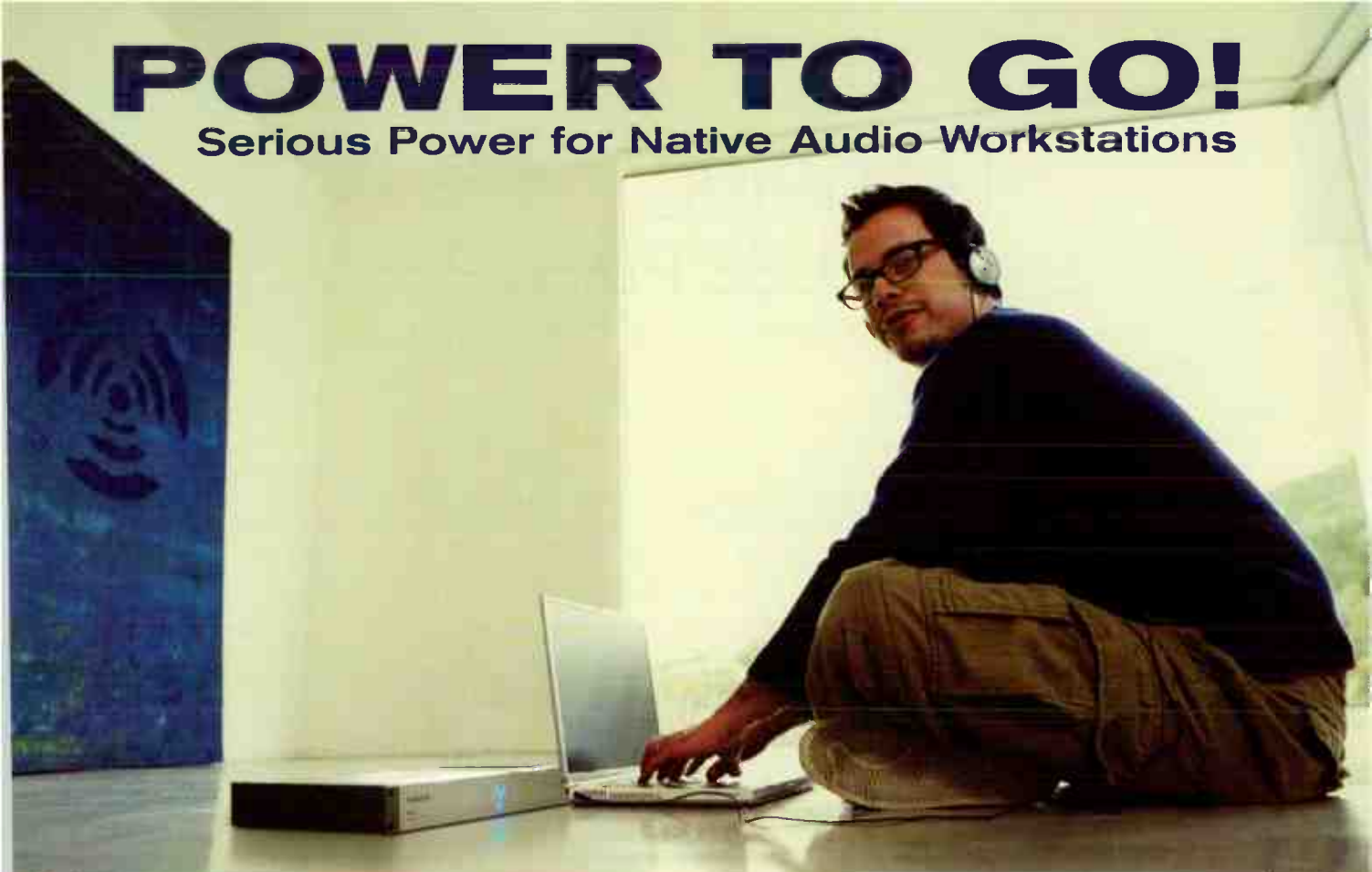
- Versatile preamp with two distinct tonalities
- Seven tube stages
- EQ can be switched pre-compressor in signal path
- Solid-state or optical compression
- Insert point
- Good metering
- Two units can link for stereo operation
- Optional onboard A/D conversion

### Limitations

- No overall bypass for processing
- Tight button layout

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by Greg Rule

# Genelec 1029.LSE PowerPak

## Quality Surround For Small Studios



**Type:** Active 5.1 system with bass management

**Price:** \$4,200

**Contact:** Genelec, [www.genelec.com](http://www.genelec.com)

**1029A:** 2-way, biamped active monitor, 5" woofer, 3/4" metal dome tweeter, magnetically shielded, 40w amp, overload protection, DIP switches (treble tilt, bass tilt, and bass roll-off), 70 Hz – 18 kHz frequency response, balanced XLR input.

**7060A:** Active sub with 10" inch driver, 120w amp, LSE "Laminar Spiral Enclosure," built-in bass management, active crossover filters, driver overload protection circuits, 108 dB SPL, 29 Hz – 85/120 Hz (selectable) LFE channel frequency response, 0/+10 dB LFE sensitivity switch, balanced XLR inputs (7) and outputs (7).

**Accessories:** RJ11 remote overload indicator (\$38), RJ11 remote bypass/LFE boost switch (\$38).

**Shopper's note:** If the PowerPak is out of your price range, or if you're not quite ready to go 5.1, Genelec offers a 3-piece Triple Play system (\$1,850), which bundles a pair of 1029A satellites with a 7050A sub.

If you've been itching to board the surround bandwagon, and have a small studio equipped with multichannel I/O, say hello to the Finnish-designed Genelec 1029.LSE PowerPak. Conveniently bundled as a matched set of five 1029A satellites and a 7060A sub, the PowerPak eliminates the need to mix and match components. No worries about weak links or incompatibilities in the chain. This rig is an all-family affair.

The recommended playback environment is a space of up to 3,000 cubic feet. The ideal listening distance is 6.5 feet — but you can stretch it to eight feet if necessary. If the 1029.LSE PowerPak is too small

for your room, Genelec offers other surround solutions and components for larger spaces.

An easy-to-follow and very useful surround setup guide is included with the system. In just over an hour we had the PowerPak installed, calibrated, and flying with our Pro Tools HD system running Pro Tools 6 and Waves' 360 Surround bundle. A handy "audio tape measure" tool is also included to aid in the setup process. Bravo! One setup note: You'll probably need to buy speaker stands for the left and right rear satellites. But good news on that front: The 1029As can be screwed onto most mic stands with a simple adapter.

The 1029s have been on the market for several years, and have risen in popularity thanks to their clean performance, solid build, and small footprint. "The 1029As are plenty loud in the near field," says Frank Wells, editor of *EQ's* sister mags *Pro Sound News* and *Surround Professional*. "They hold up well in the mid-field, and have a sonic performance that belies their size." It didn't take rocket science to figure out that a matched subwoofer for the 1029s would make for an attractive small-room surround package. What did require serious brainpower, however, was the sub itself. What Genelec came up with was unique . . . and potent. ►



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World Radio History

# Genelec 1029.LSE PowerPak

## SPIRAL SUB

Like the 1029A, the 7060A looks impressive from the outside, with its tank-tough industrial housing and densely populated I/O panel. But the real story is inside its casing. Genelec explains: "The 'secret' behind our LSE [Laminar Spiral Enclosure] is the way a long vent with a large cross sectional area has been fitted into a small space. Such a vent allows the movement of large amounts of air at low speed, which is necessary to maintain a constant frequency response over the full range of low frequencies. But it must be smooth with no acute angles, or the performance will deteriorate."

Clever indeed, but the proof is in the performance. How did LSE fare? In a line: This sub kicks ass! Its solid, punchy bass thoroughly blanketed our mid-size test studio — and almost shook the fixtures loose on a couple of "pedal-down" occasions.

But more than just oomph, the 7060A shines in its integration with the satellites. It's the nerve center of the setup, so in order to take advantage of the onboard bass management and other features, you must patch all signal into the sub first, then out to the satellites. To that end, the 7060A's I/O panel provides seven inputs (six main channel inputs and an LFE/.1 channel input), seven outs (the six main channels and a "sum" LF out for daisy-chaining a second sub), and row of DIP switches for toggling Redirect on/off, choosing the LFE upper-limit frequency point, activating the test tone, and tailoring roll-off and phase. The Redirect feature can be helpful when you want to confirm there are no excessive frequencies going to the LFE channel; if the bandwidth is set to 85 and Redirect is on, any frequencies above 85 Hz are sent to the center channel. (For more on the 7060A's operation and design principle, log onto [www.eqmag.com](http://www.eqmag.com)).

A side note: There are other LSE-series subs in the Genelec line — the 2-channel 7050A, the larger and more powerful 7070A, and the grand-daddy 70701A, with dual 12" drivers. *Timber!*

## SUMMARY

For small rooms, the 1029.LSE PowerPak is a home-run rig. From top to bottom, it delivered clean, clear sound with no perceivable frequency gaps or holes. But it isn't exactly budget priced, nor is it alone in the marketplace. There's no shortage of worthy competitors out there (too many to name here), so get your ears on as many systems as possible before settling on your rig of choice.

Monitors are as subjective a category as there is. Recent queries on the *Surround Professional* forum revealed that few people

posting used the same rig; the selection was all over the map. Personally, I've loved the sound of the Genelecs for years, and have logged many hundreds of hours of studio time with them. I've heard a few folks say they find Genelecs to be a bit too "flattering" to the mix. Let your ears decide.

Subjectivity aside, the stone facts are the rock-solid, quality build of this system and Genelec's reputation for being at the top of their game. Frank Wells summarized the PowerPak by saying: "The transition between sub and the main

speakers is smooth and transparent. The sub has plenty of punch, handling transients well while providing all the deep bass I asked of it. The bass manager is full-featured and flexible. For small room setups, or for a relatively portable system, the PowerPak delivers first rate performance at a reasonable price — minus the guesswork and hand wringing that can accompany the selection and configuration of a surround monitoring system."

Chalk up another win for the Finns. *Hyvää Suomi.* EQ

More than just oomph, the 7060A shines in its integration with the satellites.


### Strengths:

- Crisp, clear performance
- Tank-tough, stylish construction
- Small footprint
- Built-in bass management
- Easy to install


### Limitations:

- Prepare your pocketbooks — this system isn't cheap

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by Mitch Gallagher

# Studio Projects

## B1, B3, TB1, VTB1

Shattering the quality/price barrier

**Type:** Large-diaphragm microphones and tube mic preamp

**Price:** B1, \$99; B3, \$199.99; TB1, \$349; VTB1, \$179; SPSK-B shockmount (fits all B Series mics), \$34

**Contact:** [www.studioprojectsusa.com](http://www.studioprojectsusa.com)

**B1:** Large-diaphragm cardioid condenser microphone

**B3:** Large-diaphragm multi-pattern condenser microphone

**TB1:** Large-diaphragm cardioid tube microphone

**VTB1:** Single-channel tube mic/instrument preamp

I have to admit, I'm a bit envious. (Cue old man voice) "Back when I was cuttin' my recordin' teeth, we didn't have all them fancy-schmancy condenser and tube mics in our home rigs. We had one type: dynamics, and we were darned glad to have 'em." These days, things are different.

Quality condenser mics are available at every price, ranging from under \$100 to up in the stratosphere. In the past couple of years there's been a lot of development in high-end mics, as well as down in the more affordable ranges. Witness the products on review here — the Studio Projects B Series microphones

and VTB1 preamp. For an amazingly small amount of money, you get mics and a pre that I would have killed to have access to when I was getting started back in the cassette 4-track days.

### B1 AND B3

The B1 and B3 are near-identical looking large-diaphragm condenser mics. The difference between them is that the B1 is a fixed-cardioid pattern design, while the B3 offers omni, cardioid, and figure-8 patterns, as well as a 10 dB pad and low-cut filter (you have to choose either the pad or the filter; both can't be active at the same time).

Both mics come with leatherette carrying pouches, as well as a mic clip. The



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## Studio Projects B1, B3, TB1, VTB1

mics are good-sized, and feel solid — they look plenty “pro” on a stand in front of a vocalist.

I expected the B3's cardioid mode to sound the same as the B1. While their tones are quite similar, there are some differences. To my ears, the B1 has a bit more presence and a smoother rise in high-frequency response; this was confirmed in examining the mics' frequency response charts (available for download at [www.studio-projectsusa.com](http://www.studio-projectsusa.com)), which reveal the B1

“For an amazingly small amount of money, you get mics and a pre that I would have killed to have access to when I was getting started.”

with a smooth rise starting around 2 kHz, and peaking just over 10k. The B3 is flat to 5k, where there is a slight dip, then a rise to 10 kHz. I preferred the sound of the B1 for vocals and acoustic guitar.

The other two patterns on the B3 sound quite different from the cardioid pattern. The omni pattern tone more closely resembles the B1, but with a fall in bass frequencies that thins the sound. The figure-8 gets even thinner, and has a more pronounced presence swell in the high-end. The pad and filter work as expected, although the filter is rarely needed in omni or figure-8 modes.

### TB1

Boy, do I feel stupid. I just spent way too much time trying to use the TB1 on every source I could think of, with no luck. No matter what I tried, it had no high end, very low output, and a tremendous amount of noise. I had just decided to call the

manufacturer and report what I suspected to be a defective unit, when I happened to glance at the unit's power supply . . . which was set to 230v operation. *Sigh.* I sheepishly moved the switch to the 115v position, and was pleased to immediately revise my opinion. Just goes to show, no matter how well you think you know what you're doing. . . . Once it was set for the correct AC voltage, the TB1 was quite an impressive mic. It's a cardioid-only tube mic. The mic comes packaged in a road-type case, which also holds the power supply, AC power cable, dedicated 7-pin cable to run from the mic to power supply, and mic clip. The SPSK-B shockmount (\$34) is available as an option with any of the B Series mics.

Sonically, the TB1 has a round, present tone, with nice detail on the top end, but without the extra “sizzle” you might expect from a modern tube design. I found this refreshing for sounds that were strident, as well as for layered tracks where high-end build-up could have been a problem. It has a solid low end, and chunky midrange that make it well suited for tasks such as crunchy electric guitars and thin voices. I enjoyed its tone on male vocals, where it was present without being harsh, even on “screamer” passages.

### VTB1

At under \$180, the VTB1 preamp is a real eye-opener. It combines solid-state and tube preamps in one small box — and has the added benefit of a “Tube Blend” knob that lets you mix the two preamp types together for an incredibly broad range of sounds. It also has a nice-sounding 1.5 megaohm instrument (DI) input, and switchable output impedance with 200- and 50-ohm settings. For most applications, you'll want to use the 200-ohm setting; the lower impedance is intended for ribbon mics, and in my tests had negative effects (reduced level/increased noise and increased top end) with other types of mics.

A couple of complaints: There's no power switch on the unit, it uses a wall-wart power supply, and its 70 Hz lowcut filter is a bit too heavy-handed for most applications. Aside from that, the VTB1 performs like a champ. It's clean and quiet, and offers two distinct tonalities — as well as those provided by that cool Blend control. I was pleased with the

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results no matter what mic I ran through it.

**REDEFINING VALUE**

Given their prices, I'm pretty well blown away by all four of these products. My favorites are the B1 — at \$99 list price, how can you go wrong — and the VTB1, which in addition to being a good-sounding and flexible preamp is small enough to be tossed into a gig bag for remote sessions.

For those after tube flavor, the TB1 has it in spades. The B3 is cool if you need the flexibility of multiple patterns, pad, and filter, but most of us rarely use anything other than cardioid pattern, and for pure tone, I preferred the B1.

For those just getting started, this quality of mic and preamp at this kind of price is a wonderful thing. For those of us with established mic lockers, the Studio Projects B Series offerings provide useable tone colors at a price that's pretty amazing. **ED**

**Strengths:**

**B1**

- \$99 for a quiet, good sounding large-diaphragm condenser mic? What else is there to say?

**B3**

- See B1 strengths above, plus multiple patterns, 10 dB pad, and low-cut filter

**TB1**

- Fat bottom and midrange
- Smooth but detailed top end
- Nice case holds mic, power supply, and accessories

**VTB1**

- Tube and solid-state modes
- Quiet
- Plenty of gain
- Broad range of tonal possibilities
- Portable

**Limitations**

**B1**

- None to speak of, given the price

**B3**

- Each pattern has a radically different tonal flavor

**TB1**

- Shockmount is an option

**VTB1**

- No power switch
- Wall-wart power supply
- Lowcut filter is too heavy-handed

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by Mitch Gallagher

# TC-Helicon VoiceOne & VoiceWorks

## Sing it loud and proud

**Type:** Vocal pitch and modeling processors

**Price:** \$1,299; VoiceWorks, \$799

**Contact:** [www.tc-helicon.com](http://www.tc-helicon.com)

**VoiceWorks:** Mic preamp with phantom power, 4-part harmony generation, humanization of harmonies (inflection, vibrato, pitch randomization, portamento, pitch correction, adjustable voicing and gender, voice thickening, 3-band EQ, compressor/gate, reverb/tap-tempo delay, MIDI control over all parameters)

**VoiceOne:** Voice modeling with effects, (inflection, vibrato, resonance, growl, breath, spectral EQ), pitch shift and correct, extensive MIDI control

Vocals are the centerpiece to many styles of music, so naturally we spend a fair amount of time capturing the best vocal tracks we can, editing, comping, and tuning them — basically making them shine as bright as possible. TC-Helicon has been in the business of providing processing for vocals for some time now; their vocal harmony generators are in wide use both live and in the studio. The company's current line-up includes five boxes; the two on review here, VoiceWorks and VoiceOne, approach vocal processing from very different angles.

### VOICWORKS

VoiceWorks is intended to be a complete vocal workstation

in a box. It comprises a mic preamp, 4-part harmony generator, dynamics processor, EQ, and effects unit in a single rackspace. Interfacing is via XLR for mic input, balanced 1/4" for line in/out, and RCA for S/PDIF digital I/O. In addition, there's MIDI in/out/thru connectors. The only thing lacking is a headphone out, which might be useful if you're using the VoiceWorks as a front-end for a DAW or other recorder.

As a mic preamp, VoiceWorks is functional, and sounds fine. It has phantom power, a low-cut filter, 20 dB pad, etc. It has more than enough gain; I regularly clipped the digital section of the box before the preamp topped out. There's a "high gain" mode for the preamp (adds 10 dB gain) — not sure when you'd need it, but it's there.

The dynamics processor, which can do compression and gating, and the 3-band EQ (high and low shelves, parametric mid) work well and can be applied to either the Lead (input) voice and/or

### VoiceOne 2.0

TC-Helicon has a major update to the VoiceOne OS slated for release this fall. The new version will include improved pitch shifting and FlexTime algorithms, as well as new features such as a smoothing algorithm to make pitch shift sound more natural when controlled via MIDI. Also included are custom Spectral EQ styles with increased user control.

the four harmony parts, as can the effects, which include reverb and delay.

All of that is certainly cool, and shouldn't be understated, but where the VoiceWorks really shines is at harmony generation and related processing (such as pitch correction and "thickening"). The four harmony parts can be assigned a pitch shift amount, level, pan, vibrato style and amount, and gender. The harmony voices sound great and can be set up in a variety of tunings and scales. ▶



THE DISPLAY ON THE VOICEONE PROVIDES PLENTY OF USEFUL INFO ABOUT THE INCOMING SIGNAL'S PITCH, AS WELL AS THE PITCHSHIFT KEY, AND MORE.



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**Ross Hogarth** (Grammy winning Producer/Engineer - Ziggy Marley, Gov't Mule, Keb Mo, Coal Chamber, Jewel, Roger Waters, Black Crowes)



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#2 in a series

## TC-Helicon VoiceOne & VoiceWorks

Pitch correction works very well, and can be done using chromatic or key/scale modes. "Thickening" is a detuning trick that can really fill out a vocal sound without sounding too "effecty."

To control all of this for performance, you can use TC's 3-button footswitch to access "Song Mode," which lets you step through a sequence of harmony presets that match your tune's harmonic structure. Cool, and easy to use. You can also assign the footswitch to access other parameters.

For even greater control, you can access virtually every parameter in the VoiceWorks using MIDI. You can also use MIDI clock or tap tempo to control delay times. MIDI control includes everything from pitch shift to dynamics and EQ processing.

### Where the VoiceWorks really shines is at harmony generation and related processing.

In practice this works well. You can play in the harmony parts using a keyboard, use MIDI to "force" a track to conform to a certain melodic line, or use a sequencer to really take total control. I took a vocal track recorded in Pro Tools, and using MIDI, created perfect 4-part harmonies, with varying pan, level, and effects settings. The result took some time to tweak into shape, but sounded quite natural in the context of the mix. You can even use MIDI pitch bend messages to tweak the pitch envelope of the harmonies to create slight pitch variations (for more realism), slurs, dips, and drop-offs where there are none in the original track. Pretty wild. If you're not up for MIDI programming, you can create humanized pitch/time variations using Harmony Style and Amount under the Harmony menu.

#### VOICEONE

VoiceOne tries to do for vocals what various amplifier modelers have done for guitars — and amazingly, it succeeds on many levels. VoiceOne has two main functions: voice modeling and pitch shifting. It takes the input signal, and generates one new "voice." It has XLR line I/O, as well as RCA S/PDIF digital I/O and MIDI in/out/thru.

Let's talk about voice modeling first. VoiceOne separates an inputted vocal into pitch and "character." It processes the pitch and character separately and recombines them to create a modeled voice. A variety of voice "styles" are included, each of which has a different timbre (created using formant, or vocal resonance, processing) and application. You're also given control over inflection, which adds "scooping" effects and something TC-Helicon calls "FlexTime." FlexTime is a time-stretch algorithm that lets you vary the timing of the modeled voice. It really helps add realism when using VoiceOne to create doubled tracks, since it gives independent timing to the modeled double.

Other modeling features include vibrato in a number of styles (I liked Slow Rock best for many applications), Spectral, which is an EQ with many preset curves (you can't tweak the EQ curves; this feature is slated for version 2.0), and Breath, which adds breathiness to the modeled vocal. In practice, Breath sounds quite realistic for adding air around a voice. This is very useful if the original track was recorded with a mic that lacked high-end detail, or as an effect — you can go so far as to turn a vocal into a whispered track. Rounding out the modeling features are Growl, which adds a "raspy" character to the voice, and Resonance, which lets you change the voice's formants to give it a heavier chesty sound or more of a head/throat sound.

Used carefully, all the modeling features are useful — of course you can overdo the effects, which leads to a fake sounding model — but tasteful application can result in a very real sounding voice, especially in the context of a mix.

Beyond modeling, VoiceOne can also do 1-voice pitch shifting/harmony generation and pitch correction. This works in similar fashion to VoiceWorks, and can be done completely under MIDI control using MIDI notes and pitch bend. As a bonus, VoiceOne has a special "PureShift" mode, which applies all the box's DSP to pitch shifting. This results in higher quality and lower latency.

#### DECISIONS, DECISIONS

Both VoiceWorks and VoiceOne are highly useful boxes. Which is right for you? It depends on your application. If you're after quality 4-part harmonies, and want the added benefit of a mic pre and

effects, VoiceWorks is the one. It shines in the studio for harmony work, but it would be equally powerful onstage, where it can serve as a complete lead/harmony vocal chain. When you add up all that it can do, it's a great value.

For many users, VoiceOne will likely find more application in the studio, where you can take the time to tweak the voice models. It's an amazingly powerful processor, capable of surprisingly natural sounding vocal results if used carefully. Voice modeling is among the processing frontiers, and VoiceOne is an eye-opening example of the current technology.

Don't forget that both boxes are also highly useful for pitch correction — along the lines of dedicated plug-ins and pitch-tuning boxes. And by the way, computer-based editors are available for both Mac and PC, which helps reduce the amount of button pushing and scrolling required by the user interfaces.

With VoiceWorks and VoiceOne, TC-Helicon have provided outstanding solutions to vocal processing. Whether your application is studio or live, harmonies or completely new vocal sounds, these boxes deliver. **EQ**

**Strengths:**

**VoiceWorks**

- Excellent sounding harmonies/pitch shifting
- Pitch correction
- Powerful MIDI control
- Pitch bend
- Good effects
- Built-in mic preamp
- Dynamics processing
- S/PDIF digital I/O

**VoiceOne**

- Versatile voice modeling
- Capable of vocoding and synth type effects
- Pitch shifting and correction
- Powerful MIDI control
- Pitch bend
- S/PDIF digital I/O

**Limitations:**

**VoiceWorks**

- User interface can require lots of button pushing and scrolling
- No word clock input

**VoiceOne**

- Can't edit Spectral EQ curves
- User interface can require lots of button pushing and scrolling
- No word clock input

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# Roland V-Synth

by Craig Anderton

They say this is a synthesizer, but I'm not so sure. . . .

**Type:** Digital audio sampler/editor/processor with keyboard interface

**Compatible with:** Windows, Mac

**Price:** \$2,695

**Contact:** [www.rolandus.com](http://www.rolandus.com),  
[www.v-synth.com](http://www.v-synth.com)

**Supplied PCM waveforms:** 30 MB

**Available patch locations:** 512

**Available memory:** 50 MB RAM, 10 MB flash RAM for user samples

**Display:** 320 X 240 backlit touch-screen LCD

**Controls:** Multiple real-time control knobs, two assignable control knobs, D-Beam gestural controller, Time Trip X-Y/sample playback pad

**Inputs:** Stereo 1/4" inputs with line/mic gain, S/PDIF coaxial, S/PDIF optical, MIDI, dual controller pedal ins, hold switch, V-Synth output (for resampling)

**Outputs:** Stereo 1/4" main outs, stereo 1/4" direct outs, MIDI out, MIDI thru, S/PDIF coaxial, S/PDIF optical, 1/4" headphones

**Expansion:** Card slot (accepts PCMCIA card)

**Computer interfacing:** USB for MIDI and/or storage (depends on DS)

**Other interfacing:** V-Link for use with compatible video editors

**OS support:** Windows 98SE/ME/2K/XP, Mac DS 9/X

**File import formats:** WAV, AIFF

When the Roland V-Synth was announced at the 2003 Winter NAMM, it turned heads in the keyboard community. But I didn't see it as just a synth; I saw a hardware digital audio editor that just happened to have a keyboard attached. I mentioned that to some Roland guys, and they got a chuckle out of it.

Yet here it is sitting in front of me, and . . . it's a hardware digital audio editor with a keyboard attached, which is why it merits a review in *EQ*. We'll just hit on the highlights, though; if you want the details, there was a comprehensive review in the May '03 issue of *Keyboard*.

If you are into keyboards, note that this isn't a "workstation"-type product. There's no sequencer, and the 24 voices of polyphony dwindle as patches get more complex. But if you're the kind of person who likes to push the sonic envelope, the V-Synth might become your new best friend, and a bit of a secret weapon.

**THE TIME TRIP PAD IS JUST ONE OF THE MANY TOOLS THE V-SYNTH PROVIDES FOR MANIPULATING SOUNDS. IT EVEN LETS YOU PLAY THROUGH PORTIONS OF THE SAMPLE IN FORWARD OR REVERSE.**

## SOMETHING OLD, SOMETHING NEW

The V-Synth isn't about some spectacular new synth engine, but rather, it integrates "Roland's greatest hits" — and some extra goodies — within a friendly interface. In particular, you'll find a lot of the VP-9000, an underrated time-/pitch-stretch processor that seems to have found its true calling. There are also COSM effects (chorus, reverb, and a "multieffects" section with both single and dual effects, including some great "lo-fi" options). Better yet, there's an audio in for realtime processing, not just sampling.

One major new addition is the Time Trip pad. This has a bit of a Korg KAOS pad vibe, but in addition to hands-on processor control, it lets you "move" forward and backward through a sample — a little like scratching, but without the pitch change. Throw in the D-Beam controllers for real-time tweaking, and this is a device you play as much as program.

## INTERFACING

30 MB of PCM ROM waveforms load into 50 MB of RAM on power-up. But for recording enthusiasts, the ability to transfer samples to/from the V-Synth over USB is a big attraction (these can

also replace any or all of the "factory" waveforms loaded into RAM). I tested this with Windows XP, which recognized the V-Synth as another drive. From here you can drag AIFF and WAV files to the V-Synth, or drag out the V-Synth files for computer storage (but don't plan on using them, they're in a proprietary format). As to MIDI, the V-Synth shows up in sequencing programs as MIDI I/O (except with OS X, which is currently limited to storage functions; MIDI drivers are forthcoming). Unlike XP/2000/ME, Windows 98 cannot handle storage functions, only MIDI.

## THE PROCESSING

If you're not familiar with the VariPhrase process, it "encodes" the source signal (conceptually like the way Acid "Acidizes" a file), whereupon you can change pitch without affecting duration, change duration without affecting pitch, remove pitch information, which then lets you control pitch directly from the keyboard, and various other tricks. Like Acidization, VariPhrase isn't always perfect. But also like Acidization, sometimes pushing it beyond where it's supposed to go produces some cool effects. ►







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World Radio History

## Roland V-Synth

Of course, there are also envelopes, formant controls, etc. to warp sounds, as well as "cross-modulation" effects such as ring modulation, FM, and oscillator sync. What about filters? Although it appears they don't exist in the conventional sense, the COSM effects, which include several EQ and filtering options, are embedded in the voice architecture and are polyphonic (including compression). As these are useable by the external audio input, the V-Synth is also a major-league signal processor.

### IS IT FOR YOU?

If you've been waiting for something truly new in synthesis, here it is. Compared to traditional sample-based devices, the V-Synth lets you "get inside" the sample (thanks to the VariPhrase and Time Trip options) in novel and useful ways. Part synthesizer, part signal processor, part digital audio editor, part performance device, but with each element integrated oh-so-smoothly, the V-Synth is the first mainstream keyboard instrument I've seen that has ventured this far — and this successfully — outside the instrument's traditional boundaries.

A review of this length, or even ten times this length, can't really do justice to the V-Synth. But it can give you a heads-up: If you're into digital audio editing or sound design, and want to check out a truly original variation on either concept, give the V-Synth a spin. There's absolutely nothing else like it. **EQ**

### Strengths:

- Novel, exciting, broad palette of creative signal warping options
- Time Trip pad lets you "get inside" samples and manipulate them
- Coaxial and optical stereo digital interfaces
- Painless, obvious user interface
- USB interface for Mac/Windows computers
- External stereo audio input for processing or sampling
- Greatly reduces the distinction between "editing" and "performing"

### Limitations:

- Non-expandable internal RAM
- No USB file storage with Windows 98/98SE
- Layering patches by overlapping zones is not possible
- Complex patches reduce polyphony



Photo courtesy of Ed Dzubak, three-time Emmy winner and enthusiastic REALTRAPS customer.

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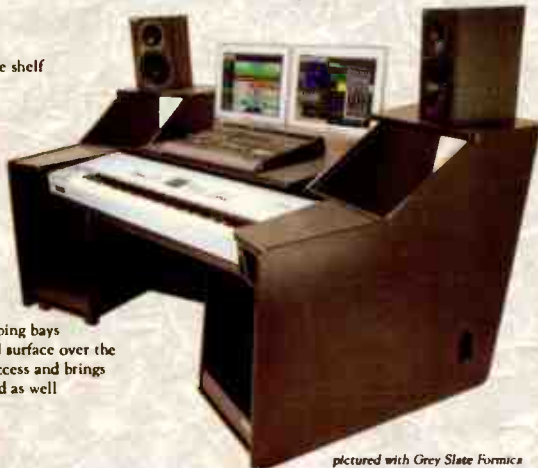


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World Radio History

# Little Labs IBP (In-Between Phase)

by Craig Anderton

**Price:** \$550 (with carrying case)

**Contact:** Little Labs,  
[www.littlelabs.com](http://www.littlelabs.com)

## Strengths:

- Unique phase variation functionality
- Provides re-amping
- Also serves as DI box
- Quality construction
- Can really help clean up certain tracks

## Limitations:

- Line in is XLR only (no 1/4")



When you mic an acoustic instrument with two mics, you likely spend a lot of time on mic placement to minimize phase cancellations or additions. Wouldn't you rather just set the mics where you want them, and twist a knob to alter their phase relationship?

Meet the IBP, which can vary phase continuously from 0° to 180°. This can also help tune out some "bleed" between mics, or "solidify" the signal that results from miking a guitar amp and going direct. (For more info on phase, check out "A Closer Look at Time and Phase Corrected Loudspeaker Systems" at [www.littlelabs.com/IBPMAN.pdf](http://www.littlelabs.com/IBPMAN.pdf).)

This mono, all-analog box has XLR in

(balanced or unbalanced; I would have preferred an XLR+1/4" combo jack), 1/4" instrument in with 10 meg input impedance (great for direct box functions), buffered 1/4" instrument out, and 1/4" re-amp out that converts a +4 line signal to instrument level. The instrument in has a gain trimpot (12 to 26 dB), and the re-amp out has a level trim.

The only knob is for phase change. Switches include line/instrument, output transformer ground lift, bypass, phase invert (like your mixer's phase switch), phase range (0° to 90° or 0° to 180°), and a "phase center" switch that weights the adjustment toward a broadband, or more low frequency, range. As phase is frequency

dependent, this can help optimize the effect.

Of course, changing phase by itself makes no difference to the sound (besides, the IBP is essentially transparent). But once two different signals come in from the same source, the fun begins. The effect can be almost inaudible or dramatic, depending on the mic, placement, etc. At its most effective, changing the phase control is almost like adjusting focus on a camera. Whether this is worth \$550 is your call, but especially if you record a lot of acoustic instruments with multiple mics, this box can "do-cloud" your sound without EQ, delay, or digital editing. (Note: For phase change only, the \$375 IBP Junior is the same box without re-amp or DI.) **EQ**

by Craig Anderton

**Price:** \$199

**Copy Protection:** User conscience

**Contact:** Enhanced Audio,  
[www.enhancedaudio.com](http://www.enhancedaudio.com)

## Strengths:

- Noise reduction and enhancement functions
- Real-time operation
- Easy to use for standard applications
- Sufficient depth for "problem" files

## Limitations:

- Some non-standard interface elements

This Windows-only, stand-alone program reduces noise, hum, clicks, scratches, and other gremlins, but also offers enhancement options such as equalization, dynamics, and even reverb. Originally designed to restore wax cylinder and vinyl recordings as well as for forensics, DC5 has since broadened into a more user-friendly program.

There are two operational modes. FastEdit works on a

single file and offers several levels of undo. Classic Mode opens up both source and destination files on screen, saving every change as you go. So, the original file is always available for comparison, as are different stages of the restoration process.

If you just want to get rid of garbage, DC5 is easy to use. Like most systems, continuous noise reduction requires sampling the noise, so the effectiveness of hiss reduction depends on how well the sample represents the noise to be removed. But DC5 can also go much deeper and do batch processing, de-clipping, dynamic (frequency-selective) noise reduction, file conversion, and "pencil editing" for clicks; it can even serve as a programmable audio signal generator, and includes a spectrum analyzer. And there's

much more, as explained in the comprehensive manual.

DC5 calls each process a "filter," but an additional "multi-filter" mode treats each filter as a plug-in for a series chain. You can preview each effect individually, or all simultaneously — powerful stuff.

There are some interface quirks. Undo is Ctrl-U, not Ctrl-Z. Pressing the space bar starts the file from the beginning; to play at the current cursor position, you have to right-click and select "Play from here." And you can't just zoom in. You have to select a region, then zoom in so the selection fills the screen.

But these are minor complaints. Two files posted at [www.eqmag.com](http://www.eqmag.com) demonstrate click/scratch removal from ancient vinyl, and hiss reduction from an old cassette. The highly impressive results speak for themselves. **EQ**

web link



# Samson C•control

by John Krogh

**AS** more folks go “mix-erless”, obvious shortcomings present themselves. For example, how do you get a talkback mic feed out to the musicians in the tracking room? If you connect nearfield speakers directly to a stereo output pair on an audio interface, how do you monitor reference tracks from a CD player? Or what if all you want to do is fire up a synth to work on ideas — do you really want to power up the computer just for this?

One solution is C•control. It’s one of five stylish new “C Class” products from Samson, and is equipped with all the basic control room monitoring facilities you’d expect from a recording console. Housed in a sturdy, half-rack case, C•control is fitted with four pairs of source

inputs — three balanced TRS and one RCA. A possible setup, then, would have the monitor outs from an audio interface patched into the Mix In and a CD player plugged into the RCA, leaving the other two stereo balanced ins for synths, mixdown devices, etc. On the output side, there are two 1/4” stereo pairs and a stereo RCA out, along with three sets of L/R speaker outs and a L/R cue, which you could use for sending signals to a headphone amp.

On the front are a series of switches for monitoring the source inputs (all four can be monitored simultaneously), and enabling the three speaker outs. Either speaker A or B, plus C outs can be active simultaneously, and there are separate volume knobs for A and B, so it’s possible to

match levels between the two. The documentation suggests you connect Speaker C outs to a sub.

Another two buttons let you send a feed from the built-in talkback mic to the cue and 2Track outs. In my studio I was able to sit roughly 12 feet away from the talk-back mic; it had no problem picking up my voice when I used a footswitch to activate the mic.

As for sound quality, I noticed no signal degradation or coloration. What’s more, C•control had enough headroom for slamming mixes. During the time I used this box I found it to be a solid, effective solution for a variety of monitoring and signal routing jobs. I encourage you to give it a serious look. **EQ**

**Price:** \$99  
**Contact:** Samson,  
[www.samsontech.com](http://www.samsontech.com)

**Strengths:**

- Variety of I/O choices
- Separate headphone out with volume knob
- Compact
- Affordable

**Limitations:**

- No XLR connectors
- Wall-wart power supply



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# Wacom Cintiq 15X

by Kent Carmical

**Price:** \$1,899

**Contact:** Wacom Technology Corporation, [www.wacom.com](http://www.wacom.com)

#### Strengths:

- Incredibly bright display
- Excellent off-axis view

#### Limitations:

- Way expensive
- Not tremendously useful in audio applications



**C**intiq is a super high-quality 15" LCD (an 18" version is also available) that does double duty as both a monitor *and* input tablet. You can draw directly on the screen with its cordless pen, and perform all the standard mouse functions, such as double-clicking and accessing menus. The 15" screen has a viewing area approximately equal to a 17" CRT, and is the brightest LCD I have ever seen, but it doesn't fatigue the eyes, even after

hours of use.

Cintiq's screen also has an excellent 160-degree viewing angle horizontally and vertically, so the visuals don't crap out when you get the slightest bit off axis.

I hooked it up to my G4 Mac and had no trouble installing the support software. Once minor setting for brightness, pen pressure, and vertical/horizontal position were made, I was ready to see if the pen was indeed mightier than the mouse. I fired up Pro Tools and got my first surprise: It takes longer than I thought to get used to. Using a pen to do the standard dialog boxes and OS responses was an awkward experience. I kept blowing the double-clicks, and selecting things I didn't want. Even the tasks that you'd think best lend themselves to a pen instead of a mouse — like drawing automation curves — were exercises in frustration. As much as I wanted Cintiq setup to fit into my studio routine, I found myself returning to the mouse time after time.

Cintiq is fantastic for graphics, however. Every graphics or animation friend I know wanted this thing after using it for a couple of seconds. The problem with Cintiq and music apps is that software developers have had years to optimize their U.I. for mouse usage (and/or mixer-like control surfaces), and an alternate input device such as this is about as useful to the audio producer as a Telefunken mic is to a graphic designer. Perhaps if your scene is intense forensic audio, where you're doing a lot of editing at the waveform level, you could justify the learning curve and expense, but for everyday DAW work, Cintiq remains an interesting curiosity for those who just have to have the latest computer hardware bling. **ED**

# Grace Design Model 901

by Mitch Gallagher

**Price:** \$1,495

**Contact:** Grace Design, [www.gracedesign.com](http://www.gracedesign.com)

#### Strengths:

- Awesome sound quality
- Built-in digital-to-analog converter
- Supports high sample rates/resolutions

#### Limitations:

- Expensive



**H**eadphone monitoring is a way of life for many project studio owners.

But even if your studio lives in a space where you can crank it up, you probably still use headphones for tracking and for referencing. Given this, it's surprising that we don't pay more attention to the amps that drive our 'phones — often we'll plug into the jack on the front of a mixer without giving it a second thought. Granted, these headphone outs work fine, but are they delivering all the audio quality we need? For those who want to take their headphone listening to the audiophile

limits, Grace Design has created the Model 901 headphone amplifier.

The 901 is a 1/2-rack box, and looks similar to the rest of the Grace family: heavy metal front panel, machined level knob, etc. But there's more to the 901 than meets the eye: The unit has both analog (balanced XLR and unbalanced RCA) and digital (AES on XLR, and S/PDIF on RCA and optical) inputs. Supported sample rates extend to 96 kHz with 24-bit resolution.

With the 901, Grace's typical attention to detail extends to things such as using a 24-step rotary switch for level control rather than dual-ganged pots, which can have tracking imbalances between the channels. With the 901, channel tracking is within 0.05 dB. Noed further proof of how much attention to quality goes into one of

these boxes? The 3 dB down points are spec'ed at 4 Hz and 600 kHz (22 Hz to 120 kHz  $\pm 0.25$  dB); wide enough frequency response for most applications!

In a word, the 901 sounds *amazing*. I'd never heard such full-range, detailed, dynamic sound from headphones. There's plenty of power to drive whatever phones you plug in, and the sound stays clean at every volume level.

With the Model 901, Grace Design has set a new standard for pro headphone amplification. Functionally, and most important sonically, the 901 is the top of the heap, bar none. Yes, all that quality costs some cash, but if you depend on headphones for tracking, mixing, or reference, the investment is worth it. **ED**

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*~ Steve Page, Barenaked Ladies*



Steven Page and Jim Creeggan with Primacoustic's Peter Janis.

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# Sounds



## AMG Dirt Bag — Simeon

**Contact:** AMG, [www.amguk.co.uk](http://www.amguk.co.uk), [www.reasonrefills.com](http://www.reasonrefills.com)

**Format:** audio CD (also available in REX2 format on CD-ROM)

**Price:** £60 (\$99 approx.)

Down to the audio junkyard we go for this dusty, rusty collection of lo-fi loops. Wheezy basses dunked in distortion, filthy beats that sound like they've been left in the oven too long. . . . But don't get the wrong impression: These grooves are deep, funky, and ready for the club.

In all, *Dirt Bag* offers 77 tracks — mostly drum and drum+music loops in construction-kit format. "The library is aptly named," says John Krogh, who reviewed *Dirt Bag* for our sister mag *Keyboard*. "There's nothing hi-fi about it. A definite vinyl flavor permeates many of the tracks." Tempos span from 80–160 bpm, but the majority hover at around 100 and 120.

I'm a fan of construction-kit formatting, but with *Dirt Bag I* found myself tapping the individual components way more often than the full mixes. "Jazz Grunge," for example, didn't do much for me as a composite, but the solo drum loop was a definite keeper. Ditto for "Epicentre" — a so-so mix, but a kick-ass "slice/dice" drum loop. Don't miss the folder of solo bass riffs. Monstrous!

"In general, these loops beg to be put to use in rap rock, dark house, and electronica in the vein of The Crystal Method," adds John. "On the whole, programmer Simeon captures great feels and textures, although many beats sound as though they were assembled with the help of ReCycle; not necessarily a bad thing. A couple of beats suffer from ragged, herky-jerky programming that doesn't sound intentional. Nonetheless, there's a lot of track-worthy material to choose from — plenty of gritty, electro-friendly gems to be mined."

Indeed there are. For me, it's the parts, not necessarily the sum, that make *Dirt Bag* an A-list Refill. I know for certain that it will see plenty of action in my studio. —GREG RULE



## LAPJOCKEY Flatpack

**Contact:** Lapjockey, [www.lapjockey.com](http://www.lapjockey.com)

**Format:** Reason Refill

**Price:** \$80

As Reason's popularity continues to rise, so too does the need for Refills. We've seen plenty of conversions — products that previously existed in other formats — but now we're seeing an emergence of libraries created exclusively for the top-selling app. Lapjockey's debut product *Flatpack*, for example. . . .

In one fell swoop, *Flatpack* turns Reason into a

virtual classic studio of sorts, chock full of rare analog synth and drum machine recreations, and a few bonus bells and whistles sprinkled in. There are 16 classic drum machine kits (606, 707, 808, 909, etc.), 14 synthetic kits (made from analog synth classics as Korg's MS20s), over 200 REX loops (acoustic and electronic beats, synth riffs, 303 bass lines, and arpeggios), 60 NN-XT patches and sample sets (including classic keys such as Rhodes and organs, plus pads, Hohner Melodica, and so on), 50 NN-19 patches and sample sets (VP-330, Casio VL-Tone, etc.), 100 Subtractor patches, 100 Malström patches, and 200 MB of additional ambient and evocative textures stored as WAV data.

With so much on offer, *Fat pack* is more like it. But how does it sound? To be frank, *Flatpack* kicks butt. The sampled material is crisp and clean. The kicks are booming, the snares sharp and snappy. Love those pings, whooshes, and effects. Lapjockey touts their attention to detail in this department, and how their vintage instruments were recorded through prized tube preamps and 24-bit Apogee converters en route to Pro Tools. And it shows.

Tech editor John Krogh has been using *Flatpack* on a variety of commercial music sessions lately. Here's what he had to say: "In addition to loving the sounds, which range from tweezy and sizzly to dark and mysterious, I appreciate the inclusion of song starter session files — the kits and sounds are already organized, making it easy to get a track going right away. I also love the way they've set up effects configurations that allow you to process audio through

Malström's filters and wave-shaper. Modern lo-fi is but a few parameter tweaks away."

Jury says: Thumbs up to *Flatpack*. And there's more where that came from — Lapjockey plans to trot out more refills in the future. —GREG RULE

[Late breaking news from *LapJockey*: "We just finished the log-in section, so purchasers of *Flatpack* will get an exclusive set of kits produced by Daniel Miller (Mute Founder) free of charge."] ]



## 3DGG Super Funky Loops For Super Funky People

**Contact:** 3DGG, [www.3dgg.com](http://www.3dgg.com)

**Format:** WAV CD

**Price:** \$24.99

Mariah Carey has built her live show on Gigi Gonaway's lumberjack drumming for over a decade. Now Gigi is serving his funky loops to the masses on *Super Funky Loops For Super Funky People* — and at a super delicious price: just 25 bucks (including shipping & handling).

In total, 212 drum loops and 10 individual drum hits are provided. The loops are presented in a songwriter-friendly format: by verses, choruses, bridges, outros, and fills. Eight styles are covered: jazz, Latin, swing funk, fusion, 6/8, 7/4, and funk — all provided in dry and ambient versions. Everything is solo live drumming, except for the assortment of layered, programmed,



and processed loops in the Various Sequences folder. For each of the eight main styles, Gigi plays several 8-bar options in three tempos (90, 100, and 120 bpm).

There's a lot to mine on this CD. Check out some of the tricked-out offerings in the Fusion folder, for example. *Keyboard* editor Ernie Rideout loved the rock loops. "Solid," he said in his *Keyboard* review. "And all of the seven other styles are extra funky." It's a musical collection presented in a musical format.

On Gigi's website, he writes that "many loop CDs on the market today are stiff and lack the sound and feel of playing live," and that he "hopes to set a new level of quality for drum loops." His feel on this disc is live and

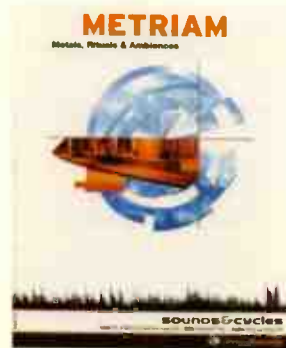
funky, no doubt. His skills are sharp and impressive, but a few of the grooves get a bit too loose in spots. The kick on "Swing Funk Dry Chorus 120" lags noticeably. Same problem on "Swing Funk Dry Verse 100," where the kicks and snares aren't consistently in the pocket. These can be easily fixed, but they won't help substantiate the claim of "setting a new level of quality."

All the same, many producers are bound to embrace the ultra live feel of this disc, as it will surely add a more realistic vibe to their songs. Ernie applauds the friendly formatting, saying: "These loops make it easy to create killer song-oriented live drum tracks." For \$25, it's hard to go wrong here. Check out Gigi's site for more info, and to order a copy. —GREG RULE

**PRIME SOUNDS**  Metriam

**Contact:** PrimeSounds, U.S. dist. by Big Fish Audio, [www.bigfishaudio.com](http://www.bigfishaudio.com)  
**Format:** 1 CD Audio, 1 CD WAV and REX2  
**Price:** \$99.95

The cover says "Metals, Rituals, and Ambiences," which is on target. Some of this has an ethnic vibe — assuming the ethnic tribe in question used synthesizers. Other elements have a more sci-fi feel. While seemingly intended for spicing up dance and chill-out productions, there are also soundtrack and ambient possibilities here.



The Drumwise folder has 79 files of ethnic-sounding drum loops, at 80, 90, 120, 130, and 140 BPM (each loop is different, not repeated at different tempos). Soundwise (69 files) and Rhythmbeds (52 files) use the same tempos, but are more washy/melodic in nature. The Pads folder holds 24 files of non-rhythmic, fairly

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## Sounds

long sound effect and atmospheric pads. Finally, the Drumssets folder offers 71 files of one-shots suitable for adding accents. I found them handy for fleshing out the rhythmic loops with more dance-oriented kick parts.

Of the 295 WAV files (also on the audio CD), only 88 are translated into REX2 format although I understand why — sounds like pads are almost impossible to “Rexify.” Other limitations are that the WAV files aren’t acidized, and that no key information is provided for those loops that are tonal in nature.

Given the non-traditional nature of this set, check out the short piece I put together using Metriam samples at [www.eqmag.com](http://www.eqmag.com). It only scratches the surface, but

gets across some of what this CD is about — original, smart, and useful construction elements. —CRAIG ANDERTON



### SONIC FOUNDRY Stylus Pressure

Contact: Sonic Foundry,  
[www.sonicfoundry.com](http://www.sonicfoundry.com)

Format: Acidized WAV files

Price: \$59.95

Urban sample CDs aren’t exactly rare, but a well-done construction

kit is always welcome. *Stylus Pressure* is neither an overachiever nor underachiever, but a solid, credible collection of vinyl-oriented tracks. Its true value surfaces when you mix and match among the 37 construction kits; the quality acidization minimizes artifact problems when using loops with different tempos.


The 516 MB of sounds fall into two main folders. “Kits” is the construction kits, each with typically around one to two dozen files (there are 654 kit files total). Unfortunately, there’s no key signature info for tonal loops. Among the loops (drums, bass, guitars, fx, etc.) are some single drum hits (snare, kick, hi-hat) to beef up loops, or provide a

foundation for custom loops.

The “Combos” folder has 37 loops, each built from a construction kit. They’re ideal for auditioning a kit’s feel, but the terminally lazy can just grab a few of these and loop them for quickie soundtracks.

Overall, the CD is pretty much what you’d expect, although there’s a certain authority and power to the loops (perhaps it’s “the vinyl factor”). I wasn’t too knocked out by the bass parts; for me it’s the guitars, effects, and drums that carry the load.

Pretty, smooth jazz stuff? Nah. But it isn’t so nasty as to be overly limited. *Stylus Pressure* is intense and muscular — for a demo I did using some of the samples, surf to [www.eqmag.com](http://www.eqmag.com).

—CRAIG ANDERTON 

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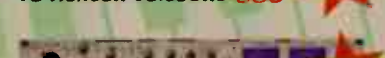
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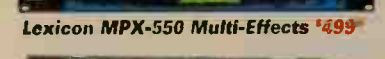
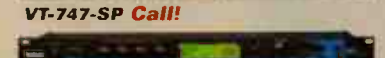
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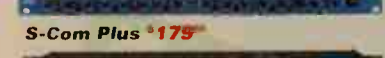
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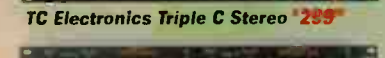
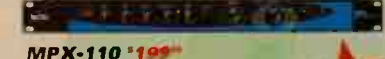
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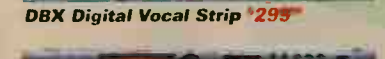
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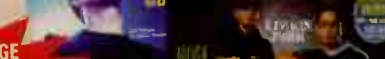
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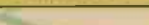
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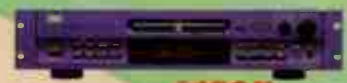
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**Shure KSM27/SL**  
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**AKG C-1000S**  
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World Radio History

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## COMING ATTRACTIONS

## Yamaha 01X

mLAN Gets a New Star

by Greg Rule

**What is it?** A FireWire/mLAN-based control surface and analog/digital/MIDI interface.

**Who Needs it?** Mac or Windows audio users who crave hands-on control, mixes to go, and then some.

**Why is it a Big Deal?** Some interesting twists on a red-hot theme. And, hey, another major hardware player gets deeper into computer recording.

**Shipping:** 3rd quarter 2003

**Price:** \$1,699

**Contact:** Yamaha,  
[www.yamaha.com](http://www.yamaha.com),  
[www.01xray.com](http://www.01xray.com)

For decades Yamaha has rolled out one world-class hardware product after the next. The forthcoming 01X continues that tradition, but with a significant twist. It looks like a mixer, and, indeed it is, but it also integrates with Macs and PCs via mLAN/FireWire IEEE 1394 to provide low-latency audio I/O, multi-port MIDI I/O, and control surface functionality. The lineup of 01X DAW support includes Steinberg Cubase SX and Nuendo, Cakewalk Sonar, Emagic Logic Audio, MOTU Digital Performer, with others in the works. It also adheres to Mackie and Logic Control protocols, and the many applications such as Propellerhead Reason that support Mackie Control. Functions that can be controlled directly from the 01X include track arming, transport control, plug-in editing, mixing, window selection, and more. The 01X can also be used to control a range of software instrument parameters as well.

But there's more to the story. Once you've whipped up a DAW mix with the 01X, you can transfer a mirror image of the hardware data to Yamaha's VST- and AU-compatible 01X Channel Module, that mimics the hardware DSP and functions of the console, and lets you copy parameters from Studio Manager directly into your VST host app. This means you can continue to work on the track as-is without having the 01X tethered to the computer — if you had to finish your mix on a flight via laptop, for example. Ultra handy. And there's *more* software that comes with 01X. A suite of VST and AU effects plug-ins is provided with 01X, offering enhanced vocal processing, final mastering, and formant-accurate pitch correction.

As a mixer, the 01X takes full advantage of Yamaha's illustrious 15-year history in digital mixer manufacturing. It features motorized faders, Yamaha's newest high-quality mic pre's, and 48V phantom

power on the balanced XLR and TRS line inputs. "The 01X is built on the 96 kHz DSP technologies found in our flagship DM2000, DM1000, 02R96, and 01V96 pro digital mixers," says Yamaha. "It not only works as a mixing interface for your computer, but also as a total recall, stand-alone digital mixer, well suited for live performances. This added capability makes the 01X the most cost-effective total recall digital mixer we've ever developed."

The 01X is equipped with a solid selection of dynamics processing, including compressors, gates, and limiters, as well as 4-band parametric EQ for all of the 28 digital mixing channels, and dual 32-bit effects processors, which can take a load of strain off your host computer.

Yamaha is quick to tout the advantages of mLAN over standard FireWire communication. "mLAN is a true network," they explain, "not just a point-to-point connection system; up to 63 mLAN compatible devices can be linked together. Being based on mLAN, the 01X can be expanded to add more channels with optional mLAN channel expansion units, meaning that the system can grow with your needs." Up to 16 extra analog inputs can be added to the 01X over mLAN, with the 01X internal digital processors and mixing channels handling the routing/effects/EQ and dynamics.

Cheers to Yamaha for making such a notable new splash into the computer-recording waters. **EQ**



DALE

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Products at Dale PG.5

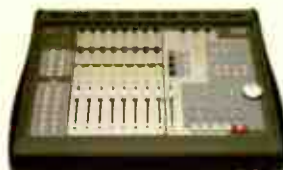
Summer 2003

Issue #4

AVIOM A16-Mixer



Tascam FW 1884



NUENDO 2.0 Media Production System



## Pedal Meets the Metal:

Dale and Digidesign Team Up on Pro Tools

When Dale Pro Audio's unique brand of in-depth industry knowledge combines with some of the most sought-after pro audio technology available today, the result can only be one thing:

exactly what the customer needs. This is certainly true with the recent announcement that Dale Pro Audio has joined the ranks of the Authorized Digidesign Dealer community, offering the full line of Pro ToolsIHD TDM systems in addition to Digidesign control surfaces and Focusrite hardware.

Dale's Pro Tools inventory includes the entire Pro ToolsIHD family: Core and extended systems (Pro ToolsIHD 1, 2 and 3) and expansion options, 192 I/O and 96 I/O audio interfaces, and MIDI I/O, PRE and SYNC I/O peripherals units. In addition, they also carry ControlI24 and Pro-Control control surfaces as well as the full line of acclaimed Focusrite signal processing devices. With Pro ToolsIHD as a foundation, Dale is able to offer cohesive customized pro audio and post solutions suitable for everyone from home studio owners to permanent and mobile full-serv-



Control | 24

ice professional facilities.

A family-owned business for nearly fifty years, Dale's commitment to complementing a broad spectrum of professional products with deep experience and superior customer service makes them an ideal source for Pro Tools systems. Dale's specialists in broadcast, recording studios, project and home studios, and contracting/installed sound, comprise one of the most experienced pro audio sales groups in the industry.

Dale's sales team includes several people with extensive Pro Tools experience including Tim Finnegan, a recent addition to the Dale staff, and most recently the general manager of Sam Ash Professional in New York City. Alex Guerra, another relatively new member of Dale's sales team, was instrumentally involved in Pro Tools configuration and training at Sam Ash Professional and later at VCA in NYC. James Bentley, Dale's customer service representative is an experienced Pro Tools user, and Dave Roman, Dale's applications

Digidesign Pro Tools in Dale demo room  
World Radio History

Continued on pg. 6

## THE DALE THINK TANK

Expert Analysis, News &amp; Opinion

## Michael Bogen

ON...

Convergence and mergers in the Pro Audio industry. Where do we go from here?



Michael Bogen

## David Roman

ON...

Computer Recording. Regardless of platform, application, fixed point or floating point, they may still not be end-all solutions.



David Roman

## Tim Finnegan

ON...

The prevalence of computer-based digital recording and the maturity of software-based plug-ins.



Tim Finnegan

# On Convergence and Mergers



The professional audio marketplace has not been immune from the pattern of mergers and acquisitions changing the face of American and worldwide business. This pattern is visible in broadcast, with the FCC allowing even more consolidation

should their latest rulings stand. The trend is also evident in markets as diverse as the L.A. post community and the Nashville studio community. The pattern is perhaps most evident in the digital media software segment of our industry, where the convergence of audio and video applications has prompted the purchase of several leading audio production software manufacturers by their larger counterparts in video, production, and computing. Market-leading Avid set the pattern with its acquisition of Digidesign several years ago. Late last year, Apple brought Emagic in-house. Earlier this year, Pinnacle Systems acquired Steinberg Media Technologies, maker of Nuendo and Cubase. Just last month news emerged that Sony Pictures Digital has agreed to acquire Sonic Foundry's desktop software division. In the same month, Syntrillium Software, maker of Cool Edit Pro, was snapped up by Adobe Systems.

While these companies are all major players in professional audio and video production, what's at stake are both consumer and pro dollars. The lure of the larger consumer marketplace, the increasing sophistication of personal computers, the availability of tools like affordable DVD burners, cheap hard drives and digital cameras and camcorders, and the increasing sophistication of the consumer themselves combine to create a fertile growth market

for manufacturers. Just as the post production pro using Pro Tools has benefited from the incorporation of Avid video technology into the DAW platform, consumers stand to benefit from the bundling of audio solutions and video products in all-in-one packages.

While that's all well and good for the consumer, what does it mean for the working professional? Will resources be targeted towards the consumer market to the detriment of the professional products? History offers a couple of examples that illustrate the possibilities. One highly visible manufacturer, while making sophisticated audio and video authoring platforms and editors, also created a line of increasingly profitable consumer products. As their pro market cooled down, the consumer market heated up, to the detriment of their professional clients until the pro division was spun off into a separate entity.

On the other hand, Digidesign has not only created consumer level versions of their products, including Pro Tools LE and the free-for-download Pro Tools Free, but they've vastly improved their professional products simultaneously with the introduction of Pro Tools HD.

The visual-based entertainment and computing companies that have made the recent acquisitions have all stated their intent to keep their new acquisitions somewhat autonomous, while sharing and merging technologies where the user will benefit. For example, Sony's acquisition of Sonic Foundry's desktop software follows the recent retail release of Sony Pictures Digital's Screenblast, Movie Stu-

dio, and Screenblast Music Studio video and music-mixing applications. These products were created in conjunction with Sonic Foundry's software team and likely give a hint at future directions for their combined efforts. Pros might expect to see active bundling of Sony Vaio computing products with Sony/Sonic Foundry software, much as Apple, as a result of their Logic acquisition, is creating a market for its computers with their Final Cut Pro products—now incorporating more audio features and professional perform-

The professional audio marketplace has not been immune from the pattern of mergers and acquisitions changing the face of American and worldwide business.

ance than ever before.

The professional has always required and demanded more sophisticated tools than the consumer, even though the reduced cost of high-quality, powerful hardware and software have fostered significant maturing of the consumer market and products. The working professional, while perhaps not a mass market for manufacturers, is still a high profile market and a willing test bed for new technologies and techniques. As long as the working professional can count on manufacturers to acknowledge this symbiotic relationship, professionals will have the



## What About Stereo?

How many times have you come back from a field recording job and thought about stereo capture? Probably the issues that have kept you from it are lack of convenience, sound that doesn't compare to your best shotguns, and perhaps cost. Although there have been several different options available, none have considered all these problems at once. Sure,

there's the amazing-sounding Neumann RSM 191, but it's not cheap. And there are inexpensive options, but most don't sound good. And even Sennheiser lets you set up a piggy-backed figure 8 mic, and it's a great-sounding system, but it's not so easy to set up and use in the field.

All that has changed now with the introduction of the Sennheiser MKH418-S MS stereo shotgun mic. It is the same physical dimensions of their benchmark MKH416 short shotgun, so it can be used with all the same accessories. It sounds great, and it's easy to use. The output connector is a standard 5-pin XLR male plug, with each capsule output available separately. This is a big bonus when the goal is to capture MS stereo

in raw format for mixing later in post. Especially with film, this is a super feature because it's hard to tell how "wide" the sound will need to be to match picture.

And since there are a number of different sources for XLR5F to XLR5M, and also XLR5F to 2xXLR3M, your cabling and connector options are widely available. In addition, there are a number of third party sources for MS matrix devices if need be. For the ultimate in sound quality, the rack-mounted True Systems P2 Analog mic pre-amp is a fine choice. For something more portable, the Sound Devices MP2 works as a mic preamp, a matrix box, a power supply and a monitoring system (with the addition of headphones, of course). All from battery power!

In terms of using the MKH418-S, it is no different than a standard shotgun in terms of accessories, placement and general practice. If you've never used a stereo mic, however, you'll be amazed at how much more dimensional the pickup is, even with supposedly "mono" sources such as single instruments or voices. And by recording both capsules direct (i.e. "raw"), you can always simply use the "M" channel for standard,

## Spencer Joins Dale Pro Audio as COO



Pro audio industry veteran Courtney Spencer has joined Dale Pro Audio as chief operating officer. Prior to his appointment at Dale, Spencer served as vice president and

general manager of professional audio for Sony Electronics.

"We are very fortunate to have the opportunity to add Courtney to our team," said Dale Pro Audio CEO Michael Lager. "He has had a distinguished career in pro audio, and brings a wealth of knowledge and experience."

Spencer had been working with Dale as an independent consultant over the last year and a half, and played a key role in improving the overall management strategy of the company.

"In his new role," added Lager, "Courtney will assume overall day-to-day management of the company, and will play a vital role in leading Dale into what we see as a very promising future."

"Dale has experienced significant evolutionary change in the last year or so," said Spencer. "We have revamped and re-launched the web site, added some outstanding veteran sales people, added new product lines including full-line Pro Tools, and rolled out several marketing initiatives including the launch of Dale E-News just a year ago. I am honored to join this team, and look forward to helping build the company to new levels of success."

In addition to his position at Sony, during his 25 years in the professional audio industry, Spencer has held several key management positions including vice president of sales for WaveFrame Corporation, and vice president and general manager of Martin Audio Video Corp. Spencer's career started in the production end of the business, producing radio advertising and music for commercials with Mark Century Corp, a major radio production and syndication company, and later with HEA Productions and Labunski Productions.

## Quality Field Recording

The Marantz Professional PMD670 now provides recording solutions for quality field recording and long-term event recording all in one unit. The PMD670 is a compact flash recorder that can handle various levels of MP3 or MP2 encoding or uncompressed 48K DAT quality recording with no moving parts. After a recording is completed, connect a USB cable to the unit and it will appear as an external drive on your computer. You can then select the recorded file and transfer the audio into your computer in minutes instead of real time which will save hours in the studio!

Common applications for uncompressed .wav recording are: field recording for



reporters, audio recording for video, Foley/sound effects, and live concert recording. The Compressed MP3 recording modes allow up to 75 hours of continuous recording on a 1 gig compact flash card.

A popular application for this mode is to record an entire day-long event or conference without changing the media. Users can store it on a computer using CDR, and then archive, transcribe and post the information on the web. The Marantz Professional PMD670 has a retail price of \$899.

## Plug-ins... It's All Inside!

The process of audio production has changed. The equipment needed to outfit a 24 track studio has traditionally cost at least a hundred thousand dollars,

and often LOTS more! Powerful pro capabilities can now be obtained for less than that, and often LOTS less! With the prevalence of computer-based digital recording systems of various types, many audio and software manufacturer

ers have been filling the need for more tools to use with these systems. Software-based plug-ins have certainly matured and found acceptance in this new world of audio production. The result has meant amazing capabilities for much less money than their rack-mounted counterparts cost, and all performing their audio magic hidden neatly behind the computer's display monitor!

While all facets of the audio production industry make heavy use of all types of plug-ins, here is where some have found particular homes:

Music production studios make use of pitch and harmony processors to correct and add vocals (Serato Pitch 'n Time, Wave Mechanics UltraTools Bundle w/Speed, SoundBlender, PurePitch, and Pitch Doctor). Microphone modelers allow the approximation of mics you might not have handy (Antares Microphone Modeler). The same goes for plug-ins that create various electric guitar sounds by combining almost any combination of amplifier heads and speaker cabinets (Line Six Amp Farm, IK Multimedia AmpliTube). Delays, reverbs, EQ's, and dynamics processors from companies like Eventide, TC Electronic, Sony, Focusrite, and many others bring the best of their famous

Continued on pg. 6



## dbx Professional Products Utilized on Four Out of the Five Top Grossing Tours in 2002



dbx Professional Products recently announced that key dbx products have played an integral part in four out of the five top-grossing tours of the previous year. The top touring acts included Paul McCartney and the Rolling Stones and grossed a staggering \$330 million plus in ticket sales alone.

Paul McCartney tops the list with more than \$107 million in ticket sales with dbx DriveRack, Blue Series and vintage 903 series product used in the front-of-house and monitor rigs. The Rolling Stones filled the number two position with almost \$88 million in sales, using dbx DriveRack, 160SLs and 160 Compressors for front-of-house and monitor applications. Cher's latest

tour came in third with over \$73 million and used dbx 160A Compressors in the monitor rig. The fourth highest grossing act was the Billy Joel and Elton John tour with over \$65 million in ticket sales, which used dbx 160 Compressors for both the front-of-house and monitor rigs.

For the Paul McCartney Driving tour, FOH engineer Paul "Pab" Boothroyd was quoted as saying: "I use dbx on everything I do and it's all over the place here. Every now and then, you come across a piece of gear that makes a big difference to your job, and the 160SL Blue Compressor was one of those for me."

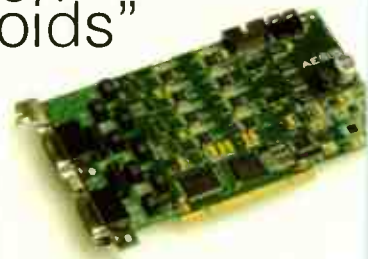
McCartney monitor engineer John Roden put the DriveRack 442s through an extensive sound test before his final decision was made. "I'm using a dbx DriveRack for my outboard EQ which is new for me, and it's certainly something I'll be asking for in the future," stated Roden.

## Lynx AES16: "Jitter Killer on Steroids"

Over the last two decades, the computer has gone from being a novelty in audio production to being as crucial as mixers, microphones and speakers. Five years ago David Hoatson and Bob Bauman founded Lynx Studio Technology to manufacture high-end soundcards that would provide analog and digital audio from a PCI card that would rival, even surpass the quality of other pro-level audio equipment. The LynxONE and LynxTWO PCI interfaces have become the pro standard for computer audio.

Now, Lynx is filling another high-end need with the new AES16 192 kHz Multichannel AES/EBU Interface. The AES16 is a half-size PCI card that provides 16 channels of 24 bit AES/EBU digital audio at 192 kHz sample rate in both single-wire and dual-wire AES modes. It includes a powerful hardware-based 32-channel digital mixer which is controlled by a feature-rich software application. Designed for integrating digital consoles, multichannel A/D and D/A converters, hard disk recorders, digital audio workstations and other digital audio equipment, the AES16 is compatible with Windows and Macintosh operating systems.

The AES16 is the first product to incorporate SynchroLock, a proprietary Lynx technology, that allows the AES16 to output very low jitter digital audio from severely degraded signals. This insures bit-perfect digital transmission and translates into very low distortion in signals converted to analog.

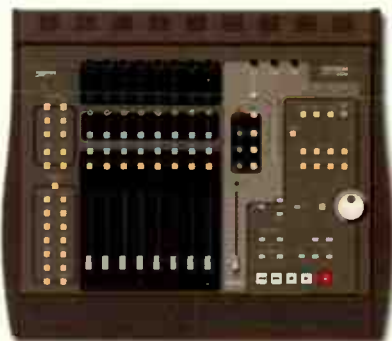


# Featured Products Available at Dale Pro Audio

## AVIOM A-16 Personal Monitor Mixing System

Finally there's an answer to the age-old problem of the bad monitor mix. Whether you're performing live or working in the studio, accurate monitoring of yourself and the musicians and singers around you is an essential part of the job. Aviom's Personal Monitor Mixing System can be used with floor wedge monitors, in-ear monitors, headphones, or spot monitors. With a better monitor mix, you can relax and concentrate on the most important part of the music - your performance. And, you can monitor at a lower volume. Aviom has developed a revolutionary monitoring system that can transmit sixteen channels of audio over a single, inexpensive, readily available cable - the same type of cable used in most computer networks. Not only can you have a better monitor mix, but you can have a better monitor mix night after night or even from song to song.

**LIST PRICE: \$439.95 DALE'S PRICE: \$389.95**



## TASCAM FW 1884

The FW-1884 is a professional DAW control surface and audio/MIDI interface that uses the FireWire high-speed data transfer protocol. With FireWire's high-bandwidth capabilities, the FW-1884 provides audio and MIDI interfacing to computers as well as control of DAW parameters via eight 100mm motorized touch-sensitive channel faders, one master fader, and controls for pan, solo, mute and select functions on each channel. Tactile control for four bands of parametric EQ, a weighted jog wheel and a variety of shortcut keys for various popular software applications are also included.

Co-designed with Frontier Design Group, the TASCAM FW-1884's DAW control capabilities include comprehensive mixing, automation, editing and navigation tools.

**LIST PRICE: \$1599 DALE'S PRICE: \$1299**

## NUENDO 2.0 Media Production System

The new Nuendo 2.0 version delivers a complete media production system, designed with the needs of the user in mind and meeting the demands of working professionals in all genres of audio production: composition, film, broadcast, music, post production, surround, game sound and multimedia. Nuendo 2.0 is the culmination of years of expert engineering research and has been developed to take the advantages of flexible, native systems to a new level of versatility. Nuendo 2.0 offers outstanding performance and the ergonomics and flexibility to channel that performance more effectively and creatively.

**LIST PRICE: \$1499.99 DALE'S PRICE: \$1299.99**



## Digi 002 Rack – FireWire-based Pro Tools LE Studio-in-a-box

Designed with both recording and performing musicians in mind, Digi 002 Rack is an affordable FireWire-based Pro Tools solution that packs all the punch of Digi 002 (minus the control surface) into a 2U rack-mountable unit. With Digi 002 Rack and Pro Tools LE software, you'll have everything you need to create professional audio productions with the ease, power, and flexibility intrinsic to the Pro Tools family. And because it's FireWire-based, Digi 002 Rack offers portability that makes it equally viable for studio and live applications.

**LIST PRICE: \$2495 DALE'S PRICE: \$2195**



## TC Electronic Powercore FireWire

Serious Power for Native Audio Workstations, PowerCore is the open DSP-platform for rackmount-quality processing inside any VST or AudioUnit compatible audio application such as Logic, Cubase, Nuendo or Performer. The new PowerCore FireWire enables laptop users and professionals constantly on the move to take advantage of a wide selection of professional tools. Even complex mixes are possible with just a laptop and one PowerCore FireWire, offering almost twice the power of the PCI-card version!

**LIST PRICE: \$1795 DALE'S PRICE: \$1499**



# Computer Recording: End-All Solutions?

Digital Audio Workstations have come a long way since their creation, but regardless of what platform, which application, fixed point or floating point, they may still

not be end-all solutions. The graphical editing power that a computer provides makes them invaluable in the studio, and of course this is to say nothing of the processing power that can be had through plug-ins and virtual instruments. And yet,

I've heard lots of customers that run purely computer-centric studios say, "I feel like I'm missing something".

So what are they missing?

Well, it could be several things depending on the demands of the engineer and the clientele. One piece of

advice I like to dispense is: use outboard compression for tracking. After all, compression in the analog domain prior to AD conversion allows you to optimize the dynamic range of your signal before it passes through conversion. Use your choice of compressor to get the greatest resolution onto your recorder of choice. Then use software compressors to your hearts content during mixdown. A very prominent producer/engineer told me the other day that he likes to see how hard he's hitting everything, especially his converters. Watch your analog meters as well as your digital meters to maintain a good signal to noise ratio and maximum digital resolution. Then there's the mixdown. If you are lucky to have enough decent quality outputs on your computer try mixing outside the box. Pull that good old analog mixer out of the closet and put it to work. If you don't like your console's EQs then use the ones in your application.

Then there's automation (or lack of it). Put your analog mixer's faders at unity

gain and mix inside the computer, whether you have a mouse or hardware controller. This allows you to take full advantage of the automation and recall capabilities of the DAW. Why are you running through the console? By passing signal through your console you are eliminating the summing algorithm of your software and working with voltage again instead of bits. The analog console also gives you the opportunity to insert outboard gear with no concern over latency.

Of course, you'll have to listen to the results and decide what's better. The summing algorithms in some of the newer computer based systems are excellent, but some people still prefer the sound of analog summing.

And if you don't want a big console in the middle of your studio, check out the Dangerous 2 Bus or 2 Bus LT from Dangerous Music and the 16x2 by Manley Labs. It's the same concept, but you'll take up only a few rack spaces and odds are either piece will be sonically superior to your old desk.



david@dalepreaudio.com

## THINK TANK

David Roman

## Plug-ins... it's all inside!

[continued from page 4](#)

sonic characteristics to your audio workstation environment.

Broadcast and post production facilities rely on sound library management plug-ins (Soundminer, Gallery's Mtools), surround processors (Dolby Surround Tools, Waves 360 Surround Tools Bundle), and ADR programs (Synchro Arts VocAlign Project) to speed up and automate their work flow.

The DJ industry has embraced these products as well. Software-based synthesizers (Access Virus Indigo, Prosoniq Orange Vocoder), and other plug-ins that allow for actual "scratching" of samples (Serato Scratch) in the computer have broadened their creativity.

Mastering and restoration engineers now have access to Sonic Solutions NoNoise as a plug-in for Pro Tools. Talk about a reduction in price! That's one to

look into. And of course the entire product line from Waves is renowned for its diversity and capabilities.

While audio manufacturers continue to develop new and great hardware processors, certainly it can (and will!) be debated how these plug-ins sound as compared to hardware processors. Few people would disagree that they do an amazing job. Aside from sounding wonderful, consider the benefits of every parameter being automated with the mix, recalled and edited any time you want. No need to lug around racks of heavy outboard gear if your DAW is portable. It's all inside!

The remaining challenge is probably making your way through choosing which plug-ins are right for what you need. Dale Pro Audio can help keep you up to date and aware of which are most appropriate for your applications. We can help you narrow down your choices and show you how they work. Give us a call!

## Pedal meets the metal

[continued from page 1](#)

engineer, is a broad-based expert in digital and computer-based recording and mixing systems. Dale's veteran broadcast sales team - Mike Descoteau and Joe Prout, supported by sales manager Mike Bogen all experts in broadcast television audio systems - work with Dale's Pro Tools experts to bring their unparalleled knowledge and experience to customers in the broadcast, cable and television production markets.

"Pro Tools has achieved remarkably wide acceptance by users in virtually all audio content creation segments from music production to radio, television and film post", explains Bogen. "The addition full-line Pro Tools gives us the opportunity to offer a truly comprehensive product line to our customers, and we will provide it with exceptional customer service and expertise."

# Summer Meltdown Clearance Sale

We combed the attic and scoured the basement to come up with a Killer Clearance Sale. This chart contains super special pricing on a lot of popular products. Quantities are limited to stock on hand. All items are subject to previous sale. Some items are new, some are in sealed boxes. Others are either returned products, repairs, or demos. We've done our best to describe each item fairly, but all items are sold as is. We'll be happy to provide more information. Give us a call at 1-212 475-1124 or 1-800 345-DALE.

| MANUFACTURER | MODEL/ DESCRIPTION                 | QTY. | SELL       | MANUFACTURER    | MODEL/ DESCRIPTION                     | QTY. | SELL        |
|--------------|------------------------------------|------|------------|-----------------|--|------|-------------|
| 360 SYSTEMS  | D2730 DIGICART II (DEMO)           | 1    | \$2,000.00 |                 | TF-1510 TURNTABLE                      | 2    | \$89.00     |
| AKAI         | Z4 SAMPLER (DEMO)                  | 2    | \$1,050.00 |                 | STUDIO 3-MIN INTERFACE                 | 1    | \$50.00     |
|              | Z8 SAMPLER (DEMO)                  | 1    | \$1,400.00 | OPCODE          | VARIOUS CARDS FOR DA7 MIXER            | 12   | \$100.00    |
| ALESIS       | AM11 MICROPHONE                    | 3    | \$250.00   | PANASONIC       | CX302 POWER AMP (OPEN)                 | 1    | \$450.00    |
|              | AM 40 TUBE MICROPHONE              | 1    | \$550.00   | QSC             | GE27 GRAPHIC EQUALIZER                 | 1    | \$300.00    |
|              | ML-9600 MASTERLINK (OLD MODEL)     | 1    | \$800.00   | RANE            | MCS05 GROOVE BOX (OPEN)                | 2    | \$875.00    |
| APIEX        | 107 MIC PREAMP DEMO                | 1    | \$225.00   | ROLAND          | SP808EX E-MIX STUDIO (OPEN)            | 2    | \$1,100.00  |
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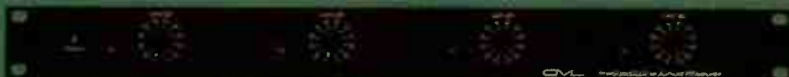
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## Old Formats Never Die, Pt. II

Last month I stressed the importance of staying current on the older digital machines, and how often I'm called upon to rework material that's stored in these formats. Let's continue on that theme.

### EMPHASIS

### Identifying & eliminating digital byproducts

Emphasis came about because of early converter design. The entire sampling process was new, and A/D converters exhibited low-level noise because of bad linearity in the conversion process. This process added some high-frequency broadband noise to the digital signal. Manufacturers overcame this byproduct by boosting (emphasis) the high frequencies during the conversion from analog to digital, and then rolling off (de-emphasis) the high frequencies by the same amount after the conversion back from digital to analog. This process was optional, and there was a switch to select emphasis on each track during record. A flag was set in the digital bit-stream, which automatically activated de-emphasis during playback. All CD players, DVD players, and DAT machines detect this flag and turn on a high frequency roll-off in the analog domain during playback. If the digital signal contains emphasis and the flag is missing or turned off, then the roll-off does not occur and the audio will be brighter than normal.

This emphasis "feature" was the biggest reason why different CD players sounded different when playing back the same CD, or why DAT machines differed playing back the same DAT tape. The digital part and the conversion to analog were basically the same in all of the machines. The de-emphasis circuit was implemented in the analog domain using the least expensive circuit to perform the operation. There was high-end EQ on the output of every digital playback device, and there was no standard or calibration for how it was performed. If you played back a CD without emphasis, then all of the CD players sounded pretty much the same. If you played a CD with emphasis, then each playback device sounded very different from every other player.

Producers and engineers started turning off the emphasis switches. Converters were getting better, so there was less converter noise, and the use of de-emphasis circuits was eliminated.

### DC

PCM (Pulse Code Modulation) audio stores data as a 16 bits (or higher) of information. 15 of the bits are used to indicate the level of the sample above zero. The 16th bit is used to indicate whether the sample is positive (above zero) or negative (below zero). The smallest positive amount was encoded as 10000000 00000000. The smallest negative value was encoded as 01111111 11111111.

So, right at the quietest part of the signal, as the signal is crossing zero, the left bit that signifies the biggest bit is changing from 1 to 0 at the same time as all of the other bits are changing from 0 to 1. If the converter is not perfect, there will be a click at the zero crossing point known as "zero crossing distortion." You can hear this easily and it is not good sounding.

In order to get rid of this problem, manufacturers added in a DC signal so the zero crossing point in the converter is not at the same place as the zero crossing point in the recorded waveform. Now any distortion is happening when the signal is louder, and is masked by the audio. In DAT machines and modern converters, any DC offset used is removed from the signal automatically in the digital domain so you don't have to worry about it. In early recorders, this was not the case. Sometimes the DC level was cranked up so high

In early recorders, sometimes the DC level was cranked up so high you had to turn down the record level. Have you ever played back an old CD and heard a pop in the speakers when you skip from track to track?

you had to turn down the record level. The positive waveforms would clip as much as 18 dB before the negative side of the waveform.

This DC level was not removed in early CD production. Have you ever played back an old CD and heard a pop in the speakers when you skip from track to track? Try it, especially if you have an old Telarc CD from the '80s. Don't turn it up too loud — the DC pop can blow out your speakers.

### DC & EMPHASIS > DAW

DC is easy. You can see it in the waveform display. It looks like the waveform is shifted above zero. If you make an edit, there is a pop when you go in or out of the region. Pro Tools has an Audio Suite plug-in specifically for DC removal. The same tool is available for other DAW systems. Just run the audio through the plug-in and the problem is cured.

As far as emphasis goes, I have not found a de-emphasis plug-in, but there are some hardware and software "cheats" available.



Most of the Digital Audio Workstations ignore emphasis flags in digital audio streams. That means if you transfer digital audio that indicated emphasis into a Pro Tools system, the flag will be stripped, but the signal will not be de-emphasized. It played back correctly from the DAT machine, CD player, PCM-1630, or Mitsubishi X-86, but when you play it back in Pro Tools it sounds bright enough to cut the top of your head off.

The emphasis problem should be corrected during the transfer into your

If the digital signal contains emphasis and the flag is missing or turned off, then the roll-off does not occur and the audio will be brighter than normal.

DAW. At this point the playback machine will have an LED indication that says Emphasis. The signal is de-emphasized at the analog outputs, but not at the digital output. There are three solutions.

1. Record the audio into your DAW using an analog connection. (Don't tell anyone I suggested this, as I will deny it.) You do run into the problem we were talking about earlier. Different machines will sound different playing back the same material. If you are just dumping in some sound effects or something of low importance, then just do it.

2. Run the digital audio signal through a box that will de-emphasize in the digital domain. One such box is the Roland SRC-2. This box is no longer made, but I have seen them on eBay and in some pawn shops. It automatically detects the incoming emphasis flag. If you select Emphasis-Off for the output, the de-emphasis will take place in the digital domain and the flag cleared. The box will also remove DC, perform sample rate conversion, and add in another 2-channel digital input to your original signal if you want.

3. Cheat. Label the track as having Emphasis when you import into your DAW. Now, use an EQ plug-in on the track. I have not taken the time to figure out the settings with all EQ, but Waves Q4 is what I usually use. Set the highest band as Hi Shelf, set the frequency at 5,000, and set the level for that band to -9. I checked it with an

Audio Precision and it exactly eliminates the emphasis curve.

#### CONCLUSION

As you can see, it is not always a "piece of cake" to re-purpose old recordings. Just because the original is digital doesn't mean that it will play back the way it was meant to. Remember, "Murphy is my co-pilot." EQ

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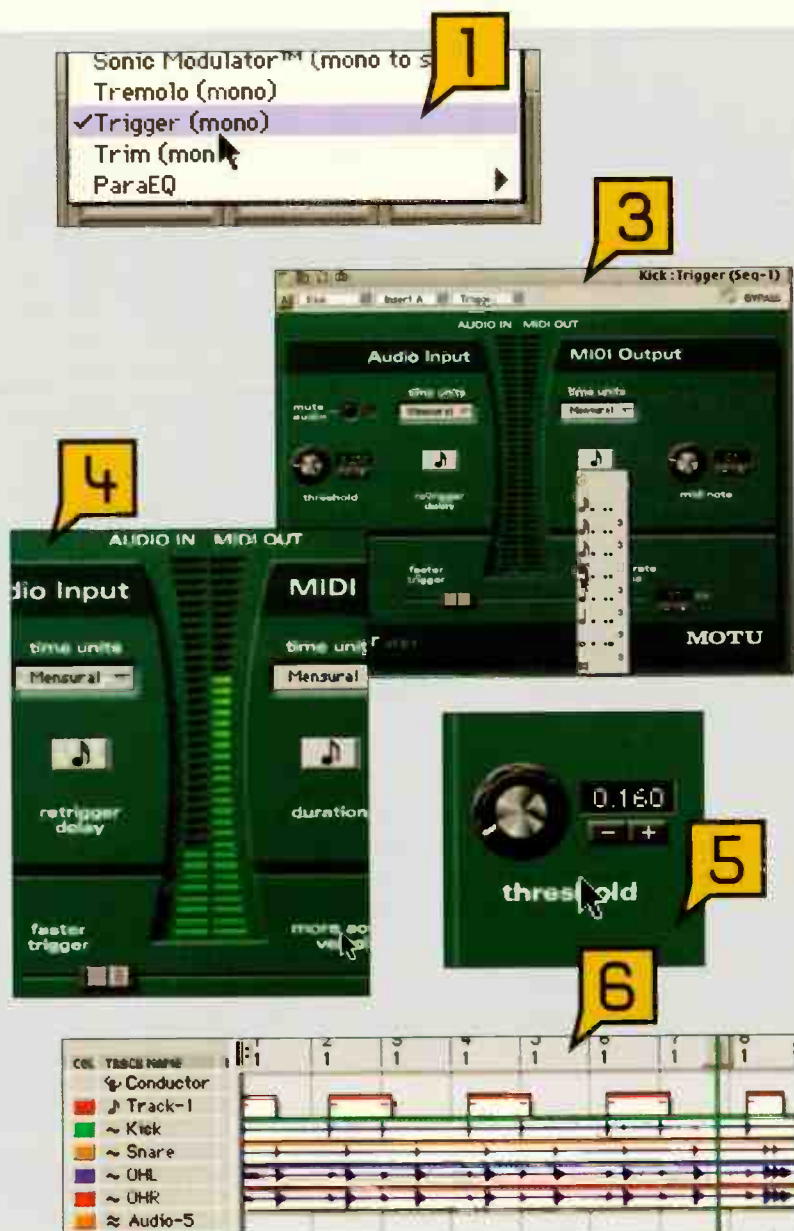
## MOTU Digital Performer

### Replacing and Reinforcing Drums With “Trigger”

**Objective:** Fatten multitracked drums with samples.

**Background:** Drum replacement and doubling is a common modern production trick. There are all sorts of ways to do this, depending on which program you use. In Digital Performer, the Trigger plug-in is the best option — it can generate a MIDI part from an audio track, allowing you to replace or double an isolated snare or kick track, for example, with sampled drum hits.

**Step by Step:** Replace and combine drum kit parts with MIDI-triggered samples by following these six easy steps.



1 Insert Trigger on one isolated track of a multitracked drum session. (Overhead tracks don't work as well as close-miked snare and kick.)

2 Create a MIDI track, and assign its output to your sampler or tone module.

3 Double-click on Trigger to view its interface. Set the Retrigger value to an 8th or 16th note, and the MIDI Note to the note number of the sound that will replace/reinforce the original audio track.

4 Play the audio track. When audio goes into Trigger, a MIDI note will be generated. The MIDI Out meter lights up when a MIDI note is sent.

5 Record-enable the MIDI track. At this point, Trigger should be playing the drum sample. If there are any false triggers, adjust Trigger's threshold so only "solid" hits are recognized.

6 Record the MIDI data. You should see MIDI events for every kick hit.

#### tips

- The MIDI data might be slightly behind the audio, creating flammed hits. You can line up the MIDI and audio by nudging the MIDI track using the left/right arrow keys.
- Generate MIDI tracks for hi-hat, kick, and snare, then combine this into one track. Use this track to create a groove template for use in DP's Drum Editor.
- If you're having a hard time hearing how well Trigger's MIDI part is working, you can A/B between audio+MIDI and MIDI-only by pressing the Mute Audio button from the plug-in's UI.

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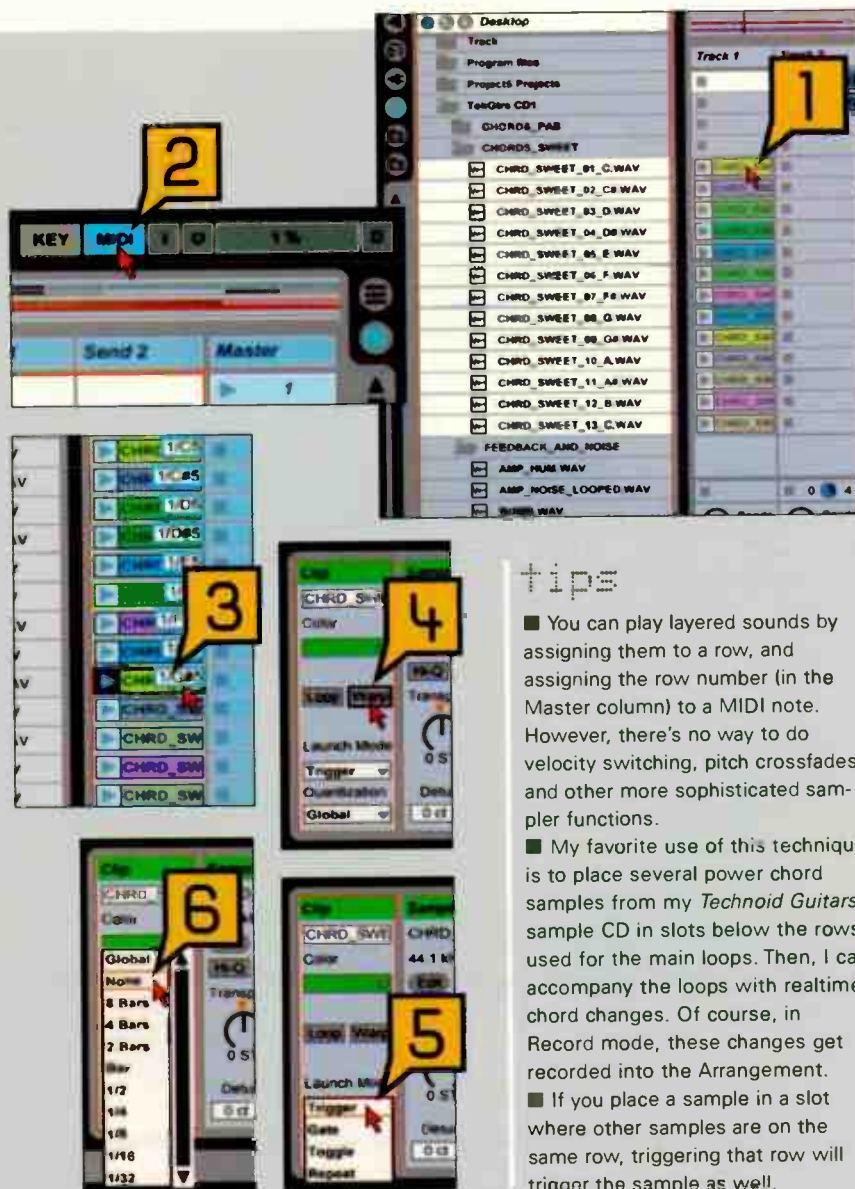
## Ableton Live 2.0

### Use Live to Trigger 1-shot Samples in Real Time

**Objective:** Load 1-shot samples such as drum hits, guitar power chords, fx, etc. into Live, then play them from a MIDI controller (keyboard, drum pads, etc.). This can be in a song context, or you can treat Live (which also works as a ReWire client or host) as a sample playback module.

**Background:** Every clip in Live sits in a "slot." You can trigger the clip by clicking on the slot, but it's also possible to trigger a slot from a MIDI note. Although normally clips are set to loop, you can also assign them to be 1-shot (non-repeating) samples. This tip assumes you've selected a MIDI input and hooked up a suitable controller, like a MIDI keyboard.

**Step by Step:** Steps 4, 5, and 6 need to be repeated for each slot/sample you want to trigger via MIDI.



1 Drag the samples you want to trigger into Live's slots, either singly or in a group. If dragged into a column, triggering one slot cuts off any decaying slots in the same column (good for hi-hats and guitar chords). Dragging into a row lets you play several sounds at once.

2 Turn on the MIDI Map mode switch. This allows assigning slots to MIDI notes.

3 Click on the slot you want to assign, then play the desired note on your MIDI controller; the slot will show the note number and pitch. Keep clicking on slots and playing notes until they're all assigned. Then, click on the MIDI Map mode switch again to return to regular mode.

4 Click on a slot and look at the clip view. To trigger the clip as a 1-shot, turn off the Loop and Warp switches so they turn gray.

5 You have a choice of Launch modes. The most appropriate for samples are Trigger (playing a note starts the sample, which plays through to the end) and Gate (play a sample, and it continues until it receives a MIDI note-off). Note that Gate mode may produce a click at the note-off if the signal level isn't at zero.

6 For Quantization mode, select None. This causes the sample to play as soon as it receives a note-on. Otherwise, it will trigger at the specified rhythmic value (e.g., if 1/4, it triggers on the next quarter note).

### tips

■ You can play layered sounds by assigning them to a row, and assigning the row number (in the Master column) to a MIDI note. However, there's no way to do velocity switching, pitch crossfades, and other more sophisticated sampler functions.

■ My favorite use of this technique is to place several power chord samples from my *Technoid Guitars* sample CD in slots below the rows used for the main loops. Then, I can accompany the loops with realtime chord changes. Of course, in Record mode, these changes get recorded into the Arrangement.

■ If you place a sample in a slot where other samples are on the same row, triggering that row will trigger the sample as well.

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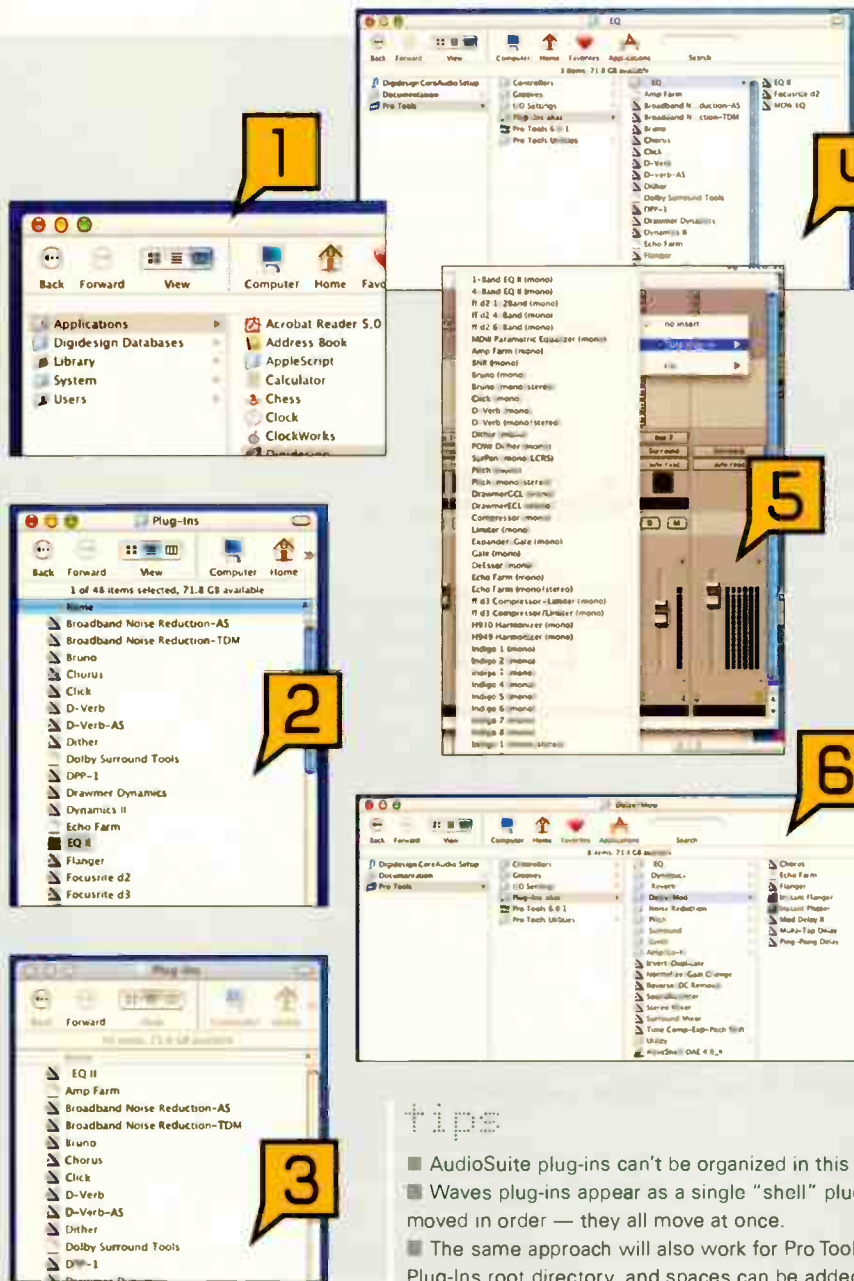
## Digidesign Pro Tools

### Organization from Chaos

**Objective:** Organize TDM and RTAS plug-ins for faster access

**Background:** Finding the TDM plug-in you want in the long, unorganized Pro Tools menu can be a struggle. Until Digi adds a method for organizing plugs, we can at least get them into an order we like.

**Step by Step:** You're just a few steps away from better plug-in organization.



1 Navigate to your Mac's hard drive. Under OS 9, go to the System folder, then DAE folder, then Plug-Ins folder. Under OS X, go Applications folder, then Digidesign folder, then Pro Tools folder, then Plug-Ins alias folder.

2 One way to change the order of plug-ins is to change their names so they alphabetize differently. Click the desired plug-in name once; the name will highlight, allowing you to change it. Under OS X, depending on the view you're using, you may need to option-click to highlight the name for changing.

3 Once the file name is highlighted, the easiest way to change the plug-in order is to add spaces at the beginning. (Names with spaces appear first in the alphabetical list; names with more spaces appear before those with fewer spaces.)

4 There's a second way to organize plug-ins. Move them into folders inside the Plug-Ins folder. While the folders don't show up inside the Pro Tools pull-down menu, plug-ins inside a folder will be alphabetized as a group according to the folder name.

5 In the screenshot for step 4, I've moved all my EQ plug-ins to a folder inside the Plug-Ins folder named "EQ" (with a space at the beginning). This places them as a group at the top of the Pro Tools menu. Pro Tools also alphabetizes them inside the folder; to change this order, add spaces at the beginning of the file names as described above.

6 I organize my Plug-Ins folder like this, according to how frequently I reach for a particular type.

### tips

- AudioSuite plug-ins can't be organized in this way.
- Waves plug-ins appear as a single "shell" plug-in to Pro Tools, so they can't be individually moved in order — they all move at once.
- The same approach will also work for Pro Tools on Windows. Subfolders can be added to the Plug-Ins root directory, and spaces can be added to plug-in names to change the alphabetizing.



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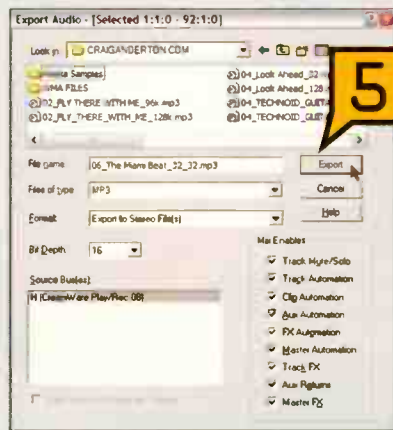
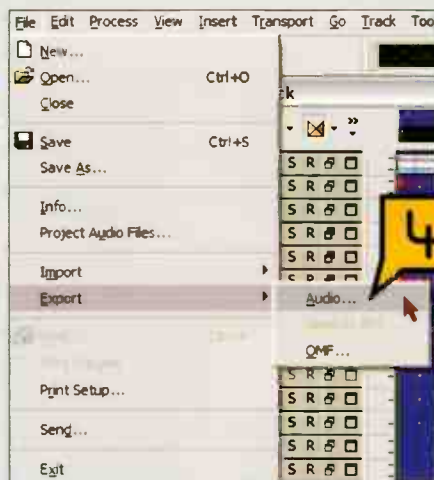
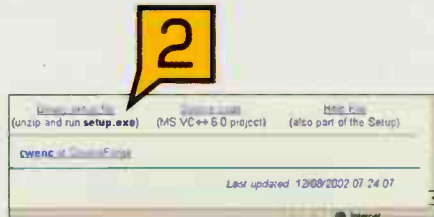
## Cakewalk Sonar

### Add Free MP3 and Ogg Vorbis Encoding

**Objective:** Allow projects created in Sonar to be exported as MP3 or Ogg Vorbis compressed audio files.

**Background:** Sonar includes a trial MP3 encoder that expires after 30 days. You then need to pay a licensing fee. However, a free encoder, written and copyrighted by Mikkel Elmholdt, is available that converts Sonar projects to MP3 and Ogg Vorbis format files.

**Step by Step:** The first three steps require internet access, and the last three require having Sonar open.



- 1 Open up your internet browser of choice, and surf to <http://cwenc.sourceforge.net>.
- 2 Locate the Binary Setup File toward the bottom of the page, and click on it.
- 3 Now choose the mirror site closest to you, download the file, unzip it, then run SETUP.EXE. Cwenc disables the existing Cakewalk MP3 encoder (mp3enc.exe) located in the Shared Files folder by changing its name to mp3encexe.cw.
- 4 When Sonar is running and you want to export a project as an MP3 file, select the range and tracks to be exported, then go File > Export > Audio.
- 5 Select MP3 for the "Files of Type" option (leave Format as "Export to Stereo File[s]" and Bit Depth as "16"). Click on Export, and Sonar mixes the file to a temporary WAV file.
- 6 The cwenc encoder screen appears, where you can make various adjustments to the MP3 format, including bit rate, mono or stereo, and whether to create secondary files. Click on OK, and your project will be mixed to the compressed audio format you selected.

### tips

- On the cwenc encoder screen, you can also select a particular input file rather than what's being mixed down with Sonar, and also choose a destination for the encoded version of this file. So, cwenc can serve as a stand-alone encoder.
- Although the website states cwenc has been tested with Windows 2000 and Cakewalk Home Studio, I've tested it with Sonar 2.2 XL and Windows XP.
- Cwenc may be free, but it offers a lot of useful parameters for those who want to get out their music in MP3 format. If you're not sure what parameter settings will work best, just go with the defaults. Better yet, check out the Help section, and you'll learn how to optimize the parameters.



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## Antares Auto-Tune

### Pitch Correction on a Deadline

**Objective:** Your mix is due soon, and there's no time to waste in the studio. You need to auto-correct a vocal quickly and effectively.

**Background:** Antares Auto-Tune can do miraculous things to pitchy performances. But in many instances, extra surgery is required to get all notes in their rightful place. If the deadline clock is ticking, here's a tried and true method that can save you a few steps, and lots of time.

**Step by Step:** Only six steps to success. This job is sinfully easy to do.



1 Edit the best words/phrases from the singer's vocal takes into a master "comp" track. The end result will be a single, contiguous file, like the one shown here.

2 Make a copy of the vocal comp, and paste it on an adjacent track. Make sure the two are perfectly aligned.

3 Activate your favorite tuning plug-in, tool, or app. (We're using Antares' Auto-Tune plug-in running in Digidesign Pro Tools for these examples, but you can follow along conceptually using whatever host app and pitch-correction tool you chose.) Select the appropriate key signature, and the best algorithm for the source material (soprano voice, etc.). Experiment with the plug-in's tracking and tuning parameters until you find the sweet spot, where the tuning sounds as natural as possible.

4 Process the vocal.

5 You now have two vocal tracks sitting side by side and perfectly aligned: an untuned and a tuned version. You'll see I've renamed the tracks for visual clarity. If you listen to the tuned track soloed from beginning to end, there will probably be a few little glitches here and there — which is why the next step is necessary if you're in a rush.

6 With the tuned track soloed, start playback from the beginning. Whenever you hear something unnatural, stop playback and replace the offensive syllable, word, or phrase with audio from the original untuned track. Since the two tracks are positioned next to each other onscreen, it's super fast and easy to copy the replacement piece from the original and paste it to the other. In the screenshot, I've selected and copied the glitch-free word from the top track so it can be dragged straight down to the bottom track.

Continue your critical listening and spot-replacement surgery until you've reached the end of the track, and bingo . . . you now have a natural-sounding and mostly tuned track from beginning to end. I think you'll see that the side-by-side, tuned/untuned approach will expedite the process greatly.

### tips

- If any of the untuned replacement pieces are too still too sharp or flat, and if time permits, go back and correct the pitches of each piece one by one. But nine times out of ten, I find that the quick and dirty drag-and-drop method works impressively well, especially if I'm only grafting small slices into the tuned track.

- This technique can be used on other monophonic material as well, so don't limit it to vocals. Trumpets, bass lines, and the like are all fair game.

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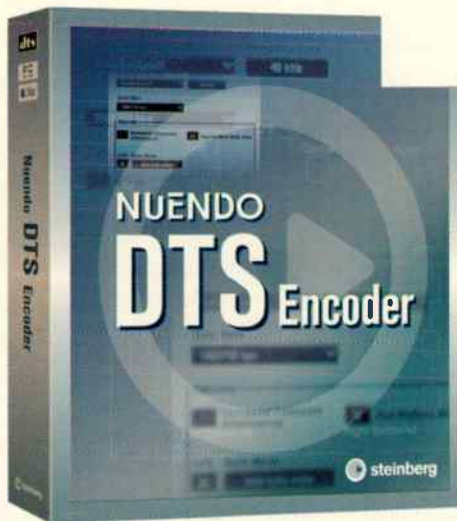
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## Korn: Bass

**F**rom his lush, state-of-the-art studio in downtown Manhattan to a rented house on Martha's Vineyard, Frank Filipetti has an extraordinary talent for making whatever space he's in sound great. In 1997, the *über* engineer set up a Yamaha 02R and three DA-88s in a house and recorded James Taylor's *Hourglass*, earning him a Grammy for Best Engineered Album. "The success of that album, not only commercially but sonically, let people realize that with so-called 'home equipment' you can create pro results," states the tall New Yorker, who is currently working with Korn in Jonathan Davis' home studio.

Filipetti seems at ease at the studio, which is located in a quiet neighborhood in the Valley. After minor adjustments ("we added a few acoustic panels to eliminate some of the reflections"), Filipetti tells us the home facility is flying. "Jonathan did a lot of work on this studio. There's a floating concrete floor; it's a building within a building. He did it right. We recorded drums in six days and bass in five, and it's sounding great." *EQ* was all ears as Filipetti shared his secrets for recording bass in any environment.

### MIC POSITION

"When using a multiple mic setup, the most important thing for me is that all of the capsules are aligned. If you take two or three mics and they're all sitting at slightly different distances from the sound source, those small differences can translate into cancellation at audible frequencies. As the difference between the capsules' spacing and the sound source decreases, the null frequency increases. Consequently, the closer in time/distance the two capsules are, the higher the cancellation frequency. If the capsules are a foot apart, the cancellation is across the bass frequencies. As you move them closer together the cancelled frequency rises until you get beyond the audible range. With bass, the idea is to make sure all capsules add together precisely when you bring them up in the mix. Usually all of your capsules recording a bass will end up in the same pan position in the mix. You generally pan the bass to the center, which means you want all of those mics to combine uniformly.

"As far as placement goes, I'll place the mic anywhere on the cone. I'll start by putting it right down the center and then adjust it as needed. As the AT4047 has the biggest shockmount, it's my first mic to place. Once that's right, I'll place all the other capsules as close to the sound source as the AT4047 is. It takes some experimentation. Sometimes they'll all be around one driver. Other times I'll use different drivers in the same cabinet. That was the case here. Once I have all the mics totally phase-coherent, the next step is getting the direct line phase-coherent with the amp line. In the past this was a bit of a challenge, but now you only need to grab the DI track and move it back in time (or the mic track forward) — usually it's on the order of 10 to 40 samples."

### PROCESSING

"Everything goes through Lavrey Engineering (formally dB Technologies) converters to get in and out of the digital world. Fieldy has a particular bass sound and you don't want to mess with that. I do a little bit of EQ'ing. Occasionally I use dbx sub-harmonic synthesizer to add depth in certain sections. The foundation of a Korn record is the bass and drums, and I try to keep them relatively honest. However, there were points where we would go for a specific effect, so we used some of Fieldy's pedals. I also have an Eventide H4500, which I love for some effects as well as a TC Fireworks."

Occasionally when Fieldy was after a club or reggae tone as opposed to his signature sound, Filipetti would use a Pultec [EQ] and compress with a [Universal Audio] LA2A. "About 90% of the bass sound is what comes out of Fieldy's amp," Filipetti concludes. "He knows how to get the sound he wants. Recording the bass, like the drums and the guitar, is much easier when the player knows how to get the sound they're looking for on their instrument." **EQ**

**DATE:** April 21 – June 21, 2003  
**STUDIO:** ElemenTree Studio  
**LOCATION:** San Fernando Valley, CA  
**PROJECT:** Korn  
**TRACK:** Reginald "Fieldy Snuts" Arvizu playing bass on "I Did My Time" for *Tomb Raider II*  
**PRODUCERS:** Jonathan Davis with Korn  
**ENGINEER:** Frank Filipetti  
**ASSISTANT ENGINEER:** Jim Monti



Filipetti prepares to cook with Korn.

### SIGNAL PATH

"I generally use from two to four microphones when recording bass, as well as a direct line," he explains. "On *Untouchables* we hooked up a subwoofer, but this time we just took one of Fieldy's road bass rigs. Jonathan owns an AKG D30 that we used on the bass drum, so I decided to try it on Fieldy's bass. But we ended up using an [Audio-Technical] AT4047 and a Sanken CMU-44, which is a dual condenser mic. Fieldy likes a lot of click on the bass, and he has a tweeter mounted inside the bass cabinet. At first I thought I'd get enough of it on the AT4047 off axis, but I ended up sticking a Shure SM57 right on the tweeter and added that in."



All mics were routed through Neve 1073 mic pres. "I brought the Neves back to the SSL 6000 on the tape monitor inputs to control the levels and bussed them to a [Universal Audio] 1176. From there it went to the Euphonix R-1."

Filipetti tells us he does all basic recording and editing on the R-1 but will do an AES-31 export in the Euphonix Transfer Station, which is then imported into Steinberg Nuendo for fine-tuning. He admits he's still enamored with the R-1 and relies on it for tracking and mixing.

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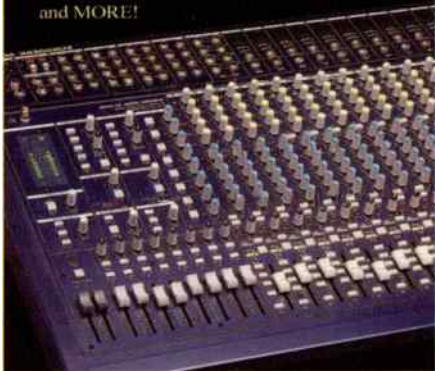


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## Grace Design Model 101

Critically acclaimed microphone preamp for any MOTU interface

One Perfect Channel: the Grace Design Model 101 is a single serving of the critically acclaimed Grace Design 801 microphone preamplifier, and it's the perfect compliment to your MOTU 828mkII — or any other MOTU audio interface. The Model 101 is Grace Design pedigree throughout with fully balanced and transformerless design and no electrolytic capacitors in the signal path. The included instrument DI input is designed to accommodate a wide variety of high-impedance input sources, making it an ideal choice as a DI box that flawlessly preserves any input signal. The 101 delivers incredible bandwidth, headroom and resolution that produces remarkably natural, musical and detailed sound. The ultimate mic preamp for under \$1000.



## TC Electronic PowerCore FireWire

The new plug-and-play effects processing powerhouse for DP4

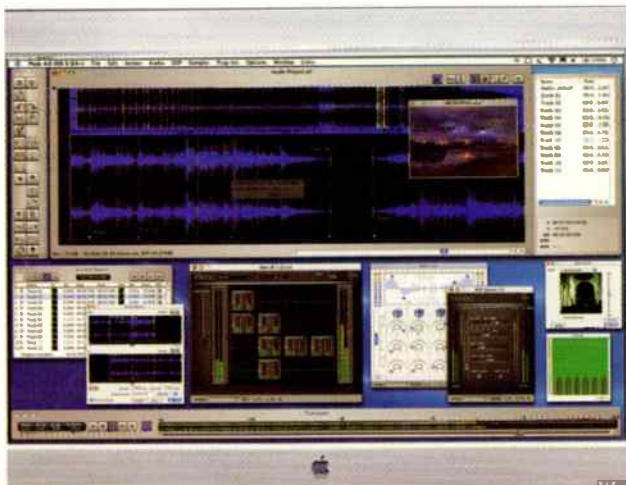
PowerCore FireWire takes the highly acclaimed PowerCore plug-in processing platform to a whole new level of power, versatility and mobility. PowerCore FireWire doubles the power of the original PCI PowerCore card and delivers state-of-the-art TC effects processing to your Digital Performer desktop with plug-and-play convenience. Classic PowerCore plug-ins such as MegaReverb and MasterX are now just a click away on your portable PowerBook Mac — or add PowerCore FireWire to your PowerCore-equipped PCI Mac and use them both at the same time. All processing is performed in the PowerCore hardware, freeing up precious host computer resources for virtual instruments and native plug-ins. Add TC processing to your DP4 studio today!



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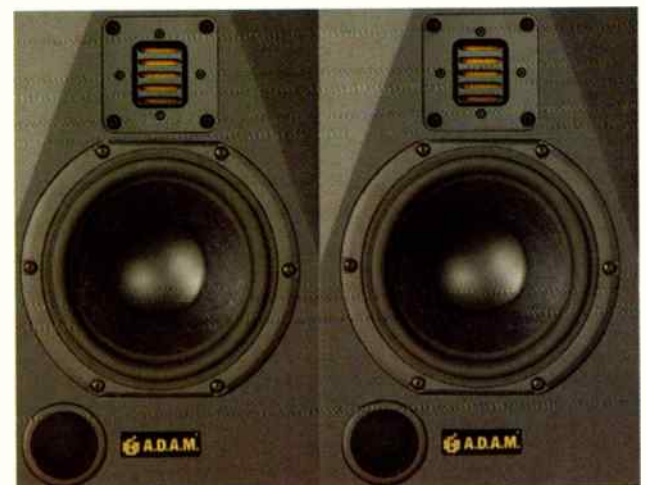
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## ADAM Audio P11A Studio Monitors

Two-way shielded active monitors for your MOTU system

With groundbreaking innovation in electro/acoustic transducers, no-compromise design, superior materials and the same A.R.T. (Accelerated Ribbon Technology) folded ribbon tweeter found in all ADAM monitors, ADAM's P11A two-way shielded active monitors deliver your mix with astonishing clarity. Connect a pair to the main outs of your MOTU 828mkII FireWire audio interface — or any MOTU I/O — to hear your mixes with unique imaging and outstanding transient response at a very attractive price point. Europe's "Keyboards" magazine held a studio monitor shootout between no less than 25 professional monitor systems, and the ADAM P11A's came out at the top of the heap. One listen, and you'll be hooked, too!



Upgrade your

# MOTU Studio To Mac OS X

DP4, MachFive and the new 828mkII lead an impressive array of new studio tools for Mac OS X



## The new 17-inch PowerBook G4 17 inches of pure professional audio computing pleasure

With a display resolution of 1440-by-900 pixels, the new 17-inch PowerBook G4 delivers an eye-popping 1.3 million pixels on screen — the same viewing area as a 19-inch CRT monitor. You see more tracks, more mixer faders, more plug-ins, more virtual instruments, more everything in your Digital Performer virtual studio. At 15.4 inches wide, it sits perfectly on top of your MOTU 828mkII FireWire audio interface. The 1-GHz G4 processor delivers serious CPU horsepower — enough to run as many instances of MachFive and other virtual instrument plug-ins as you need, with plenty left over for your favorite plug-ins. Back up your projects to DVD-R with the built-in SuperDrive. The MOTU studio is now more powerful and portable than ever.

Remove the 828mkII's rack ears and slide it right underneath your TiBook — the perfect desktop system!

## Waves Native Platinum

The ultimate Waves processing bundle for every MOTU studio

No studio is complete without Waves processing, and now Waves brings its entire line of award-winning plug-ins to the Digital Performer Mac OS X desktop. From the classic L1 UltraMaximizer to the exquisite Renaissance Series to the Masters and Restoration bundles — all of the Waves processing you've come to depend on every day can now be at your fingertips in the most advanced native audio recording system available. When only the very best signal processing will do, Waves plug-ins deliver.





# Room with a VU

by Mitch Gallagher

**NAME:** Second Act Studio  
**WEBSITE:** [www.secondactstudio.com](http://www.secondactstudio.com)  
**LOCATION:** Irvington, NY  
**KEY CREW:** Scott Freiman, owner/engineer/producer/composer; Allison Fine, studio manager  
**CONSOLE:** Yamaha 02R96, meter bridge, ADAT-16 cards [2]  
**RECORDERS:** TASCAM DA-98HR, Sony DAT Walkman  
**MONITORS:** Genelec 1032A [5], 7070A; Mackie HR824 [2], Canton Plus X [3], Sonance 623T [2], Velodyne CHT-10; Sony, Bose, AKG headphones  
**AMPLIFIERS:** Haffler P1000, Little Red Cue Box, Coleman Audio M3  
**EFFECTS:** Eventide Eclipse, TC Helicon Voice Prism Plus  
**MICROPHONES:** BLUE Baby Bottle, Neumann KM184 [2], Shure SM57 [2], Rode NT-1, AKG C-1000S [2], D-112, C-418 [2]  
**PREAMPS:** Digidesign PRE  
**SAMPLERS/KEYBOARDS:** Korg Triton Pro X, 01W Pro, Triton Rack, MS-2000; Roland V-Synth, VK-7, XV-5050, JP-8000; E-mu Virtuoso 2000, Planet Earth, XL-1; Novation Nova; MOTU MIDI Timepiece AV [2], MIDI Express XT [3]; M-Audio MIDIsport 4x4 [2]  
**COMPUTERS:** Dell 2.6 GHz, Gateway 696 MHz; Apple G4/1 GHz dual processor, Titanium G4, 17" iMac, Cinema Display [2]; Mitsubishi LXA550W [2], Glyph Trip 2 (four 180 GB disks/DVD-R), Trip (two 120 GB disks/CD-R/VXA tape drive); Gefen extenders/converters  
**DAW:** Digidesign Pro Tools HD3, 96 I/O, Sync I/O; MOTU 2408 mkII [2], 828; Aardvark Aardsync, Sync DA  
**SOFTWARE:** Digidesign Pro Tools 6, MOTU Digital Performer, Steinberg Cubase SX, Wavelab; Propellerhead Reason 2, Recycle 2; Cycling '74 Max/MSP, Ableton Live, BIAS Peak, Sibelius, Celemony

Melodyne, Apple Final Cut Pro, DVD Studio Pro; Sound Quest MIDI Quest, TASCAM Gigastudio 160, array of soft synths and plug-ins

**STUDIO NOTES:** Second Act Studio was designed by John Storyk and Robert Reilly. It occupies the third floor of a 1907 house listed on the Westchester County Inventory of Historic Places. The studio includes control and recording rooms and a listening room/office/screening room.

"Bob [Reilly] was able to design a space that accommodated all my needs. He suggested busting out the roof for the picture window. John [Storyk] handled acoustics and soundproofing. John also introduced me to Judy Elliot-Brown, a genius at equipment and wiring," says owner Scott Freiman.

"At first we were concerned that the amount of glass in the control room would be a problem. John solved this by angling the picture window and sliding door. The room required only a few acoustic panels to be almost perfect acoustically.

"It was important to create a flexible studio. Second Act is set up so I can switch among equipment, software, and rooms with ease. This makes it attractive to outside producers, engineers, and artists for their projects."

**EQUIPMENT NOTES:** "The studio is almost entirely digital. I use a Z-Sys Optipatch + to route signals. I move among software depending on the job at hand. I like Digital Performer for film work, Reason for remixing, and Pro Tools for recording. I recently used Ableton Live on a film project. It helped me experiment with different arrangements.

"I'm a big fan of software synths, and I use Cycling '74 Max/MSP for sound design. The Roland V-Synth is the first synth in a while that I've fallen in love with."

**HEY, EQ READERS. WANT US TO FEATURE YOUR STUDIO? SEND PICS AND INFO TO [mgallagher@musicplayer.com](mailto:mgallagher@musicplayer.com).**

Todd Thibaut Band ©Thomas.Ne.jk.rcmmer@t-online.de



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# Introducing the 828mkII

24-bit 96kHz resolution. DSP-driven mixing and monitoring.  
Front-panel programming. Stand-alone operation.



## 828mkII feature highlights

- **CueMix DSP™** — the 828mkII delivers DSP-driven digital mixing and monitoring for all 20 inputs. Connect mics, guitars, synths and effects processors, and monitor everything from the 828mkII's main outs, headphone out or any other outputs with no separate mixer needed.
- **Front-panel control** — access your entire mix, or any 828mkII setting, directly from the front panel.
- **Stand-alone operation** — program your mixes at the studio and then bring the 828mkII to your gig — no computer needed. Need to tweak the mix? Do it on site using the back-lit LCD and front-panel controls.
- **Multiple CueMix DSP mixes** — create different monitor mixes for the main outs and headphones. Add send/return loops for outboard gear — with no latency.
- **Front-panel mic inputs** — connect a pair of mics or any TRS input with front-panel convenience.
- **Mic/guitar/instrument sends** — insert your favorite outboard EQ, compressor, amp or effects processor to the two mic/guitar inputs, before the signal goes digital.
- **20 inputs / 22 outputs** — there's no channel sharing in the 828mkII; the mic inputs, SPDIF I/O, headphone out and main outs are all handled as separate channels.
- **Support for 96kHz ADAT optical digital I/O (S/MUX)** — provides 4 channels at 88.2 or 96 kHz.
- **Sample-accurate MIDI** — connect a MIDI controller and/or sound module with no separate interface needed. MIDI I/O is sample-accurate with supporting software.

## Basic features

- **Expandable 24-bit 96kHz audio interface** for Macintosh and Windows with 20 channels of input and 22 channels of output (simultaneously).
- **2 mic/guitar inputs** with phantom power and sends.
- **8 TRS analog inputs** with switchable input levels.
- **8 TRS +4dB analog outputs** — perfect for surround.
- **Separate TRS main outs** and front-panel headphone jack, each with independent volume control.
- **8 channels of 24-bit ADAT optical input/output** with sample-accurate ADAT SYNC.
- **MIDI I/O** — no separate MIDI interface needed.
- **24-bit S/PDIF digital input/output** up to 96 kHz.
- **Sync** — word clock in and out; built-in SMPTE (LTC) in and out; sample-accurate ADAT sync input.
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