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OCTOBER 2006

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Software *SS*

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AUDIO ENCODERS**

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MUSIC MARKETING**

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FXpansion Guru 1.0.2
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MPR

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YAMAHA GO46 MOBILE AUDIO INTERFACE



- 2 Mic/line combo inputs with independently switchable phantom power
- 2 TRS insert jacks for connecting your favorite external effects
- Pro-quality recording with up to 24-bit/192kHz resolution
- 4-in/6-out multi-channel audio via FireWire
- SP/DIF digital I/O and MIDI I/O
- Compatible with AC-3 and DTS surround playback systems
- Complete music production software bundle including: Cubase LE, Groove Agent SE, HALion SE, Amplitude LE and T Racks EQ

Cubase • LE

The Yamaha GO46 is a mobile FireWire audio interface, featuring high quality built-in mic preamps and a complete computer software package for professional quality recording. The GO46 can be carried and used virtually anywhere in a wide variety of applications—including full music production in a home studio, mobile recording of band rehearsals or live concerts and even field recording in remote places. Professional features like independently selectable phantom power, channel inserts for connecting external effects and AC3 and DTS surround playback compatibility set it apart from other FireWire interfaces. The GO46 comes with all the software you need, including a full suite of VST instruments and effects so you're ready to start making music right out of the box.

Mic preamps with individual switchable phantom power and Inserts

Built-in 4-in 6-out FireWire audio plus MIDI

A suite of VST software synths

VST effects pack with Amplitude™



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Built on the solid foundation of the 8000 MDE™ and 7000 LSE™ series products, Genelec introduces the new 8200 and 7200 DSP series monitors. They are a measure of our continued commitment to customers who rely on the purity of sound reproduction.

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Digital monitoring systems are not new, yet none have realized the real potential, until now. For more information please visit our website.

www.genelecusa.com

A large, dark-colored Genelec speaker is shown in the foreground, angled slightly to the left. It features a prominent circular driver in the center and a smaller tweeter above it. The Genelec logo is visible at the bottom of the speaker's frame.

GENELEC

A vertical black cable or connector is shown on the right side of the page. It has the Genelec logo and model number printed vertically on it.

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8200A 100006

DM-3200 32-channel digital mixer/controller and the X-48 48-track digital multitrack recorder.

Fortunately, they use their powers for good, not evil.

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To learn more, go here: www.tascam.com/dm3200 or www.tascam.com/x48

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	96 kHz	24-bit	72 min.
	88.2 kHz	24-bit	133 min.
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 Wired remote control

TASCAM®



* CD recording is at 44.1 kHz/16-bit (Red Book spec) only
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Bob Ludwig – Mastering Engineer



Recent Projects: *Sheryl Crow, Bruce Springsteen, Foo Fighters, Cream, Beck*

"Apogee has made several 'must-have' products and I've owned them all from the AD-500 to the AD-16X and the DA-16X. The most recent 'must-have' product is of course the Big Ben master clock. The Big Ben makes an audible improvement in even the most high-end recording/mastering chain and it can make a tremendous improvement in otherwise mediocre gear."

Tony Shepperd – Engineer/Mixer/Producer



Recent Projects: *Michelle Williams, Kenny Loggins, Whitney Houston*

"The Big Ben is hands down the best clocking source I have ever used! Since I mix entirely in the box my clocking source is extremely important. I recently upgraded my system to a Digidesign Pro Tools HD 3 Accel system. The cherry on top of that luscious Sundae is the Apogee Big Ben. Instantly my imaging improved and I could actually hear the tails of my reverb trails. It is now the clocking source for my entire studio."

Eddie Kramer – Engineer/Producer/Writer/Musician



Recent Projects: *Remastering - "Voodoo Child: The Jimi Hendrix Collection, Experience Hendrix: The Best of Jimi Hendrix"*

"With the advent of the Big Ben [going from analog to digital] has become a lot easier for me. The sonic clarity of my transfers from the analog world into the digital world were made a lot clearer, a lot cleaner and more transparent. Now I feel much more comfortable with digital."

Steve Krause – Scoring Mixer



Recent Projects: *"Running Scared", "Crash", "In Her Shoes", "Kicking & Screaming"*

"The coolest thing about the Big Ben is what it does to your sound. I have six interfaces in my Pro Tools rig and have one clock output go to each interface which lines them up and makes them spot on. When I am mixing I am using the converters to go in and out to analog gear, eq's, compressors, etc., so when the conversion is that precise and I am summing to a mix with at least 48 ins and outs, Big Ben makes the mix so much better."



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Inspired sound. It's what the 40 Series is all about.
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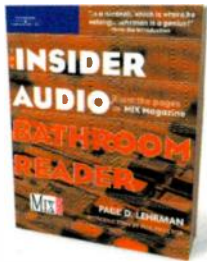
(40) SERIES

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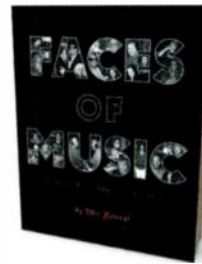
Serious Resources for Serious Musicians

From interactive CD-ROMs on the latest music software offerings to comprehensive books on music production, recording, engineering, and the music industry, Thomson has a solution for every musician.



The Insider Audio Bathroom Reader

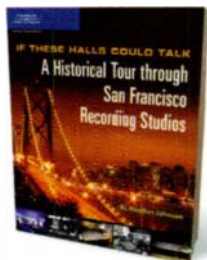
A collection of Paul D. Lehrman's insightful and humorous *Insider Audio* columns and interviews from *Mix* magazine. Includes columns that *Mix* couldn't print!



Faces of Music

25 Years of Lunching With Legends

Mr. Bonzai's collection of over 400 photos and 160 interviews with music industry heavyweights. See why *EQ*'s Eugene Robinson calls it "an unqualified work of mad genius."



If These Halls Could Talk

A Historical Tour through San Francisco Recording Studios

Leading Bay Area artists, producers, engineers, and studio owners take readers on a guided tour through some of San Francisco's top recording studios, venturing behind the scenes of popular music's hottest albums.



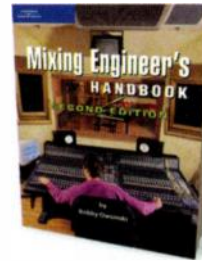
The Ultimate Personal Recording Studio

Get maximum results from a minimum amount of equipment! *EM*'s Gino Robair presents an all-in-one guide on how to set up your home recording studio and start recording!



Home Recording Studio: Build it Like the Pros Acoustic Design for the Home Studio

Ready to make a professional home studio? *Home Recording Studio: Build it Like the Pros* will teach you how to construct it, and *Acoustic Design for the Home Studio* will show you how to improve its acoustics.



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EMI

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Whether you're a novice or a pro, compressed audio has a place in your studio. Learn which encoders will work best for you. *By Vijith Assar*

48 SOFTWARE EIGHTY-EIGHTS

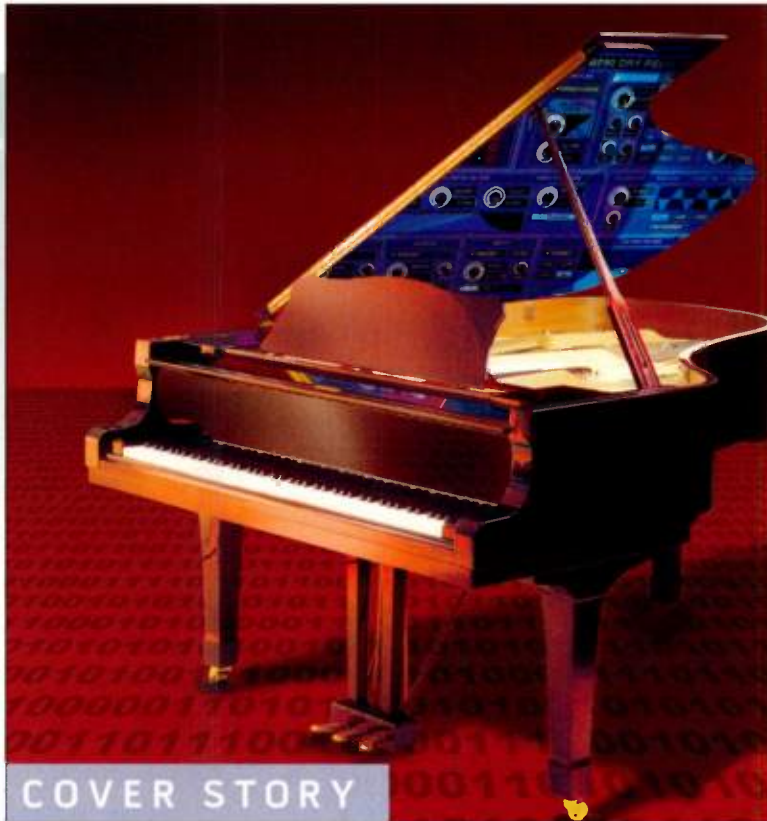
Software virtual pianos have come a long way, but how do they compare to the real thing and to each other? We gathered six of the best and came up with some surprising answers.

By Charlie Otwell, Marshall Otwell and Len Sasso

67 PRODUCTION VALUES: YOURS, MINE, AND OURS

With a Grammy-nominated megahit, four major-label CDs, two movie scores, and the score for a new musical to his credit, Duncan Sheik has accomplished a great deal in a short time. One of his more ambitious projects is the recently released *White Limousine*, which features both a CD of stereo mixes and a DVD with individual tracks for listeners to remix. Sheik talks about that project, his personal studio, and more. *By Mike Levine*

Electronic Musician® (ISSN 0884-4720) is published monthly by Prism Business Media, 9800 Metcalf Ave., Overland Park, KS 66212 (www.prismb2b.com). This is Volume 22, Issue 10, October 2006. One-year (12 issues) subscription is \$24. Canada is \$30. All other international is \$50. Prices subject to change. Periodicals postage paid at Shawnee Mission, KS, and additional mailing offices. Canadian GST #129597951. Canadian Post International Publications Mail Product (Canadian Distribution) Sales Agreement No. 40597023. Canadian return address: DHL Global Mail, 7496 Bath Road, Unit 2, Mississauga, ON L4T 1L2. POSTMASTER: Send address changes to *Electronic Musician*, P.O. Box 640, Mt. Morris, IL 61054 USA.



DMITRY PANICH

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QUICK PICKS

Metasonix TM-6 Vacuum Tube Multimode Filter analog filter

Toontrack EZdrummer (Mac/Win) drum module

Audeon UFO 1.0 (Win) virtual instrument

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A Site for Sore Eyes

Have you visited the EM Web site recently? If not, you should make a point of doing so, because you are in for a pleasant surprise. When we last redesigned our Web site four years ago, we made a huge improvement over the old, corporate-looking, battleship gray site we had suffered with previously, and we were justifiably pleased. But although the design was a good one for its time, any Web site starts looking tired if it hasn't been changed in four years. We wanted a fresh look that was easy on the eyes and easy to navigate and provided room to grow.

In addition to the desire for a new look, we had a more compelling reason to redesign our site: we had added a lot more content over the years, and the old design was inadequate to present it all properly. Navigation was getting more difficult, the home page looked crowded, and it required too many clicks to access some of the site's features.

To get the redesign under way, EM associate publisher Joe Perry, Webmaster Tami Needham, and I met with our company's technical group and told them what we had in mind. To our delight, they responded enthusiastically, quickly assembling a talented team that included coordinator Samantha Kahn, Web expert Dan Cross, project manager Asif Rahman, and Web designer Jennie Lee.

We felt strongly that our new design should be classy and should reflect the quality that we try to put into everything that is associated with EM. Furthermore, our editors and our site visitors are creative musicians, and we wanted our site to reflect that fact. To that end, we asked Jennie to use her imagination and not feel bound by how other magazines in our company and in the music-tech industry did things.

For my part, I wanted to reach far outside of the music and music-tech fields for inspiration, so I asked Jennie to look over the sites of some of my favorite high-class magazines—in particular, those of *National Geographic* and *Smithsonian*. I chose those two in particular because they are beautiful and creative and present information well.

After some back-and-forth discussions and tweaks, Jennie came up with a very attractive design that is just what we wanted, and we are confident that you will enjoy it too. And whereas our old design eventually became clogged with content, the new site has been designed to accommodate growth.

I won't get into our future plans for the site yet, because I don't want to promote vaporware and most of the new features are still in development. The one thing I will reveal is that an editorial blog is in the works, and it will be ready to launch soon—perhaps even by the time you read this. Otherwise, suffice it to say we have a lot more up our sleeves, and the new design provides a platform on which we can build. So stay tuned; I'll announce new site features in this column when we are ready to introduce them.

The new Web site is live now, so please visit www.emusician.com and enjoy! As always, if you have feedback, please be sure to email me at emeditorial@emusician.com.



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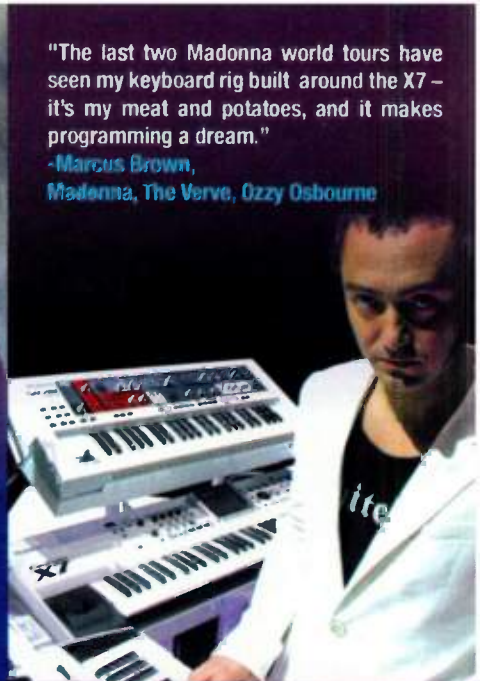
 Lara Duchnick, lduchnick@prismb2b.com



"The Fantom-X8 is the main workhorse of my rig. I can't imagine playing a gig without mine."
 -Paul Mirkovich,
 Rockstar Supernova, Rockstar INXS



"The Fantom-X7 has become a mainstay in my keyboard arsenal - I love the old school synths, rhodes' and clav's."
 -Herman Jackson,
 American Idol, Heather Headley



"The last two Madonna world tours have seen my keyboard rig built around the X7 - it's my meat and potatoes, and it makes programming a dream."
 -Marcus Brown,
 Madonna, The Verve, Ozzy Osbourne

Fantom X8 | X7 | X6

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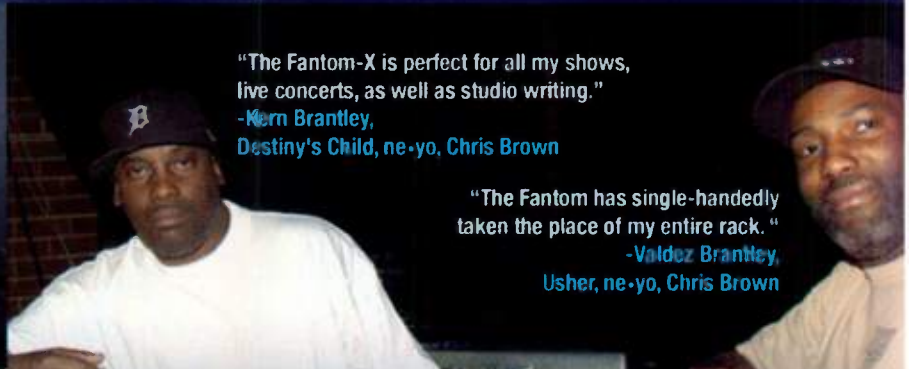


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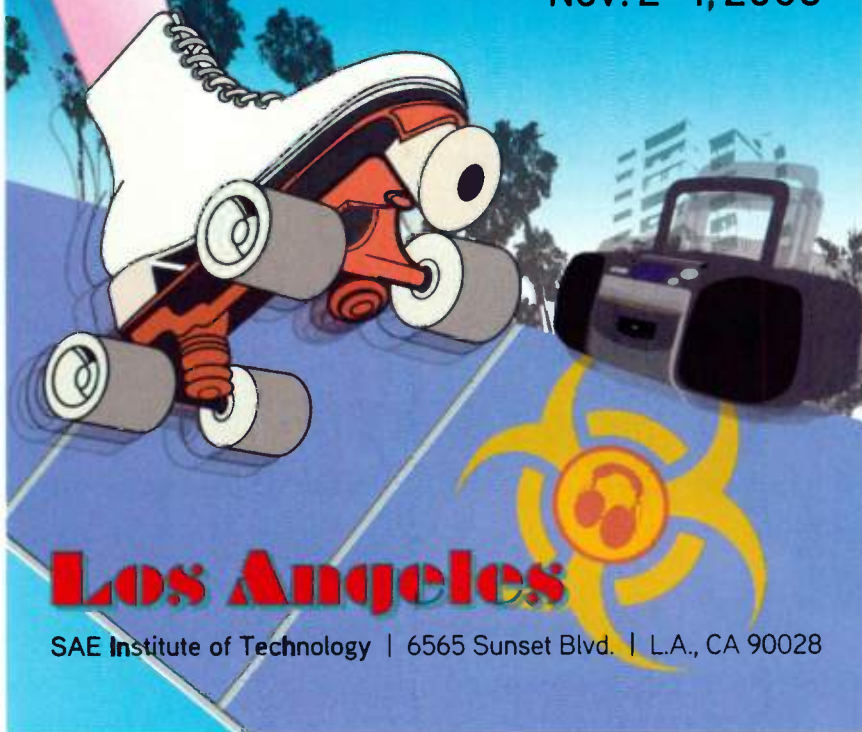
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Letters

Ribbon Rave

Gino Robair's article on ribbon mics (see "Ribbon Mic Summit" in the August 2006 issue of EM), with its timely and to-the-point information from some of the very best engineers in the business, was truly outstanding. I jumped on the ribbon-mic bandwagon a couple of years ago with the purchase of an AEA R84. I had been hoping to find a mic capable of smoothing out some harsh sound sources I deal with on a regular basis, such as the banjo, the Dobro, the harmonica, and the

Larry is the one reason I subscribe to EM, as he helps remind us of our human relation to music amid all the new innovations.

The members of the underrated American band Chicago were real masters at crafting rock songs containing positive messages. We have to remember that when Chicago started, we were in the middle of the Vietnam War, Kent State, the next big assassinations, and Watergate was coming up. It was a pretty grim time, much like today's scene. Unfortunately, the issues

the need to attend to interface gap and reconfiguration, or when we have to push software from point A to point B. I suspect that many people, myself included, will knowingly continue to suffer from this affliction.

In addition to the development of more comprehensive and intuitive control surfaces, it's possible that increased artificial intelligence (AI) could become a contributing partner to the creative process. AI might permit us to train our DAWs in a manner with which we could

Increased artificial intelligence could become a contributing partner to the creative process.

accordion, and I couldn't be happier with the results.

While ribbon mics are generally thought of as ambience or color mics, Steve Barker and Peter Cutler used a single SF-24 to make an absolutely stunning live recording of the Wailin' Jennys, the Canadian chanteuse trio. The session is fully documented, including stage plot, signal chain, equipment settings, and MP3s, on Royer Labs' Web site at www.royerlabs.com/session_photos/wailin_jennys.html.

Steve Chiasson
Forest Audio Services
Wellington, Maine

Sunny Side Up

As usual, Larry the O put out another great reflective column (see "Final Mix: Keep on the Sunny Side" in the August 2006 issue of EM).

they begged us to change have only gotten worse. They were way ahead of their time, yet they've stuck it out and are still out there today spreading messages of protest and optimism that reflect interpersonal relationships, our relationship with nature and the environment, and our country's politics. They are still rocking, still urging us on to action, becoming even better musicians themselves, and exploring new territory.

Cam Millar
Shepherdstown, West Virginia

DAW Distraction

Larry the O's piece on how DAW distraction fragments the creative process hit the nail on the head (see "Final Mix: Fraggged" in the July 2006 issue of EM). The ability to lose oneself in the music frequently becomes compromised by

work comfortably, and thus allow us to blissfully ignore most of what's taking place under the hood. I hope that software engineers will work toward such solutions and work a bit less on ways to tweak our compositions at the subatomic level.

Jeff Popplewell
Cincinnati, Ohio

Gain Range

So, is MOTU basically saying to add *gain range* to the list of marketing doublespeak phrases used to mislead the consumer? (See MOTU director of marketing Jim Cooper's reply to the letter "There's Much to Gain" in the July 2006 issue of EM.)

A quick search online shows the following products' gain. (All of these products were advertised in the July 2006 issue of EM.) MOTU UltraLite has a "3-way pad switch

The "indispensable," - Moby
"inspiring," - Keyboard Magazine
"incredible," - Jordan Rudess, Dream Theater
"fabulous," - Sound on Sound Magazine
"most organic,"
"loudest," - Mix Magazine
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Letters

(0, 18, and 36 dB) and 24 dB of adjustable trim (in 1 dB increments), which provides a 60 dB gain range." In the real world, that translates to 24 dB of gain. Contrast that with the Mackie Satellite, which has 60 dB of gain; the Digidesign Mbox, which has 50 dB of gain; the Lexicon Alpha and Omega, which have 50 dB of gain; or the Focusrite Saffire, which has 60 dB of gain. It's no wonder that MOTU has resorted to using the term *gain range* instead of *gain*. The company can't compete.

Daniel Francisco Valdez
via email

Manual Labor

Although I agree with most of what Larry the O said about

reader through predefined scenarios that were carefully designed to cover the basics, all of what 80 percent of users will ever need. But if you're in the 20 percent category, you have to dig through pages that don't apply to the problem you are trying to solve. Since the manual is organized around the prepackaged scenario, it's not designed to be searched based on the features you need.

If manufacturers really want users to stop "wasting" the time of their tech-support staff with "stupid" questions, they should invest up front in better documentation for their products. Too many companies take the easy way out and throw together

Manufacturers should invest up front in better documentation for their products.

customer service, he overlooked the fact that many manuals are often poorly written as well as uninformative (see "Final Mix: Are You Being Served?" in the June 2006 issue of EM). Even worse, a lot of manufacturers print just the quick-start guide and provide the complete owner's manual only as a PDF file copied on an enclosed disk.

There are two huge problems with that approach: first, the gear I'm trying to debug may or may not be close to my computer, and second, the manual is usually just a set of tutorials that walk the

something that looks neat but is hardly comprehensive.

Terrell Miller
Atlanta, Georgia

Author Larry the O replies: Thanks for your comments. I agree with you that owner's manuals are often given short shrift by manufacturers. Indexes are particularly neglected, which is a shame because they are key when one is trying to locate the answer to a specific operational question. In fact, I cited the problem of manual quality in "Final Mix: Information, Please" in the September 1999 issue of EM, in which I concluded: "In the Final Mix, good information is good product support, good product support is good marketing, and good marketing is just good business."

Having already written about the issue (albeit some years ago) and having a limited amount of space in each column, I opted not to raise the point again. However, it clearly matters to others such as yourself, so I appreciate your making a statement on the subject. EM

We Welcome Your Feedback

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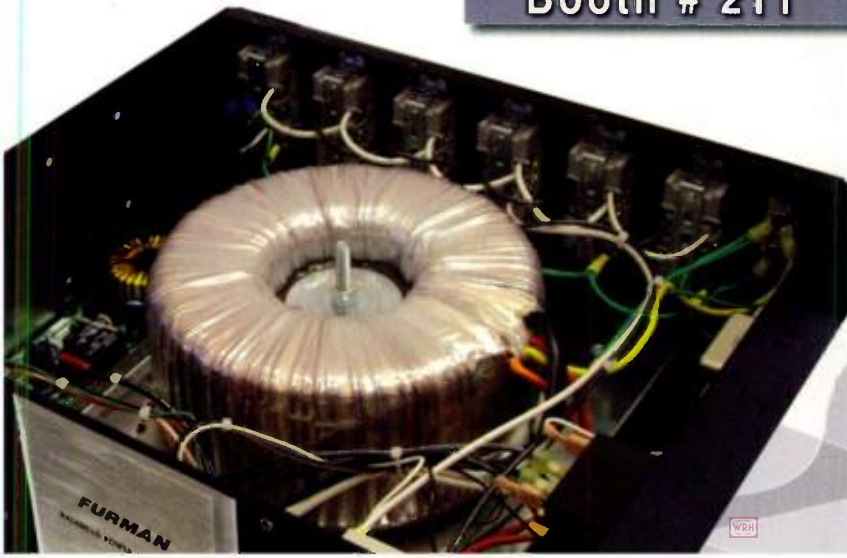
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EMspotlight

The Genius of Esquivel

Juan Garcia Esquivel's elaborate orchestrations and use of stereo imaging produced unusual soundscapes that were way ahead of their time. Although his work was dubbed *space-age bachelor pad music* in the '90s, he was a pioneer in pop recording during the late '50s and early '60s. In this interview from the EM archives,

Esquivel discusses his otherworldly arrangement techniques, the subtleties of recording acoustic instruments, and his obsession with stereo separation. By Michael Molenda. emusician.com/em_spotlight

On the Home Page

EM Web Clips

A collection of supplemental audio, video, text, graphics, and MIDI files that provides examples of techniques and products discussed in the pages of *Electronic Musician*.



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Show Report

The 2006 Summer NAMM show is one of the largest annual musical-instrument expos in the United States. Visit emusician.com for Associate Editor Geary Yelton's report on the exciting new recording gear, music software, and electronic musical instruments unveiled at this year's show.



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WHAT'S NEW

By Geary Yelton

Focusrite Liquid Mix

Liquid Mix (Mac, \$1,099) is a 32-channel DSP host from Focusrite (www.focusrite.com) that emulates modern and vintage compressors and equalizers. Using the same dynamic convolution processes as Liquid Channel, Liquid Mix furnishes models of 40 compressors and 20 EQs, including hardware from Avalon, Drawmer, Millennia, Neve, SSL, TL Audio, Empirical Labs, Urei, Pultec, API, and, of course, Focusrite. Focusrite says that additional emulations will be available for download.

On each of the 32 channels, you can assign EQ and compressor emulations at the same time. Each channel will appear as a VST or an AU plug-in in your recording software. For Pro Tools users, a free version of FXpansion's VST to RTAS Adapter is included. Liquid Mix allows you to add features to existing models to create hybrid emulations. For instance, you can turn your favorite 4-band EQ into a 7-band EQ or add attack and decay to a compressor that lacks those parameters.

Housed within a desktop controller, Liquid Mix connects to your computer by means of FireWire, which supplies its power. The physical knobs, buttons, LED meters, and LCD screen provide a tactile interface for controlling the included software for Mac OS X. If you prefer, you can control Liquid Mix without ever touching the hardware. An optional expansion card is available for additional channels at high sampling rates. Focusrite expects to ship a Windows XP version as soon as this October.



Mackie Onyx Satellite

Unless you do all your recording in one location, you might think you need two audio interfaces—one for the studio and another for the road. To simplify life, Mackie (www.mackie.com) has begun shipping a FireWire recording system that handles both applications. The Onyx Satellite (\$519) consists of two halves. One is the Satellite Pod, a bus-powered portable unit that has two combo XLR/TRS inputs with 48V phantom power, balanced ¼-inch control-room outputs, and two headphone outs with independent level controls. Each combo input also has a switch for guitar-level signals.

The other half is the Satellite Base Station—a docking unit that gives you additional I/O and control capabilities. The Base Station has separate XLR mic inputs, ¼-inch instrument inputs, and balanced ¼-inch line inputs, as well as selection switches for each source, a talkback section with a built-in mic, and ¼-inch insert jacks for both channels. It also has six balanced ¼-inch outputs that you can route in pairs to different monitor setups, and you can control all six outputs with a single knob. Like the Satellite Pod, the Base Station can be powered either by FireWire or by the included 12V power supply. Bundled with the Onyx Satellite is Traktion 2 (Mac/Win), Mackie's full-function digital audio sequencing program.

URS Classic Control Strip

One of the newest plug-ins from Unique Recording Software (www.ursplugins.com) is Classic Control Strip (native, \$249; TDM, \$499). Featuring independent compressor and EQ sections with separate in/out switching, Classic Control Strip has a compact user interface and impressive CPU efficiency. URS reports as many as 12 TDM instances per Accel chip and 48 native instances on a Mac G5 Quad at 30 percent CPU usage. The native version supports AU, RTAS, and VST formats and 64-bit processing. The TDM version supports all four

plug-in formats and has 48-bit double-precision processing for superior headroom without clipping.

The compressor section emulates a feed-forward, voltage-controlled gain-reduction amplifier with a transformer input. Three essential knobs control threshold, ratio, and makeup gain, and an analog-style VU meter displays gain reduction. The 3-band EQ section emulates channel strip features of three different analog mixing consoles. In addition to three selectable frequencies each for the high and low bands, it provides sweepable frequency and switchable sharp or wide Q for the middle band. You can position the compressor either pre or post the EQ.





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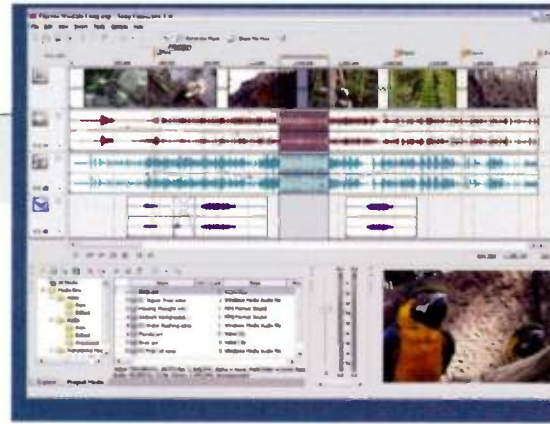
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Sony Cinescore

One of the fastest ways to create music for picture is with software that automatically assembles made-to-order soundtracks based on your specifications. Cinescore (Win, \$174.95) from Sony Media Software (www.sonymediasoftware.com) gives you 20 royalty-free themes and nearly 500 variations in diverse musical genres, from which it can quickly generate any number of fully orchestrated compositions. You can enhance a production project's objectives and atmosphere by selecting a theme and adjusting parameters such as tempo, mood, and intensity. Choose from a variety of ending types and more than 300 sound effects and audio transitions.

Cinescore's mixing and editing features allow you to cus-

tomize its compositions further. Use envelopes to control panning and volume changes. Specify regions and track markers and time-stretch music to fit your time requirements. Cinescore imports and exports numerous file formats, from AIFF and AVI to MPEG and WMV, and lets you create and save custom variations. Additional theme packs are available, each providing ten themes and dozens of variations.



AMG One

Soundware developer AMG (www.samples4.com) has introduced a multitimbral loop player and editor called One (Mac/Win), available either with (\$250) or without (\$100) a Core Library. Unlike FabFilter's synth plug-in One, AMG One runs either standalone or as an AU or a VST plug-in



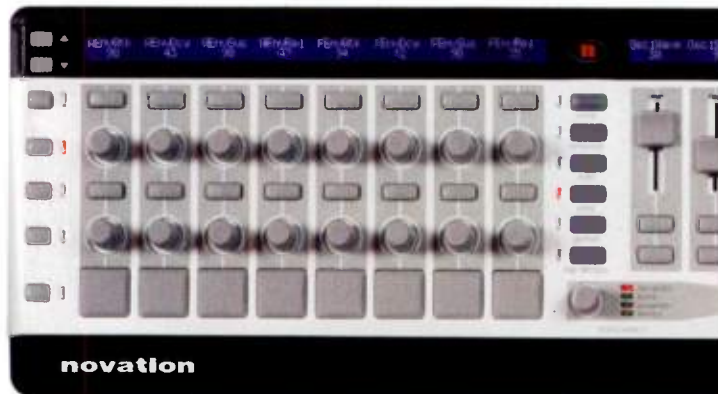
and reads REX, Acid, WAV, and AIFF files. The Core Library features more than 4 GB of content that encompasses genres such as hip-hop, Latin, acid house, and Detroit techno (expansion libraries are forthcoming). One's browser allows you to search hierarchically and filter content and effects by name, partial name, type, format, or tempo. You can use One's time-stretching abilities to match beats, and you can trigger and save individual beat slices and export MIDI beat-slice maps.

One has eight virtual racks, each capable of playing a different loop or sample, and you can save multitimbral combinations in a Multi. Each rack has independent MIDI channel, polyphony, tuning, multimode filter, pitch, and envelope parameters. Each rack also has its own 16-step sequencer, which holds as many as 32 samples. In addition, One has four independent effects processors—each offering dozens of delay, reverb, EQ, flanger, dynamics, distortion, and other processing presets. All parameters are MIDI controllable. You can download a demo version of One from AMG's Web site.

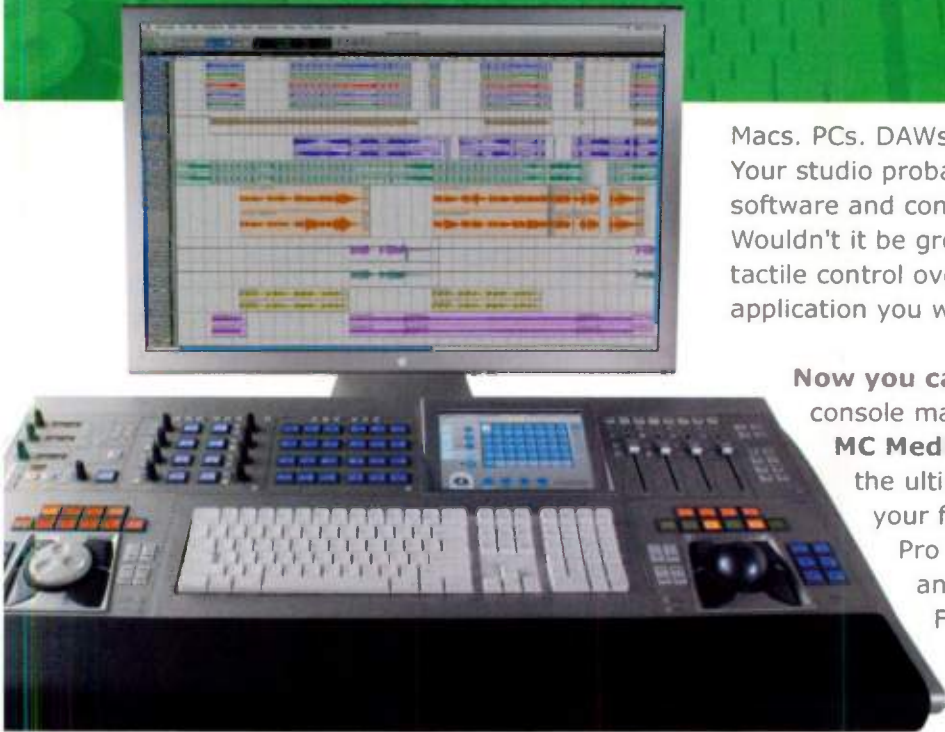
Novation ReMote Zero SL

Don't want another keyboard, but still need a remote control surface? Take a look at the ReMote Zero SL (\$499.99) from Novation (www.novationmusic.com). It has all the MIDI control features of Novation's ReMote SL keyboards but without the keys, joystick, or touch pad. You still get 8 Velocity-sensitive trigger pads, 8 sliders, 8 rotary encoders, 8 rotary potentiometers, 6 transport controls, and 32 buttons—all MIDI assignable. And you still get rows of LCDs that reveal 16 control assignments and their values at a glance. You even get Novation's Automap, enabling automatic bidirectional communication between the ReMote Zero SL and Apple Logic, Propellerhead Reason, Ableton Live, and Steinberg Nuendo and Cubase (with more to come). That means you can scroll through sequencer tracks or racks of effects without touching your mouse. MIDI In, Out, and Thru and a USB port are on the rear panel.

The ReMote Zero SL comes bundled with the Xcite DVD-ROM, containing a collection of audio software such as Novation Bass Station, Ableton Live Lite 5, FXpansion BFD Ultralite, and 470 MB of LoopMaster samples. Also included is a template editor for mapping controls and creating your own Automap templates.



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PreSonus DigiMax FS

Baton Rouge, Louisiana-based PreSonus (www.presonus.com) is now shipping the DigiMax FS (\$799), an 8-channel mic preamp with eight channels of 24-bit, 96 kHz ADAT Lightpipe I/O. Each of the eight Class A preamplifier inputs has a Neutrik combination XLR and TRS jack, a direct TRS output, and a TRS insert for external processing before the output stage. TRS inputs on two channels accept guitar-level signals, and the remaining six accept line levels. In addition, each ADAT channel has its own ¼-inch D/A converter output.

Designed as a hardware expansion for digital mixers and audio interfaces, the DigiMax FS has BNC word-clock I/O and two Toslink



connectors for dual-SMUX ADAT I/O. All eight channels have individual trim knobs, and you can toggle 48V phantom power for four inputs at a time. Front-panel buttons let you select either BNC or ADAT external sync or one of four internal clock rates. JetPLL jitter-reduction technology, licensed from TC Electronic, uses noise shaping to minimize jitter in the audio band and to ensure instant synchronization over a wide frequency range.

Disc Makers ReflexAuto3

Disc Makers (www.discmakers.com), manufacturer of DVD and CD duplicators, printers, and media, has introduced a high-speed automated tower duplicator called the ReflexAuto3 (\$1,890). Capable of burning as many as 18 full DVDs or 26 full CDs in an hour, the ReflexAuto3 holds 100 discs at a time and can operate unattended for hours. Because it has a robotic arm, the ReflexAuto3 can successively duplicate several masters during a single run, and you don't have to manually change discs after every duplication session.

The ReflexAuto3 has a 160 GB hard drive and three 16x dual-layer DVD±R/48x CD-R Plextor drives. Disc Makers recommends its new smudge-proof, ink-jet-printable Ultra HydroShield CD-Rs for use with the ReflexAuto3.



Download of the Month

DEVINE MACHINE MINION 1.1 (MAC/WIN)

Minion 1.1 is a free filter-based, multi-effects plug-in with a unique, graphical modulation system. You can download Minion and demos of other Devine Machine plug-ins, most notably the new Lucifer 2 stutter-and-scratch loop processor, from www.devine-machine.com.

Minion has four effects buses, each of which can hold one of 16 effects. A small mixer in the control panel's lower-left corner sets the level and routing of each bus. You can route each bus directly to the output or into the bus to its right, which greatly expands Minion's effects-processing options.

Most of Minion's effects start with a 2-pole filter: lowpass, bandpass, highpass, or notch. Exceptions include rectifier, hard clipping, and volume effects as well as a peak EQ and power-lowpass filters. You can use the 2-pole filters by themselves or followed by waveshaping distortion. The effects sound great, but the real action is in the modulation.

Each effect has three parameters whose values are represented by the 3-D position of a colored ball. As usual, the dimensions are labeled X (horizontal), Y (vertical), and Z (depth); the z position is indicated by the size of the ball. The

x-axis controls the filter-cutoff offset or pan position for all effects. The y-axis controls cutoff frequency for the filter-based effects. The z-axis controls the distortion amount for effects that use one of the wave-shapers and resonance for the other filter effects. The y-axis and z-axis control other parameters for the remainder of the effects.

You can move the balls around with the mouse, but more interestingly, Minion has independent LFOs for each dimension of each ball. Each LFO has its own tempo-synced rate as well as offset, depth, and shape. The filter effects also have an envelope follower for controlling cutoff frequency. Moving-filter effects are great for processing almost any type of material, and Minion provides lots of motion (see Web Clip 1).

The eye candy alone is worth the download.

—Len Sasso



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Rev Up

SUBMERSIBLE MUSIC DRUMCORE 2

With DrumCore 2 (Mac/Win, \$249), Submersible Music (www.drumcore.com) has expanded its innovative approach to laying down drum tracks. Like previous versions, DrumCore 2 is a standalone virtual drummer that delivers 24-bit sound and live loops and variations played by prominent musicians. The new content furnishes additional musical genres and content from artists such as rock powerhouse Terry Bozzio, country legend Lonnie Wilson, and jazz percussionist John Bishop. Yes's drummer Alan White's tracks now include odd meters, too.

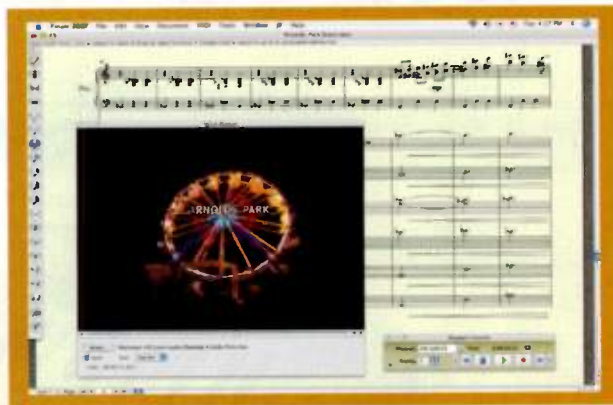
DrumCore 2's tempo is continuously variable, with bpm accuracy to three decimal places. Enhanced ReWire functionality lets you sync transport controls and playback tempo to any ReWire host. You get independent ReWire outputs and volume, pan, and pitch controls for each drum and cymbal. You can export DrumCore loops as REX2 files,

and you can drag loops to REX2-compatible sequencer tracks. In addition, DrumCore can import REX2 and Acid files, and it even functions as a loop librarian.

FINALE 2007

As expected, MakeMusic (www.finalemusic.com) has released a major update to its top-of-the-line music-notation application. Finale 2007 (Mac/Win, \$600) promises innovative features, new creative options, and increased productivity. The program can automatically generate dynamically linked parts as you create your score. Intelligent linking knows when to demand consistency and when to allow differences between your score and the individual parts, according to your preferences. Onboard video support automatically synchronizes imported clips in a resizable Movie window. Video work-flow features incorporate user-definable frame rates and refined timecode support.

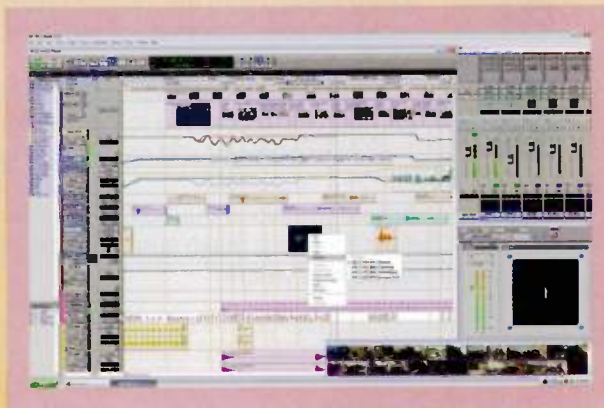
Native Instruments Kontakt Player 2 and a library of instrumental sounds from Garritan Personal Orchestra are integrated into Finale 2007. You can now select from a variety of Latin percussion rhythms and instruments. You also get new engraver-level functions such as the Vertical Collision Remover, an Update Brackets And Groups command, and enharmonic spelling in chromatically transposed parts. Additional enhancements include improved Human Playback, updated playback controls, and support for Intel-based Macs. Upgrades are priced from \$99.95 to \$149.95.



DIGIDESIGN PRO TOOLS HD 7.2

Digidesign (www.digidesign.com) has released Pro Tools HD 7.2 (Mac/Win, \$199 upgrade), the latest version of its audio workstation software. The upgrade gives Pro Tools |HD users enhanced mixing and postproduction functionality with more comprehensive automation and video capabilities. Now you can use standard editing commands to cut video with audio. You can create multiple playlists and video tracks in a single session and bounce edited video to QuickTime movies for fast auditioning. Combined with the new software, Digidesign's Icon control surfaces gain features previously found only on high-end consoles, such as VCA-style groups with fader spill, 2-knob surround panning, and jog-wheel scrolling and zooming.

Pro Tools HD 7.2 software offers a unique work flow and metadata support that allows you to link alternate-channel audio from multichannel field recorders. Right-clicking your mouse reveals new contextual menus and commands. You can independently nudge and slip fades as if they were audio regions, making it possible to create perfect fades without trimming. You can even turn Pro Tools into a standalone dubber and stem recorder. SignalTools, a new suite of multichannel metering and analysis plug-ins, is also included. **EM**





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Protein Storage

By Scott Wilkinson

New optical discs could boost capacity by 1,000 times.

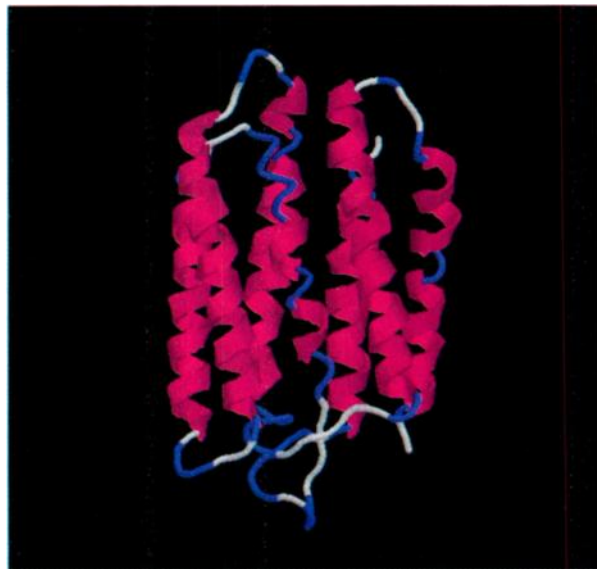
You might be aware of the war now raging in consumer electronics between the HD DVD and Blu-ray formats to become the next-generation optical disc for packaged-media distribution. Both offer much greater storage capacity than DVD (15 and 25 GB per layer, respectively, compared with 4.7 GB per layer for DVD), which seems like plenty for today's media content. But if we've learned anything about media-storage capacity, it's that there's no such thing as "plenty"—at least not for long.

In the never-ending search for greater capacity, a biotechnology researcher, Dr. Venkatesan Renugopalakrishnan (known as Renu), has come up with something quite interesting. In collaboration with various corporate and university labs, Renu is developing an optical disc the size of a DVD that can store nearly 200 GB.

Whereas DVDs, HD DVDs, and Blu-ray discs store data as tiny pits in a metallic material, the storage medium on Renu's disc is a protein called bacteriorhodopsin (see Fig. 1), which was discovered in the late 1970s. This protein is found in the membrane of

a microbe called *Halobacterium salinarum* that thrives in salty marshes, and it exhibits properties that lend themselves to data storage. As Renu explains, "When bacteriorhodopsin absorbs light, it undergoes structural changes. It

FIG. 1: The bacteriorhodopsin molecule takes on different shapes when exposed to light, making it ideal as a data-storage medium. This image depicts its ground state.



flip-flops from one state to another just like a binary-switching mechanism."

These structural changes form a series of intermediate molecules that generally last for only hours or days before returning to the original ground state. Renu's research includes genetic modifications to the protein that make it stabler and more resistant to thermal breakdown than naturally occurring bacteriorhodopsin. The mutated, synthetic form can produce intermediate states that last for years. "The ground state could be the 0, and any of the intermediates could be the 1," Renu says.

As with other types of optical discs, Renu's system uses a laser to write and read data, though at much higher speeds. Those speeds have not yet been measured, but the process is theoretically capable of causing transitions from 0 to 1 or vice versa in the picosecond range. By contrast, transitions in conventional magnetic storage occur in the nanosecond range—a thousand times slower.

Each molecule measures only 2 nanometers across, which is much smaller than the data regions of conventional optical discs. Yet the system uses lasers with wavelengths in the visible range of 400 to 600 nm. How can it read and write states in individual molecules only 2 nm across? The size of the data region in conventional optical systems is limited by the wavelength of the light, but placing the laser much closer to the medium avoids that limitation. In such a near-field optical system, wavelength has no meaning and individual photons become the dominant factor, allowing much smaller regions to be addressed.

The current capacity of 200 GB is only the beginning; Renu envisions capacities of up to 50 terabytes. "This will eventually eliminate the need for hard-drive memory completely," he says. "You have a compelling need [the insatiable desire for more capacity] that is not going to be met with the existing magnetic storage technology."

As I've said many times, any advance in storage capacity, processor speed, or data throughput is of paramount importance to all electronic musicians. If Renu's research leads to optical discs with hundreds or thousands of gigabytes of capacity, it should appease even the most data-hungry among us for quite some time to come. **EM**

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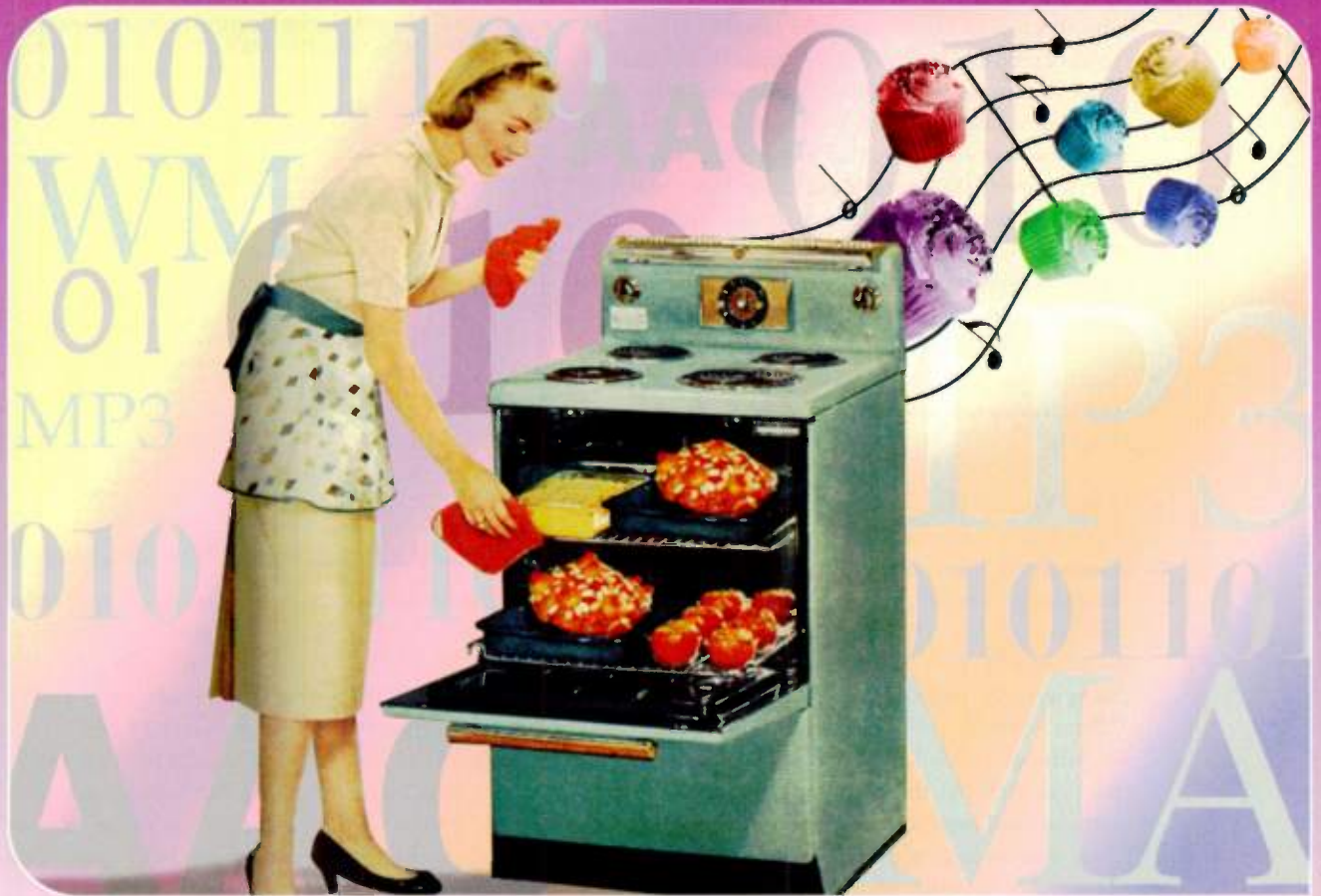
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LAURA WILLIAMS

All Is Not Lost

By Vijith Assar

The audio professional's guide to perceptual encoders.

Chances are you occasionally send rough mixes to clients or vie for jobs using compressed audio samples. But it's surprising how little some engineers and producers know about audio-compression techniques, especially considering that their art and their livelihoods can depend on them. Each of the available formats has unique strengths and weaknesses, and selecting the one that suits your needs is the Internet equivalent of choosing the right microphone or reverb.

Smart encoding practices can result in better-sounding files that can more accurately present your abilities to potential clients. They might even win you a contract over a competitor who just coasts along using a program's default settings. What's more, compatibility issues can arise from blindly using default compression methods; many programs subtly encourage you to use their native formats. Being careful about your choices can ensure that potential customers are able to listen to your clips.

I Can See Clearly Now

Numerous lossy audio encoders have emerged in the past few years, all of which are trying to beat the ubiquitous MP3 by offering sonic and technical advantages. Though each offers its own feature set and underlying technologies, what they all have in common is the goal of *perceptual transparency*.

Perceptual transparency is based on the idea that there is a certain threshold beyond which higher sound quality becomes largely inaudible and, as a result, functionally useless.

This threshold will vary depending on the listener: EM readers probably have a higher average threshold than most consumers. When properly executed, lossy compression is tailored to the intended listener and will compress just enough so that any artifacts created lie barely outside the limits of audibility. That's precisely why MP3 files became so widespread: most people who were not expert listeners found that the audible artifacts from even relatively bad MP3s, such as those created at low bit rates by inferior first-generation encoders like Fraunhofer and Blade, were not troublesome enough to derail their listening experience. As a result, consumer adoption of the MP3 format spread quickly.

Tag, You're It!

But perceptual transparency is not the only goal. Every modern compressed audio format includes provisions for storing *metadata*, or data about data. Metadata is information about the music—artist, song title, album name, and so on. It's possible to accomplish the same thing using file names (“The Beatles - 1968 - The White Album - Side 3 of 4 - Track 4 of 7 - Everybody's Got Something to Hide Except Me and My Monkey.mp3,” for example), but there are programs that can read metadata and apply it to file names and directory structures across a large audio collection with a single click. That makes metadata infinitely more powerful than file names, because it allows you to reorganize your collection on a whim.

The ID3 standard emerged in the mid-1990s as a way of organizing metadata in a *tag*, which is a block of text attached to the audio file. This tag is arranged to make its contents easily readable by any program or hardware device accessing the file. It's prudent to set up

FIG. 1: Both ID3v1 and ID3v2 tags can coexist for the same file. The two types can even contain different information.

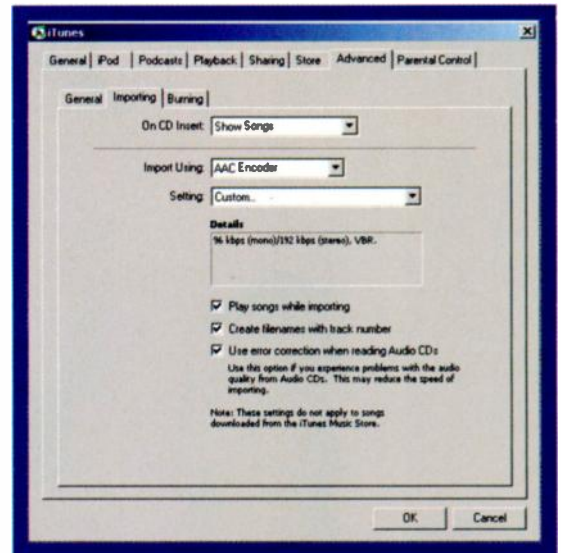
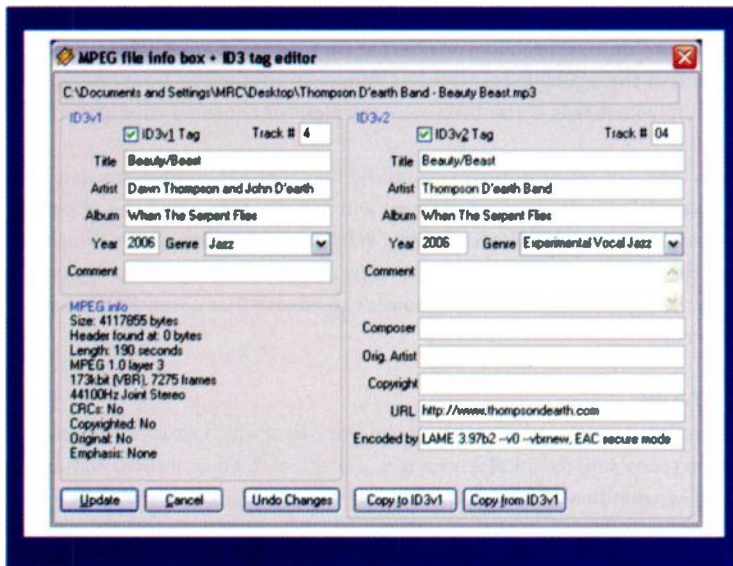


FIG. 2: iTunes will use AAC encoding unless you specify otherwise in the Preferences menu.

your tags carefully, because they are an opportunity for you to achieve name recognition with clients and to ensure that you get proper credit for your work. Tagging is as easy as choosing Edit Info (or the comparable option) from the contextual menu in your MP3 playback program and filling in the data fields that appear.

The first iteration of the MP3 tag, ID3v1, was limited to 128 bytes of text, which meant that fields were sometimes too short for the data that belonged in them. ID3v2 solved this problem, but because the v2 tag is placed at the beginning of the file (rather than at the end as in v1), the process of tag writing can be slower. These days, most people use some form of ID3v2 (there are several subvariants), but it can't hurt to include both ID3v1 and ID3v2, especially because you never know which tag type your listeners' playback systems might be reading (see Fig. 1). If you have included only ID3v2 tags and your listeners have their programs or hardware set to read ID3v1, you'll show up as “Unknown Artist.”

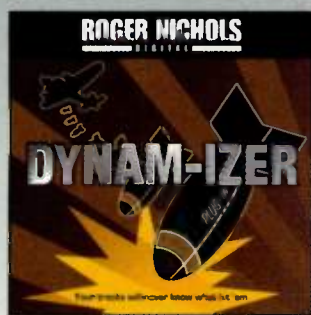
Any Comments?

Because the Comment field in ID3v2 is infinitely extensible, it can be used to store fairly advanced information. iTunes stores volume-normalization information (Sound Check values) in a special frame within the Comment field, and several programs can embed pictures of an album cover there. The Comment field is one of the most powerful tools available, because it's searchable and easily accessible by all major programs. If you're sending the files over the Internet, for example, you can use comments to plug your studio (be sure to include contact information). If you plan to use the files internally, why not

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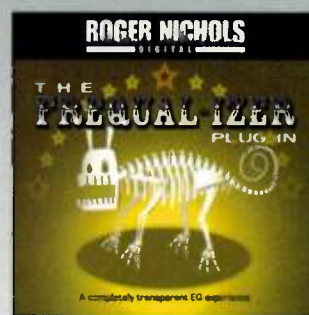
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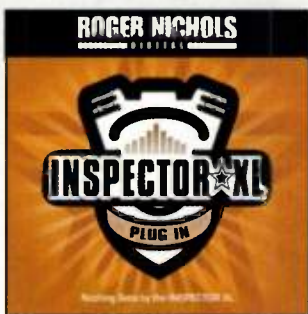
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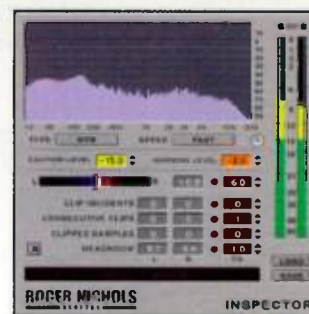
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store a list of the session players used on each track, complete with phone numbers in case you need to call them again for a similar project? You can also use it to make notes about alternate arrangements or mixes or mastering jobs, or rough recall information, or even outstanding unpaid balances from clients. The possibilities are endless.

ID3v2 also includes a URL field in which you can specify a Web address; this is advisable because you never know when one of your tracks might fall into the hands of a major record-label executive or a potential client. The field is not readily accessible from iTunes, but there are a slew of programs that can access it from Windows, and Panic Audion (see the sidebar “Manufacturer Contacts” for a list of companies mentioned in this article) is a lightweight iTunes alternative for Mac OS X that provides easy access to the field. It’s also wise to include the URL in the Comment field in case your eventual recipient is an iTunes user.

Although it is both useful and widespread, ID3 is a tag format that applies only to MP3 files. There are a few rogue programs that might occasionally try to force ID3 tags onto file formats that don’t actually support them, such as WAV. This practice should be avoided, though, because it invariably violates the standard of the file type being mangled, leaving you with a nonstandard and possibly unplayable file. Instead, you should use the metadata format native to the file type you choose. There are as many tag varieties as there are audio formats, but with proper decoder implementation, the differences between them should be imperceptible to the end user.



FIG. 3: Enabling copy protection in Windows Media Player will lock out unintended users.

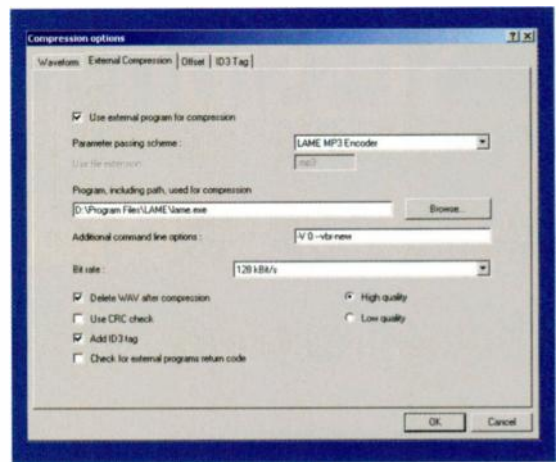


FIG. 4: You can set options in LAME and many other encoders by using special command-line settings, such as those shown here.

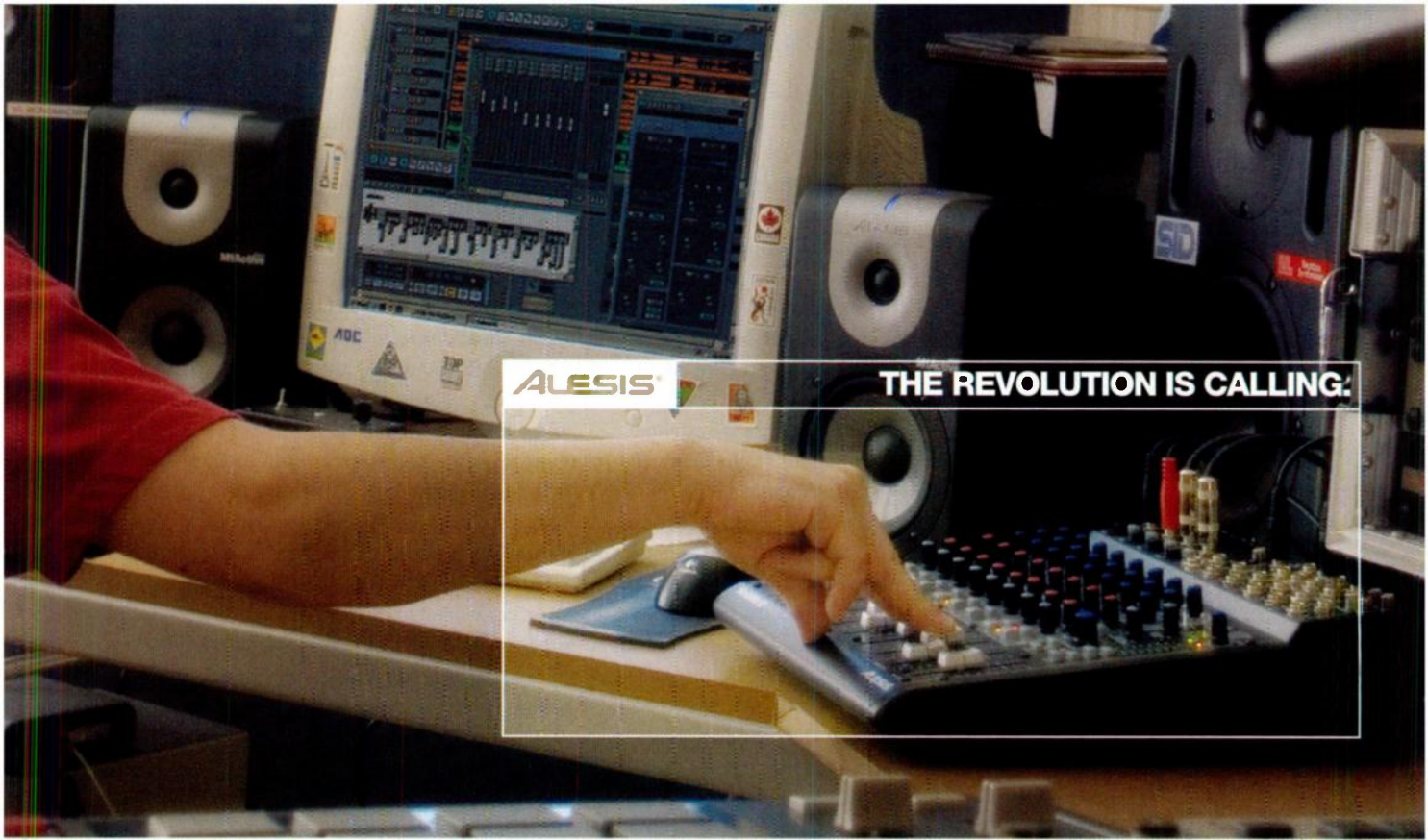
Heir to the Throne

Advanced Audio Coding (AAC) is generally viewed as a technically superior successor to MP3. It is also championed by the Moving Picture Experts Group (MPEG), which infused the new format with everything it learned about human audio perception from its experiences with MP3 over the last decade. AAC is the audio layer of the MPEG-4 standard, which means that the AAC audio stream will often be placed inside an MP4 container file. This file usually has a .m4a file extension as prescribed by MP4 naming standards (though a .mp4 extension would also be valid).

Apple Computer has been the single greatest force in encouraging adoption of AAC, enabling support in iPods and iTunes and relying on it for the iTunes Music Store (see Fig. 2). However, audio files purchased from the iTunes Music Store are wrapped in FairPlay digital rights management (DRM) technology and use a .m4p extension. These files are very different from standard MP4 files because they are locked and copy protected. AAC will probably be around for quite a while, as it has the weight of both Apple and MPEG behind it. It provides an excellent ratio of file size to sound quality and thus is a great choice if you are not concerned about widespread compatibility.

Locks on Your Windows

Windows Media Audio (WMA) is a proprietary audio format developed by Microsoft, which claimed it would provide audio quality comparable to that of MP3 at half the file size. That claim has since been debunked—standard WMA files are no better than vanilla MP3s. Although the Pro version has proven to be a powerful, efficient codec, even providing support for 24-bit multichannel audio, it hasn’t gained widespread popularity due to a complete lack of hardware support. A lesser concern has been Microsoft’s attitude toward non-Windows operating systems: there’s no official support for WMA in Linux



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(though it can be accomplished using the Xine playback engine), and the notoriously unstable Windows Media Player for Mac was recently discontinued. (Microsoft is now instructing users to install a third-party QuickTime input plug-in to get WMA playback on the Mac.)

Nevertheless, WMA has managed to spread considerably due to its strong implementation of DRM. MP3 is an inherently insecure format, as it was developed before the online media explosion. WMA took shape as content providers became increasingly concerned about security, and as a result it includes proprietary licensing technology that has proven to be useful for many online music stores. In fact, this technology is at the heart of the PlaysForSure program, a Microsoft-led initiative designed to ensure compatibility among online stores and playback devices. Secure WMA is most appropriate for large distribution outlets that sell protected files to end users, for content providers, or for those working with sensitive material and high-profile clients who are concerned about leaks.

It is possible, however, to create your own protected WMA files using Windows Media Player (see Fig. 3). But because the WMA scheme stores authentication licenses separately from the audio files (in contrast to the iTunes model, which will authorize or deauthorize the entire collection at once), you may find yourself locked out of your own media if you haven't backed up your licenses and your hard drive crashes. (Always keep your source files as unprotected PCM audio files so you can reencode if necessary.) Moreover, almost any playback mechanism that supports WMA also supports MP3, so all in all, there's not much benefit to using WMA format.

What's in a Name?

Ogg Vorbis emerged several years ago as a free, open-source alternative to MP3 and WMA. The format consists

of two distinct parts: Vorbis, the audio-compression codec, and Ogg, the container. This is a potent combination: Vorbis delivers great performance at any bit rate, and Ogg includes a powerful and flexible metadata system. In addition, Ogg Vorbis is the only encoding method to promise eventual support for *bit rate peeling*, a function that would allow scaling of high-bit-rate files down to lower bit rates without the quality degradation that usually results from reencoding a previously encoded file. (So far it has failed to deliver on this promise, however.)

Ogg Vorbis has been largely marginalized by the commercial support thrown behind AAC by Apple and iTunes. On the other hand, because it is open source, using it does not require the payment of royalty fees, such as those charged by the Fraunhofer Group for using its patented MP3 format. As a result, Ogg Vorbis is often used for embedded applications like video games, and it's the format of choice for Wikipedia for the same reason. Further, the metadata capabilities of Ogg are more advanced than those of most other audio formats, making it especially suitable for someone maintaining an extremely large library of compressed audio.

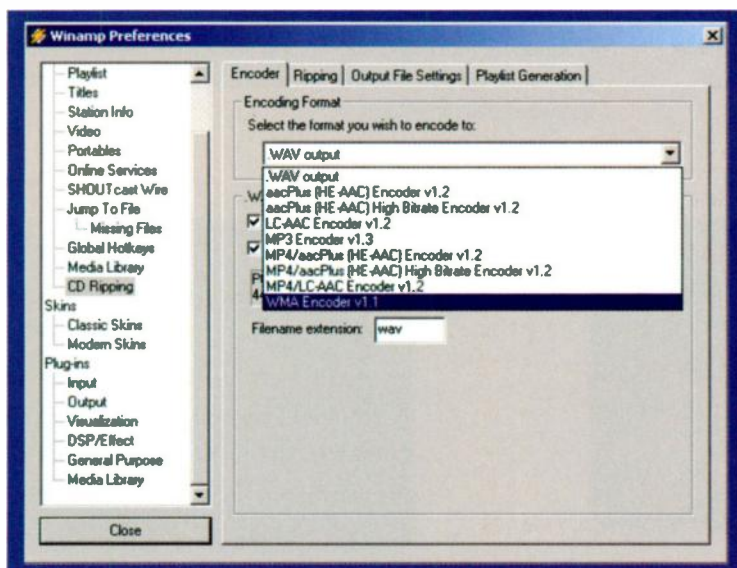
(Anything but) Lame

In spite of the strong showing from newer formats, MP3 should remain a viable option for some time. That's mostly because the LAME encoder, an open-source project, incorporates advanced options that have kept the format competitive. First and foremost is LAME's ability to vary bit rate over the course of the file. This allows the encoder to adapt to the complexity of the audio stream being encoded in order to use more bits when they're needed and to lower bit rate when the signal is relatively simple.

By default, LAME uses constant bit rate (CBR) encoding, which applies the same amount of compression to the entire file. But by using the "--abr" command when accessing LAME (for example, "--abr 192"), you can enable average bit rate (ABR) encoding, which will vary the compression rate a modest amount as needed. Though constant bit rate encoding can sound fairly decent, ABR encoding will sound better than CBR at any given bit rate without increasing the size of the resulting file.

A step above ABR is fully variable bit rate encoding (VBR), which allows the encoding quality to fluctuate wildly according to the input file. This will sound even better than CBR or ABR encoding, again without impacting file size. VBR is enabled using the "--vbr" switch (for example, "--vbr 192"). Though some older hardware MP3 players had trouble decoding VBR files, VBR has now been around long enough that it is preferable in all but the most unusual situations. (One of the technically superior features of the Ogg Vorbis format is that it uses VBR encoding by default.) If your hardware has trouble

FIG. 5: Many Windows programs, including Winamp, can be used as front ends for a number of different encoders.





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This one-of-a-kind, cross-cultural mix represents a fusion of thumpin' hip hop beats blended with live-recorded ethnic loops. World beat and hip hop collide with Asian, Indian, Arabic, Latin American, Spanish and African influences. A collection of construction kits so compelling and innovative, that Jerry Heller, co-founder of Ruthless Records (Dr Dre, Ice Cube, Easy E), calls it "The future of hip hop". Explore the exotic, and get with the future of hip hop today!



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If you're looking for a subconscious state of electronic, hypnotic rhythms and sounds, then what you want is progressive House and Trance, and what you need is a RUSH! All the material you need to get your tracks into the biggest clubs is right here. These kits offer you the full mix, breakouts and drum hits from each kit in REX2, WAV and Apple Loops format. Over 1.3 gigs of pure adrenaline, plus a bonus folder of 420 extra drum hits and loops.



Neo Soul 2

'99"
WAV/REX/Apple Loops

Sultry producers/songwriters Josquin des Pres and Bernard Tortelli deliver a sequel that rivals the original. You can't help but feel G'd up and Classy with these sensual grooves. With drumloops, guitar, bass, synth, piano, percussion, organ, strings, horns and more, these construction kits give you the perfect blend of 70's soul, New millennium Hip Hop, Jazz and R&B.



Nu Metal City

'69"
WAV/REX/Apple Loops

A head-banging collection of construction kits covering a variety of styles, including Nu Metal, Metalcore, Death Metal, and Industrial Rock. Inspired by the music of such artists as Slipknot, Korn, Anthrax, and Nine Inch Nails, NU METAL CITY features live and programmed drums, screamin' guitars, electric bass, synths, turntable FX, and atmospheres. If you're looking for butt-kicking loops with a hardcore attitude, welcome to NU METAL CITY.



Heat Seekers

'99"
WAV/REX/Apple Loops

If you're looking for the most current and popular hip-hop sounds out, then you got to pick up this new joint. With blazin' beats, thick bass lines, nasty synth, tight horns, strings and more, these kits are pushin it to another level. You'll get more than 1900 loops in 50 construction kits ranging from 70 - 140 bpm. That's over 4 gigs of content in WAV, REX, and Apple Loops to blow up your tracks. Next time you head into the studio... bring the heat with you.



Off The Hook Hip Hop: Dirty South

'99"
WAV/REX/Apple Loops

Bling Bling and country grammar... this is as dirty as it gets. From the legendary "Off the Hook" series, these construction kits flow with some serious southern Hip Hop flavor. 2116 loops and sounds including drums, synths, electric bass, organs, guitars, Rhodes, strings, percussion and more. Plus a ton of bonus material! With enough crunk juice to fill your pimp cup twice, you can ride with these tracks from St. Louis to New Orleans and back.

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Electro Magnetic Fury

'99"
WAV/REX/Apple Loops

Acclaimed producer Perry Geyer is back at it again with Electro Magnetic Fury. Whether you're making hard hitting house, nu school breaks, big beat or electro you'll find just what your searching for with this surge of furious beats over menacing atmospheres. Nearly 100 construction kits of punishing drums and beats, basses, pads, FX, atmospheres, distorted grooves, massive percussion and more will bring the Fury.



Funk Quartet

'99"
WAV/REX/Apple Loops

Good times are back again as jazz and funk genius Rich Mendelson lays down the squeaky grooves in the set. 73 construction kits of the finest funk around. We have released a number of top selling Jazz and Funk libraries but nothing like this before. We're going back to basics with this 2.8 GB library of just pure clean funk. You'll find only drums, bass, piano and guitar on this user friendly construction kit library.



Acid Jazz City

'99"
WAV/REX/Apple Loops

A collection 36 massive construction kits (over 1300 loops) of downtempo, retro and free jazz styles infused with a hip hop groove. Inspired by the music of artists such as Guru, Herbie Hancock, Digable Planets, Donald Byrd, De LaSoul, The Pharcyde, Groove Collective, and Jazzhole. ACID JAZZ CITY includes live and programmed drums, turntables, acoustic bass, guitar, keyboards, tenor sax, trumpet, flute, synths, congas, bongos and hand percussion.



Chill: Downtempo Loops & Beats

'99"
WAV/REX/
Apple Loops

Welcome to a whole new downtempo experience. Drums, guitars, keys, electric and acoustic bass, flutes and more gel between 60 and 110 bpm to bring you the perfect combination of reclined head bobbin' lazy pleasure.

with VBR files, it probably makes more sense to replace the hardware than to use poor encoding methods.

Trust the Experts

Modern versions of LAME include several different parameter presets that optimize encoding based on audio quality rather than file size. Ultimately, that's a much more useful metric of performance, and LAME undergoes extensive psychoacoustic testing before each release in order to make it possible. Early pro-MP3 claims promised perceptual transparency at bit rates as absurdly low as 128 kbps; this was soon found

to be poppycock. LAME's "--alt-preset-standard" (APS) option promises the same but is much more likely to deliver. APS is widely regarded as the new standard for MP3 encoding and works by analyzing the source file to determine the least destructive ways it can save bits. It then trims the file size through a combination of filters, noise shaping, and joint stereo representation.

LAME offers other presets as well. APE, or "--alt-preset-extreme," applies the same principles as APS using a slightly higher threshold of perceptual transparency. (The developers insist that the differences are merely theoretical and probably aren't audible to everyone.) API, or "--alt-preset-insane," is functionally equivalent to the "--cbr 320" command, as it encodes every audio frame at the highest quality level allowed by the MP3 specification.

More recent releases of LAME have moved from using text string-based preset names to a numeric system in which lower numbers mean higher audio quality; "--v2" is the new APS and "--v0" is the new APE. Currently, both naming conventions will work, and both map to the same presets (see Fig. 4). That may change in future revisions of LAME, however.

Meet Your Arsenal

Many new digital audio sequencers include the ability to export mixes in a compressed format, but because they don't always support the more advanced encoding options, you may have to look elsewhere. In addition to having the tagging capabilities discussed earlier, Panic's Audion is a very capable OS X front end for LAME. There is also an AppleScript for the OS X version of iTunes called iTunes-LAME, developed by Blacktree, that overrides the default encoder and uses LAME instead, with all the special command options intact. Note that you have to start the importing process from the AppleScript menu in order to use LAME; using the normal buttons in iTunes will enable the default encoder.

In Windows, LAME can be accessed through a number of different programs, including Nullsoft's Winamp, Albert Faber's CDex, Illustrate's dBpowerAmp, and Andre Wiethoff's Exact Audio Copy. Unlike iTunes, which ships with its own built-in encoders, these programs can perform encoding tasks by accessing outside programs, so they can be used to compress files in any of the other formats mentioned earlier (see Fig. 5). Perhaps the most robust of all is Peter Pawlowski's free foobar2000,

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an astonishingly deep Windows-only program that is the Swiss Army knife of compressed audio.

Choose Your Weapon

Lossy audio codecs can sound very different, and if you're planning to use compressed files internally, pick a format based on your specific needs, then tailor the compression settings around the results of your own listening tests. If you are compressing your files in order to share them with clients and potential customers, stick with MP3 for compatibility, but consider using the LAME encoder with one of the high-quality VBR presets to get a sonic edge on the competition.

No matter what encoding methods you use, though, keep your original high-resolution files handy. If you eventually need to switch to another format, you won't want to transcode from one lossy audio format to another, as this just compounds the fidelity loss. Instead, you'll need to recompress from the original WAV or AIFF file, or rerip the tracks from the source CD. (You can't use a CD burned from lossy files as a source, because your system can't magically restore the data that was lost when those files were compressed.)

Although the most recent wave of audio formats allows for lossless compression that does not compromise fidelity at all, compatibility concerns and the need for rapid Internet file transfers mean that lossy compressed audio files still have a place in every musician's studio. Don't be afraid to experiment with the many available compression tools to determine which works best for you. With a little technical savvy, you'll be amazed at how good a modern encoder can sound. **EM**

Vijith Assar works at the Music Resource Center in Charlottesville, Virginia, and writes for the local newspaper. Visit him online at www.vijithassar.com.

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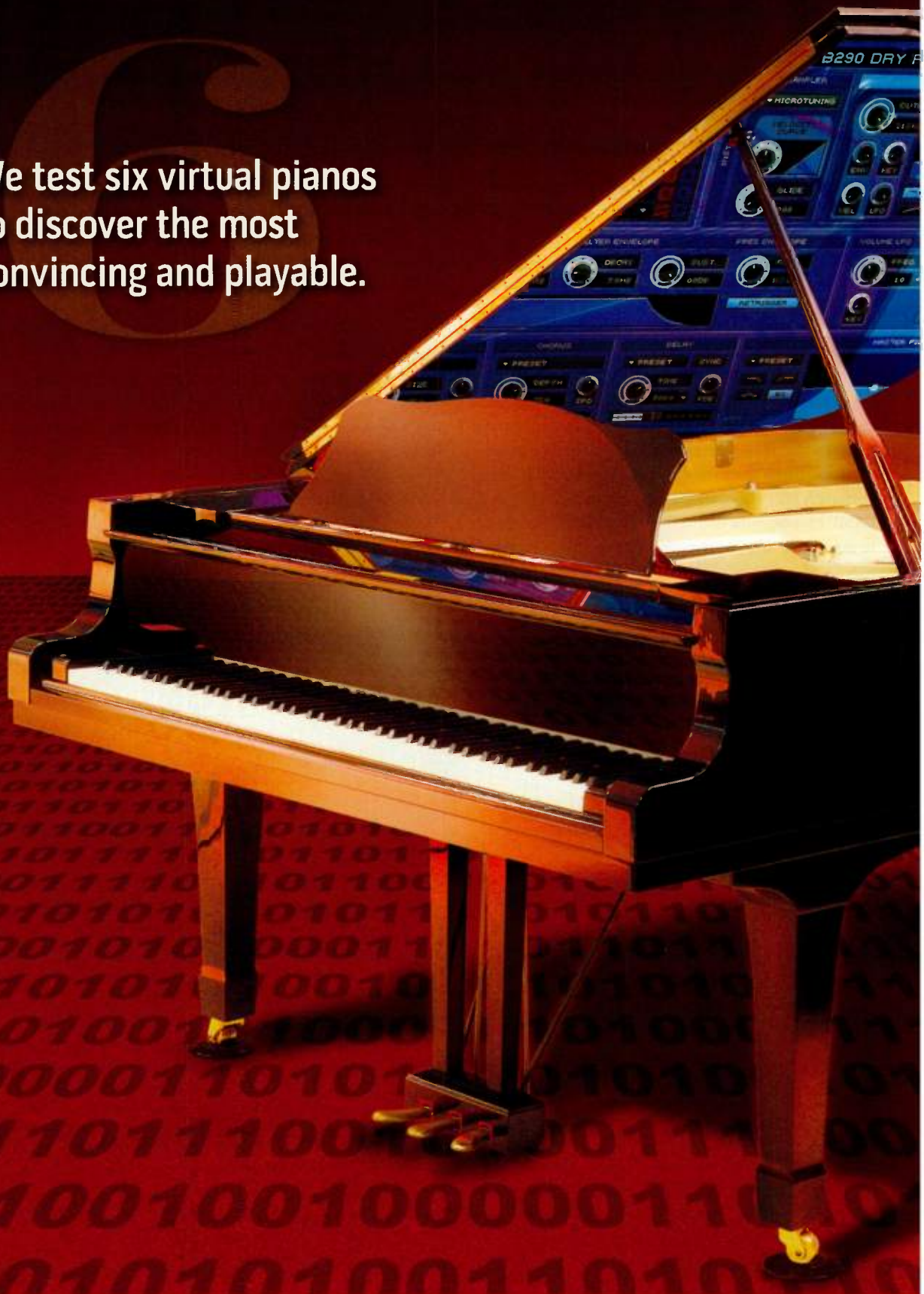
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We test six virtual pianos to discover the most convincing and playable.





Software Eighty-Eights

By Charlie Otwell, Marshall Otwell, and Len Sasso

Sampled-piano virtual instruments and the computers that host them have come a long way. The world's best pianos have been recorded by outstanding engineers, and even laptops can handle direct-from-disk streaming of multi-gigabyte libraries. Most libraries now sample every note at several Velocity levels and offer separate release-resonance and sustain-pedal-down samples. We put six highly acclaimed packages through their paces and got some surprising and not-so-surprising results.

Our primary emphasis in evaluating these instruments was playability. In particular, we wanted to find out whether state-of-the-art samples and software, a high-quality MIDI keyboard, and a good studio sound system can reproduce the experience of playing a real piano, or at least come close. Technical specifications don't answer that question, and sampled pianos, even with limited specs, have already proven their worth in the studio and onstage, whether or not they're fun to play. We'll cover the features and the sound quality, but our story is in the playing.

Don't Sell Your Piano

Two of us, Charlie and Marshall, have spent years in the studio and onstage playing some of the world's best pianos and, unfortunately, some of the worst. We've also carted digital instruments around as an antidote to out-of-tune and unplayable lounge pianos. Based on our experience,

we began this project with the preconception that no virtual instrument could replicate the experience of playing a truly fine piano, and that was born out by our tests. There's a reason a 9-foot Bösendorfer Imperial Grand costs hundreds of times and weighs thousands of times more.

Having said that, we did encounter a number of pleasant surprises. Chief among them was that with some tweaking and a willingness to suspend disbelief, we could have an enjoyable playing experience with any of the pianos we tested. As you'll see, some are clearly superior to the others, but they all have something to offer. And with MSRP's for the packages we tested ranging from \$120 for Art Vista Virtual Grand Piano to \$362 for Native Instruments Akoustik Piano, acquiring one or more of these pianos is not a major investment.

Capturing a concert grand piano in a sample library is a daunting task. Notes held until they die out may last for a long time, requiring huge amounts of memory.



Released notes don't stop immediately; the resonances of all elements of the piano need to be accounted for. Each of a piano's three pedals has its own effect, and the pedals are often used in combination. Mechanical noises generated by the key and pedal actions are part of the overall sound. In short, there's a lot to capture, choices need to be made, and putting all the elements together is as much art as science. For an excellent account of what is involved, see "Ain't It Grand!" in the February 2003 issue of EM (available online at www.emusician.com). See the sidebar "Tech Talk" for a glossary of technical terms.

If you have a quality piano in your studio or living room, you won't be turning to your computer and MIDI controller for practice or pleasure. As Marshall said at one point, "If I had a piano in the other room, I'd be there." But we all felt that when the real thing wasn't available, we'd be quite happy playing one of these instruments just for the fun of it. Gone is the fatigue associated with looped samples, synthesizer-style envelopes, and a limited number of key and Velocity zones. Furthermore, virtual pianos are a lot easier to record. Once incorporated in a mix, these pianos would be hard to distinguish from the real thing.

The Playing Field

In order to have a manageable and more or less level playing field, we limited ourselves to sampled pianos that come as self-contained virtual instruments. We excluded sample libraries, although presets from four of the six packages can also be

FIG. 1: Synthogy Ivory's control panel has separate pages for Velocity, effects, and piano settings (shown here).

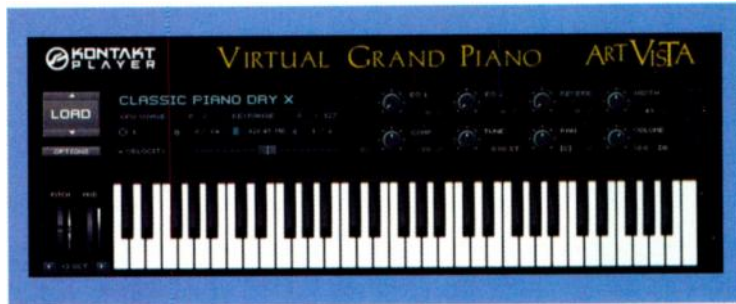


FIG. 2: Art Vista Virtual Grand Piano uses Native Instruments Kontakt Player for its control panel.

loaded into the Native Instruments Kontakt 2.1 sampler. All of the instruments are provided as VST plug-ins for Mac OS X and Windows XP, with most also supporting AU, RTAS, and DXi plug-in formats. All but one of them—Synthogy Ivory—come as standalone instruments on both platforms, and a standalone version of Ivory should be available by the time you read this. (See the table "Essential Statistics" for a comparison of formats and other features.)

Three of the instruments have a generic user interface. The simplest, Art Vista Virtual Grand Piano, is powered by Native Instruments Kontakt Player. Best Service Galaxy Steinway 5.1 and EastWest Bösendorfer 290 use Native Instruments' more full-featured Kompakt as their playback engine. They range in price from \$120 to \$200, and each samples a single grand piano.

The remaining three instruments sample multiple pianos and have custom interfaces. Synthogy Ivory features a 9-foot Bösendorfer 290, a 9-foot Steinway Concert D, and a 7-foot Yamaha C7. For its Akoustik Piano, Native Instruments has sampled three 9-foot grands—a Bösendorfer 290, a Steinway Concert D, and a Bechstein D 280—and for good measure, it

has thrown in a Steingraeber und Soehne Vintage Upright 130. Steinberg sampled a Steinway and a Kawai piano for The Grand 2. These three packages range from \$299 to \$362, and in terms of price per piano, they're all bargains.

Choices, Choices, Choices

Sampled-virtual-instrument presets incorporate both sampler and synthesizer settings. Sampler settings include the number and spacing of Velocity layers, the relative level of pedal-up and pedal-down samples, and the amount of release resonance. Synthesizer settings cover filter, EQ, and effects parameters. Because we were assessing



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- ▶ Assimilator Konnekt native fingerprint EQ included
- ▶ 3 DSP programs for total recall of internal routing, mixer and effects settings
- ▶ TC NEAR™ 1394 FireWire based network for full feature direct monitoring – even between units

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playability and looking for the most natural sound, we went for the driest, least synthesized settings in each case. We always started with a factory preset, disabled any effects, and made as few parameter adjustments as possible.

Our playing and listening environment was also kept simple. Our MIDI keyboard controller was a weighted-action 88-key Studio Logic SL-880 Pro. Our monitoring system consisted of JBL 4311 monitors powered by Parasound HCA-1201 mono amps. The soundsystem was fed directly from the audio interface—an RME Hammerfall Multiface with an HDSP PCI card. We ran all the software on a dual-processor 2 GHz Power Mac G5 with Mac OS X 10.4.4. For plug-in hosts, we used Ableton Live 5.0.3 and Apple Logic 7.2. We

also used the standalone versions of the instruments.

The technical performance of all of the instruments exceeded our greatest expectations. On a few occasions, The Grand 2 and Galaxy Steinway failed to

We had an enjoyable playing experience with most of the pianos we tested.

recognize their authorization, which required a reboot of the software. In many hours of intensive testing, we had a few crashes of Ableton Live, we rebooted OS X once, and we had to reinstall The Grand 2.

We started with extended sessions for each of the

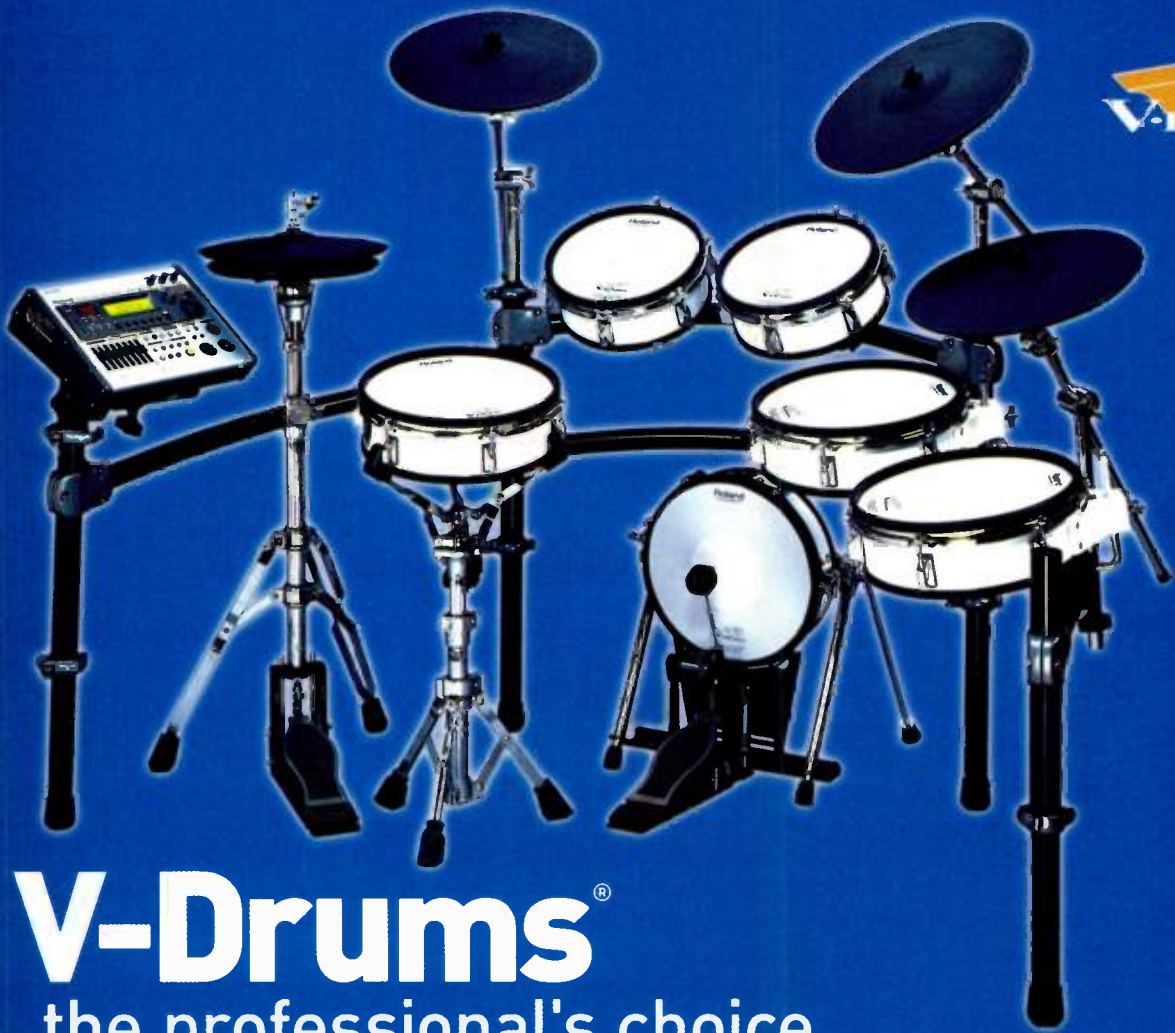
STYLE GUIDE

Here is our cumulative opinion on which pianos are particularly well suited for which playing styles. We offer this with the caveat that in the end, it's the player, not the piano.

Piano	Classical	Early Classical	Gospel	Jazz	Soft Jazz	Jazz Singer	Latin	Lounge	New Age	Orchestral	Rock	Stride
Art Vista Virtual Grand Piano												
1960 Hamburg Steinway B			√		√	√		√	√			
Best Service Galaxy Steinway 5.1												
Steinway Concert D 9'	√		√				√		√	√		√
EastWest Bösendorfer 290												
Bösendorfer 290 9'										√	√	
Native Instruments Akoustik Piano												
Bösendorfer 290 9'		√										√
Steinway Concert D 9'	√			√		√				√		√
Bechstein D 280 9'				√	√	√						
Steingraeber Upright 130							√					√
Steinberg The Grand 2												
Model 1 (Steinway)			√	√							√	√
Model 2 (Kawai)					√	√		√	√			
Synthogy Ivory												
Bösendorfer 290 9'	√		√							√		
Steinway Concert D 9'	√		√			√	√					
Yamaha C7 7'				√							√	

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packages, devoting more time to the virtual instruments that sampled several pianos. We followed the individual sessions with sessions comparing like pianos: the three Bösendorfers and the three Steinway Concert Ds. Finally, we recorded some MIDI files in different styles and listened to them on each of the pianos. See the table “Style Guide” for our views on which pianos suit particular playing styles.

Ivory

Ivory was produced at Synthogy by Joe Ierardi, a pioneer of both piano sampling and sound design, and is marketed by Ilio. Its 40 GB sample library fills ten DVDs, and its custom graphical user interface puts performance settings at your fingertips (see Fig. 1). Its preset structure, with separate screens and files for Velocity, effects, and sampler settings, is a bit awkward, but on the upside, you can tweak every conceivable parameter until the piano plays exactly right for you. For example, you can adjust the level of the sustain resonance, release samples, and key noise, you can change the stereo width and orientation (performer or audience), and you can switch between stretch or equal-tempered tuning. Stretch tuning is an especially nice option for solo performance.

Each of Ivory’s three pianos was sampled at semi-tone intervals with several Velocity-layer setups. The Bösendorfer and Steinway come in 4-, 6-, 8-, and 10-layer versions, whereas the Yamaha comes in 4-, 5-, 6-, and 8-layer versions. Each version comes in two Velocity-switch-points configurations, the

FIG. 3: EastWest Bösendorfer 290 is hosted by Native Instruments Kompakt.

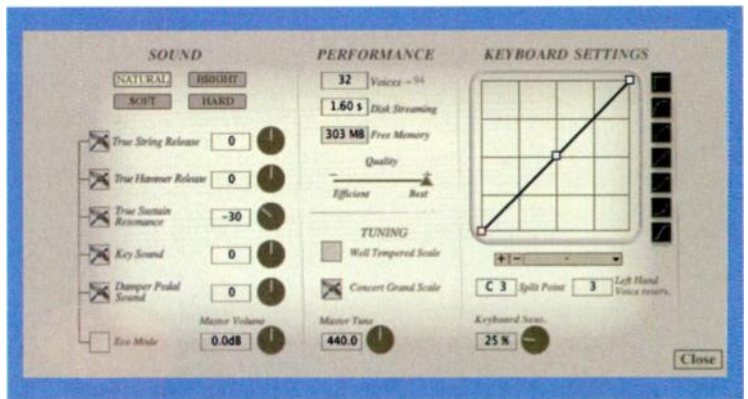


FIG. 4: Steinberg The Grand 2 has a 3-page control panel, but most of the action is on the Performance page (shown here).

second of which favors softer playing. We preferred the second configuration.

Ivory’s sampling strategy holds two surprises: it is the only library offering separately recorded samples with the soft (una corda) pedal down, and it uses DSP rather than separate samples for sustain (damper) pedal-down resonance. Using separate soft-pedal samples produces a considerably more realistic effect than filtering. We found it surprising that the soft pedal did not lower the level as well as affect the timbre of the note, but according to Synthogy, that is indeed the case with these perfectly maintained concert grand pianos. The six DSP algorithms for sustain resonance seemed every bit as realistic as using separate samples.

Ierardi also went to great lengths in recording Ivory’s release samples. He not only recorded release samples for different Velocity strikes, but he also recorded separate samples for different note durations. Ivory’s playback engine tracks both Velocity and duration in order to trigger the correct release sample.

We started with the Yamaha C7, which was, as expected, the brightest of Ivory’s three pianos (see Web Clip 1). Both Charlie and Marshall felt that there was something “not quite real” about the middle range, but that the high end was very nice for a bright, hard-hammered piano. There was a slight but disconcerting buzz or artifact in the A0 to D1 range, with C1 being the worst offender. (We refer to middle C as C3 throughout.)

We switched several times between the 6- and 8-Velocity-layer versions as well as between the Level I and Level II configurations. There was a slight preference for the 8-layer versions and a strong preference for the Level II configuration. Both Charlie and Marshall found the Level II dynamics easier to control. Charlie could sense the Velocity switching with Level I, and Marshall found it harder to play overall. Those impressions carried over to the other pianos, and we spent most of our time with the highest number of Velocity layers in the Level II configuration.



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We moved from the Yamaha C7 to the Steinway D and spent the major part of the session comparing that to the Bösendorfer 290 (see **Web Clips 2 and 3**). Marshall clearly preferred the Steinway, saying, "I bet I'd wind up playing the Steinway a lot." Charlie said he thought he'd be playing the Bösendorfer. The Steinway stood out for Latin and gospel and handled classical well. The Bösendorfer was nice for gospel and great for classical. Marshall thought the Steinway was more like a real piano, whereas the Bösendorfer was like "a piano on steroids." And that's not a bad description of the difference between the real pianos. The Bösendorfer is provided in 88- and 97-key versions, the latter including the 9 extra notes at the bottom of the Bösendorfer 290 keyboard.

One thing we realized during this session, which applied to all the pianos we tested, was that you could and would spend a lot of time tweaking the settings once you settled on a basic instrument and preset. With a little time invested, you could make any of the pianos

fit your playing style, and that would greatly enhance the playing experience.

Virtual Grand Piano

We moved from Ivory to Art Vista Virtual Grand Piano (VGP), the least expensive and least ambitious of the models we covered. We did that out of curiosity about the contrast between the high and low end of the price range. The comparison provided a pleasant surprise.

VGP samples a 1960 Hamburg Steinway B in semitone intervals with eight Velocity layers and separate sustain-pedal-down samples. VGP has the most basic interface, Native Instruments Kontakt Player (see **Fig. 2**), but like all models except the Galaxy Steinway, it does support repedaling (bringing in the sustain samples when the sustain pedal is pressed after key-down). As with the Kompakt-powered models, the soft pedal has no effect, and the middle (sostenuto) pedal sustains the currently pressed notes, but the sustain samples are not retriggered, as they should be, when those notes are replayed.

TECH TALK

Here's a glossary of technical terms relevant to pianos and piano sampling.

bass section: the copper-wound steel strings that are the leftmost and lowest-sounding strings on the piano. There are one or two strings per note in the bass section.

break: the transition between the bass and treble sections of piano strings. Consistency of timbre across the break is often a problem for lower-quality pianos.

damper: a small felt block that, when lowered onto the strings of a note, dampens (cuts off) the strings' vibrations.

damper pedal: the rightmost of the piano's three pedals, also known as the sustain pedal. Pressing the damper pedal raises the dampers of all notes.

hammer: a felt-covered wood block that strikes the strings when a key is pressed, causing the strings to vibrate.

inharmonic: the discrepancy between the actual overtones produced by a vi-

brating string and the theoretical overtones, which are whole-number multiples of the fundamental (lowest) frequency of vibration.

release resonance samples: samples recorded after a note has been released and the damper has fallen on the strings. The strings don't stop vibrating instantly, and other parts of the piano, primarily the soundboard, also continue to vibrate.

repedaling: pressing the sustain (damper) pedal after a note has been released and the damper has fallen on the strings. Because the strings' vibration doesn't stop immediately, repedaling produces an audible effect, which can be simulated by fading in the sustain resonance samples.

sostenuto pedal: the center of the piano's three pedals. Pressing the sostenuto pedal suspends the dampers of the notes that are currently held. This pedal is often omitted on uprights and less expensive pianos.

stretch tuning: the tuning technique that makes the octave intervals slightly greater

than the theoretical 2-to-1 ratio in order to compensate for the inharmonicity of the strings.

sustain resonance samples: samples recorded for each note with the sustain (damper) pedal held down. Because the other strings are free to vibrate, sustain resonance samples sound different from samples recorded with the damper pedal up.

sympathetic vibration: vibrations induced in a string by sound waves at one or more of the string's harmonics.

treble section: the strings not in the bass section. These are steel strings that are not copper wound, and there are three strings per note.

una corda pedal: the leftmost of the piano's three pedals, also known as the soft pedal. Pressing the una corda pedal shifts the key bed and hammers slightly to the right. For all but the single-string notes in the bass section, that prevents the hammers from striking the leftmost string, changing both the timbre and volume of the note.

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Compared with the other models, VGP sounded a bit muffled regardless of the chosen Velocity layering, of which there are four. We found the Medium layering with a midlevel compression setting to be the most playable (see Web Clip 4). VGP comes with the largest collection of presets of the pianos we covered, including customized settings for a variety of playing styles, genres, and acoustic environments.

Marshall found VGP “nice to listen to,” with a little more body than Ivory “but not the bark.” Charlie thought the high and low ends were quite nice, but that it sounded “a bit compressed and canned” in the middle. We all thought it would be good for lounge, gospel, funk, soft jazz, new age, jazz duo, or accompanying a jazz singer—pretty and sweet but not very complex. It wouldn’t be suitable for classical or any particularly loud style, especially rock. As Charlie noted, “It’s a hell of a piano for \$120, but the hard-hammer guys aren’t going to like it.”

Bösendorfer 290

Next up was EastWest Bösendorfer 290, which is a repackaging of Michiel Post’s acclaimed Grandioso Bösendorfer 290 sample library (see Fig. 3). The piano was sampled in semitone intervals with as many as 16 Velocity layers. There are separate sustain-pedal-down and reverberant-release-resonance samples, and all samples were recorded with two microphone setups: close and distant. That allows you to construct dry as well as naturally ambient presets. A large number of presets

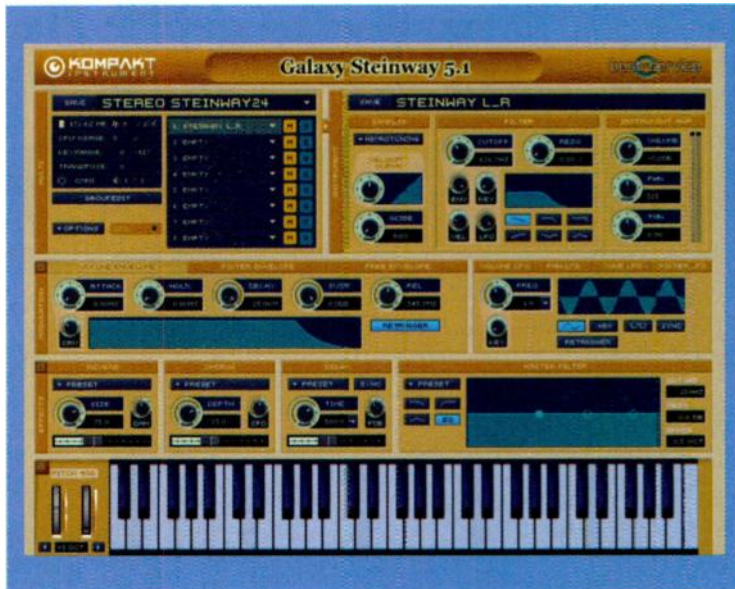


FIG. 5: Best Service Galaxy Steinway 5.1 is hosted by Native Instruments Kompakt.

of both varieties are provided, and you can use presets individually or in Multis to mix and match features.

The close-miked samples for this instrument gave it more of what we came to call the head-inside-the-piano sound than any of the other pianos (see Web Clip 5). Imagine yourself trapped inside the piano with the lid down, and you’ll quickly get the picture. The effect was more obvious at the onset of a note, and Marshall described it as “a breathy, ambient noise.” This made the piano somewhat disconcerting to play, but it was less of a problem when the piano was playing the MIDI clips we recorded.

In the end, we all thought the piano might work well with some forms of orchestration and might be quite playable in a mix. But as a solo instrument, which is what we were after, it was the least playable of the bunch.

ESSENTIAL STATISTICS

Piano	Price	Zones		Pedals			
		Key	Velocity	Una Corda	Sostenuto	Damper	Repedaling
Art Vista Virtual Grand Piano	\$120	semitone	8	no	hold only	sampled	yes
Best Service Galaxy Steinway 5.1	\$199.95	whole tone	10	no	hold only	hold only	no
EastWest Bösendorfer 290	\$199.95	semitone	4, 8, 16	no	hold only	sampled	yes
Native Instruments Akoustik Piano	\$362	semitone	10	simulated	hold & retrig	sampled	yes
Steinberg The Grand 2	\$299	semitone	*	*	hold & retrig	sampled	yes
Synthogy Ivory	\$349	semitone	4, 5, 6, 8, 10	sampled	hold & retrig	DSP	yes

*Information not available from manufacturer.

The Grand 2

In version 2 of The Grand, Steinberg has added a set of Kawai piano samples (dubbed Model 2) as well as made some improvements to the Steinway samples from the original version (Model 1). The Grand 2 uses a Syncrosoft hardware key (dongle), which may require a separate purchase.

The Grand 2's custom interface has three pages, the first of which is primarily eye candy but does allow you to select between models as well as turn on CPU- and RAM-saving options. The Room page is for setting up the built-in reverb and a 4-speaker surround simulation. The most important player settings are on the Performance page (see Fig. 4).

The Sound settings—Natural, Soft, Bright, and Hard—apparently affect a variety of hidden timbral settings in the playback engine, and they certainly have a marked impact on the sound. Interestingly, their impact on Model 2 is greater than on Model 1, and we felt that difference was a nice feature. The Natural and Soft settings proved to be the most playable, but the Bright setting could be really useful when the piano needs to cut through.

Five settings, collectively called True Features, control sustain-pedal-down and release samples together with mechanical noises. Each True Feature can be toggled off or have its level cut or boosted. The Eco Mode option toggles all True Features off. The only adjustment we found to be essential was cutting the True Sustain Resonance (sustain-pedal-down) level to



FIG. 6: Native Instruments Akoustik Piano uses a single control panel that keeps everything at your fingertips.

–30. Lowering the Key Sound a little reduced thumping.

Both Charlie and Marshall found a lot to like in The Grand 2. Marshall preferred the Soft Sound setting of Model 2, but both found Model 2 “a little larger than life” and thought Model 1 was more realistic (see Web Clip 6). There was an abrupt transition in timbre around C1 in both models, and Model 1 had something of a dead spot in the octave above C5. Although the soft pedal affected volume only, Marshall actually preferred that to Ivory’s separate soft-pedal samples. For both models, we found the bottom end a little heavy, the top end a little brittle, and the midrange just right.

Galaxy Steinway 5.1

Best Service Galaxy Steinway is the least complex of the instruments we tested and proof that simplicity

Samples			Other			Formats		
Pedal Noise	Release	Key Noise	Bits/SR	Surround	Copy Protection	Mac OS X Plug-in	Windows Plug-in	Standalone
yes	no	no	16/44.1	no	online registration	AU, VST, RTAS	VST, DXi, RTAS	yes
no	no	no	16, 24/48	5.1	online registration	AU, VST	VST, DXi	yes
no	yes	no	24/48	no	online registration	AU, VST, RTAS	VST, DXi, RTAS	yes
yes	yes	yes	24/44.1	no	online registration	AU, VST, RTAS	VST, DXi, RTAS	yes
yes	yes	yes	*	simulated	Syncrosoft key	AU, VST	VST, DXi	yes
no	yes	yes	24/96	no	online registration	AU, VST, RTAS	VST, RTAS	announced



Beinhorn Says



"Royer R-121s and R-122s are essential to my guitar sounds. They give me something that no other mic has. I use a lot of microphones when I record, but if I pull the Royers out of the mix I really miss them. To me, that's the sign of a good mic.

"I used to avoid using ribbons on drums, but the SF-24 changed that the first time I used it. It attacks in the perfect place and interacts beautifully with the other mics on the kit. It adds power and richness to the drum tracks and seems to smooth out the other mics. Royers have become an indispensable part of how I record music."

Michael Beinhorn

(Producer - Soundgarden, Marilyn Manson, Red Hot Chili Peppers, Ozzy Osbourne)



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is not a bad thing (see Fig. 5). A 9-foot Steinway Concert D was recorded with close and room mics to produce a full 5.1 surround library. A stereo version is included in the package, and that's what we used.

The piano was sampled in whole-tone intervals with ten Velocity layers. There are no soft-pedal, sustain-pedal-down, or release samples. Still, we found it to be eminently playable, and it sounded especially good on classical, gospel, and Latin (see Web Clip 7). Charlie found the piano a little bright, saying it could "almost be a Yamaha." But he also thought that could be useful for recording. Marshall said a lot of these pianos left him feeling like "Where's the fundamental?" and that if he had this piano, he'd spend some time EQ'ing it. Charlie said that with some EQ, it might become his everyday virtual piano.

Both Charlie and Marshall found it very clean and playable. It was even across the entire keyboard with no noticeable transitions across Velocity zones. The Galaxy Steinway exhibited little of the head-inside-the-piano sound previously described, which made it the least distracting to play.

Akoustik Piano

The last of the individual-product sessions was devoted to Native Instruments Akoustik Piano, and by that time we were all feeling a bit jaded. Launching Akoustik Piano was like opening all the windows in the studio and letting in a huge blast of fresh air.

Akoustik Piano's user interface is pure pleasure—everything is controlled from a single panel, all controls are comprehensively labeled, and presets, which are loaded or saved with one click, include all settings (see Fig. 6). The large buttons along the left load individual piano models with their default settings. A hot spot at the top right corner of each button brings up a descrip-

tion of the piano along with three demo songs and a link to the piano manufacturer's Web site. Buttons along the right side call up four ambient environments, all of which can be toggled off for a completely dry sound. The rest of the settings are on the bottom panel, which can be hidden when not in use. Having spent a lot of time before, during, and after the sessions dealing with the software, Len said, "If EM had a GUI of the Year award, I know how I'd vote."

Our first stop was Native Instruments' version of the Bösendorfer 290 Imperial Grand (see Web Clip 8). Charlie thought it was a lot like the Ivory Bösendorfer but "with more fundamental." Both he and Marshall found it very playable and smooth, while also having a "Bösendorfer in-your-face sound." Lowering the lid to the short pin and rolling back the Key Noise knob to 9 o'clock calmed it down a little. Although it doesn't use separate samples, the soft-pedal implementation is fairly convincing. It both lowers the level and introduces a slight timbral change. Marshall noted that the A-1 (the lowest A) was sharp, clearly beating against the octave above it. As with Ivory, the extra nine notes below A-1 have been sampled and mapped to the keyboard.

The next stop was the Steinway Concert D, and we just kept coming back to this piano; it knocked everybody out (see Web Clip 9). Marshall loved it, saying it played the most like the real thing so far and "sounded like an 80-foot piano." Charlie also thought it was the best he'd played. Both felt the high end might be a little peaky and that it might be a little harder to play than the Bösendorfer. Although there were a lot of overtones, there was enough fundamental to support them. Marshall said, "It's so playable, you can actually balance voices, which is hard to do on a MIDI keyboard."

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We were enjoying the Steinway so much, we decided to try out the four room ambiences: Concert Hall, Cathedral, Jazz Club, and Recording Studio. They were all quite restrained, which we liked. With only three controls (reverb amount, room size, and miking distance), they were easy to season to taste. Under the hood, the ambiences are implemented with the Kontakt engine's first-rate convolution reverb.

We also tried both alternative lid positions. On the low pin, there was still a lot of character. Marshall noted that you could play practically any combination of notes and "actually hear them." To everyone's surprise, having the lid closed really sounded like having the lid closed; you could even hear more punting of the keys.

The last grand in the package is the Bechstein D 280 (see **Web Clip 10**). Charlie immediately picked out an unevenness or break moving from C4 to Db4 to D4. Closing the lid masked the problem, but we all felt it was serious enough to need fixing. That aside, it is a nice-sounding piano but not as clean as the Steinway, especially when you play clusters. Putting the lid on the low pin mellowed the instrument out a lot. Version 1.1, which should be available by the time you read this, promises to fix the intonation and regulation problems

MANUFACTURER CONTACTS

Art Vista Productions www.artvista.net

Best Service www.soundsonline.com

EastWest www.soundsonline.com

Native Instruments www.native-instruments.com

Steinberg www.steinberg.de

Synthogy www.synthogy.com

and will also offer a stretch-tuning option for each of the pianos.

We closed the session with the Steingraeber upright (see **Web Clip 11**). As Charlie said, "That is an upright, isn't it? Intonation, intonation, intonation." Marshall pointed out the prominence of the release samples, which is a characteristic of uprights because the dampers aren't aided by gravity. You would spend a long time searching for this piano, and it's a lot of fun to play.

Steinway to Steinway

In order to compare the three Steinway Concert Ds, we inserted them simultaneously as plug-ins in Ableton Live 5 and switched back and forth as needed.

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Marshall noted that the Akoustik Steinway was in the best tune of all the pianos we tried. The Ivory Steinway seems to have some breaks and is not quite as playable as the Akoustik. Charlie chimed in that the Ivory is not as smooth, calling it "a little too touchy." Setting the Ivory's Velocity curve to the Hard 1 preset, which is slightly concave, and dialing the Hardness knob to -20 percent made it smoother and easier to play. But in the end, the nod goes to the Akoustik, which was our favorite of all the pianos we tested.

Not surprisingly, the Galaxy Steinway doesn't have the resonance and definition of the other two. But it is playable and even across the note range. It is well sampled and nicely regulated but just not a great sound. It does mellow out nicely for soft playing, and the Velocity zones do capture the timbral changes you want. The absence of sustain-pedal-down samples is noticeable, especially in contrast to the other two Steinways. But this is definitely a playable piano; it's the only 5.1 surround version available; and at about \$200, it's not overpriced.

Bösendorfer to Bösendorfer

The Ivory Bösendorfer was our favorite of the three, with the Akoustik Bösendorfer coming in a close second. The Akoustik seemed a little brittle or thin at times, but it was not a glaring problem and might even be preferable for early classical material.

The Ivory, on the other hand, had a huge sound and would certainly be the pick to cut through a heavy orchestration as well as for percussive material and more modern classical. The EastWest also fits well in an orchestral setting, but it might be out of place in a small group or solo context.

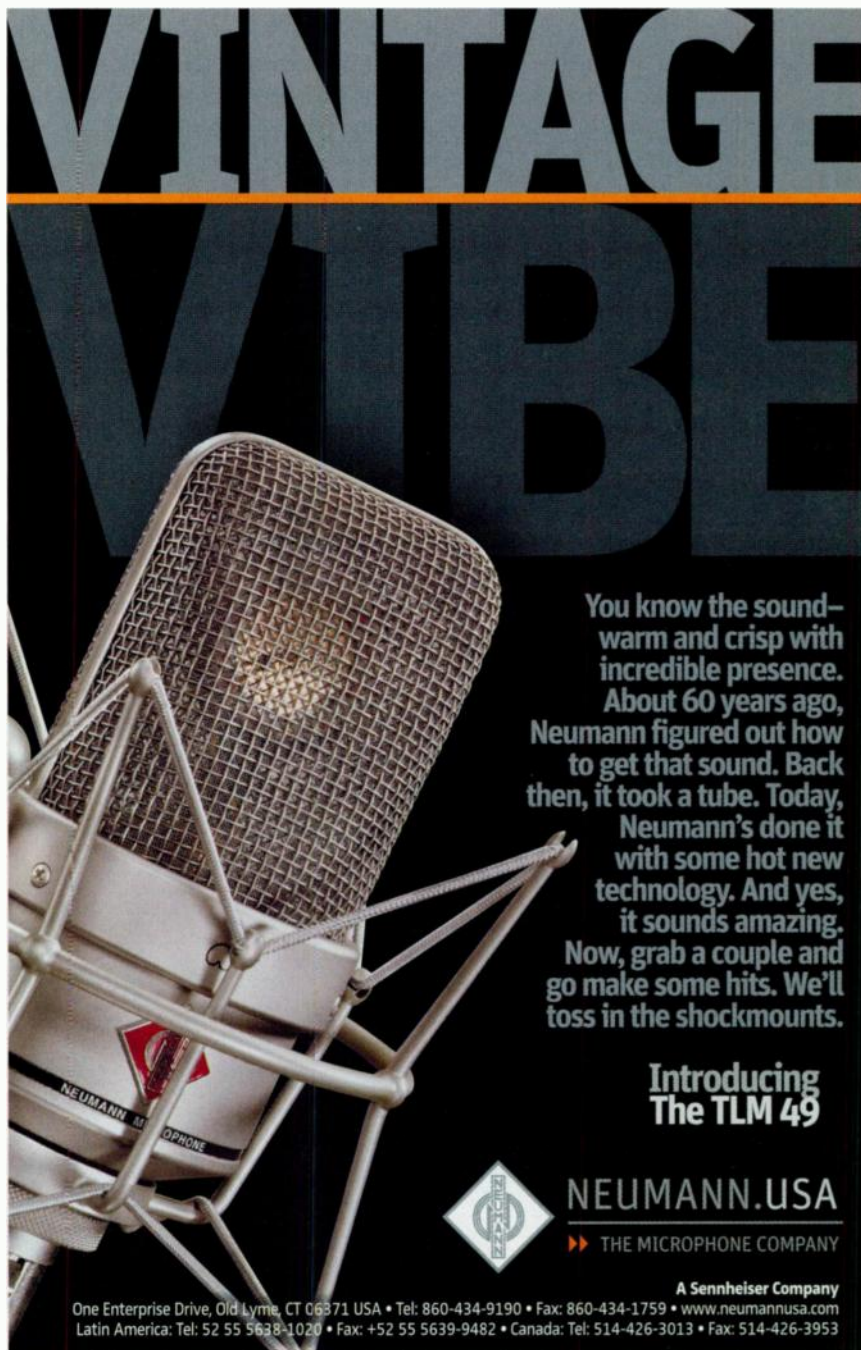
The MIDI Session

We finished up with a session listening to short MIDI clips we'd made: a little stride; a little gospel; an excerpt from the Chopin Fantasy in F Minor, op. 49; a Latin montuno; and a series of cluster chords. This gave us an opportunity to sit back and listen to each piano and to more precisely compare them. The Web Clips accompanying this article were made from the same MIDI files.

On the Chopin, the melody came out best with the Akoustik Steinway and

Bösendorfer. But we were surprised how nice the Chopin also sounded on the Art Vista VGP. The Galaxy Steinway brought out the melody, but Charlie thought it was a little too brittle. Charlie also liked the Chopin played on the Akoustik upright, partly because he practiced the piece on an upright.

The stride and gospel sounded good on all the pianos but really punched through on the Galaxy Steinway. Charlie thought it sounded nice and funky on the Akoustik Bösendorfer, and Marshall



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commented that the inner voices really sounded like they should.


The hit for the Latin material was the Ivory Steinway, prompting Charlie to say that it "sounds just like a Poncho Sanchez recording." The Akoustik Steinway and Bechstein gave it a nice, bright flair, and the slightly out-of-tune character of the Steingraeber upright added its own interest. The Art Vista VGP and the Galaxy Steinway also sounded good, and this was one case in which the Bright Sound setting on Model 2 of The Grand 2 really punched through.

The naked cluster chords were probably the most revealing of the differences between these pianos. They were clear and crisp on all the Steinways and Bösendorfers; however, the close-miking issues with the EastWest Bösendorfer again stood out. On the Steingraeber upright, they really brought out the differences arising from having a vertical soundboard and dampers.

Coda

You won't go wrong with any of these pianos. The stand-outs are clearly Native Instruments Akoustik Piano and Synthogy Ivory. The choice between them is largely a

matter of personal taste, although all three of us preferred Akoustik Piano. Both packages are full-featured and offer excellent sound quality. Steinberg The Grand 2, although not as versatile as Akoustik or Ivory, does provide a variety of sounds and an interface customized for piano settings.

Each of the three single-instrument packages has its place in the mix. If you want a budget piano that can do it all, Art Vista Virtual Grand Piano is it. If you want surround, Best Service Galaxy Steinway 5.1 is your only choice among our contenders, and the simplicity of using a single multisample has its upside. EastWest Bösendorfer 290 has the biggest and most ambient sound of these three, and although not part of our testing, the distant-miked samples are  a nice inclusion. **EM**

Charlie Otwell is a pianist and teacher in Orange County, California. He was pianist and musical director for Poncho Sanchez for many years. Marshall Otwell is a pianist in the San Francisco Bay Area. He has toured extensively, most notably as Carmen McRae's pianist and musical director. Len Sasso is an associate editor of EM and a closet pianist.

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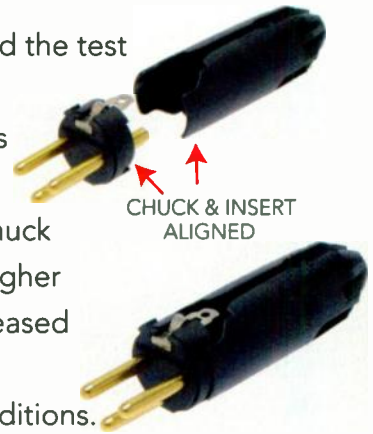


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Yours, Mine, and Ours

By Mike Levine

Duncan Sheik invites his listeners to remix his latest CD.

Considering the ever-increasing fusion of music and technology, you probably wouldn't be surprised to hear that an artist recently released an album containing both stereo mixes to listen to and individual tracks for remixing. What is surprising is that the artist is Duncan Sheik, a singer-songwriter whose folk-influenced pop/rock is not normally associated with remixing.

The new project, entitled *White Limousine* (Zoe, 2006; see Fig. 1), is Sheik's first release since moving to the Zoe label, an imprint of Rounder Records. It comes with two discs: a CD, labeled *Mine*, which has the stereo mixes; and a DVD, labeled *Yours*, which has WAV files of the individual elements of the mixes for each song, as well as Ableton Live session files that open with all the tracks in a given song already set up to mix. The CD was recorded at Allaire Studios in upstate New York, but the preproduction was done at Sheik's personal studio in Manhattan.

Sheik, who was born in New Jersey but raised in South Carolina, burst on the music scene with his 1996 hit single "Barely Breathing," on his self-titled debut CD on Atlantic Records. That album garnered him a Best Male Vocal Grammy nomination in 1997. He subsequently recorded two more albums for Atlantic and one for Nonesuch before moving over to Zoe.

Besides his CDs, Sheik has branched into other areas of composing in recent years. He has scored two films, including *A Home at the End of the World* (Killer Films/Warner Classics, 2004), which starred Colin Farrell, as well as a number of theatrical productions. He recently wrote the music for an off-Broadway musical called *Spring Awakening*, which at press time had opened to

strong reviews and was being considered for a move to Broadway.

I had a chance to interview Sheik about *White Limousine* and various other subjects at his spacious New York loft. The main room is filled with a large collection of guitars and other stringed instruments, and off to the side are the live room and control room that constitute his personal studio.

How would you describe your musical style?

As far as radio is concerned, the format that plays the kind of music that I do is AAA [Adult Album Alternative]. But all of the artists who are in that world—whether it's Aimee Mann or David Gray or Ben Folds or even a band like Elbow—take from the folk music tradition in a big way. A lot of us take from the classical music tradition in terms of orchestration and the use of that instrumentation. Some of us take from the jazz tradition in terms of harmony and the way that we use it in the songs. Obviously, rock 'n' roll is there in a big way, and country too, in a lot of people's cases. A little less so in mine, because my influences are mostly English bands. So what kind of genre would I consider my music? It's kind of the "nongenre" that takes from all of these other ones.

Why did you decide on Ableton Live as a format for the *White Limousine* remix tracks?

FIG. 1: Sheik's latest release includes a DVD with individual tracks for each song so that users can do their own mixes.



I took them home and I thought, "This is interesting." Because I love electronic music, and it's definitely been a major part of the music that influences me, even



FIG. 2: A view from inside Sheik's control room. In the background is his small live room.

though you might not know that from listening to my records. It was the first time that I'd gotten into a piece of software where I actually used synthesizers, samplers, and these kinds of things to create the architecture of the song—as opposed to an acoustic guitar or a piano or whatever.

And so my initial conception of the record was that all the arrangements would happen in Reason, and then there'd be one acoustic guitar and one vocal. And I would mix the record normally, but put it out with the Reason files for people to remix with. And they'd have a stem of the vocal and a stem of the acoustic guitar. It's kind of a very simplified version of how it eventually turned out.

But then users would need both Reason and another sequencer.

Exactly. Which poses all kinds of issues and problems, and it becomes less universal in terms of people being able to use it. So then, as I continued to refine the songs and write new songs, and the project evolved, it became more organic and less kind of electronic music based, although it started in that place. But then, I still wanted the concept of the listener being able to manipulate the material in some way, and being able to reimagine it and remix it.

Since the tracks are WAV files, users can import them into [Digidesign] Pro Tools or any sequencer they want. They don't necessarily have to use Live.

I love Ableton, but I think a lot of the work is being done in [Apple] Logic and in [MOTU] Digital Performer, and [Steinberg] Cubase or whatever else people are using.

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Do you know of other artists who have released individual tracks along with their records?

Well, here's the backstory. I remember reading Brian Eno's *A Year with Swollen Appendices* [Faber and Faber, 1996]. It's basically his diary from about 1994. He talks about the idea that in the future, people will release all their records along with the 24-track masters and whatever. And I remember reading that and thinking to myself, "That's a really fantastic idea, and I hope one day the technology will be in a place where we can do that." And then I think even prior to that, Brian Eno had done a little tiny 4-track version of the *Us* record [Geffen, 1992]. There was a DVD that came out of the special edition of that record. So that's another precedent. I know Todd Rundgren had done something similar, I'm not sure exactly what it was. And then, most recently, Trent Reznor put out a single in [Apple] GarageBand format.

I think this [*White Limousine*] is the first time that somebody has taken their entire record and put all the constituent parts of every song along with the record. But, that being said, it's just because the technology is at a place now where that's possible, and there's a program like Ableton Live that makes that fairly doable on a lot of people's laptops and computers, and because Ableton has a demo version of the software that everybody can access.

Of course, the demo version doesn't allow the user to save.

You can't save anything, but to me there are so many uses for it. Like if you're a guitar player and you want to learn the acoustic guitar part: you can solo it. Or let's say you want the karaoke version of the song: just mute that pesky vocal and it's gone. I think there are very simple

uses for it, and then there are obviously more. What I really hope to see is that kids in their bedrooms with their laptops will really dive into it

FIG. 3: Sheik's Calrec console was originally in a BBC radio studio. On top of it are M-Audio BX8 monitors.



FIG. 4: A blackface Fender Deluxe Reverb and a pedalboard full of effects give Sheik plenty of sonic options when he records his guitar parts.

and turn it into something that's much more modern and much cooler and just kind of different.

You established Limoremix.com, a Web site for people to submit remixes of the *White Limousine* tracks and where you'll be posting selected remixes. How does it work?

Creative individuals who do cool stuff at home can post those remixes and they're streamable, and then anyone can go on the site and listen to what other people have done. Depending on what happens with all of that, there might be some "version two" of *White Limousine* that ultimately exists that will be the best of the remixes from each song.

So what kinds of remixes have you been receiving?

Initially I was getting mixes that felt very polite to me in a way; they didn't want to change too much. But then I put the word out that what I was really interested in was people taking the materials and doing something radical. What's most interesting to me is when they take those materials and kind of use them and put them into this more electronic-music genre, whether it's hip-hop, or trance music, or progressive house, or whatever it is.

This is your first CD on Zoe. Did they freak out when you told them you wanted to release the individual tracks along with it?

Luckily, when Troy Hansbrough—who's my A&R person—first heard the record and approached me about putting it out on Zoe, it was the first conversation I had with him. I said, "Okay, I love your label, you have all quality artists, you're really great people, but here's the deal: I want a 3-panel Digipack, there's a CD called *Mine*, there's a DVD called *Yours*," and I

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these tube mic pres called Giltronics; they're really nice. I've got a Tube Tech stereo compressor, and I've got an [Urei] 1176 compressor.

What's your typical signal chain for recording your vocals here in your studio?

Usually it's the Royer microphone into the V72 into the 1176. And that goes directly into the Apogee converters.

I noticed that you had a nice pedalboard and an old Fender amp [see Fig. 4]. Is that what you use when you record your electric tracks?

Yes, generally. That's the pedalboard that I take on tour with me as well. I actually just built it about six months ago, and I've been happy with it.

You have both Yamaha NS-10Ms and M-Audio BX8 monitors.

M-Audio has been so generous in sending me microphones and speakers and bits and bops. I tend to monitor on NS-10Ms, but when I need to hear low end, I'll switch over to the BX8s.

You use a Mac as your music computer.

Yes. I have a [Digidesign Pro Tools] Mix Plus system with Apogee converters. I use Logic Pro on the front end. But I end up using Reason, and recently I've been using Ableton Live a lot. Especially in shows, like in *Spring Awakening*, a percentage of the music is electronic. And so almost all of that stuff is being triggered from Live so that we can mess with the tempo in real time, and mess with how it relates to what's going on.

Are you using Live in ReWire mode with Logic?

No, it's all coming off Live. I'm a Logic guy, and I don't want to say anything politically incorrect. But the reality is that for me, Logic is an amazing tool, and when I'm producing and engineering a record in my house, it's all about Logic. When I'm making music in a performance situation, whether it's triggering stems of music or whatever it is, that's what Live is all about. With Live, you can have 16 tracks of audio at full bandwidth coming off a laptop, and there aren't weird issues of the computer being able to handle it. I just think that Live's engine is more efficient in some ways.

Did you do your film scoring in Logic?

Yes. I had the editors just send me QuickTime movies of the chunks of the movie that I was scoring. It was so easy and seamless, I just hooked up another monitor. The movie comes up on the monitor, and Logic is on the main screen.

How much of *White Limousine* did you record here in your studio?

I did an initial version of the record here at home, but

it just didn't feel right somehow. So I said to my bandmates and Kevin Killen, let's go up to Allaire Studios for a week, which is a great place.

Was Killen the producer?

He was engineer and mixer. I produced the record. The reality was I made the record myself and I was paying for it myself. Everyone involved in it was very generous and patient about getting paid and all that. But to hire a producer of the caliber that I'm used to working with, it would have been prohibitively expensive for me. And I had a vision for what the record would be. Kevin's a great producer, and Pat Leonard is a great producer, and Rupert Hine is a great producer, but for this process I had a lot of really smart people's opinions around me and I listened to them. So spending another \$50,000 or \$100,000 for a producer of that level was just not going to happen.

And you had Killen there for the mix anyway, right?

I had him there for the mix, and he's obviously a very smart and skilled guy.

So you rerecorded it at Allaire?

We kind of redid everything up there. We basically did 6 to 20 takes of about 16 or 17 songs. We got set up, and we would just kind of press record and go. And we recorded everything with an almost "live in the studio" sensibility. And usually by the time we got to whatever it was—take 6 or take 8 or take 10—we'd pretty much got what we needed.

But you did the vocals later, right?

Exactly. And then I came back here and fine-tuned everything. To be honest, I tried very hard to keep as much as I could from the initial [Allaire] recording so that it had that kind of texture. So there was a sense that there are four or five musicians playing in a room together, and it's not that we're just overdubbing for the sake of some sort of anal perfection, you know what I mean?

What about the strings?

They were done in London at Angel Studios with the London Session Orchestra. I've worked with them on all my records and Simon Hale is a really great arranger who I love.

I was listening to them and thinking, "There's no way these are MIDI string parts." If they were, I wanted to know how you did it.

No, they're very real. Getting back to this issue of electronic music versus kind of organic music—in the end, there is a thing about human hands on a wooden instrument that is very emotionally involving to me. It's not that electronic music is not emotionally involving, it's

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just that it does it in a very different way. And I guess I like electronic music to sound electronic, and I like organic music to sound organic. When one thing tries to do the other, it's always a bit frustrating.

Ironically, by releasing the remix tracks, you're promoting the crossover of those two styles.

I am. But I'm not promoting a hybridization of them; I'm promoting the use of the raw materials of one style and wanting them to be used for music production in the other style.

So the tracks that you initially did here were programmed tracks and you didn't really feel that they had what you wanted?

No. There was a lot of live instrumentation and there were combinations of real drums, programming, and a lot of stuff from Reason. When I listen to a record by Air or Bjork or Boards of Canada or Mum or any of these electronica bands that I really respect and admire, I really love the way those records sound. I have a pretty good sense for how they did those kinds of things, but I'm not always so confident about doing them myself. As much as I can appreciate that world of music, and I

dabble in it to some degree, I'm much more interested in what other people do in that realm. And again, that's another reason why I'm putting it out there on that DVD, and kind of putting it out there into the universe: so that other people can do their thing with it and make it their own.

So you felt like you needed the interaction of live musicians on the CD?

Yes. Those are the records that have been the biggest influences on me, whether it's the first three David Sylvian solo albums or Mark Hollis's record or Talk Talk records or Jeff Buckley's record or a Radiohead record or the new Elbow record. Those are really just bands that are playing together and making music together in some way. There are often modernist kind of things going on, and there's often experimentation that's happening in a very progressive spirit, but it really is musicians playing together. And that ends up being really important to me. Not to discount electronic music that's solely programmed, but I think that what really moves me deepest is music with real players. **EM**

Mike Levine is an EM senior editor.

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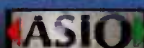
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It's a Cakewalk

By Scott R. Garrigus

Streamline your sessions with these Sonar tips.

Having worked with Cakewalk Sonar on a daily basis for a number of years, I know how to use the program to get the job done. Nevertheless, I still find myself discovering new ways of doing things, and I'm always on the lookout for ways to streamline my sessions. The following are some of my favorite tips and work-arounds for increasing productivity while using Sonar 5.

I constantly use Sonar's often-overlooked locked-views feature. By default, Sonar allows only one instance of a view to be open, but if you lock a view by clicking on the small lock icon on the right side of the view's title bar, you can then open another instance of that view. Holding down the Control key on your computer keyboard while choosing the view from the View menu automatically locks it as it opens. For example, you can edit two different MIDI tracks in the Piano Roll view without having to deal with overlapping notes by opening a separate instance of the Piano Roll view for each track.

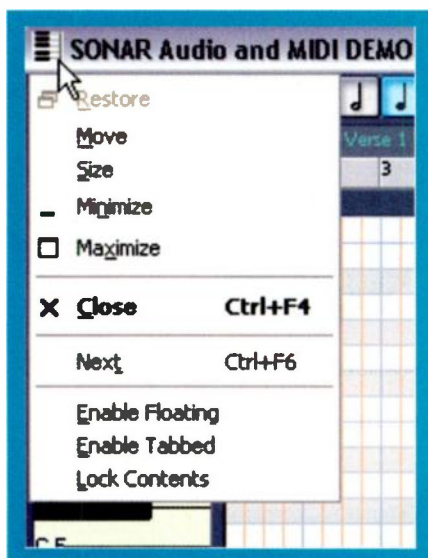


FIG. 1: You can tab a view by clicking on the upper-left corner of the view's window and choosing Enable Tabbed from the menu.

Loops and Lyrics

I usually open a separate instance of the Lyrics view for each of my audio tracks. Normally, you would use the Lyrics view to enter song lyrics for your MIDI tracks, and then print them with the Staff view. But you can also enter text in the Lyrics view of an audio track, and that doesn't interfere with the Staff view or printing functions. I use the Lyrics view to make notes about each audio track, such as how it was recorded and edited. Although the Description box in Track Properties can also be used for tracking

notes, using locked Lyrics views instead keeps those notes constantly visible.

Locking the Loop Construction view is also very useful because you can tweak clips simultaneously on several tracks. For example, if you have a bass clip, a

I use the Lyrics view to make notes about each audio track.

guitar clip, and a drum clip on three separate tracks but at the same location along the timeline, you can see the relationship between the clips as you tweak. Once you've opened all three Loop Construction views and positioned them for easy access, click on the Preview Loop button in each instance, and the three clips will play in sync. As playback loops, you can tweak the volume, panning, and pitch of the audio data and listen to the changes in real time.

What's the Tab?

Having a large number of windows open can make working with the Sonar interface more cumbersome, but thanks to Sonar 5's new Tabbed views, you can easily organize those windows. To tab a view, click on the upper-left corner of the view's window and choose Enable Tabbed from the menu (see Fig. 1). The view is then docked in the lower-right area of the Track view and can be accessed by clicking on the appropriate tab. A quick way to tab all open views is to choose Enable Tabbing For Open Views from the View menu.

Tabbed views are also useful when you need frequent access to a particular view. For example, I like to keep the Markers view open and docked in the Track view at all times during a project. That allows me to easily navigate the entire project by clicking on any marker name. It also makes editing easier because you can make data selections by selecting markers in the Markers view.

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Shifting Timbres

By Len Sasso

How to turn the "chipmunk effect" to your advantage.

In 1958, songwriter Ross Bagdasarian made history of a sort by recording a vocal and playing it back at double speed in "The Chipmunk Song." The novelty of radically pitch-shifted vocals has long gone, but pitch-shifting can still produce useful changes of timbre, and in the digital domain, it's a piece of cake.

Classic, speedup-style pitch-shifting changes the timbre as well as the pitch of natural sounds because the timbres of those sounds are shaped by the physical objects that create them. When a vocalist sings notes an octave apart, the vocal tract, which acts as a filter, doesn't magically halve or double in size.

But when you pitch-shift a sung note, you do shift the resonances that characterize the singer's voice, which roughly correlates to changing the size of the vocal tract. The same holds true for acoustic instruments: a note played on a cello sounds different than the same note played on a violin.

Another Dimension

For this article, I'll use the Cakewalk Dimension Pro sample-based synthesizer in my examples. Dimension Pro makes it especially easy to pitch-shift the samples in a multisample map, and then transpose the map to preserve the original MIDI Note Number to pitch relationships. If you don't have a sample player that automatically does that, you can pitch-shift each of the samples in a sample editor or retune them in the sample player, and then remap them manually. But bear in mind that that technique requires classic pitch-shifting, not granular or other methods that preserve timbre.

Start by initializing Dimension Pro, and then load the factory preset Grand Piano 1v 4th. Doing so places a grand-piano multisample in Element 1, leaving the remaining Elements empty. Copy Element 1 to Elements 2, 3, and 4, and set their Shift parameters to 12, 24, and -12, respectively. Play a note, and you'll hear a 4-octave layer with the lowest octave having a dark timbre and the higher 3 octaves getting progressively tinnier.

Now set the Transpose parameters for those same

Elements to -12, -24, and 12 (see Fig. 1). That places all four Elements at the same pitch but preserves their differing timbres. Open the VectorMixer and move its cursor around as you play to better hear the individual timbres and to mix them to taste (see [Web Clips 1 and 2](#)). The transposed Elements no longer cover the entire keyboard; you'll need to take that into account when using the Elements in other patches. To use them in other patches, you'll need to save each Element to disk.

I've chosen octave shifts for this example to make the effect painfully obvious, but shifts of a few semitones often produce more subtle and usable results. For instance, start with the Full Acoustic (f) bass preset, and try different small shifts to produce a variety of acoustic-bass timbres (see [Web Clip 3](#)). On the other hand, large shifts can yield interesting radical results.

More Is More

This technique is useful only with multisamples. If you need convincing, load any single sample you like into an Element and try offsetting Shift and Transpose settings—the sound doesn't change. There's nothing magical about multisamples, but multisamples are needed only when pitch-shifting affects timbre.

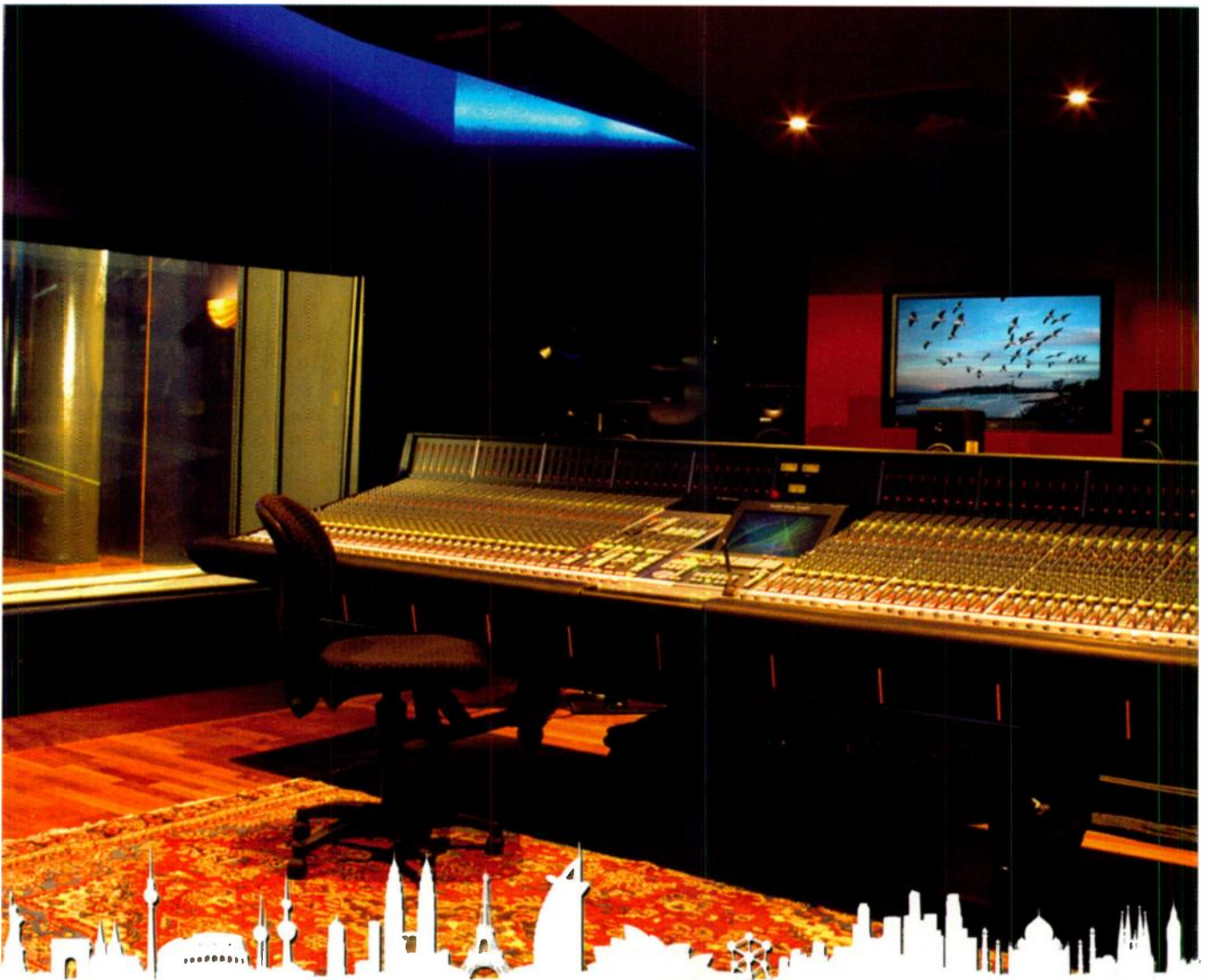
A good way to search for useful pitch-shifting candidates is to load Dimension Pro multisamples into individual Elements; the more key zones in the multisample, the better. The Hammond Soul multisample, which samples every note, works well, whereas the fm1 electric-piano preset, which has only two samples per octave, doesn't. That rule is not absolute, though. The Hard Sync multisample has only 13 zones but is great for pitch-shifting (see [Web Clip 4](#)).

Pitch-shifting is also useful for unpitched sounds, such as percussion. Load the one-Element preset called Acoustic Kicks and Snares. Copy Element 1 to Element 2, set Element 1's Hi Key parameter to 59, and set Element 2's Lo Key parameter to 60. That places the kicks and snares in separate Elements. Next, set the Element 1 and 2 Shift parameters to 5 and -5, respectively. The kicks will now all be a little thinner, and the snares will be a little darker. With unpitched sounds, you generally don't want to use an offsetting Transpose; instead you want to preserve the key-to-sound relationship. **EM WEB CLIPS**

Len Sasso is an associate editor of EM. For an earful, visit his Web site at www.swiftkick.com.



FIG. 1: Set the Shift and Transpose parameters in Dimension Pro's Multisample window to equal but opposite values to create pitch-shifted timbres.



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New Tricks for an Old Dog

By Mark Ballora

Alternate uses for MIDI.

For more than 20 years, the main purpose of MIDI has remained much the same: triggering sounds on a synth or sampler. Yet MIDI's modest-bandwidth, straightforward instruction set makes it useful for a variety of other situations, both musical and nonmusical. In this article, I'll explore some alternate uses for MIDI that you may not have considered. You'll be surprised at how useful and powerful this old pony can be.

State Your Meaning

The vast majority of MIDI messages fall into the category of Channel Voice messages (Note On, Control Change, Pitch Bend, and so on) and are typically intended to generate a sonic response from a device. But Channel Voice messages can also trigger nonmusical events. Using a program such as SubtleSoft's shareware MidiPipe, Mac users could map a MIDI message from a footpedal or a particular key on a synthesizer to trigger an AppleScript that advances a Keynote slide show, thereby controlling both the music and the visuals simultaneously.

Even more flexible are programs that can translate incoming MIDI messages to key combinations that can be read by *any* software on your computer. Mac users can do this with Charlie Roberts's freeware midiStroke, and Windows users can use bome.com's inexpensive Midi Translator. With either of these, you could use any

MIDI control device to start or stop a QuickTime movie or change its screen size. You could even open a Microsoft Word document from your keyboard and have an audience see the name of your band or the current song title displayed on a projection screen. The possibilities are endless.

FIG. 1: The LanBox-LCX theatrical controller can send and receive messages in the DMX lighting protocol or in the MIDI protocol. It can be connected to a computer via USB or Ethernet.



COURTESY CDS ADVANCED TECHNOLOGY

created to control theatrical lighting and effects devices. For example, if you have a sequencer playing music while dancers perform, the sequence could also contain SysEx commands that change the lighting or start a fog machine in sync with the music.

A popular piece of hardware used for this type of control is CDS advanced technology's LanBox-LCX, which can understand MIDI messages as well as DMX data, a common communications protocol for theatrical lighting consoles (see Fig. 1). The LanBox-LCX acts as a middleman between a MIDI controller and the show's lighting and effects devices. It gets programmed with a series of cues and specific instructions for each. During a performance, stage managers can use the controller to step through a show by simply pressing an increment button to run through the cues.

There are also times when you can use a standard Channel Voice message for an unusual purpose. The textbook example is a dramatic scene in which a character smashes a bottle on a table. The bottle has been pre-broken by the props master so it can be reassembled and resmashed for every performance. Unfortunately, this prop makes a pathetic sound when it is rebroken. With an ineffective sound, the action looks downright silly.

But a remedy is available that involves a transducer, which can translate an electrical impulse, and something that can translate that impulse into MIDI. One such device is the MIDI Solutions Relay, which can be attached to a garden-variety transducer that is embedded in the table surface. When the bottle strikes the table, the transducer sends an electrical trigger to the Relay, which in turn sends a Note On message to a sampler that plays a shattering-glass sound effect through a hidden speaker onstage. The sound effect, directly triggered by the action, makes the scene look exciting.

On with the Show

MIDI System Exclusive (SysEx) messages allow instructions to be sent to a specific device rather than to all the MIDI devices networked in a studio. One group of SysEx messages is called MIDI Show Control (MSC), which was

Control Issues

MIDI Control Change messages carry constantly changing streams of information, such as the position of a slider or pedal. Each controller is identified by number and channel. With 16 MIDI channels having 128 available controllers each, there are 2,048 discrete streams available. Some keyboard controllers have standard assignments; for example, a mod wheel typically transmits Control Change 1, and Control Change 7 usually sets a channel's volume level. But strictly speaking, the device receiving the information

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doesn't care what sent the stream, and the device sending the stream doesn't care where the stream is going.

Synth Zone (www.synthzone.com/ctrlr.htm) lists a delicious smorgasbord of quirky and innovative control devices. The BodySynth, for instance, created in 1996, is a bodysuit embedded with MIDIified sensors. A performer's gestures and movements are translated into MIDI Control Change streams that can be mapped to any MIDI program or device, which can in turn do anything in response. For example, extending the right arm might cause Cycling '74 Max/MSP to trigger a flurry of notes, while rotating the extended arm to different angles might change the speed of the flurry.

Three-dimensional rendering programs such as Autodesk Maya allow artists to create sophisticated and dynamic animations controlled by MIDI. Motion capture devices like the BodySynth are familiar to movie animation studios. For a film like *The Polar Express*, the characters were rendered by computer graphics, with the motion driven by Tom Hanks and company performing in bodysuits covered with sensors.

The Vision Thing

Another common use for MIDI controllers is real-time video processing, where Control Change messages are mapped to video parameters (luminance, clip selection, playback speed, effects, and so on), allowing video artists to create improvisations intuitively by just riding the knobs and faders of their favorite control interface. Most VJ programs are similar to Max/MSP in that they are graphically oriented, with processing operations represented by icons that can be freely connected to create customized patches. A video clip, for example, may have its frame numbers mapped to a MIDI fader. Familiar DJ scratching effects may be applied to the video clip by quick fader moves.

One tier of video-processing software includes the Jitter objects for Max/MSP, ArKaos VJ, and Vidvox Grid Pro. These are complete programming environments and tend to be used by programmers to create intricate and



COURTESY EDWIN DE KOONING

FIG. 2: Resolume VJ software allows customizable real-time video improvisations.

individualized patches for venues like art galleries and computer music festivals. VJs, who tend to play different venues night after night, gravitate toward programs like TroikaTronix Isadora or Resolume (see Fig. 2). Though they may not be quite as open-ended and flexible, they have an easier learning curve, can handle large clip libraries, and are robust enough to be put through their paces for an 8-hour rave.

Laptop video software and MIDI controllers have simplified VJs' lives enormously. A few years back, VJs needed a truck or van to transport multiple desktop computers, audio and video tape decks, CD and DVD players, and audio and video mixers. Now they can get to gigs by subway, carrying just a laptop with their software of choice, a MIDI interface, and their favorite control surface.

Don't Raise the Bridge, Lower the River

Dense streams of control information can get bogged down by MIDI's serial message stream at the slow transmission rate of 31.25 kilobaud. But communications can get a boost if data is delivered over computer networks via the faster Ethernet. Virtual MIDI cables, each transmitting 16 channels, can be created in programs like MusicLab MIDIoverLAN CP. A single computer can act as the master controller, sending synchronized commands over a network of computers, each of which might be doing a different task—one might be sending commands to a MIDI synth, another could be running a sequencing program, while another could be generating animation or processing live video. Even if some receiving devices can't respond faster than MIDI's baud rate, at least the computers that control them get their information delivered much more quickly. Thus, though the speed limit can't be raised, Ethernet can at least widen the MIDI highway.

Is MIDI rudimentary? Yes, but it's easy to implement on just about any kind of device. Remember the wisdom of handyman-comedian Red Green, who uses duct tape to fix everything. MIDI, though crude, can hold everything together. It is the duct tape of multimedia production. **EM**

Mark Ballora teaches music technology at Penn State University. Special thanks to Curtis Craig and Gavin Burris (aka VJ86) for their MIDI-controlled insights.

MANUFACTURER CONTACTS

- ArKaos www.arkaos.net
- Autodesk www.autodesk.com/maya
- bome.com www.bome.com
- CDS advanced technology www.lanbox.com/products/LCXDataSheet.html
- Cycling '74 www.cycling74.com/products/jitter.html
- MIDI Solutions www.midisolutions.com
- MusicLab www.musiclab.com/products/rpl_info.htm
- Resolume www.resolume.com/features/index.php
- Charlie Roberts www.charlie-roberts.com/midiStroke
- SubtleSoft <http://homepage.mac.com/nicowald/SubtleSoft>
- TroikaTronix www.troikatronix.com/isadora.html
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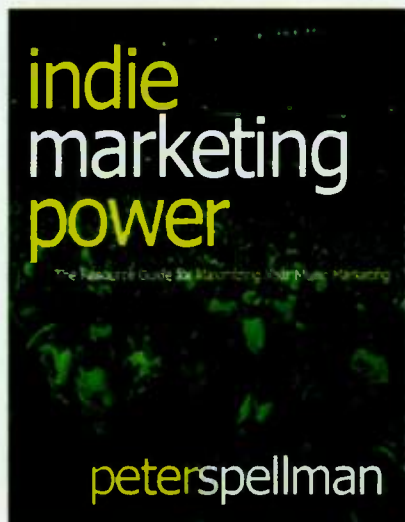
The Shifting Sands

By Mike Levine

Marketing your music in today's changing climate.

Over the past several years, there's been much talk about how the World Wide Web has democratized the music industry, allowing independent musicians to distribute and sell their own product free from the control (or "tyranny," depending on your point of view) of the major labels. But is the do-it-yourself, or DIY, route really a viable path for a recording artist?

To help answer that question, I spoke with Peter Spellman, the director of career development at Berklee College of Music and author of several books, including the recently published *Indie Marketing Power* (Music Business Solutions, 2006). Spellman has put a great deal of thought into the subject of the changing music market, and DIY music marketing in particular.



Spellman's new book, *Indie Marketing Power*, describes in detail methods for self-marketing your music.

music business; there are lower barriers to entry thanks to the Internet, but there is also a lot more competition. Getting signed by a major label forces you to toe the line of the corporation, which is owned by shareholders wearing 90-day glasses. So you're putting your art into a machine that treats music like a disposable product, and you've got to be willing to handle that.

So perhaps DIY is the way to go these days?

In general, it is. And, by the way, DIY doesn't necessarily mean doing it all alone. I think that that acronym is misunderstood from time to time. As Derek Sievers of CD Baby says, "DIY really means 'decide for yourself.'" That's the key: creative artists are increasingly moving away from the paternalism of, or wanting to be taken care of by, the record companies. Musicians no longer believe that everything is going to be hunky-dory once

they get signed. They are waking up to their own creative powers.

But for those artists who are aiming for the pop-music, *American Idol*-type mass market, is getting a deal with a major label still the best outcome to shoot for?

If your goal is the pop mainstream, a Britney Spears-esque approach to things, then yes. Major labels are optimized for pop music. But anything outside of that, and the bigger labels tend to fumble the ball a lot; they really don't know what to do with music outside the mainstream. And often it's not even something they want to deal with, because the market for the style of music you're in might be too small. So it's not even appropriate in that situation to get signed by a major.

What about indie labels?

In general, the indies are in another realm. Of course, there's a whole spectrum of indie labels—from wannabe clones of major labels all the way down to profit-sharing models like Equity Records in Nashville, and everything else in between. Each one has to be looked at individually as to what they can actually contribute to what you're about. If you want to get signed, try to find a deal that's more of a partnership, where a label might be doing some more creative, different things than the traditional approaches.

Can you make a living off of a self-released CD—by selling it offstage and from your Web site—if you have a good following and you're talented?

I think so. Just look at the jam-band scene. Much of it is happening under the radar of the "musical industrial complex." It's similar to the Grateful Dead tradition of a band getting a fandom going, and that fandom creating its own economy around the band. You've then got this whole support network that will allow you to do shows, sell merch, and create subscription and patronage models.

Can you define what a patronage model is?

It's like what [indie artist] Barbara Kessler began doing a few years ago. She started something called The



“We Had a Hit Single with Jesse McCartney, and it all Began with TAXI”

Andy Dodd and Adam Watts – TAXI members
www.reddecibelproductions.com www.adamwatts.com

Adam and Andy’s success through TAXI is a little bit different from all the other stories you’ve probably heard. They got their *biggest* deal after their membership ran out!

Here’s how it happened: “We joined TAXI in 2001 and found that it was a great motivator for us. We were members for two years. We learned a lot, wrote a ton of songs, and got a few film and TV placements -- some through TAXI, and some on our own.

We submitted a song we wrote with Jenn Shepard called “You Make Me Feel” to one of TAXI’s Industry Listings. We didn’t hear anything back for a while and eventually our TAXI membership ran out. Thankfully, we began to get so busy with production and writing gigs that we decided to wait and renew our membership at a later date.

Little did we know that TAXI had sent our song to a

production/management company that was looking for material for a young, male Pop artist they were developing.

Later that year, Jesse McCartney’s managers called us saying they had just heard “You Make Me Feel” on a CD they got from TAXI and wanted to have him cut the song. Although Jesse decided not to record “You Make Me Feel”, his managers asked us to write more songs for him. We wrote a handful and they ended up putting his vocal on two of the tracks we produced, “Take Your Sweet Time” and “Beautiful Soul”.

“Beautiful Soul” got played on Radio Disney, and Jesse’s



management got the song to a label executive at Disney. Soon after, Jesse was signed to Hollywood Records. “Beautiful Soul” became his first single, and we both signed publishing deals with Disney Music Publishing.

Jesse McCartney’s album (entitled “Beautiful Soul”) has gone Platinum in the U.S. and Australia.

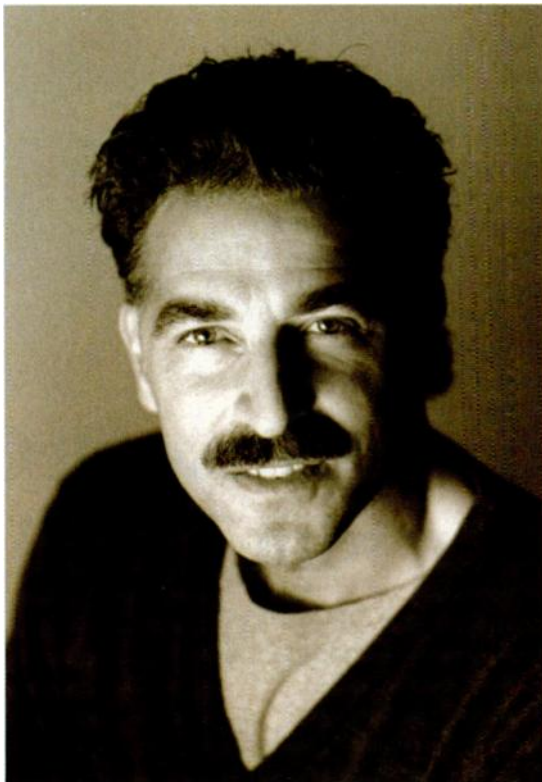
“Beautiful Soul” went to #3 on Radio and Records CHR Pop Chart, #5 on Billboard’s Top 40 Chart, #19 on Billboard’s Adult Top 40 chart, it’s a Platinum Digital Single Download, it’s on the Gold-selling ‘Cinderella Story’ Motion Picture Soundtrack, the Gold-selling ‘That’s So Raven’ TV Soundtrack, and the video was nominated for Best Pop Video at a 2005 MTV Video Music Awards.”

All of this came about because Adam and Andy sent a song to TAXI. Call for our free information kit!

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Peter Spellman

Singles Club—a subscription model with her fans in which they would pay her a certain amount of money each year in exchange for being the first to be able to check out her newest tracks, have access to her, and get discounts on live shows. This powerful approach isn't entirely new; it's an old model that has been reborn in a more diffused way.

That sounds somewhat like the model used by ArtistShare (www.artistshare.com), in which many behind-the-scenes aspects of the creative process become commodities that fans can purchase.

Yes, that's a similar model, too. It's kind of cool because it comes up from the fans. It reminds me of what Thomas Dolby once eloquently stated. He said, "The computer sets the music industry back 300 years." By that he meant that it enables artists to go direct to their audience, the way they used to be able to before the arrival of technology. But it's the technology that allows us to go direct to our audience, to bypass the intermediaries, and to galvanize that audience so that they become a support network for you. So instead of one patron, like the king taking care of Mozart, you have 1,000 people sending you \$50 a year.

It seems that creative types such as musicians often struggle with the business and marketing side of music.

In general, musicians and artists don't realize that they can apply their creativity to business and marketing and be very effective at it. So it's a continuous challenge, and unfortunately, not many of us got any extra training in marketing and business with our music training. Today, however, business and marketing resources are abundant.

You talk in your book about finding, and then developing, a narrow niche as a way to be successful. Can you elaborate on that idea?

Sure. A market niche is a specialization within a market. For example, a studio musician in L.A. who plays, say, primarily piano on country sessions, has created a personal niche. Or take Eric Stone—and I mention him in the book—who created Boatsongs.com. This guy took a love of music and boating and turned it into Boatsongs.com, where he sells music CDs and performances with a nautical theme. And he's done quite well. He's sold over 250,000 CDs on his own, and his audience continues to grow.

Let's aim this one right at EM readers—those musicians who compose and record their own music. What do you think is the best way for them to market their CDs?

First of all, they need to see the task before them not so much as having opportunities to sell CDs but rather to build their value in a target market over time. However they can do that is step one. And the whole plan revolves around that. Selling CDs is just a piece of it. They need to think in terms of where music is used rather than where music is sold. That little turning of the phrase can open up multiple opportunities. It gets one into the whole area of music licensing, which musicians need to begin to explore in earnest because rights management of copyrighted works is going to be on the front burner for anybody involved in creative-content production.

For example, from my own experience, one of my musical partners and I teamed up with a National Science Foundation-funded program at Boston University that was creating a film about microorganisms in pond water. They needed some music for the film part of the project. I connected with these people through a friend of Berklee. They listened to our demo, licensed some of our tracks, and it ended up being the best-paying music gig I've ever had. I'm currently looking into more education projects like that. So with my musical group, called Friend Planet, which produces experimental, improvisational, "out there" music—all instrumental—we've found a market. It's the soundtrack to microorganisms in pond water [laughs]. Who knew? EM

Mike Levine is an EM senior editor.

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Derek Johnson - SOS - Jan 06
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REVIEWS



NATIVE INSTRUMENTS *Kore 1.0.2 (Mac/Win)*

A hardware and software duo with something for everyone. By Len Sasso

Apparently, Kore's mission is to be all things to all people. Native Instruments Kore 1.0.2 is a standalone plug-in host that can turn your laptop or spare desktop computer into a rack of gear. It's a USB 2.0 MIDI and audio interface that, along with a MIDI keyboard, makes your laptop a roadworthy synth. It's a plug-in that can load and save layered combinations of virtual instruments and effects called KoreSounds. It's a KoreSound librarian that, when combined with Native Instruments Complete 3, includes roughly 11,000 factory KoreSounds. Finally, it's a high-resolution hardware control surface for mixing KoreSounds and tweaking their settings.

FIG. 1: There are three views of the KoreSound mixer: Rack, Mixer, and Combined (shown here).

You can use the Kore hardware's MIDI and audio interfaces without the Kore software, but you can't launch the software without having the hardware attached to the computer. That is

unfortunate because the software could be quite useful on its own—for example, when working on a laptop in a limited space, or in a 2-computer setup with one computer hosting a Kore Performance rack and the other using Kore as a plug-in in a digital audio sequencer.

The Kore software is a cross-platform application requiring Windows XP with Service Pack 2 on the PC and Mac OS X 10.3 or later on the Mac. It is compatible with Intel Macs, but not all the Native Instruments plug-ins that it supports are Intel compatible yet. The software runs both standalone and as a plug-in. It is provided in VST, AU, and RTAS formats for the Mac and VST, DXi, and RTAS formats for the PC. It hosts VST, AU, and DXi plug-ins.

The KoreSound

The core of Kore is the KoreSound. A KoreSound consists of virtual-instrument and effects plug-ins, metadata categorizing the KoreSound, keyboard mapping information, MIDI files, mixer routings, and hardware controller assignments. Aside from metadata, most

GUIDE TO EM METERS

- 5 = Amazing; as good as it gets with current technology
- 4 = Clearly above average; very desirable
- 3 = Good; meets expectations
- 2 = Somewhat disappointing but usable
- 1 = Unacceptably flawed



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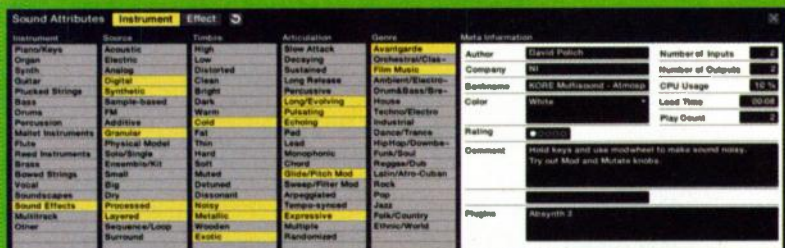
plug-in hosts (digital audio sequencers, software plug-in racks, and so on) combined with a MIDI hardware control surface are capable of similar setups, so what makes Kore special? Read on.

A new KoreSound starts with an empty mixer into which you can insert three types of channels: Source, Send, and Group. You can have any number of Source and Group channels, but at most four Send channels. Each type of channel has an instrument plug-in slot followed by four effects plug-in slots. The instrument slot receives MIDI messages; the others do not.

Kore's graphical user interface affords three views of the KoreSound mixer. Rack view shows the modules as they would appear in a gear rack, with a minimal complement of mixer controls at the right edge of each module. Mixer view arranges the channels as vertical channel strips, giving you more mixing controls and fewer plug-in controls. I found the Combined view to

be the most useful; it displays the rack-style module for the selected channel strip along with abbreviated channel strips for each channel (see Fig. 1).

FIG. 2: The Kore browser classifies KoreSounds in five metadata categories as shown in the columns on the left. You can add search text in the fields on the right.



The only real difference between the channel types is how they receive audio input. Source channels receive audio from the Kore software's audio inputs. Send channels receive audio from the KoreSound's four built-in send buses, and any type of channel can send to each of those buses. Group channels receive audio from group buses, one of which is created automatically for each Group channel. You can route the output of any channel to any of the group buses.

Although any channel can host a virtual instrument, Source channels are intended for that. The purpose of the instrument slots in the other channels is to allow effects to be controlled by MIDI. For example, you could use a virtual instrument's filter to process audio and have that filter track the MIDI keyboard or be controlled by a MIDI-triggered envelope generator.

MIDI Matters

Each KoreSound channel has a MIDI file player and a MIDI filter. The MIDI file player does not record MIDI,



FIG. 3: A Kore Performance hosts KoreSounds, which you can enable, split, and select using Performance presets.

but you can load one or more Standard MIDI Files and trigger them from a MIDI keyboard. They can be played one-shot or looped, and you can set the loop's length, though not its start position. You can also quantize playback start and stop to beats or bars, and you can designate a separate note to stop playback.

With the MIDI filter, you can disable specific MIDI message types, select a MIDI channel, and specify MIDI Note Number and Velocity ranges. You can also choose a Velocity curve and set an overall transpose value. You can use the MIDI filter to split and layer virtual instruments, and you can use the Kore hardware, which I'll cover in detail later, for hands-on mixing of those splits and layers.

A KoreSound can be very complex in terms of both signal routing and MIDI options. When you save a KoreSound, you save the complete setup along with metadata for locating the KoreSound in the Kore browser.

Browse Awhile

The Kore browser gives you several views of the KoreSound library as well as a means to categorize its content. Kore maintains a database of all KoreSounds in the library, based on metadata stored with each KoreSound. In addition to cataloging the factory presets for all Native Instruments effects and virtual instruments in the Komplete 3 bundle, the Kore library contains roughly 200 KoreSounds, called Multi Sounds, that combine plug-ins in the Komplete 3 bundle. They show the true power of Kore, and although more would be welcome, those provided represent a significant creative effort.

Besides Kore's five fixed metadata categories—Instrument, Source, Timbre, Articulation, and Genre—you can enter author information, a rating, and comments in text fields (see Fig. 2). Selecting entries in the five categories narrows the browser's display of KoreSounds to those matching the entries. Typing queries into a search field narrows the display to those presets with matching text in one of the text fields. Unfortunately, you can't use both means at once to, for example, search a category-narrowed list for specific text.

You can use the browser's file-tree view to manually locate KoreSounds on your hard drives. The file-tree view

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has Sounds, Plugins, MIDI Files, and Performances tabs for displaying files of only those types. Once you find what you're looking for, you drag-and-drop it into the appropriate place in the rack or double-click on it to have Kore decide where it should go.

Standing Alone

In standalone mode, Kore has another level of operation called a Performance. A Performance has a structure very similar to a KoreSound, and you can think of a Performance as a rack of KoreSounds, just as a KoreSound is a rack of instruments and effects. Among other things, you can use a Performance to layer or split KoreSounds.

As the name suggests, Performances are great for live performance. For instance, you might load up a Kore Performance with all the keyboard KoreSounds you use on a gig—acoustic and electric pianos, organs and clavichords, lead synths, pads and ambient sounds, and so on. Then, using Performance presets, you can switch between sounds with the Kore hardware or with MIDI Program Change messages sent from your MIDI keyboard.

Each KoreSound in a Performance has a MIDI file player and a MIDI filter. You can use the MIDI filter



FIG. 4: Kore's rear panel houses jacks for audio, MIDI, hardware controllers, and S/PDIF.

to split and layer the KoreSounds in the Performance, and you can use the MIDI file player to sequence entire multichannel KoreSounds rather than using a separate MIDI file for each channel in the KoreSound. But a Performance goes beyond simple MIDI channel and Velocity splits and layers.

Performance presets hold the complete status of the Performance mixer. That includes all mix, pan, solo, mute, and send settings, and perhaps most important, the on/off status of each KoreSound in the Performance. You can set up a huge Performance rack of keyboard KoreSounds and use presets to ensure that only one is active at a time, thereby limiting the CPU hit but still being able to switch keyboard sounds instantly (see Fig. 3).

Performance presets are managed in a panel that opens to temporarily replace the mixer panel. You use the Presets Manager to append, insert, and overwrite presets with the current Performance settings. You can drag presets up and down the list to rearrange them. You can also specify how the transition between presets is to occur by setting fade-in and fade-out times and a wait-for condition (next beat, next bar, Note Off).

A clever Auto Next feature will automatically select the next preset in the list after a specified period of time. Using that together with the MIDI file player, you can sequence a looping MIDI performance of KoreSounds for those long breaks between sets (see Web Clip 1). There are two time modes—seconds and beats—but beats mode is not implemented in version 1.0.2, and Auto Next suffers from its absence.

Beyond live performance, you can use a Performance to turn a second computer in your studio into a rack of virtual instruments and effects. That, of course, lightens the load on the computer running your audio sequencing software, but as mentioned, it precludes your using Kore on that computer.

A Plug for Plugs

When used as a plug-in, Kore hosts KoreSounds, but Performance mode is disabled. Instead of a Performance, you use multiple instances of the Kore plug-in to host multiple KoreSounds. That seems a puzzling design decision, because one of Kore's primary roles is to make the virtual-instruments and effects setups you use in a song easily archived and transported between platforms. To

KORE SPECIFICATIONS

Audio Inputs	(2) ¼" TS
Audio Outputs	(2) ¼" TRS
Additional Ports	(1) ¼" TRS stereo headphone out; (1) MIDI In, (1) MIDI Out; (1) RCA S/PDIF digital out; (2) ¼" TS footswitch in; (1) ¼" TS footpedal in; (1) USB 2.0
Audio Sampling and Bit Rates	24-bit, 96 kHz
Level Controls	3 knobs: Input, Phones, Output
Rotary Encoders	8 continuous with 500-step resolution
Buttons	8 toggle or gate with LED
Display	64 × 128-pixel backlit LCD
Navigation	Cursor Up, Down, Left, Right
Data Wheel	replicates Cursor Up, Down
Mode Buttons	6: Control, Menu, Sound, Enter, View, ESC
Transport Buttons	Play, Stop, Record (not implemented)
Pre-Listen Button	(not implemented)
Dimensions	11.85" (W) × 1.5" (H) × 7.25" (D)
Weight	3 lbs.



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that end, it would be a lot more convenient to load a single Kore Performance than to remember which KoreSound belongs on which track.

Nevertheless, having access to KoreSounds in your songs is a big plus. For one thing, it makes you much less platform dependent. If you have a virtual instrument in AU and VSTi formats on the Mac and DXi and VSTi formats on the PC, use the VSTi format in a KoreSound, and it will transfer between platforms. Along the same lines, you can use Kore to host plug-in formats not supported by your sequencing or editing software. Examples would be VST plug-ins in Apple Logic Pro and AU plug-ins in Steinberg Cubase SX.

Taking Control

The Kore hardware is an integral part of the Kore package, both for its high-resolution control surface and its audio and MIDI interfaces. For audio it has stereo inputs and outputs as well as a separate prefader stereo headphone output for cueing (in standalone mode only). Audio resolution is 24 bits at 96 kHz, and the main stereo output is duplicated at a S/PDIF jack (see Fig. 4).

The MIDI interface has standard MIDI input and output jacks. The output jack is powered and was eas-

ily able to power my Native Instruments 4Control. The assignments of Kore knobs and buttons to plug-in and Kore mixer parameters can also be set up to send and receive MIDI messages on software MIDI buses as well as through Kore's hardware MIDI ports. That works only in standalone mode, however, so the Kore hardware can't be used as a MIDI controller when running as a plug-in in your audio sequencer.

The Kore hardware's rear panel also houses jacks for a footpedal and two footswitches. You can assign these controllers to Kore software interface elements, including plug-in controls. Finally, there is a USB 2.0 jack for connecting the audio and MIDI interfaces to the computer.



FIG. 5: The Kore control surface offers eight continuous-rotary knobs and eight buttons that you can assign to any KoreSound or Performance parameter.

Pages and Pages

Kore's hardware control surface is centered around eight continuous-rotary knobs and eight buttons (see Fig. 5). The continuous-rotary knobs have a 500-step resolution, which is much higher resolution than MIDI offers.

Kore uses a system of Controller pages to change the assignments of the knobs and buttons as well as to track their values for each set of assignments. In short, when you change pages, both the hardware controls and their software counterparts on the Kore software GUI change to reflect the appropriate settings. That makes for a virtually unlimited number of Kore knobs and buttons.

Kore's scheme for assigning knobs and buttons to mixer and plug-in parameters is both simple and powerful. You click on the Assign button on the software GUI, and then either click on the Kore knob or button to be assigned onscreen or touch it on the Kore hardware. Next, click on the target control on the Kore or plug-in GUI, and you're done. You can assign the same knob or button to several parameters, and each assignment can have its own range and polarity. For example, you can assign a single Kore knob to pan two mixer channels in opposite directions.

Kore has two types of Controller pages: Channels and User. Channels pages are fixed; you can't reassign the knobs or buttons, and you can't create your own. User pages are completely under your control, and you can copy any Channels page to a new User page, which effectively gives you control of the Channels pages, too.

The Performance and KoreSound levels have separate Controller pages. The hardware and software are always in sync in that the page displayed in the Master section of the software GUI always corresponds to the page displayed on the hardware. Furthermore, you can change pages in either location. Each of the rack modules in the mixer section of the GUI also has a Controller page display, but in version 1.0.2, those pages do not sync with the pages on the hardware or in the Master section, a limitation that Native Instruments says it will address in an update.

PRODUCT SUMMARY

NATIVE INSTRUMENTS Kore 1.0.2

plug-in host and control surface
\$559

\$1,708 bundled with Complete 3

FEATURES	4
EASE OF USE	3
DOCUMENTATION	3
VALUE	4

RATING PRODUCTS FROM 1 TO 5

PROS: World-class sounds browser. Facile management of plug-in combinations. High-resolution control surface with flexible paging scheme. High-quality audio and MIDI interfaces.

CONS: Software requires hardware. No Performance level in plug-in mode.

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In addition to the Controller page knobs and buttons, the Kore hardware has input-, output-, and headphones-level knobs; 4-way arrow keys for navigating menus and Controller pages in its 64 × 128-pixel LCD; six buttons and a data wheel for quick menu navigation; and transport controls. There's also a Pre-Listen button for auditioning KoreSounds before actually loading them into memory, but that feature is not implemented in version 1.0.2.

The Kore Experience

Kore wears a lot of different hats, and Native Instruments took on a daunting task in designing such a complex hardware and software tool. The software may have been released slightly before its time, but despite some unimplemented features and odd behavior, Kore does what it does well and is a pleasure to work with.

Kore has a lot to offer as a hardware control surface: it's well engineered and sleek looking, and the controls feel good. Attention to detail when you set up Controller pages and control assignments will give you a consistent hardware interface for all of your plug-ins, and Native Instruments has paved the way by creating a consistent batch of Controller pages for all of its virtual instruments and effects.

As a plug-in for hosting plug-in combinations in

your audio sequencer or editor, Kore certainly offers something unique. The librarian features, control surface, and KoreSound management are worth the small extra CPU hit that running Kore requires.

Kore together with a reasonably powerful laptop invites comparison with dedicated hardware plug-in hosts like Muse Research Receptor. Kore offers a more convenient control surface, but you still need the computer. You don't need special authorizations for your plug-ins, but you need the Kore hardware to use the KoreSounds you create. The quality of the basic 1-port audio and MIDI interfaces is excellent.

For managing combinations of plug-ins, the Kore-Sound structure is top-notch. Once you've set things up, browsing by attributes is a real time-saver. If you happen to already own some Native Instruments plug-ins, you get a substantial library of KoreSounds and a great librarian right out of the box. If you don't already own Native Instruments products, buying the Kore and Komplexe 3 combination, although not cheap, gives you a huge library of KoreSounds and some of the best virtual instruments available.



Len Sasso is an associate editor of EM. For an earful, visit his Web site at www.swiftkick.com.

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FIG. 1: Event Electronics' Studio Precision 6 Active monitor gives you clean highs, clear midrange, and outstanding bass response.



EVENT ELECTRONICS Studio Precision 6 Active

An impressive-sounding studio monitor.

By Rusty Cutchin

Event Electronics' Studio Precision 8 Active studio monitor was an EM Editors' Choice Award winner in 2005 (see the January 2005 issue of EM, available online at www.emusician.com), and although siblings of champion speakers don't always share winning ways, Event's Studio Precision 6 Active (aka ASP6) gets a blue ribbon from this reviewer. The ASP6, a biamplified close-field (Event calls it "Direct-Field") monitor, offers pristine high end, natural midrange clarity, and surprisingly strong bass.

Sibling Symmetry

Like the ASP8, the ASP6 is striking to look at (see Fig. 1). The front panel sports a high-gloss black finish. The cabinet's top, bottom, and sides are made of a black vinyl laminate that looks like painted wood. Behind the front panel is a 6.5-inch woofer with a neodymium magnet. A magnetically shielded 1-inch ferrofluid-cooled soft-dome neodymium "radiator" is positioned directly above the speaker. (Event uses the term *radiator* for its high-frequency driver because of the broad, flat pattern the component generates without requiring built-in—or external—corrective

equalization.) The radiator is surrounded by an elliptical backplate.

At the bottom corners of the front panel are dual 3-inch-diameter "linear-flow" bass ports, which were designed to eliminate port noise. This type of port is unique to the Studio Precision series, as are the monitor's power capabilities, custom transducers, and other cabinet-design aspects. According to Event, these features account for the line's high performance.

The ASP6 has the same power amplifier as the ASP8. It provides 200W to the low-frequency (LF) driver and 80W to the high-frequency (HF) driver. The crossover point is 2.6 kHz. An LED power indicator is positioned underneath the woofer.

A number of inputs and controls are included on the ASP6's rear panel (see Fig. 2). A single ¼-inch TRS input is labeled Line Input 1. A female XLR connector is Line Input 2. Either input can accept unbalanced or balanced signals. Continuously variable HF Trim and LF Trim pots cut or boost frequencies by 3 dB, and both trims have detents (0 dB) at the 12 o'clock position. Fully turned, the LF trim produces ± 3 dB at 100 Hz and ± 2 dB at 400 Hz. The HF Trim produces ± 3 dB above 2.6 kHz.

Next to Line Input 1 is a highpass switch (80 Hz)

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FIG. 1: IK Multimedia AmpliTube 2 bears almost no resemblance to its predecessor.



IK MULTIMEDIA AmpliTube 2.01 (Mac/Win)

Updating a classic guitar-amp and -effects plug-in.

By Orren Merton

IK Multimedia AmpliTube received much praise as one of the first guitar-amplifier and -effects plug-ins. But it began showing its age as new guitar-centric simulators from companies such as Native Instruments, Waves, Nomad Factory, and iZotope hit the market. With AmpliTube 2.01, IK Multimedia has jumped back into the fray with a vengeance (see Fig. 1).

AmpliTube 2 is brand-new guitar-amp simulation software, with only a few models carried over from the original AmpliTube. It ships in all the common plug-in formats and is compatible with all major audio-editing software. IK Multimedia says a forthcoming standalone version of AmpliTube 2 will work with the previously announced Stomp I/O USB controller.

According to IK Multimedia, the company's new Dynamic Saturation Modeling (DSM) technology considerably improves the playability and musicality of the amplifier simulations. DSM models nonlinear analog circuits by continuously reshaping AmpliTube 2's analog-circuit simulation. The company says that results in a more articulate and musical response than traditional modeling methods. So how does AmpliTube 2 stack up?

Plugging In

The redesigned user interface is attractive, functional, and easy to navigate. The preset management and signal path options are at the top of the editor and an I/O

Interface bar is at the bottom, leaving the majority of the control panel for editing the modules. You can use a drop-down menu to select a module or use arrow buttons to scroll through the modules.

The I/O Interface bar has input- and output-level knobs for optimizing signal levels, a window that displays a small tuner when the tuner module is activated, and a noise gate. My guitar, a custom Koll Tornado, is pretty silent, but I found the noise gate excellent for eliminating the inevitable noise in higher-gain simulations.

AmpliTube 2 houses two complete guitar rigs consisting of stompbox, amplifier, cabinet, and rack-effects modules. Those can be arrayed either in two separate paths to be played simultaneously or in one huge setup with double the number of modules.

A classic rackmount digital tuner heads up the signal path. A small display in the I/O bar shows when the tuner is active. The tuner is very sensitive to fluctuations in the pitch of the string, and it changed values so quickly that I found it difficult to follow and hard to use.

Signal Path to Glory

The individual modules are quite flexible. The stompbox modules have 6 slots, each of which can house any of 21 effects. The rack-effects modules have 4 slots, each of which can house any of 11 effects. In the amp modules, you can select different preamp, amp-EQ, and power-amp simulations, and that's far more powerful than just

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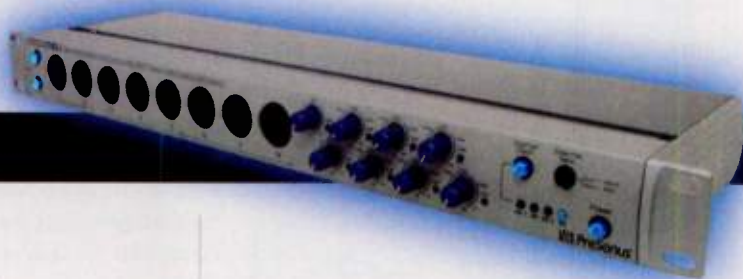
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selecting a complete simulation of an existing hardware amp.

In the cabinet modules, you can select from 16 modeled cabinets and 6 modeled microphones. Although I appreciate AmpliTube 2's flexibility, I would have liked a few more options. For example, you can't place rack effects between the amp simulation and cabinet simulation. That's something I routinely do live, and other guitar-amp software does allow that kind of routing.

Each module has its own volume and pan controls. The tuner and the stompboxes have individual on/off switches. The amp, cabinet, and rack-effects modules can be bypassed or muted. Being able to bypass, mute, or turn off modules allows you, for example, to use just the stompboxes or to use just the cabinet modules as a speaker simulator for a hardware amplifier. I often use the direct out of one of my hardware amplifiers routed through a software speaker simulator for silent recording, and the ability to use AmpliTube 2 as a speaker simulator is very welcome.

AmpliTube 2 allows oversampling for selected modules, which processes the critical DSP stages of those modules at 176.4 kHz or 192 kHz, depending on the audio sequencer's sampling rate. IK Multimedia reasons that processing only critical stages at high sampling rates takes less CPU. Oversampling really does improve the sound and feel of a module, but you need to use oversampling sparingly if your sequencer's audio buffer setting is small. With the Apple Logic Pro 7 buffer set to 64 samples, turning on oversampling for all modules on my dual-processor 2 GHz Power Mac G5 resulted in crackles and pops.

Stomping Ground

AmpliTube 2 includes models of some classic guitar pedals, such as the Fuzz Face, Tube Screamer, Boss CE-1 Chorus Ensemble, and Electro-Harmonix Memory Man, as well as some unique digital LFO and pitch effects (see Fig. 2). I especially like the modeled stompboxes; not



FIG. 2: AmpliTube 2 features models of classic stompboxes that you can set up in any order.

only do they sound good, but they also respond to picking dynamics like a real guitar pedal and don't muddy the signal.

The rack effects are supposed to sound clean and digital, and for the most part, they sound very good. I much preferred the rack Digital Flanger to the stompbox flanger, for example. The Digital Delays and Reverbs also sounded clean and efficient.

I was never quite able to get my head around the Harmonator, however. IK Multimedia explains that the idea is to set the key for the harmony voices and play monophonic lines. I found that difficult to do without incurring audio glitches.

How Many Valves?

AmpliTube 2, like most other software simulations, covers the four food groups of amp models: Fender, Marshall, Vox, and Mesa Boogie. These amps have been given names like American Tube Vintage, British Tube Lead, British Tube 30TB, and Modern Tube Lead, with graphics that hint at the original amps. AmpliTube 2 also revives some of AmpliTube 1's solid-state amp simulations.

AmpliTube 2 does include a model of one amp by name: the BiValve single-ended Class A 30W guitar amplifier from THD Electronics (see Fig. 3). For those not familiar with the hardware original, the BiValve sounds excellent. You can swap out the tubes in the real BiValve, replacing them with just about any other tube, and you can emulate that by selecting different AmpliTube 2 power-amp sections. I felt that switching power amps in the AmpliTube BiValve simulation often changed the tone more than changing power tubes in the BiValve itself did, but that's a minor quibble.

Because I have a BiValve in my project studio, I was able to make direct comparisons to the AmpliTube 2 model. I couldn't have been more pleased with the way AmpliTube 2 captured the feel and tone of the BiValve (see Web Clip 1). The dynamic response was very similar to the real thing. However, the AmpliTube 2 simulation didn't quite capture the tone of the maximum output of the BiValve when the amp was run through its high-gain input (called More).

IK Multimedia provides a healthy selection of

R

PRODUCT SUMMARY

IK MULTIMEDIA AmpliTube 2.01

guitar-amp and -effects plug-in
\$399

FEATURES	3
EASE OF USE	3
AUDIO QUALITY	4
VALUE	3

RATING PRODUCTS FROM 1 TO 5

PROS: Great-sounding effects, amp, and cabinet simulations. Effective noise gate. User interface easy to navigate.

CONS: Tuner module too sensitive. Routing possibilities somewhat limited. Harmonator effect fiddly.

MANUFACTURER
IK Multimedia US LLC
www.ikmultimedia.com

popular guitar cabinets and microphones. I particularly liked playing my hardware amplifier through the AmpliTube 2 cabinet simulations. The modeled mics offer very useful coloration to the speaker simulations without going overboard.

Tonal Nirvana

Some of the solid-state and original models from AmpliTube 1 are still there in AmpliTube 2. If you liked them before, you'll like them now, but I prefer the newer software simulations. The American Tube Clean emulations have a very clear Fender Reverb twang, and the Tube Vintage accurately captures the warmer twang of a Fender Bassman. I disliked the Vox simulation in AmpliTube 1. AmpliTube 2's Vox AC30TB emulation is a wonderful improvement, responding very much like the AC30TBs I've played through. AmpliTube 2 also models a '50s Supro combo; I've never actually played one, but I did enjoy the sound of the simulation.

I've owned my share of Marshall heads, and I felt AmpliTube 2 accurately captured the high-midrange focus of the modern Marshalls that it modeled—they sound good and respond appropriately to the way you play. I was surprised that it didn't model the famous Marshall 1959 and 1987 (Plexi) amplifiers as well. I thought the Dual



FIG. 3: AmpliTube 2 includes an excellent model of the THD Electronics BiValve.

Rectifier simulation was quite good at capturing that heavily scooped nu-metal sound without obliterating notes.

IK Multimedia put a lot of care and effort into AmpliTube 2, and it shows. The complete user-interface redesign, the new effects and speaker models, and the new amp models all shine. Anyone thinking about adding a guitar-amplifier and -effects plug-in to their digital audio sequencer should seriously consider **EMUSICIAN CLIPS** AmpliTube 2.

When Orren Merton isn't writing or editing music-technology books for Course Technology, he likes to simulate being a guitar player.

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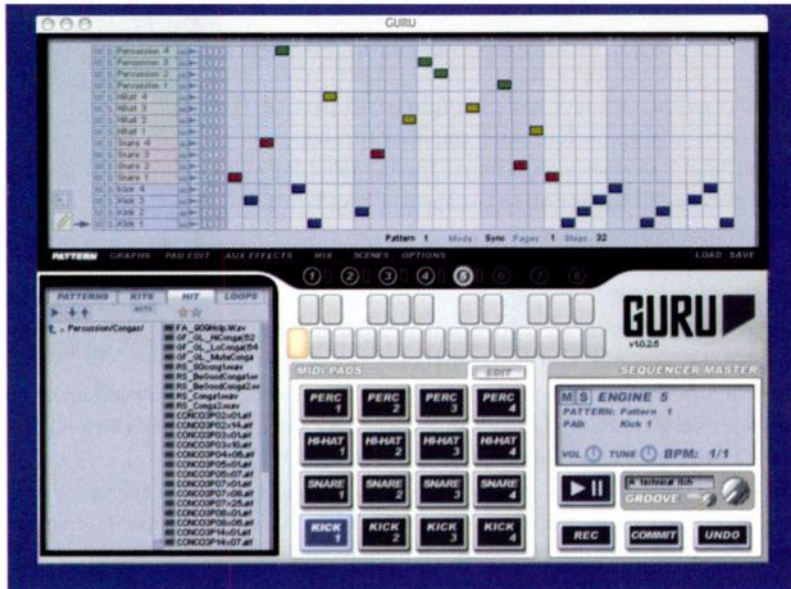
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FIG. 1: Guru's drum machine-type interface masks powerful editing features. The sequencing grid area hides formidable real-time timbral and temporal controls you can access by clicking on the black median strip just below the grid.



FXPANSION Guru 1.0.2 (Mac/Win)

An enlightened software groove sequencer.

By Marty Cutler

Considering the remarkable number of rhythm-oriented loop sequencers, drum machine hybrids, samplers, and various permutations thereof, it is surprising that any of them manages to bring something new to the table. FXpansion has been a significant force in the evolving state of loop and groove-oriented software, as has Devine Machine. The release of FXpansion Guru marks a prodigious collaborative effort between the two companies.

At first glance, Guru 1.0.2's interface is much like that of any other software drum machine. However, significant and powerful differences lurk beneath its surface. Although FXpansion touts Guru as an alternative to "fiddly" sequencer programs, don't let that fool you—you can get pretty deep into Guru's features. Yet you can build grooves without getting lost in technical details or a surfeit of menu options.

A single DVD-ROM contains the installation package, a PDF version of the manual (a hard-copy version is also included), and about 4 GB of sample content. On the Mac, the plug-in runs as a Core Audio standalone instrument and supports AU, ReWire, RTAS, and VST formats. Windows users get standalone and ReWire versions, as well as RTAS, VST, and DXi plug-ins.

I tested Guru on my dual-processor 1.42 GHz Power Mac G4 with 2 GB of RAM and Mac OS X 10.4.6. The host programs included Ableton Live 5.0.2, Apple Logic Pro 7.1.1, and MOTU Digital Performer 4.6.1. I tested standalone and ReWire versions of Guru, as well as AU and VST versions.

Load and Play

Installing Guru is about as simple as it gets: you run the installation package and type in your serial number. A separate setup application lets you install the sample content on your choice of drives.

Guru's user interface compresses a lot of functionality into a small area, but once you grasp its organizational logic, it makes good sense (see Fig. 1). The upper area of the plug-in is called the LCD, and most of the editing happens there, including the sequencing, pads, DSP, and MIDI manipulation. The lower left area holds the browser, with contextual buttons for loading patterns, kits, individual hits, and loops. The left-hand section of the browser lets you navigate through your hard drive, and files appear on the right-hand side.

You are not limited to using Guru's provided audio content. The program supports AIFF, WAV, and the three REX-file variants: REX, REX2, and RCY. One terrific aspect of the browser is that you can audition loops,

kits, and individual hits in the context of a pattern or test a pattern with new sounds. Select the file you want, and it plays back in context. When you want to commit to a sample or a pattern, click on the flashing OK button, and the pattern or sample will load. Samples are distributed across 16 pads divided into 4 groups: Kick, Snare, Hi-Hat, and Percussion.

You can trigger sounds by clicking directly on the MIDI Pads, and you can layer each pad with up to eight samples for Velocity crossfading or simply to stack sounds. The pads flash when receiving note data from your controller. The smaller pads that are arranged like a piano keyboard above the MIDI Pads are used to select patterns.

The Sequencer Master section, which occupies the lower right portion of the instrument, includes controls for play/pause, master volume and tuning, and pattern-recording functions, as well as for master tempo (when Guru is used as a standalone instrument) and Tempo Multipliers.

Under the Hood

On the surface, Guru's approach to creating songs is similar to that of modern sampling drum-machine-sequencer hardware, such as the Roland MC-series and Akai MPC-series instruments: pads trigger individual instrument hits. In addition, you can analyze and adapt loops to new tempos and feels.

Guru is fundamentally an 8-part multitimbral synthesizer with parts represented by linked units called *engines*—the heart of Guru's work flow. Each engine holds its own batch of samples, with 16 pads and 24 patterns, and each pattern yields as many as 128 steps. Engine 1 is always the master clock, but engines 2 through 8 let you easily subdivide or multiply the master clock by setting a numerator and denominator defining its relationship to engine 1.

Unfortunately, Guru makes no provision for setting the meter; the master engine and the metronome are based steadfastly on four beats to the measure. Adding to the confusion is the fact that there is no overt mention of meter in the manual, only tempo as it relates to bpm and the relationship of engine 1 to engines 2 through 8. You can even set the number of grids to 12 rather than 16, but the metronome still clicks in 4/4. (The manufacturer says this bug will be addressed in the next revision.) That makes it difficult—though not impossible—to program odd meters, particularly if you are running Guru within a host sequencer. You can, of course, sequence Guru as a passive sound module, but then you won't be able to use Guru's event-based Graphs features, which would be a shame.

The aggregation of patterns within the multiple engines comprises a sequence. Because you have eight engines to play with, you can create and experiment with dense, polyrhythmic structures on the fly (see Web



FIG. 2: When using Scenes, you can combine engines from multiple patterns, adding more rhythmic variety. Forty-eight Scene pads and their assigned MIDI Note Numbers replace the pattern-sequencing grid.

Clip 1). Guru's Scenes section adds an additional dimension with its ability to recall layers of noncontiguous patterns. For example, a Scene can simultaneously assign and play pattern 1 on engine 1, pattern 10 on engine 2, and pattern 6 on engine 4, up to 8 engines deep, with up to 48 Scenes per song. When selecting Scenes, the main LCD window shows the array of pads. A legend on the left shows which engines and patterns are playing in that Scene (see Fig. 2).

Guru has no song-form arranging facilities of its own, relying instead on a host for playback. That restricts the standalone version to live use. If given the ability to create full songs, the standalone version would benefit from built-in audio-rendering capabilities.

Watch Your Step

You can step-enter notes by clicking in the 16th-note grid, playing them in with your MIDI controller, or clicking on the pads. A button in the Sequencer Master section lets you opt for quantization if you want it. If you've painted your pattern in the grid, left and right Shift arrows let you adjust the timing of individual events to change the feel. Two knobs are provided for dialing in groove quantization: one adjusts timing, and the other adjusts the dynamics of the feel using Velocity.

Guru offers a generous collection of effects, with one master effect, and up to three auxiliary effects for each engine, including reverb, bit reduction, distortion, ring modulation, and a variety of LFO- and envelope-controlled resonant filters. Given all that, I was surprised at the absence of simple Velocity modulation of filter cutoff. You can use one of the aux filters, but don't expect a realistic approximation of acoustic drum timbre changes. Among my favorite effects are TranceGate, which works especially well with sustained sounds and

loops, providing a chugging, stuttering feel, and Freezer, which truncates loops and scrubs the pitch in real time.

However, what sets Guru apart from other groove machines and their ilk is its Graphs section. Visually, the Graphs section resembles the step-edit interface of the Pattern section and lets you alter pattern events in numerous ways.

Graphs allow step-edited manipulations of individual samples as they are played back in a pattern. The Shift section, which holds three separate graphs, lets you loosen up the timing of individual note events and replicates the left and right Shift arrows in the Pattern step editor. Repeat can take a snare drum hit and create anything from buzz rolls to sustained, granulated pitches (see Fig. 3). Scrub alters the sample start or end point for individual hits and can reduce a ringing snare to glitchy, percussive clicks and pops.

Loop Guru

I recognized a few drum sounds from FXpansion's BFD drum module. But if you're looking at Guru to create the same hyperrealistic drum performances as BFD, you're shopping in the wrong part of town. Guru's strengths lie in dance and electronically oriented grooves and in its real-time processing features. It has processed kits and other percussive sounds in spades.

Guru is able to use WAV, REX, or AIFF files of any sampling rate or bit depth. You can populate the program's drum pads from any drive you can navigate to in the browser; just drag the file from the browser and drop it on a pad. To create a layer or Velocity split, simply click on the appropriate Pad Edit button, select Layer, choose one of the eight layers, and drop a sound in from the browser. It couldn't be simpler.

The generous loop



FIG. 3: In the Repeat graph, dragging left to right at the top sets the duration and placement of repetitions for any sample. Dragging up and down changes the repetition's density.

library is one of the more eclectic collections I've encountered in some time. Along with conventional kits, you can hear loops created from ethnic percussion, circuit-bent sound sources, tortured loops suited for industrial music, beats from found objects, drum machines, stuttering vocalized sounds manufactured in Symbolic Sound Kyma, and combinations of the above.

Guru uses an approach similar (but not identical) to that of Propellerhead ReCycle and other beat-slicing software. There isn't much to it in terms of user preparation: you select a loop, choose a beat-detection algorithm, and listen. If you like the result, Guru will import the groove by assigning slices to individual pads.

The algorithms offer varying degrees of sensitivity, but you can also divide the groove into 16 equal parts. You may need to experiment with these before you find the right algorithm, but you can preview the results in real time before committing to one. One hitch is that Guru has only 16 pads to assign the slices to, so given a 2-bar or longer phrase, it discards sample data and reuses samples beyond the count of 16 beats. Most of the time the program does a fine job of re-creating the original feel, but other times it leaves grooves feeling jackleg or oddly truncated. It would be nice to have an option to automatically assign data beyond 16 beats to another sequence.

Path to Enlightenment

Shortcomings aside, Guru's easy-to-use, on-the-fly path to groove creation belies a program of depth and complexity. If you're not convinced, navigate to the FXpansion Web site and download a trial version—then you'll understand my enthusiasm. Guru already has a permanent place on my Mac's Dock.

Former EM assistant editor Marty Cutler is working on a book about synthesis and MIDI.

PRODUCT SUMMARY

FXPANSION Guru 1.0.2

loop sequencer
\$249

FEATURES	4
EASE OF USE	4
QUALITY OF SOUNDS	4
VALUE	4

RATING PRODUCTS FROM 1 TO 5

PROS: Streamlined and flexible groove creation. Simple and effective groove slicing. Supports WAV, AIFF, REX, REX2, and RCY files. Generous variety of drum kits and loops. Can produce massive polyrhythmic grooves.

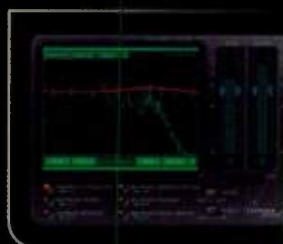
CONS: No support for meters other than 4/4. No Velocity modulation of filters. No built-in song-form arrangement features. No built-in rendering to audio.

MANUFACTURER
FXpansion
www.fxpansion.com



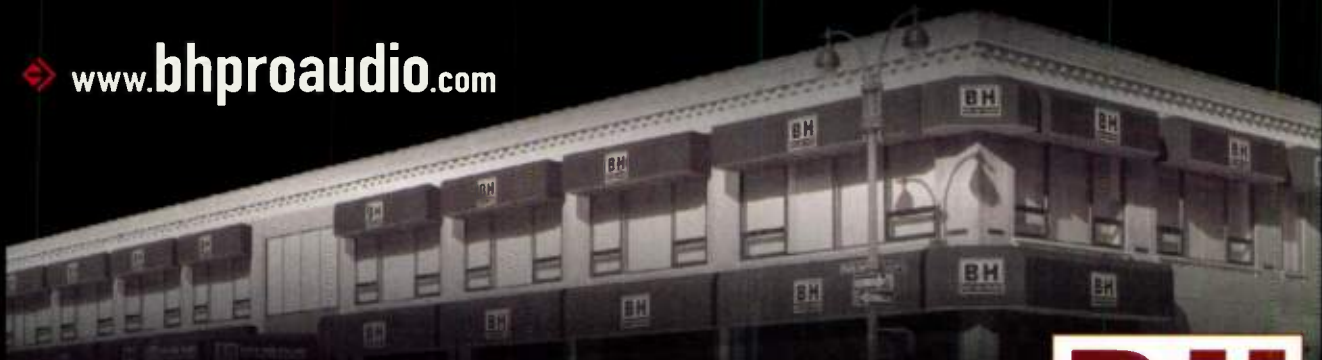
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FIG. 1: The Grand Pre's stacked channel-control layout helps you quickly locate the right knob when you need it. DI inputs are conveniently located on the front panel.

MERCURY Grand Pre

Vehicle of choice for vintage gear enthusiasts.

By Michael Cooper

Mercury Recording Equipment began operations in the year 2000 and quickly became known as a boutique pro-audio manufacturer locked in a love affair with the past. The first products the company released were closely based on designs from classic gear such as the Fairchild 660 compressor, Pultec tube equalizers, and Telefunken/Siemens microphone amplifiers.

Mercury's newest product, the Grand Pre, incorporates the solid-state mic-preamp circuit—including the Class A design, discrete components, and original Sowter transformers—found in the Calrec PQ15s, a

Start Your Engines

The rackmountable Grand Pre's gray steel chassis is fronted by a black aluminum control panel with a powder-coated finish. Right away I appreciated that the controls for channel 1 are stacked immediately above the corresponding controls for channel 2, making dual-channel adjustments speed demon fast (see Fig. 1). Each channel sports three rotary gain controls: a switched, coarse-gain adjustment providing 0 to 60 dB of gain in 12 dB steps; a continuously variable fine-gain control that yields up to 8 dB of attenuation or additional boost; and a continuously variable output attenuator. All three controls are fitted with large, easy-grip knobs featuring hash marks that are highly visible at a distance or in low light.

Each channel also features 2-way switches for phantom power (each with a status indicator), phase reversal, and input-source selection (mic

The sound will get your motor running on the very first listen.

or DI), along with a ¼-inch instrument-input jack. A large power switch and power-status indicator finish off the Grand Pre's front panel.

vintage British preamp and EQ console input module. By forgoing the equalizer circuitry, Mercury was able to deliver the Grand Pre at a more affordable price. But this dual-channel blast from the past has plenty left over to get revved up about; the sound will get your motor running on the very first listen.

or DI), along with a ¼-inch instrument-input jack. A large power switch and power-status indicator finish off the Grand Pre's front panel.

XLR connectors on the preamp's rear panel serve as the transformer-balanced mic input and line output for each channel (see Fig. 2). An IEC power receptacle

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is provided for the detachable AC cord. The manufacturer says that the Grand Pre's internal power supply uses a toroidal transformer and is regulated (meaning the voltage is maintained at a constant level) for low noise and stable performance. Additionally, Mercury purports that each amplifier channel is locally regulated to reduce crosstalk between channels to below the inherent noise level. That's especially important for stereo-miking applications, as high crosstalk would collapse the width of a stereo image.

An owner's manual was not available when I wrote this review, but anyone who is confused by the Grand Pre's commonplace and spartan control set shouldn't be behind the wheel in the first place. That said, it's always nice to know a preamp's specs (see the table "Grand Pre Specifications").

Off to the Races

My first test of the Grand Pre was to record a wonderfully balanced Santa Cruz Orchestra Model acoustic guitar, using a spaced pair of B&K 4011 mics. The Grand Pre delivered a great sound overall—rich and full without sounding boomy or muddy, and yielding nice high-frequency detail. While adjusting levels on the preamp,

I noticed that switching the coarse-gain setting resulted in an audible *pop* that got louder with each upward adjustment in gain. You'll need to turn down your control-room monitor feed to quell this minor annoyance. On a positive note, thanks presumably to the Grand Pre's roomy 2U chassis, the unit doesn't get hot to the touch like most other Class A equipment does.

I put the pedal to the metal when it was time to overdub rhythm electric guitar blowing through a Roland Micro Cube amplifier, miked from 2 feet away with a Royer R-122 ribbon mic. What a beautiful sound the Grand Pre and Royer combination gave here—warm yet uncluttered low mids, crunchy presence, and

nically rounded highs. I also routed a somewhat tinny electric guitar track (recorded with entirely different gear in another studio) through the Grand Pre to see if it could warm it up. The resulting sound exhibited a modest boost in the bass and low-midrange bands that was helpful overall, but approximately the same effect could have been just as easily achieved and more effectively fine-tuned using equalization.

When I plugged a Kramer Pioneer electric bass guitar into the Grand Pre's DI input, the resulting sound wasn't brimming with color and character, but it had a good, solid, well-balanced tone. The smooth midrange band had just enough presence to provide definition without sounding top-heavy or stringy. The bottom end was sufficiently prominent that with a little extra EQ boost, I could get some heavy thunder happening. And the Grand Pre provided plenty of gain for this passive instrument to hit 0 dBfs level on my Apogee Rosetta A/D.

So far, so good, but when I cranked the preamp's coarse gain to the max, cut the fine gain to its minimum setting, and lowered the output control, things got *really* interesting. This overdrove the preamp, resulting in a bass guitar sound that was positively bursting with colorful overtones—dynamite!

I Brake for Singers

I wasn't impressed with the Grand Pre's sound on male lead and background vocals, recorded using an AKG C 12 VR tube condenser in omni mode and an SSL Xlogic 729618X1 compressor. The track was markedly lacking in high-frequency detail and air, resulting in a closed-in sound with very understated consonants. That was quite surprising, considering how detailed the acoustic guitar track recorded with the Grand Pre sounded, not to mention that the C 12 VR in omni mode sounds pretty bright. I can only surmise that

GRAND PRE SPECIFICATIONS

Inputs	(2) balanced XLR, (2) balanced ¼" TRS (mic/high-impedance instrument switchable)
Outputs	(2) balanced XLR
Gain Range	-8 dB-+68 dB
Maximum Output	+24 dBu
Frequency Response	20 Hz-20 kHz ±0.5 dB
DI Input Impedance	2 MΩ
Dimensions	2U × 10" (D)
Weight	17 lbs.

PRODUCT SUMMARY

MERCURY Grand Pre

dual-channel mic preamp
\$2,000

FEATURES	4
EASE OF USE	5
AUDIO QUALITY	4
VALUE	4

RATING PRODUCTS FROM 1 TO 5

PROS: Smooth, full-bodied sound. Front-panel jacks for instrument DI. Multiple-stage gain control allows creative overdrive applications. Runs cool.

CONS: Colored sound doesn't provide enough detail for some applications. Changing coarse-gain setting causes an audible *pop*. A little pricey.

MANUFACTURER

Mercury Recording Equipment
www.mercuryrecordingequipment.com



FIG. 2: The Grand Pre's straightforward rear-panel layout comprises XLR connectors, a fuse holder, and a power receptacle.

the Grand Pre, which lacks controls to alter its input impedance, doesn't load a C 12 VR as favorably as a B&K 4011. In any case, my Millennia HV-3D preamp provided a much more open and detailed sound using the same singer, mic, and compressor.

My final tests involved recording kick and snare drums, using Shure Beta 52 and SM57 mics, respectively. I appreciated having the Grand Pre's fine-gain control to attenuate the snare drum's level slightly below unity so that it wouldn't overload the downstream A/D. The snare drum had a nice, full-bodied tone, but it was the sound of the kick drum that really impressed me. Without any EQ applied, the Grand Pre gave the kick a meaty but tight bottom end married to a snappy upper-midrange beater slap. Although I didn't get a chance to audition the Grand Pre on toms, I bet it would be a great preamp choice for

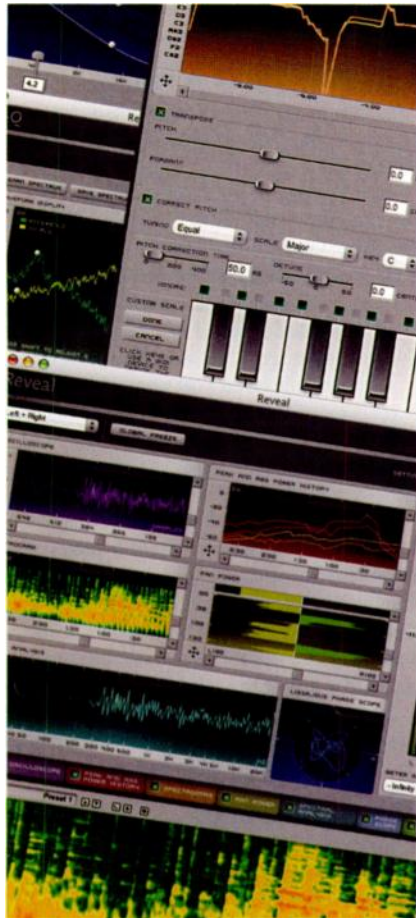
this application, considering the unit's full-bodied upper-bass and low-midrange coloration.

At the Speed of Sound

The Mercury Grand Pre delivers on its promise of dishing out the classic British sound of yesteryear. It sounds terrific on electric guitar, bass guitar, and kick drum, and it's useful on other instruments as well. Wherever you're seeking a smooth, full-bodied sound, this preamp would be a good candidate. The Grand Pre's wide-ranging gain capabilities (-8 to +68 dB) make it serviceable for recording anything from loud drums to quiet acoustic instruments.

If the \$2,000 retail price tag is a deterrent, then a single-channel version of the Grand Pre—dubbed the GP1—is available for \$700 less. But if you can afford it, step on the gas and enjoy the ride.

Thanks to veteran session drummer Steven Tate for his assistance in testing the Grand Pre on drums. Michael Cooper provides flat-fee mixing and mastering services for out-of-area clients via Fed Ex delivery. He can be reached at coopermb@bendbroadband.com.



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The **true story** behind the worldwide
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by **David-Lucas Burge**

It all started in ninth grade as a sort of teenage rivalry...

I'd practice and slave at the piano for five hours daily. Linda practiced far less. Yet somehow she always shined as the star performer of our school. It was frustrating.

What does she have that I don't? I'd wonder.

Linda's best friend, Sheryl, bragged on and on to me, adding more fuel to my fire.

"You could never be as good as Linda," she would taunt. "Linda's got Perfect Pitch."

"What's Perfect Pitch?" I asked.

Sheryl gloated about Linda's uncanny abilities: how she could name exact tones and chords—all BY EAR; how she could sing any tone—from memory alone; how she could play songs—after just hearing them; the list went on and on...

My heart sank when the realization came to me. Her EAR is the key to her success. How could I ever hope to compete with her?

But it bothered me. Did she really have Perfect Pitch? How could she know tones and chords just by hearing them? It seemed impossible.

Finally I couldn't stand it anymore. So one day, I marched right up to Linda and asked her point-blank if she had Perfect Pitch.

"Yes," she nodded aloofly.

But Perfect Pitch was too good to believe. I rudely pressed, "Can I test you sometime?"

"OK," she replied.

Now she would eat her words...

My plot was ingeniously simple...

When Linda least suspected, I walked right up and

challenged her to name tones for me—by ear.

I made her stand so she could not see the piano keyboard. I made sure other classmates could not help her. I set up everything perfectly so I could expose her Perfect Pitch claims as a ridiculous joke.

With silent apprehension, I selected a tone to play. (She'll never guess F#, I thought.)

I had barely touched the key.

"F#," she said. I was astonished.

I played another tone.

"C," she announced, not stopping to think.

Frantically, I played more tones, skipping here and there all over the keyboard. But somehow she knew the pitch each time. She was AMAZING.

"Sing an E," I demanded, determined to mess her up. She sang a tone. I checked her on the keyboard—and she was right on!

Now I started to boil.

I called out more tones, trying hard to make them increasingly difficult. But she sang each note perfectly on pitch.

I was totally boggled. "How in the world do you do it?" I blurted.

"I don't know," she sighed. And that was all I could get out of her!

The dazzle of Perfect Pitch hit me like a ton of bricks. My head was dizzy with disbelief. Yet from then on, I knew that Perfect Pitch was real.

I couldn't figure it out...

"How does she DO it?" I kept asking myself. On the other hand, why can't everyone recognize and sing tones by ear?

Then it dawned on me. People call themselves musicians and yet they can't tell a C from a C#? Or A major from F major?! That's as strange as a portrait painter who can't name the colors of paint on his palette! It all seemed odd and contradictory.

Humiliated and puzzled, I went home to work on this problem. At age 14, this was a hard nut to crack.

You can be sure I tried it out for myself. With a little sweet-talking, I'd get my three brothers and two sisters to play piano tones for me—so I could try to name them by ear. But it always turned into a messy guessing game I just couldn't win.

Day after day I tried to learn those freaking tones. I would hammer a note over and over to make it stick in my head. But hours later I would remember it a half step flat. No matter how hard I tried, I couldn't recognize or remember any of the tones by ear. They all started to sound the same after awhile; how were you supposed to know which was which—just by listening?

I would have done anything to have an ear like Linda. But now I realized it was way beyond my reach. So after weeks of work, I finally gave up.

Then it happened...

It was like a miracle... a twist of fate... like finding the lost Holy Grail...

Once I stopped straining my ear, I started to listen NATURALLY. Then the simple secret to Perfect Pitch jumped right into my lap.

Curiously, I began to notice faint "colors" within the tones. Not visual colors, but colors of pitch, colors of



"How in the world do you do it?" I blurted. I was totally boggled. (age 14, 9th grade)

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sound. They had always been there. But this was the first time I had ever really "let go"—and *listened*—to discover these subtle differences.

Soon—to my own disbelief—I *too could name the tones by ear!* It was simple. I could hear how F# sounds one way, while Bb has a *totally different sound*—sort of like "hearing" red and blue!

The realization struck me: THIS IS PERFECT PITCH! This is how Bach, Beethoven, and Mozart

could mentally envision their masterpieces—and know tones, chords, and keys—all by ear!

It was almost childish—I felt sure that *anyone* could unlock their own Perfect Pitch with this simple secret of "Color Hearing."

Bursting with excitement, I told my best friend, Ann (a flutist).

She *laughed* at me. "You have to be *born* with Perfect Pitch," she asserted. "You can't *develop* it."

"You don't understand Perfect Pitch," I countered. I showed her how to listen. Timidly, she confessed that she too could hear the pitch colors. With this jump start, Ann soon realized she had also gained Perfect Pitch.

We became instant celebrities. Classmates loved to call out tones which we would then magically sing from thin air. They played chords for us to name by ear. They quizzed us on what key a song was in. Everyone was fascinated with our "supernatural" powers, yet to Ann and me, it was just normal.

Way back then, I never dreamt I would later cause such a stir in the academic world. But as I entered college and started to explain my discoveries, many professors *laughed* at me.

"You must be *born* with Perfect Pitch," they'd say. "You can't *develop* it!"

I would listen politely. Then I'd reveal the simple secret—*so they could hear it for themselves*. You'd be surprised how fast they changed their tune!

In college, my so-called "perfect ear" allowed me to skip over two required music courses. Perfect Pitch made everything easier for me—my ability to perform, compose, arrange, transpose, improvise, and even sight-read (because, without looking, you're sure you're playing the correct tones). And because my ears were open, music just seemed richer.

I learned that music is definitely a HEARING art.

Oh, you must be wondering: whatever happened with

Linda? Excuse me, I'll have to backtrack . . .

It was now my senior year of high school. I was nearly 18. In these three-and-a-half years with Perfect Pitch, my piano teacher insisted I had made ten years of progress. And I had. But my youthful ambition wasn't satisfied. I needed one more thing: *to beat Linda*. Now was my *final chance*.

The University of Delaware hosts a performing music festival each spring, complete with judges and awards. To my horror, they scheduled me that year as the *grand finale* of the event.

The fated day arrived. Linda gave her usual sterling performance. She would be tough to match, let alone surpass. But my turn finally came, and I went for it.

Sinking to the stage, I sat down and played my heart out with selections from Beethoven, Chopin, and Ravel. The applause was overwhelming.

Later on, I scoured the bulletin board, searching for our grades in the most advanced performance category. Linda received an A, which came as no surprise.

I scored an A+.
Sweet victory was music to my ears—mine at last!



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- "Wow! It really worked. I feel like a new musician. I am very proud I could achieve something of this caliber." *J.M., percussion*
- "Someone played a D major chord and I recognized it straight away. *S.C., bass*
- "Thanks...I developed a full Perfect Pitch in just two weeks! It just happened like a miracle." *B.B., guitar/piano*
- "It is wonderful. I can truly hear the differences in the color of the tones." *D.P., student*
- "I heard the differences on the initial playing, which did in fact surprise me. It is a breakthrough." *J.H., student*
- "It's so simple it's ridiculous. *M.P., guitar*
- "I'm able to play things I hear in my head. Before, I could barely do it." *J.W., keyboards*
- "I hear a song on the radio and I know what they're doing. My improvisations have improved. I feel more in control!" *I.B., bass guitar*
- "It feels like I'm singing and playing MY notes instead of somebody else's—like music is more 'my own'." *L.H., voice/guitar*
- "What a boost for children's musical education!" *R.P., music teacher*
- "I can identify tones and keys just by hearing them and sing tones at will. When I hear music now it has much more definition, form and substance. I don't just passively listen anymore, but actively listen to detail!" *M.U., bass*
- "Although I was skeptical at first, I am now awed." *R.H., sax*
- "It's like hearing in a whole new dimension." *L.S., guitar*
- "I started crying and laughing all at the same time. *J.S., music educator*
- "I wish I could have had this 30 years ago!" *R.B., voice*
- "This is absolutely what I had been searching for." *D.F., piano*
- "Mr. Burge—you've changed my life!" *T.B., student*
- "Learn it or be left behind." *P.S., student . . .*

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METASONIX

TM-6 Vacuum Tube Multimode Filter

By Gino Robair

After turning the world on its damaged ears with a pair of volatile distortion boxes, the Agonizer and the Butt Probe (see www.emusician.com for the reviews), Metasonix has returned to a more traditional synth paradigm by releasing a vacuum tube-based multi-

The Metasonix TM-6 is a tube-based filter that can be used with synths, drum machines, and even electric guitar (if you boost the instrument's signal enough).

mode filter, the TM-6 (\$399). The company's previous filter, the TM-2 (an Editors' Choice Award winner in 2003), had a unique sound and included a VCA circuit.



Besides being the only other commercially available tube filter, the TM-6 has a distinctive sonic character that combines a vintage vibe with an aggressively modern attitude.

Tubular

The TM-6 contains a pair of military-grade 6AK5 pentode tubes, illuminated by a small LED and visible through a Plexiglas portal. A green light on the front panel indicates when the unit is

receiving power: although there is no power switch, there is a bypass switch. The TM-6 requires a 12 VAC wall wart for power; don't accidentally use a DC supply, or you'll damage the unit.

Like the other TM-series processors, the TM-6 can be used as a stompbox, as a tabletop effect, or mounted in a 19-inch rack or a modular synth using the optional mounting kits. The TM-6 works well with any line-level signal, from drum machines and synths to prerecorded mono audio tracks. When used with an expression pedal, the TM-6 works exceptionally well as a wah-wah on electric guitar, as long as you boost the guitar's signal using a preamp or effects processor (see [Web Clip 1](#)).

Double Your Fun

The TM-6's filter circuit is based on the classic Twin-T notch design using two parallel bandpass filters, with ranges from 300 Hz to 1 kHz (lower filter) and 800 Hz to 1.9 kHz (higher filter). The Bandpass Range switch sets the distance between the two filters, from roughly two octaves (Low setting) to three octaves (High setting). By comparison, the TM-2 had only a 2-octave spread between the filters. The TM-6's wider range is a welcome feature that substantially increases the timbral palette of the device.

The Bandpass Range switch also determines the resonating behavior of the filter circuit when it goes into oscillation. The circuit is more peaky, and consequently more prone to self-oscillate, in the Low setting.

The Filter Type knob lets you set the overall behavior of the filter from bandpass (fully clockwise) to 4-pole lowpass (12 o'clock setting) to Bass Only (fully counterclockwise). This last setting passes audio through within a frequency range of 80 to 200 Hz. As soon as you move the knob from its fully counterclockwise setting, the bandpass filter's signal returns to the output.

The Filter Tune knob moves the center frequencies of the filter pair simultaneously. The Tune CV input allows you to sweep this control using a control voltage (a 1-octave sweep

requires 0 to 4V) or expression pedal.

Filter resonance is also given a knob and a CV input on the TM-6, and it's these two controls that can make the filter scream. The TM-6 goes into oscillation easily, especially when full-range control voltages are sent into the Resonance CV input. If you're using CVs from analog modules to control the filter frequency or resonance, you'll want to attenuate the CV because the TM-6 is very sensitive. (Keep your master fader down while you're tweaking your patch to protect your hearing and tweeters.)

Turning up the module's Input Level control curbs the self-oscillation and adds extra beefiness to the sound. To hear the full range of the TM-6, the input control should be set near the 12 o'clock position. However, the module sounds great when the input gain is fully maxed out. But don't expect the TM-6 to give you the extreme distortion of the TX-1 or TX-2: this circuit pushes the tubes just enough to add a chubby richness to the signal rather than completely obliterating it.

The Envelope, Please

Because the resonance is so volatile, it's easy to modify drum tracks and sequences by setting the filter at the edge of oscillation, so that the various peaks in the signal give you sweeping pitches or xylophone-like pings. One of my favorite patches involved sending a drum machine through an envelope follower that controlled the TM-6's Filter Tune while simultaneously processing the drum sequence. I set the resonance to the near breaking point to add subtle downward pitch sweeps (see [Web Clip 2](#)).

Bandpass filters are great for adding "glorpiness" to synth patches, and the TM-6 works well in this regard. It's a little wild and rambunctious in its behavior, but once you get to know it, the TM-6 offers great subtlety and a range of sounds unavailable elsewhere.



Value (1 through 5): 4

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EZdrummer (Mac/Win)

By Pete Prown

EZdrummer (\$179) is a software drum module that offers high-quality samples in the tradition of Toontrack's flagship dfh (Drums from Hell) Superior. Sporting drum kits recorded at Avatar Studios in New York City, EZdrummer has an intuitive interface and a mixer to tweak individual drum and cymbal levels. The plug-in supports VST, AU, and RTAS and comes with 8,000 MIDI files. A number of expansion packs will be available by the time you read this, including *Latin Percussion*, *Drumkit from Hell*, and *Vintage Rock Brushes & Sticks*.

Mix and Match

As the name suggests, EZdrummer was designed to be an easy-to-use drum plug-in—and it is. Just create an audio track and select EZdrummer from your plug-ins menu. Click on Open Grooves to select from a large menu of MIDI files (including fills and variations) in a variety of styles, tempos, and time signatures. You can use the Play button to audition each beat in real time. Velocity Sweep lets you dial in dynamic Velocity control of the MIDI track before you drag it into the sequencer. The Humanize control introduces small variations into each rhythm pattern.

Drag the pattern of your choice from the menu into a MIDI channel on your sequencer, and select EZdrummer as the destination of the MIDI channel. As your groove is playing, you can view the RAM Counter to see the amount of computer resources being used. (It won't be much, because the program uses memory resources efficiently.)

Although EZdrummer includes preset kits, it also lets you assemble your own (see **Web Clips 1 through 3**). Click on any drum or cymbal to hear how it sounds. If you don't like what you hear, you can swap that instrument for the trap of your choice. The sample list includes drums from GMS, Rogers, and Slingerland, and cymbals from Sabian and Zildjian.

Overall, the drums sound good. The snares all rattle a bit, giving the col-



Toontrack EZdrummer lets you customize the instruments in your kit, and you can use the Multi-Channel option to send each instrument to its own track.

lection a live feeling, which is good if you want a loose, country/blues-rock vibe. However, a nice addition to future expansion sets would be a hard rock, AC/DC-style cannon snare. I was least excited about the sound of the cymbals, and the collection contained none of those elusive breathy, airy tones I like.

In the Mix

The Mixer pane lets you tweak the volume and stereo placement of each drum or cymbal and includes a dedicated Room fader to set a reverb level over the entire drum mix. Three Room presets are included: Roomy, Dry, and Flat Mono. The effects are serviceable and are a welcome extra.

One of my favorite features in the mixer section is the Multi-Channel option. This allows you to bring the drums into your sequencer as seven individual tracks.

Finally, once the drum pattern is in your sequencer, the module will automatically convert your MIDI file to audio at mixdown, saving you the step of having to record your MIDI tracks.

The Last Rim Shot

Overall, this plug-in is fun to use and visually attractive, and gives you a pleasing amount of sound-sculpting control without being too technical. It offers a fast and easy way to add grooves to your recordings, and I give it a **EMWEB** **GOODS**

Value (1 through 5): 4

Toontrack (distributed by EastWest)
www.ezdrummer.com

AUDEON

UFO 1.0 (Win)

By Len Sasso

One look at its control panel will tell you that UFO 1.0 (\$139) is no ordinary synth. Its overlapping brushed-metal modules, lightning-bolt signal-path animation, and array of x-y controllers scream outer space. UFO stands for Unique Filters and Oscillators, and its creator, Patrick Bastien, calls the algorithms used in his oscillators and filters TransModal Synthesis. You can purchase UFO as well as download its full-featured, shareware little brother, UFO Light, from the Audeon Web site (www.audeon.fr).

UFO is a VSTi plug-in for Windows, and a Mac version is due out by the time you read this. Its four identical synthesis engines, called tracks, can be layered on the same MIDI channel or spread across separate channels for multitimbral operation. On my 3.2 GHz Pentium 4 laptop using Ableton Live 5 as host, running all four tracks with complex polyphonic presets consumed roughly 35 percent of the CPU, which is efficient by any standard.

Sum of the Parts

UFO has a fairly straightforward, subtractive-synthesis signal path consisting of a pair of oscillators followed by a pair of multimode filters followed in turn by a pair of formant filters. The output section contains two basic multi-effects in series: delay, chorus, or flange followed by delay or reverb. What makes UFO different is the unusual design and control structure of those modules.

The oscillators have two modes,

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called K and V. The K mode has two x-y-controller windows for selecting what is loosely called its waveform. The left window sets the amount of chaos in the waveform (vertical axis) and its brightness (horizontal axis). The right window controls the ratio of odd to even harmonics (horizontal axis) and periodicity versus noise (vertical axis). A slider sets the duration of an attack transient before the waveform settles into its steady state. At the chaotic and bright end of the spectrum, these oscillators are capable of some really edgy sounds.

The V mode has one x-y controller for mixing sawtooth, square, and two narrow-pulse waveforms. Either oscillator can be ring-modulated by the other.

The multimode filters are continuously variable from lowpass to highpass and offer 12 and 24 dB-per-octave slopes. An x-y controller sets cutoff frequency and resonance, and an input slider controls the mix of the two oscillators at the filter's input. A mix of the multimode filter outputs feeds the formant filters, which have yet another x-y controller for managing the formant frequency and boost or cut.

Metamorphosis

All of UFO's sliders and x-y controllers may be assigned to MIDI continuous controllers using a typical MIDI Learn scheme, but UFO goes one better by offering a robust built-in vectoring scheme that allows a single LFO, envelope, or MIDI message to simultaneously control multiple parameters. Vectoring sources include two LFOs, two ADSR envelope generators, and MIDI Velocity, Note Number, Aftertouch, and Mod Wheel.

Vectoring for each source is set up onscreen, and after setup the vectors can be hidden to reduce screen clutter. When vectoring is visible for a particular source, a small, color-coded cross appears on every eligible target control. Clicking-and-dragging the cross allows you to draw a directional

line segment representing the change effected by the full range of the modulation source.

From the Factory

The 127 factory presets amply illustrate UFO's vector morphing, especially using the MIDI Mod Wheel as the source. Conveniently, such presets have a pound sign in their name. Presets load into individual UFO tracks, making it easy to mix and match sounds in multilayered or multitimbral setups. Unfortunately, there is no provision for saving multitrack setups other than as part of the host song.

UFO's presets are divided among six categories: leads, organic, bass, pad, motion, and SFX. Many of the pad, motion, and SFX presets evolve slowly over time and are excellent for creating long layered ambiences (see [Web Clip 1](#)). The leads and basses are standard fare and not my favorites. The organic presets are surprisingly natural sounding, especially the voice-based Gregorian and Airy Choir, the Theremins, and the world percussion instruments. The preset collection is not extensive, but it's a good starter set and nicely shows off UFO's capabilities.

As unusual as it is, UFO is surprisingly easy to grasp and to program. The manual is well written and has a getting-started section that will have you creating and modifying presets in minutes. But the bottom line is the sound, and UFO definitely delivers.



Value (1 through 5): 4

Audeon
www.audeon.fr

MID-FI ELECTRONICS

Glitch Computer

By Myles Boisen

As an experimental guitarist, I've always wished for an effects pedal that could inject random, uncontrollable noises into my sound at the touch of a button. That wish came true the day I was introduced to the Mid-Fi Electronics Glitch Computer (\$175).

The unit is housed in a generic metal project box with ¼-inch input and output jacks, a footswitch, and three knobs mounted on the side. A crude-looking sticker pasted on top of the box identifies the knobs as Volume, Blend, and Tracking. Inside the review unit are three IC chips and a 9V battery. However, the recently updated version is powered by a 9V Boss-style wall wart and includes an LED that indicates when the effect is active.

So what do you do with a pedal that has no manual and barely readable text? Plug it in, of course. And that's what I did, with the help of fellow noise enthusiast Jonathan Segel.

Source of Uncertainty

Initially Segel and I were blown away—quite literally—by the pedal's high output level when used as part of a standard guitar rig. The volume pot is not a standard taper, but instead seems to go from mute to unity gain between about 1 and 2 o'clock. From the 2 to 4 o'clock position, the level increases noticeably and timbre also changes, with the low-frequency output increasing dramatically. Then through the rest of the range (4 to roughly 11 o'clock), the output gets only slightly louder.

Once the volume was tamed, the Glitch Computer spewed out a bewildering array of distortion and pitch-shifted intervals.

Between the two of us, we couldn't quite figure out how the Glitch Computer did its particular brand of audio magic. But we loved the varied effects, which ranged from over-the-top fuzz (reminiscent of the Z.Vex Fuzz Factory) to unrecognizable sonic mayhem.

The Glitch Computer combines extreme fuzz with an octave generator. But that only begins to explain the mysterious inner workings of this pedal. The interaction of the Blend and Tracking controls produces a number of crazed and unique textures, often with a small twist of one knob or the other.

For example, with Blend fully clockwise (all-fuzz position, 11 o'clock) and Tracking fully counterclockwise, the pedal offers a fairly conventional type of buzzy overdrive. Turning Blend to 10 o'clock morphs the output into a thin

UFO's vector-modulation scheme displays color-coded line segments for each automation vector. Segments are created and edited by clicking-and-dragging.



hyperdrive that decays fairly quickly into a glitchy dead-battery sound before cutting out entirely. Rotating the Blend control to 9 o'clock opens up a full, richly sustaining tone.

When Blend is fully counterclockwise, the Glitch Computer generates a pitch two octaves down, with square wave-type fuzz added. In this mode the signal is also gated, with the only available gating control being the input level. Setting the Tracking control fully clockwise gives the stablest pitch-shifted tone, although the pedal is not meant to function as either a conventional or clean harmonizing effect. Nonetheless, if stable octave shifting is what you're after, this device works best with sustained and simple waveforms such as the output from an electric bass.

As the Tracking control is turned counterclockwise, the tracking of the signal and its attendant pitch-shifting becomes more and more erratic. Depending on the

complexity and decay of the input signal, the Glitch Computer will actually arpeggiate recognizable overtones from the harmonic series, stutter rhythmically, or just break up into random noise.

Twisted Tracks

In the studio I had a lot of fun applying the Glitch Computer to a multitrack master, going track by track through instruments such as drums, horns, bass, and maracas. As you can imagine, running a vocal through the unit while playing with the blend and tracking yields a wealth of bizarre effects. Unlike some other guitar pedals, the Glitch Computer responds well to strong line-level signals.

Furthermore, this demented device stands out from the crowd by being much more than just a one-trick pedal. While its effects may often be surprising and impossible to duplicate, they vary widely and are completely changeable with small knob tweaks.



Feel the Noise

If you're looking for subtle or tasteful effects, the Glitch Computer is not the stompbox for you. But noise musicians will have to have this in their arsenal, as will anyone who has ever yearned to make their guitar, bass, or keyboard sound completely unrecognizable. **EM**

Value (1 through 5): 4

Mid-Fi Electronics
(distributed by NoiseFX)
www.noisefx.com

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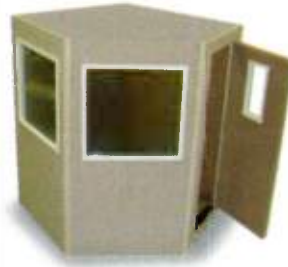


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Build Your Intel-Powered MOTU Studio

Run Digital Performer 5 and the rest of your Universal Binary MOTU studio on Apple's new Intel-Xeon Quad Core Mac Pro Tower for unprecedented virtual studio power and performance.

Meet **Mac Pro**. Running at speeds up to 3GHz, Mac Pro not only completes the Mac transition to Intel processors but delivers advanced performance, expansion and audio I/O configurations for your MOTU studio. The Mac Pro's 64-bit Dual-Core Intel Xeon "Woodcrest" processor — in double dual-core "quad" configuration — makes Mac Pro one of the fastest desktop computers on the planet. At 3GHz, the Mac Pro runs up to 2x faster than the Power Mac G5 Quad, allowing you to run an astonishing number of **DP5** and **MOTU** virtual instruments, together with a wide array of third-party instruments and plug-ins. Add up to 4 Terabytes of internal hard drive storage for massive track counts. Install up to 16 GB of RAM for optimal virtual instrument performance. Connect **MOTU** audio hardware via three PCI Express slots, four Firewire ports and five USB2 ports. Your MOTU Studio is now faster than ever.



Bus powered Firewire I/O

The ultra convenient **MOTU UltraLite** connects quickly to your Intel Mac Pro or Macbook and instantly delivers 10 inputs and 14 outputs, including two mic / line / Instrument inputs with pristine preamps. Mix and match condenser and dynamic mics with Individual 48V phantom power, 20 dB pad and Precision Digital Trim™. The UltraLite is the only interface of its kind to offer complete seven-segment front panel metering for all inputs, plus full front-panel LCD programming. The LCD also gives you full access to the UltraLite's 8x20 CueMix DSP mixer, which can also be controlled from the convenient CueMix Console software for PC and Mac. The UltraLite is a sturdy all-around interface with ASIO, WDM, Wave, GSIF, Core Audio, and Core MIDI drivers and support for all popular Macintosh and PC audio software. Mix and match the UltraLite with other MOTU interfaces as your studio needs grow.



Waves native processing

With 24 State-of-the-art sound processors, **Waves Gold Bundle** is a comprehensive set of audio processing tools for DP5. Now fully compatible with the new Intel-Based Macs, the **New Gold Bundle** is bigger and better than ever, including IR-L Convolution Reverb, Waves Tune LT, Doubler, and RenAxx. IR-L Convolution Reverb: The world's best rooms at your fingertips. Grand Ole Opry, Sydney Opera House, Birdland, Trinity Church. Want to record in the world's greatest venues? Now you can. IR-L puts the meticulously captured sound of these and many other renowned spaces and hardware devices in your hands. Waves Tune LT: Advanced dynamic pitch correction with formant correction, natural vibrato detection, MIDI and ReWire compatibility, and ultra-powerful real-time editing capabilities. Doubler: Fat tracks with richness and texture. RenAxx: The ultimate compressor for guitar. For tracking, mixing, and mastering, the Gold Bundle is an ideal DP5 companion.



The MOTU experts at Sweetwater can put together the perfect Intel DP5 rig for you. We'll help you select the right components to build a system that seamlessly integrates into your workflow, and we can even install, configure and test the entire system for you. Why shop anywhere else?



Legendary drummers

Submersible Music Drumcore delivers access to twelve world-class drummers, such as Terry Bozzio, Matt Sorum, Sly Dunbar and Zoro. The perfect tool for songwriters and composers who need drums quickly in a multitude of styles. Features include an Audio and MIDI librarian (quickly find that perfect groove), "GrooveSets" (for easier songwriting), MIDI instrument (loaded with each drummer's MIDI drumkits) and the "Gabrielizer" (groove generator). Simply drag-and-drop from Drumcore to your Digital Performer 5 tracks or Clippings window.



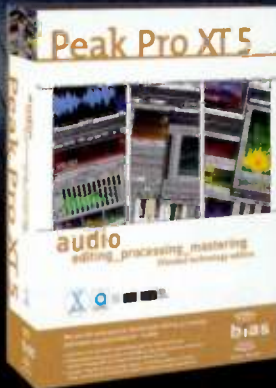
Exquisite grand pianos

Synthogy's Ivory set a soaring new standard for virtual pianos. Now, you can expand Ivory's three-piano repertoire with the **Italian Grand expansion pack**, a 16 GB, 12 velocity masterpiece of exquisite playability. Load up the Italian Grand, and Ivory becomes far and away the most powerful virtual piano for Digital Performer 5. Once you lay your hands on Ivory, you'll agree with the pros at Sweetwater: "Ivory isn't just a virtual instrument... it's an experience."



Advanced waveform editing

Your DP mastering and processing lab awaits you: **BIAS Peak Pro 5** delivers award winning editing and sound design tools, plus the world's very best native mastering solution for Mac OS X. With advanced playlisting, Superb final-stage processing, Disc burning. Plus PQ subcodes, DDP export (optional add on), and other 100% Redbook-compliant features. Need even more power? Check out our Peak Pro XT 5 bundle with over \$1,000 worth of additional tools, including our acclaimed SoundSoap Pro, SoundSoap 2 (noise reduction and restoration), Squeeze-3 & 5 (linear phase multiband compression/limiter/upward expander), Reveal (precision analysis suite), PitchCraft (super natural pitch correction/transformation), Repli-Q (linear phase EQ matching), SuperFreq (4,6,8, & 10 band parametric EQ) and GateEx (advanced noise gate with downward expander) — all at an amazing price. So, when you're ready to master, Peak Pro 5 has everything you need. It's the perfect complement — and finishing touch — to Digital Performer 5.



Universal plug-in control

As a Universal Sound Platform, **Native Instruments KORE** operates not only as a plug-in within Digital Performer but also as an instrument host application. It allows you to integrate all your VST- and Audio Units-based software instruments and effects into a single, unified interface. KORE provides greatly increased control, overview and ease of use in all creative situations. Both Native Instrument's own range of instruments and effects as well as third-party products are supported. The seamless integration with KORE's advanced hardware controller gives hands-on control with unprecedented analog feel, finally turning today's software synthesizers and samplers from applications into true instruments.



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Build Your Intel-Powered MOTU Studio



Advanced compact controller

Digital Performer 5 gives you unprecedented control over your MIDI and audio tracks. And what better way to take advantage of this hands-on control than the new **M-Audio Axiom 25**, which kicks off the more advanced Axiom line of MIDI controllers. Built around an even more rugged chassis, the Axiom 25 includes 25 semi-weighted velocity-sensitive keys with assignable aftertouch, eight MIDI trigger pads, six reassignable transport buttons, 20 non-volatile memory locations and more. And if you need more keys and controller options, the 49-key **Axiom 49** and the 61-key **Axiom 61** complete the new line. Don't let the compact size of the Axiom 25 fool you. This advanced 25-key USB mobile MIDI controller features both semi-weighted action and assignable aftertouch, plus eight rubberized trigger pads that put drum programming and performance at your fingertips.

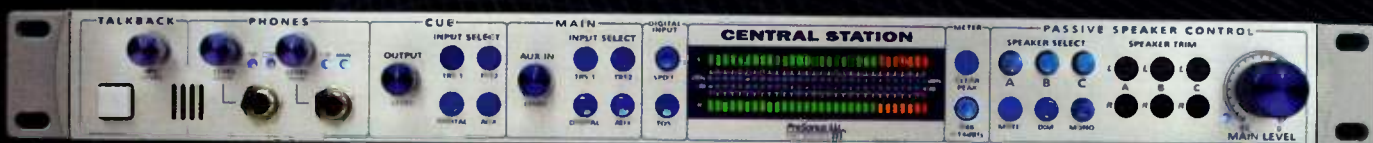


Rich Lexicon reverbs with plug-in convenience

Lexicon is noted for reverbs, and now the new **MX400** and **MX400XL** dual stereo/surround reverb processors bring that classic Lexicon sound to your MOTU desktop studio, without the taxing CPU overhead associated with high-end software-only reverb plug-ins. The new single-rackspace, 4-in, 4-out MX400 combines an intuitive front-panel design with Lexicon's "Hardware Plug-in" technology,

a unique USB connection and AU plug-in interface that lets you control and save your MX400 reverb settings directly from within your Digital Performer projects, just like your other plug-ins, while offloading the intensive reverb processing the MX400 hardware. Featuring a wide array of rich, complex reverb algorithms, delays, effects and dbx dynamics, the MX400 series also offers

4-channel surround algorithms that dovetail perfectly with Digital Performer's state-of-the-art surround mixing. A 4-in, 4-out design, the MX400 series offer pro connectivity through XLR balanced I/O (MX400XL), or TRS I/O (MX400). Both products also offer . In any application, the MX400 series products provide versatility and sound that is unmistakably Lexicon.



Control room monitoring

The **PreSonus Central Station™** is the missing link between your MOTU recording interface, studio monitors, input sources and the artist. Featuring 5 sets of stereo inputs (3 analog and 2 digital with 192kHz D/A conversion), the Central Station allows you to switch between 3 different sets of studio monitor outputs while maintaining a purely passive signal path. The main active path uses no amplifier stages including op amps, active IC's or chips. This eliminates coloration, noise and distortion, enabling you to hear your mixes more clearly and minimize ear fatigue. In addition, the Central Station features a

complete studio communication solution with built-in condenser talkback microphone, MUTE, DIM, two separate headphone outputs plus a cue output to enhance the creative process. A fast-acting 30 segment LED is also supplied for flawless visual metering of levels both in dBu and dBfs mode. Communicate with the artist via talkback. Send a headphone mix to the artist while listening to the main mix in the control room and more. The Central Station brings all of your inputs and outputs together to work in harmony to enhance the creative process and ease mixing and music production.



Power conditioning

A large-scale MOTU-based multitrack studio is not only a finely-tuned instrument, it's an investment. Protect that investment — and get the best possible performance from it — with the **Monster Pro 2500** and **Pro 3500 PowerConditioners**. Many so-called "power conditioners" only protect against random power surges and/or voltage spikes. But AC power line noise and noise from other components is an equally harmful and constant threat to your gear's performance. To prevent this, Monster's patented **Clean Power™** filter circuitry (U.S. Pat. No. 6,473,510 B1) provides separate noise isolation filtered outlets for digital, analog and high-current audio components. The result is high quality sound that's free from hums, buzzes and other power line artifacts, revealing all of the rich harmonics and tone in your recordings. **Get All the Performance You Paid For™. Get Monster Pro Power.**



Automated mixing & control

Imagine the feeling of touch-sensitive, automated Penny & Giles faders under your hands, and the fine-tuned twist of a V-Pot™ between your fingers. You adjust plug-in settings, automate filter sweeps in real-time, and trim individual track levels. Your hands fly over responsive controls, perfecting your mix — free from the solitary confinement of your mouse. Mackie Control delivers all this in an expandable, compact, desktop-style design forged by the combined talents of Mackie manufacturing and the MOTU Digital Performer engineering team. **Mackie Control Universal** brings large-console, Studio A prowess to your Digital Performer desktop studio, with a wide range of customized control features that go well beyond mixing. It's like putting your hands on DP itself.

Accurate monitoring

The **Mackie HR-Series Active Studio Monitors** are considered some of the most loved and trusted nearfield studio monitors of all time, and with good reason. These award-winning bi-amplified monitors offer a performance that rivals monitors costing two or three times their price. Namely, a stereo field that's wide, deep and incredibly detailed. Low frequencies that are no more or less than what you've recorded. High and mid-range frequencies that are clean and articulated. Plus the sweetest of sweet spots. Whether it's the 6-inch HR-624, 8-inch HR-824 or dual 6-inch 626, there's an HR Series monitor that will tell you the truth, the whole truth, and nothing but the truth.



The MOTU/Intel experts

When it comes to building your Intel-based MOTU recording system, nobody does it better than Sweetwater. Whether you're building a simple portable recording rig with an UltraLite and a new MacBook or a 200+ track powerhouse Digital Performer studio centered around the latest Quad Mac Pro tower, Sweetwater can help you select the perfect components for your MOTU system, from the specific MOTU audio interface model, to control surfaces and hard drives, to plug-ins and studio monitors. Even better, we can install, configure, test and ship a turnkey system straight to your door — all you'll need to do is plug in the system and start making music. Why shop anywhere else? **Call the experts at Sweetwater today!**



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Holding Up the World

By Larry the O

While it's true that Atlas got stuck with a pretty tough gig, you have to wonder where the world would be without him. There he sits on the floor of the cosmos, like a dropped marble parked deep beneath a heavy dresser—unseen, yet holding up the world. Infrastructure such as Atlas isn't sexy, and it's interesting only when viewed through the geekiest frame of reference. Nevertheless, its importance could be likened to the importance of tracks to a train.

This sobering reality applies at all scales and in all contexts. Consider a sound designer or composer in a project studio. Remove all word clocks, sound-library organization, project tracking, AC grounding schemes, templates, and studio furniture, and what's left? Not a functional setup, that's for sure. Viewed another way, think about a company that grows from 30 to 300 employees without adding dedicated IT staff. An awful lot of time would be wasted with everyone sitting around because their computer systems broke down, and no techs were available to repair them.

Failure to invest in infrastructure can potentially cost more than investing in it.

These are extreme examples, but they make the point that infrastructure is of critical importance in enabling a person to perform the work at hand, and it is therefore an easily justifiable area for investment. The problem, of course, is that everyone hates spending money on infrastructure. How many of us set aside significant funds for high-quality cabling, acoustic treatment, and ergonomic studio furniture? Not many, I'll bet. A similar issue arises in corporations. How often have you seen companies try to save money by trimming support staff?

It's not difficult to understand why infrastructure is such a late finisher in budget races, in spite of its huge importance. Infrastructure doesn't make money; there's no profit in it, only cost. Anyone trying to run and grow a business is going to spend money where it can make money. But there is a flaw in this logic that is large enough to make even Atlas stumble: although it is

true that infrastructure does not make money, failure to invest in infrastructure can potentially cost more than investing in it.

Examples of this are easy to spot. If you lack a CD duplicator, you can't make money duplicating the CDs that you've mixed and mastered for a client. That duping job will have to be sent elsewhere. After you lose out on that business a few times, you don't need to use quantum mechanics to deduce that shelling out a couple of thousand dollars on a relatively low-volume duplicator could bring in jobs that would pay off that investment in a matter of months.

More difficult to see are the incremental costs. Work goes much more slowly on a sound-design job when the library sounds are scattered across different media, with no central documentation or easy auditioning method other than loading the source media. You can work far more efficiently with a well-organized sound library, accessed from a decent database. Without efficient systems, if you are working on a

project for a fixed price, then you are effectively lowering your hourly income. And if you are working at an hourly rate, you are making your price less competi-

tive. Either way, it's going to mean less money in the long run.

I have often made infrastructure improvements in my studio by attaching them to a certain event or project. A prime example is when I have had to move my studio. I have made infrastructure improvements as part of setting up in the new location. Another good hook often accompanies new projects. The very nature of a project may suggest or impose specific infrastructure demands, such as needing to have a sound-library system to do a sound-design job.

Like most people, I have glaring gaps in my infrastructure that are crying out to be filled, but I must contend with time and money limitations. Nonetheless, I have never regretted making a needed and well-researched infrastructure acquisition or improvement, even when it has been time-consuming and expensive. I've always found it handy to have a good Atlas around. **EM**

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