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JANUARY 2008

# Electronic Musician

PERSONAL STUDIO | RECORDING | PRODUCTION | SOUND DESIGN

## 2008 EDITORS' CHOICE AWARDS

THE 27  
HOTTEST PRODUCTS  
OF THE YEAR

GAME-SCORING  
TECHNIQUES REVEALED

*Composer Tommy Tallarico  
Shares His Secrets*

THE INS AND OUTS  
OF CROSSFADES

+ 11 COOL REVIEWS

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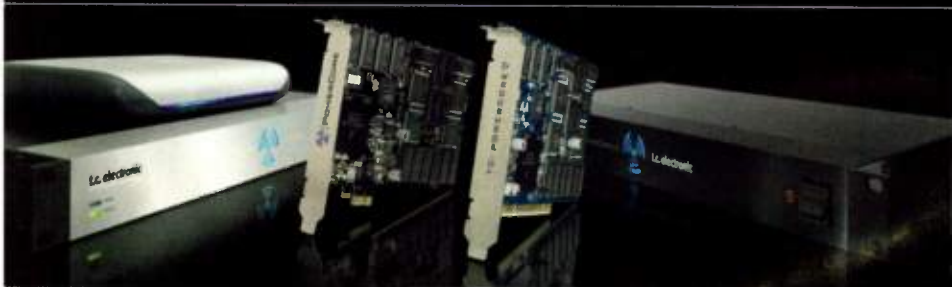
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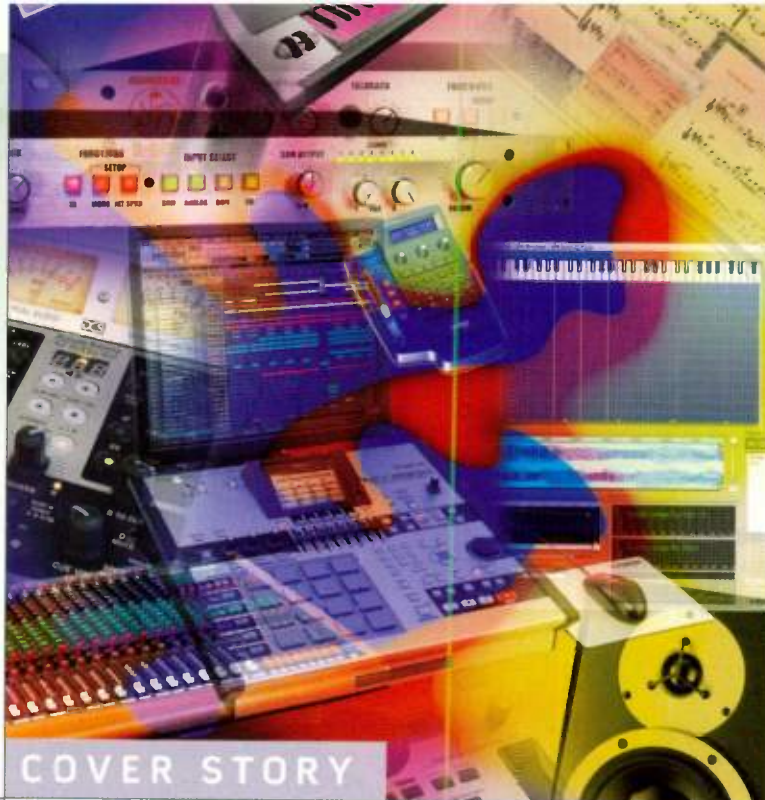
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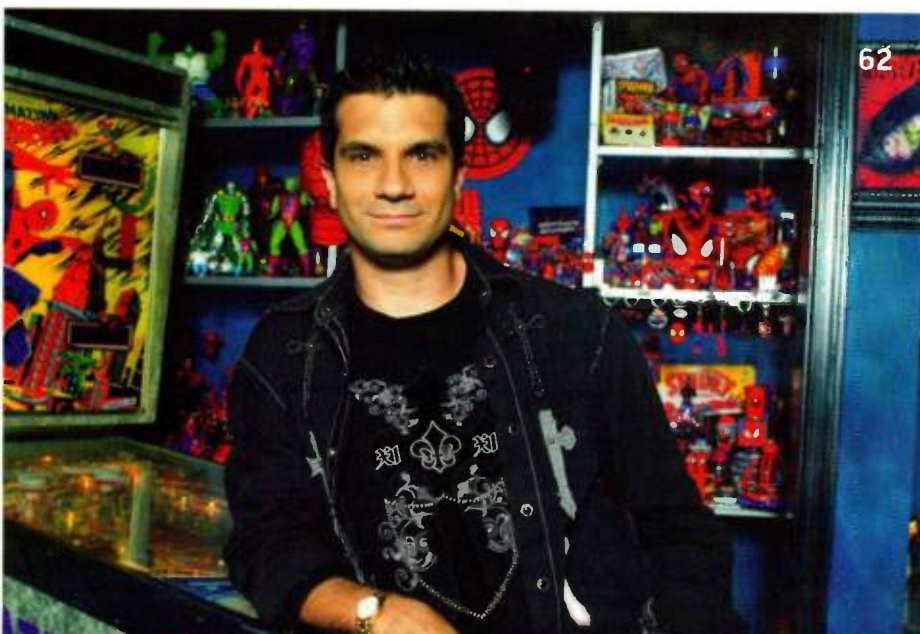
Noted game composer Tommy Tallarico tells all in this one-on-one interview. Learn some of his tricks and find out how you can get involved with the game-music world. *By Larry the D*

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## FIRST TAKE

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## The Envelope, Please . . .

The Editors' Choice Awards issue is one of my favorites of the year. Although getting *Electronic Musician's* editors and authors to agree on a list of winners is not trivial, the results are always exciting: it's fun to see which of the hundreds of products released in a year make the final cut.

Because EM works with a three-month lead time, we begin preparing each year's Editors' Choice issue in early October, which is also our cutoff date for product testing. If a new item begins shipping on the cusp and we don't have time to test it, we'll add it to our list for the next year.

The list of product categories differs from year to year, often because of market trends. If it is a mediocre year for one type of product group, we'll sacrifice it to make way for another group that was on fire. For example, 2005 saw a number of affordable ribbon mics hit the market, so we created a category especially for that type of transducer, as well as gave an award to the best condenser mic of the year. At other times, the mics we examined had such a wide price gap between them that we created an award for models that cost more than \$1,000 and one for those that cost less than \$1,000. This year the mic category was all over the map in terms of price and type, so we picked which one we thought was the best overall.

But this isn't a beauty pageant, and Editors' Choice Awards are not given to products because particular manufacturers spent the most on advertising. In this competition, all of the products are on equal footing, no matter which companies are behind them. We're

just as likely to give an award to an item created by a one-person operation as we are to one made by a major corporation. It's an editorially driven process, and what matters most to us is that we feel that the winner stands out in a big way.

This does not mean that the products that didn't win are inferior. Often a tiny detail edges the winner ahead of two or three other stellar products. The selection process is time-consuming and difficult. If the stack of empty pizza boxes and soda cans reaches my height and we still haven't named a winner, we'll declare a tie, as we did this year in the Software Synthesizer category.

This parade of products should not be construed as a message that you need to continually upgrade your studio and gear accordingly. What we *are* saying is that if you're looking to upgrade your digital audio sequencer, graduate to an interface with more connectivity, expand your mic cabinet, or invest in a notation program for the first time in a decade, we have some serious recommendations for you. Throughout the rest of the year, we will continue to honestly evaluate the latest gadgets and offer insights into how to maximize your creative time with them.

Here's to a great 2008!



Gino Robair  
Editor



JANE RICHEY



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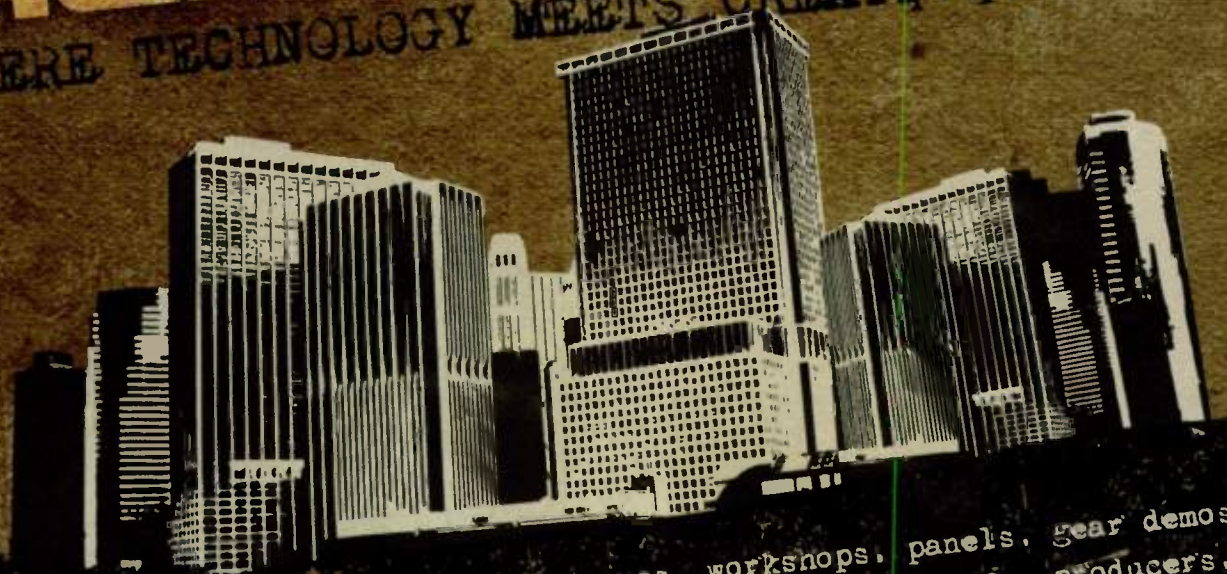


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# Letters

## 411 on Building a Studio

I saw a blurb in a recent issue where Larry the O suggested we might be reading about his upcoming studio-building project (see “Timing is Everything” in the August 2007 issue of EM). I embarked on building a studio a couple of years ago, and at the time I lamented that I had no good resource to use for some rather pedestrian advice: how to develop the plan. (A building plan alone does not suffice; one has to consider the ordering and installation of gear and wiring as well. And if it’s a new business, as mine was, advertising and clients must be considered, as well as testing out the new studio before using it for your paying clients, etc.)

All of it had to be worked out in advance, and I had to develop a plan myself. Additionally, I expended energy on a seemingly endless supply of choices about where to reduce the budget, and the ensuing struggles to get up and running.

As this was going on, I ruminated (with some regret) about how great it would have been to have seen a monthly column covering the life span of such a project—sort of a “month in the life” of building a studio from start to finish—that discussed where (and how) to begin, financing, creating a business proposal, etc. Something that goes straight through to the first few cycles of operation.

I hope you will consider having Larry (or anyone else, for that matter, who is embarking on such a project) do a monthly overview of the process. If readers of EM are anything like myself, many of them

at least dream of someday opening their own studio. And no small number of them will eventually try it.

**Peter Nordberg**  
via email

## Dynamic Oversight?

I don’t recall ever reading an article on large-diaphragm dynamic mics before, but Myles Boisen’s article “Capturing Big Sounds” was a nice piece on a topic that tends to be overlooked (see the November 2007 issue of EM). A few times, the author compares dynamic mics to condenser and ribbon mics. If I may point out a technicality, the term *dynamic* actually encompasses ribbon mics and moving-coil mics, the latter being the type we tend to refer to as dynamic mics. Thanks.

**Dane Tate**  
Tecumseh, Oklahoma

*Dane—That’s a very good point. As you noted, Myles Boisen’s article was focused only on large-diaphragm moving-coil dynamics—a subclass of dynamic mics that is often overlooked by engineers. The author is definitely aware that ribbon mics are a part of the dynamic family, but in this article, he focused on the moving-coil variety and was more flexible with the terminology because of the narrowed topic.*  
—Gino Robair

## Better on the Beater Side

First off, let me say I enjoy *Electronic Musician* greatly and appreciate all the hard work that goes into it.

In the article “Capturing Big Sounds,” by Myles Boisen, the author discusses, among other things, mik-

ing bass drums that have a full front head with no hole. He neglected to discuss a very common practice of miking the drum from the beater side, which captures the sound that the player hears and yields excellent attack as well as a full mid and low response. While there is a drawback of some bottom-snare bleed, depending on how hard the drummer hits the snare, with proper mic choice and placement, this can actually be a benefit rather than an issue.

**Nick & Dwayno**  
via email

*Nick & Dwayno—Thank you for the note. Although Boisen’s article wasn’t meant to be a complete how-to on recording kick drum, your point is well taken. EM covers bass drum recording more extensively (including miking the front head) in the articles “Capturing the Kit” (emusician.com/tutorials/capturing\_kit) and “How to Record a Kick Drum” (emusician.com/met/kicks). In our Web archives, you will also find an in-depth roundup of seven bass drum mics in “Kickin’ It” (emusician.com/mics/kickin\_it.pdf).*  
—Gino Robair

## MAP Quest

Thanks for the best article ever written on the subject of MAP and MSRP. We deal with those issues constantly, and your perspective is right on the money. Literally.

And as a studio owner who also deals with the purchasing side, nothing is more frustrating than trying to figure out what something is really worth. Thanks!

**Ken McCaw**  
The Guitammer Company  
via email





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## Next Month in EM

### Brendon Small Tells All

The creator of the hit show *Metalocalypse* talks about writing, arranging, and recording death metal in his cozy L.A. apartment.

### Crossing the Finish Line

Stuck in the mix? Michael Cooper offers ten tips that will help you stay on track.

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### Music Business Insider:

#### Q&A: Amanda Cagan

Publicist Amanda Cagan, who has worked for both major-label and indie clients, explains what publicists do for bands and artists.

... and much more

## Letters

### What Makes a Killer Studio?

In "Build a Personal Studio on Any Budget" in the September 2007 issue of EM, Mike Levine states in the "Budget CD Production Studio" section that he chooses Apple Logic Pro (\$999) for his audio sequencer. In the "Killer CD Production Studio" section, he then chooses MOTU Digital Performer 5.12 (\$795). If DP was chosen for the killer studio, why not use it for the budget studio if its cost is lower? And if you are willing to spend the extra dollars on Logic Pro for the budget studio, it must be a better product than DP, so why not use Logic Pro for the killer studio? It seems as if the products should have been swapped between the two setups, which prompts me to ask, which is the better product for the killer studio?

Kurt  
via email

### Codec Connection

I have been a subscriber to EM for over ten years now, and I have a question about codecs. In order to watch a DVD on my computer, I need to download a codec. There are many free ones on the Internet, but I am afraid to download them because I don't know if installing a codec will affect the audio performance of Sonar or Sound Forge.

Is it safe to install video codecs if the main purpose for my computer is as a DAW for audio recording? Can you suggest a codec that I can install safely, with no impact on audio quality?

Henryk Chrostek  
via email

Henryk—Installing a video codec on your system should have no impact whatsoever on audio performance. However, I would not advise simply downloading and installing multiple video codecs, especially of the same format (DivX, for example), as they could interact with each other in negative ways and impact your system's ability to play back video files. This can also happen if you install more than one DVD player application; it's simply not a good idea.

Perhaps you should try out a few different players to find the one that has the features you need. (These often come with your system's DVD hardware, and you may already have one on your system somewhere.) Then uninstall all but the one you plan to use. I've been very happy with videoLAN, an open-source project that you can find at [www.videolan.org](http://www.videolan.org). It supports a lot of different media types (DVD, SVCD, and so on) without the need for additional software codecs. —Dennis Miller

### Can-Do Attitude

I have been an EM reader for about 20 years and a subscriber for more than half of that time. One thing I have always admired about the magazine is that just when I thought there could be no more, you slap me with a fresh, new article about something that might have already been written about, but with a whole new twist.

As my studio has grown from a project studio to a full-blown audio-post facility, *Electronic Musician* has always been there for me to keep up with the latest innovations in our field. One article I have never seen in the magazine is a headphone roundup. Maybe we overlook this important tool, maybe we take it for granted. But I'd love to see a side-by-side review of some high-quality studio cans. I wish you the best of luck, and I can't wait to dig into my next issue.

Mitch Clyman  
Founder, Muso Productions  
via email

EM

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## EMspotlight

### That Bacharach Touch

Hang out with pop's consummate hit maker as Burt Bacharach discusses how he arranged many of his classic tracks. In this archive feature, the suave tunesmith also breaks down the arrangement for "God Give Me Strength," the song he penned with Elvis Costello.

By Rob Shrock. [emusician.com/em\\_spotlight](http://emusician.com/em_spotlight)

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World Radio History

## WHAT'S NEW

By Len Sasso



### MOTU MachFive 2

MOTU ([www.motu.com](http://www.motu.com)) has released a major upgrade to its flagship sampler. MachFive 2 (Mac/Win, \$495 [MSRP], upgrade \$195) comes with 32 GB of content, is Mac OS X Universal Binary and Windows Vista 32- and 64-bit compatible, and runs both standalone and in all plug-in formats. A special edition of *VSL Orchestra* and an 8 GB, 24-bit, 96 kHz sampled grand piano are notable additions to the library. MachFive reads all major sampler-instrument and audio-file formats directly—no conversion is required. You can have any number of parts in a single instance of the plug-in or standalone version, and each part features 256-voice polyphony, multiple keygroups and keygroup layers, and up to 200 discrete audio outputs.

MachFive 2 offers full-screen browsing and editing. In particular, the new Loop Lab lets you edit and create REX, Acid, and Apple Loop files. With the integrated synthesizer, you can create complex stacks of sampled and synthesized sounds,

and you can apply its synthesis engine to sampled sounds. In addition, you get an onscreen graphical mixer, 47 real-time effects covering all the bases, drag-and-drop import and export, multichannel surround support, and batch processing.

### PreSonus Monitor Station

The Monitor Station (\$299.95) from PreSonus Audio Electronics ([www.presonus.com](http://www.presonus.com)) is a complete monitoring solution in a desktop unit. Its three stereo balanced 1/4-inch TRS speaker outputs have separate level adjustment for comparing your mixes on different speaker setups: all on, one at a time, and Subwoofer mode, in which you select between two outputs and then toggle the third (subwoofer) on or off. Mono mode lets you check for phase cancellation. In addition to two stereo balanced 1/4-inch TRS inputs, an Aux/Phono RCA input lets you compare your mix with your favorite CD or vinyl recordings.

Beyond mixing, the Monitor Station is right at home in a studio recording environment. Its stereo main and cue outputs feature separate input selection and dimming, with variable level adjustment. Four headphone amplifiers have their own volume controls and input selectors. For talkback, you have a built-in microphone as well as a balanced female XLR connector with 2,400 $\Omega$  input impedance and a mic preamp with 55 dB of gain. Metering uses two peak-holding 8-segment LEDs, with a range of -26 to 0 dBfs. An external AC power supply powers the Monitor Station.



### Digidesign Mbox 2 Micro

Digidesign ([www.digidesign.com](http://www.digidesign.com)) has answered the requests of numerous users who want access to their Pro Tools sessions on the road. The pocket-size Mbox 2 Micro (Mac/Win, \$279 [MSRP]), the newest addition to the Mbox 2 family, delivers analog audio output and monitoring through an 1/8-inch stereo jack with associated volume-control wheel. The bus-powered device resembles a USB flash drive and requires a USB Type A port. It supports 24-bit resolution at sampling rates up to 48 kHz.

The Micro comes bundled with Pro Tools LE software, more than 45 Bomb Factory and DigiRack effects plug-ins, and the Digidesign Xpand sample-playback and synthesis worksta-

tion. The bundle makes it easy to edit and mix sessions created on Pro Tools HD, LE, and M-Powered systems, as well as to create original loop- and virtual-instrument-based sessions on your laptop computer. Digidesign notes that this is an analog-playback solution; other members of the Mbox family offer audio and MIDI recording and digital output.





## CEntrance MicPort Pro

Building on its experience providing innovative solutions to leading audio manufacturers, CEntrance ([www.centrance.com](http://www.centrance.com)) has introduced its first hardware product. The MicPort Pro (Mac/Win, \$124.95) is a USB class-compliant Class A mic preamp. The device offers 24-bit, 96 kHz operation with optional 44.1, 48, and 88.2 kHz sampling-rate compatibility. You plug

your mic into the balanced XLR connector on one end, plug the included USB cable into the other, and then connect the MicPort Pro to your computer.

The XLR jack carries switchable 48V phantom power, and an 1/8-inch TRS jack on the USB end of the unit provides a headphone signal for zero-latency monitoring. The unit is bus

powered; no external power is required. Small input-gain and headphone-level knobs grace the top of the unit. Manufacturer specifications claim 20 Hz to 20 kHz frequency response, 5 k $\Omega$  input impedance, and 103.5 dB dynamic range. You also get a universal driver for using two MicPort Pros to record in stereo.



## Vir2 Instruments SyntAX

Vir2 Instruments ([www.vir2.com](http://www.vir2.com)) has just released the third in its line of sampled instruments. SyntAX (Mac/Win, \$159.96) is a collection of Native Instruments Kontakt 2 patches with custom interfaces that make full use of Kontakt's KSP scripting engine for pitch- and gate-sequencing effects. The heart of SyntAX is a 3.6 GB, 24-bit, 44.1 kHz library of more than 2,000 synthy patches developed by Bunker 8 Digital Labs ([www.bunker8.com](http://www.bunker8.com)). The categories include arpeggios, atmospheres, pads, effects, basses, and leads. But it's the

scripts constituting the scatterFX engine that set SyntAX apart.

ScatterFX consists of two sequencers: ScatFX (for 32-step rhythm patterns) and StepFX (for 64-step pitch patterns). They can be toggled on and off independently, but they also interact. For example, you can sync the pitch pattern to multiples of the rhythm-pattern rate. Each instrument has an enveloped, resonant lowpass filter, and you can save 16 setups per instrument. You can target Program Changes and most parameters with MIDI and host auto-



automation. The package comes with Kontakt Player 2 for standalone use, and in major plug-in formats for both platforms. All instruments are compatible with Kontakt 2 and Kontakt 3.

## Sound Advice

Can't find anyone to play bagpipes for your last-minute recording session? Not to worry. The Downloadable Virtual Instruments (DVI) series is now available from soundware developer SoniVox ([www.sonivoxmi.com](http://www.sonivoxmi.com)), publishers of Muse, Broadway Big Band, and *Complete Symphonic Collection*. Each individual download delivers a standalone instrument, or you can use DVIs as RTAS or VSTi plug-ins. Prices range from \$19.95 for Highland Bagpipes or Dynamic Acoustic Bass to \$79.95 for Symphonic Ensemble Brass or Strings. Instruments for \$29.95 include Clavinet, Suitcase Electric Piano, Hofner Beatle Bass, and Les Paul Guitar. All DVIs are Windows compatible, and Mac support is expected soon.

Camel Audio ([www.camelaudio.com](http://www.camelaudio.com)) has published a pair of new preset libraries

for two Native Instruments soft synths. *Starscape Absynth Sounds* (\$99) supplies an eclectic collection of 250 original presets for Absynth. The sounds encompass evolving textures, intricate rhythms, alien instruments, and off-world sound effects designed by programmer Tim Conrardy. The patches are based on 230 GB of custom samples that include circuit-bent devices, field recordings, modular analog synths, vocoder experiments, and acoustic instruments.

For more-straightforward electronic fare, *Biolabs Massive Retaliations*, vol. 1 (\$69), has 200 patches created for Massive by game and film sound designer Biomechanoid. Types range from leads, basses, and pads to atmospheres, rhyth-



mic sequences, and electronic effects. The collection uses the software's browser to categorize sounds by their attributes. Although some of *Biolabs'* patches make use of Massive's macro controls, you'll need to program your own controller routings if you want to use your mod wheel. Visit Camel Audio's Web site to hear audio examples and download 20 free demo presets each from *Starscape Absynth Sounds* and *Biolabs Massive Retaliations*.

—Geary Yelton

## Ableton Live 7

Ableton ([www.ableton.com](http://www.ableton.com)) has released Live 7 (Mac/Win, \$499). Under-the-hood improvements include a 64-bit mix-summing audio engine, POW-r dithering, and optimized sampling-rate conversion. The new Compressor device has three compression models and sidechain capability. The Gate and Auto Filter devices also support sidechaining. High-quality modes for Operator, Dynamic Tube, and Saturator provide antialiased processing and reduction of digital artifacts. EQ Eight gets a face-lift and a 64-bit mode for increased accuracy. The new spectrum analyzer gives visual feedback at

any point in Live's signal path. In addition, the fully reworked MIDI engine minimizes jitter.

Live's Session and Arrangement views are significantly enhanced. REX files can now be played on audio tracks or be automatically sliced into a Drum Rack with an accompanying MIDI trigger clip. Drum Racks are a new rack type with pads for triggering each chain in the rack. The Arrangement view supports time signature changes, and Session View Scenes can have a time signature and a tempo embedded in their names. Arrange-track automation is held in lanes, and you can simultaneously view and edit multiple lanes. An in-line mixer with a foldout channel strip for each output appears automatically for tracks that house multioutput instruments (multichain racks, for example).

Three new add-on instruments developed in collaboration with Applied Acoustics Systems ([www.applied-acoustics.com](http://www.applied-acoustics.com)) physically model electric pianos, analog synthesizers, and stringed instruments. Two other new add-ons, Session Drums multisampled drum libraries and Drum Machines sampled drum machines, keep the beat going. Ableton's own Essential Instrument Collection is beefed up with more acoustic and electric drums, and new presets optimized for better sound and quick loading. You can purchase the add-ons individually or in a bundle called Ableton Suite (\$799) that includes Live 7.



## Get Smart

If you want to learn the sometimes mysterious art of mastering recordings, you're going to need some guidance. A good place to start is *Mastering Music at Home* (\$34.99), a new book written by former *EQ* editor Mitch Gallagher and published by **Thomson Course Technology PTR** ([www.courseptr.com](http://www.courseptr.com)). Written specifically for personal- and project-studio owners, the 309-page book explores how to get professional results while doing it yourself, in your own studio. After defining the function of mastering in the music-production process, Gallagher goes on to detail how commercial mastering engineers work. He describes tasks and concepts such as controlling level and frequency balance, trimming heads and tails, editing fades, applying compression, eliminating noise, and preparing files for different formats. He clarifies the complexities of acoustics, EQ, and dynamics, and discusses the software and hardware every mastering studio needs. Interviews with audio professionals are interspersed throughout the book, and an included CD provides real-world examples.

The second edition of *The Musician's Guide to Pro Tools* (\$39.99) is now available from McGraw-Hill's Osborne imprint

([www.osborne.com](http://www.osborne.com)). Written by producer John Keane (B-52s, Widespread Panic, Indigo Girls), with a foreword by R.E.M.'s Peter Dinklage, the 383-page book is an update to the edition first published in 2002 and updated in 2004. Keane takes you step-by-step through various aspects of producing music using the latest versions of Pro Tools LE and HD. You'll learn to record basic tracks; overdub instruments and vocals; set up multiple headphone mixes; punch in, trim, slide, and crossfade tracks; correct and align out-of-sync drum parts and other tracks; and use plug-ins to enhance your recordings. He also explains how to use Grid mode to simplify editing, prevent downtime with good maintenance practices, and apply advanced mixing techniques. A CD-ROM containing session files, plug-in demos, and other materials is included.

—Geary Yelton







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World Radio History

## Steinberg Cubase 4.1

Steinberg ([www.steinberg.net](http://www.steinberg.net)) has released free update version 4.1 (Mac/Win)



of Cubase (\$799) and Cubase Studio (\$399). Although incremental updates, they offer a surprising number of new features and enhancements, including full Windows Vista 32- and 64-bit support. The Sample Editor has a new Inspector-style section that consolidates all audio-editing functions. Sidechain inputs are available for a variety of VST 3.0 plug-ins. Free Routing (Cubase only) eliminates all routing limitations, which, among other things, makes stem recording a snap. The Track Inspector has a new Quick Controls section with eight user-definable MIDI controller assignments to target any mixer or plug-in parameter.

The new Global Transpose Track affects all audio, MIDI, and instrument tracks and can optionally keep all transpositions within an octave to minimize unnatural-sounding artifacts. The Play Order Track has been redesigned and renamed the Advanced Arranger. You can trigger parts; play modes let you determine how often each part is repeated and what happens next; and more flattening options are available. The Logical Editor now operates on the project level and is significantly enhanced. Import and export is improved for a variety of media types, and Cubase can open Sequel files, allowing Sequel to be used as a songwriting sketch pad.

## Black Lion Audio MicroClock

Black Lion Audio ([www.blacklionaudio.com](http://www.blacklionaudio.com)) has put its experience modifying professional audio-recording equipment into its first manufactured product. The MicroClock (\$425 [MSRP]) is a 4 × 1 × 3-inch standalone word-clock generator that's capable of clocking three

devices via its three 75Ω BNC outputs.

Generating sampling-rate frequencies from 44.1 to 192 kHz, the device is suitable for clocking entry-level audio interfaces, such as the Digidesign Mbox 2 Pro and top-of-the-line units from MOTU, Digidesign, RME, and others.



## Download of the Month

### DAEVL.PLUGS (MAC/WIN)

Daevl.Plugs (\$36) is a devilishly clever suite of plug-ins from Vlad Spears of Daevlmakr Media ([www.daevlmakr.com](http://www.daevlmakr.com)). These 18 Pluggo-based plug-ins require some form of Pluggo to be installed on your system. Options range from the free Pluggo Runtime or Pluggo Junior to the full suite of 100 Pluggo plug-ins, which I recommend highly. You can download your choice from the Cycling '74 Web site ([www.cycling74.com](http://www.cycling74.com)).

Of the 18 Daevl plug-ins, 9 are CPU-light versions of more-complex brethren. The plug-ins in each class share a common interface, so it's easy to learn their controls, and they're intuitively

laid out. Delay, radical modulation, pitch-shifting, filtering, and various methods of distortion feature heavily in various combinations. The results are not highly predictable, and the intention of these plug-ins is to wreak havoc with your audio; these are not polite, pretty-sounding effects to spice up your next new-age or smooth-jazz track. They're great when you want to add some grit to almost any kind of material—percussion, lead, ambient, and so on—and lots of presets help point the way.

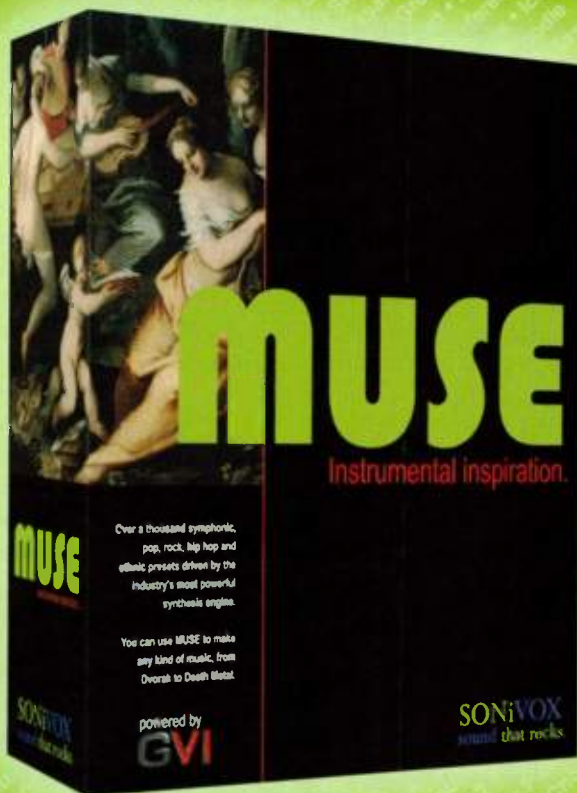
Daevl.noise is one of my favorites among these plug-ins. It's an audio-replacement tool that substitutes pitched and unpitched noise for incoming audio. Its three pitched-noise channels let you set pitch, wobble (the amount of random pitch flutter), and other parameters. The unpitched-noise channel has filter-type and cutoff settings along with wobble. Envelope followers with attack- and decay-time settings gate the noise.

Daevl.triptych is another favorite. It's a filtered-delay effect featuring three parallel multiband filters feeding three time-shifted feedback-delay lines. You draw in multiband-filter curves, set the delay and shift times, and mix the outputs until you have something useful (see **Web Clip 1**). **EM**





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# Let There Be LET

By Scott Wilkinson

## A new transducer technology gets high faster.

**T**ransducers—devices that convert one form of energy into another—are among the most mature technologies in the electronic musician's toolbox. The most common musical transducers are microphones, which convert the mechanical energy of acoustic sound waves into electrical signals, and speakers, which do exactly the opposite. Both have been around for a century or so, and despite a few innovations and variations, they haven't changed much in all that time.

One of the biggest problems faced by transducers of all types is the time it takes them to convert mechanical to electrical energy and vice versa. This is especially challenging for relatively massive speaker drivers, which must overcome a lot of inertia (the tendency for objects to resist changes in their motion) and move in response to the electrical signals they are fed. The faster the driver can respond, the more accurately the attacks, or leading-edge transients, will be reproduced, which improves the perceived sound quality immensely. As a result, most speaker drivers use a diaphragm having as little mass as

possible (the more mass, the more inertia) and a voice-coil motor with as much power as possible.

Still, getting any diaphragm to respond quickly isn't easy, so a company called High Emotion Audio ([www.highemotionaudio.com](http://www.highemotionaudio.com)) has taken a different approach with its new tweeter, the Leading Edge Transducer (LET). Instead of moving the entire diaphragm in and out, the voice coil induces

the waveform to propagate through the diaphragm's special plastic material, absorbing it at the outer edge to prevent reflections within the material.

The inertia that must be overcome in this process is far less than conventional pistonic vibration, and the voice-coil motor is more powerful than most, allowing the LET to reproduce attack transients much faster than conventional tweeters. In addition, the LET is extremely efficient—about 100 dB/W/m—and the diaphragm's surface area is about five square inches (compared with less than one square inch for most tweeters), which allows it to produce very high sound-pressure levels with relatively little power. An analogy drawn by the company is cracking a whip: a small motion in the handle can create a loud pop once the waveform reaches the tip.

The first products using this technology are dubbed the S5 and S7, which are consumer-oriented bookshelf speakers that combine two LETs firing forward and backward with a proprietary pistonic midrange/bass driver and custom-designed crossover in an optimized cabinet (see Fig. 1). Among the advantages of this design is an exceptionally wide dispersion—the company claims 120 degrees at 20 kHz—and ruler-flat impedance at all frequencies, allowing the speakers to sound roughly the same being driven by many different amplifiers in a wide variety of rooms. Another claimed benefit is extreme clarity, allowing you to hear deeper into the music, which is invaluable to recording engineers.

Even more important, the LET's superfast transient response and other design factors have been clinically demonstrated to affect the human limbic system (which regulates emotion) more than conventional speakers, resulting in a more deeply moving experience. In fact, the company's ultimate goal is to approach the emotional impact of live performance, which has heretofore eluded virtually all electronic audio systems.

Prototypes of the S7 have already made their way into some studios in Nashville, where the company is based, and the response has been uniform praise. In addition to consumer products, High Emotion Audio intends to use the LET and its other innovations in professional studio monitors and sound-reinforcement applications. I have every confidence that we'll be seeing—and hearing—much more from this innovative company in the future. **EM**



COURTESY HIGH EMOTION AUDIO

**FIG. 1:** The S7 includes two LET tweeters facing front and back and one 6.5-inch midrange that can reproduce frequencies down to 45 Hz. The crossover frequency is about 3 kHz, and the input impedance is flat ( $\pm 1\Omega$ ) across all frequencies. Notice how the LET diaphragm on top of the speaker is actually two hemicylindrical membranes.



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BRILLIANT STEREO RECORDING.**

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# All the More Reason

By Kurt Kurasaki

Navigate,  
automate, and  
arpeggiate with  
Reason 4.

**P**ropellerhead Software's Reason 4 introduces a new sequencer that has a region-based interface, similar to DAW applications. Clips displayed along the sequencer's timeline represent note and automation data. Regions can be trimmed, spliced, and quickly duplicated. The sequencer has been completely recoded and now features tempo and time-signature automation. Version 4 is more than an update; it's practically a new application, optimized for the speed and capacity of the latest personal computers.

The landscape of Reason 4's sequencer is different from those of its predecessors. Its primary editing pages are still the familiar Arrange and Edit modes, though a new subset of Edit mode has been added: the Clip Editor, which lets you modify note events and automation. Incorporating another layer of editing may sound as though it would be more complicated, but the keyboard shortcuts streamline many tasks. In addition to illustrating key-command functionality in the sequencer, I will discuss various approaches to automation, using the ReGroove quantization system, and adapting pattern sequences.

## Get a Handle on Key Commands

The new key commands in version 4 increase the efficiency of recording and editing sequence data, and anyone who has yet to explore the use of Reason's keyboard shortcuts will certainly benefit from them. It is important to know the keys, but developing a feel for the order of keystrokes will help accomplish tasks that normally require navigating through several editing menus.

Experienced Reason users should already be familiar with the Control (Win) or Command (Mac) + A (Select All), + S (Save), + Z (Undo), + C (Copy), and + V (Paste) keys, as well as the



Tab (Flip Rack) key. Window-selection keys are also on the keyboard's left-hand side: Control/Command + 1 to view the rack, and Control/Command + 2 to view the sequencer. If you're accustomed to navigating the previous key commands, you should have no problem learning the new shortcuts for selecting the sequencer's editing tools: Q, W, E, R, T, and Y. The G and H keys control the horizontal zoom, the F key toggles the sequencer's Follow feature, and the S key toggles the grid-snap feature.

Your computer's cursor keys let you navigate through the clips in Reason's Arrange and Edit windows. Once a clip is selected, pressing the Enter/Return key (not the Enter key in the numeric keypad) opens the Clip Editor; this action is the same as double-clicking on a clip. To exit the Clip Editor, press Enter/Return again and use the Left or Right cursor keys to move to the next clip in Edit mode (see Fig. 1) or use either the Shift + Tab or the Control/Command + E shortcut to toggle back to Arrange mode.

The process of recording sequences centers around the Enter/Return key and other keys in the keyboard's right-hand area. For example, try using Control/Command + I to add a new instrument, and then use Control/Command + Enter/Return to start recording. Stop the transport by pressing Shift + Enter/Return. Hit Control/Command + K to quantize the clip, and then press Enter/Return to open the Clip Editor. In the Clip Editor, use the cursor keys to navigate through the notes, the Control/Command + Up and Down cursor keys to transpose, and the Control/Command + Left and Right cursor keys to nudge recorded notes.

In the Track List, the Up and Down cursor keys let you scroll through tracks. Track scrolling is useful for quickly switching between patches during a live performance. In addition, it's useful during recording because you can jump to another track and continue to sequence a new part without stopping the transport. With the New Alt and New Dub sequencer features, you don't have to stop and

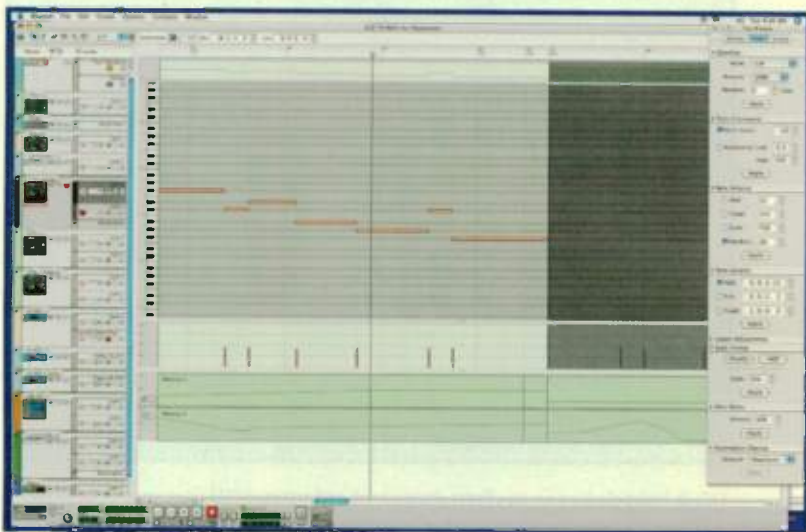
delete a bad take. Pressing the Period key mutes the current take and creates a new lane in which you can record another pass. For a simple overdub, press the Comma key to create a new lane without muting the current take.

If you still aren't comfortable with the concept of switching between clips to edit notes, a simple workaround is to select all clips along a lane and use the keyboard shortcut Control/Command + J to join smaller segments into a single clip. Then use the Enter/Return key to open it directly in the Clip Editor. With some practice, the new key commands will become second nature, and the benefits of using clips will be readily apparent, especially when you use automation.

## Automation Clips

Automating parameters is an integral part of sequencing music, one that makes it possible to manipulate various aspects of a performance. In Reason 4, automation data is organized in clips along automation lanes. The easiest way to set up an automation lane is to right-click on the knob or slider that controls the desired parameter, and then select Edit Automation from the contextual menu. You can also activate lanes using either the Automation pull-down menu in the toolbar or the recording parameter automation. If no track exists for an effects device such as a Scream 4, selecting Edit Automation in the contextual menu automatically creates both the track and the lane (see Fig. 2).

You can copy automation clips to other lanes—a feature that's useful for duplicating fader automation to several mixer channels. Although this procedure normally works flawlessly, data copied between different range types will display the Alien Clip warning (a series of dark red stripes overlapping the clip). If that occurs, try using the contextual menu's Adjust Alien Clips To Lane command to make the data conform. Copying the fader automation to a lane controlling EQ gain, for instance, will require adjustment, but copying fader automation to one controlling filter frequency will work without adjustment.



## Performance-Controller Modulation

MIDI Notes and recorded performance-controller information from the pitch-bend and mod wheels are embedded in a note lane clip, which is incompatible with automation tracks. It is possible to enter the Clip Editor, manually copy the vector automation for Modulation Wheel or Pitch Bend, and paste it into a new automation clip. Also,

FIG. 1: By combining the Enter/Return key with the Left and Right cursor keys, you can scroll through and edit clips.

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performance-controller clips can be transformed through a Reason 4 Combinator, which recognizes Pitch Bend and Modulation Wheel as modulation sources. After nesting a target device in a Combinator, copy the performance clip to the Combinator track, and route Pitch Bend and Modulation Wheel to parameters on devices nested in the Combi subrack.

You can also route performance-controller automation through RPG-8. The arpeggiator features a MIDI-to-Control Voltage converter, and when the Arpeggiator button is off, then incoming MIDI Note, Pitch Bend, Mod Wheel, Aftertouch, Expression, Breath Controller, and

Sustain messages are converted to control voltages. The corresponding CV signals can be routed to control various parameters for devices in the rack. One benefit of this feature is that it gives you the ability to invert modulations through a Spider CV splitter. For example, inverting Pitch Bend data through a Spider CV splitter can modulate a different device's pitch CV input to achieve a simultaneous reverse pitch bend.

Transport Automation

Reason 4's transport-automation features make it possible to create interesting musical changes and transitions. Even if you don't plan to



FIG. 2: Right-clicking on an effects device knob and selecting Edit Automation adds both a track and an automation lane to a sequence.



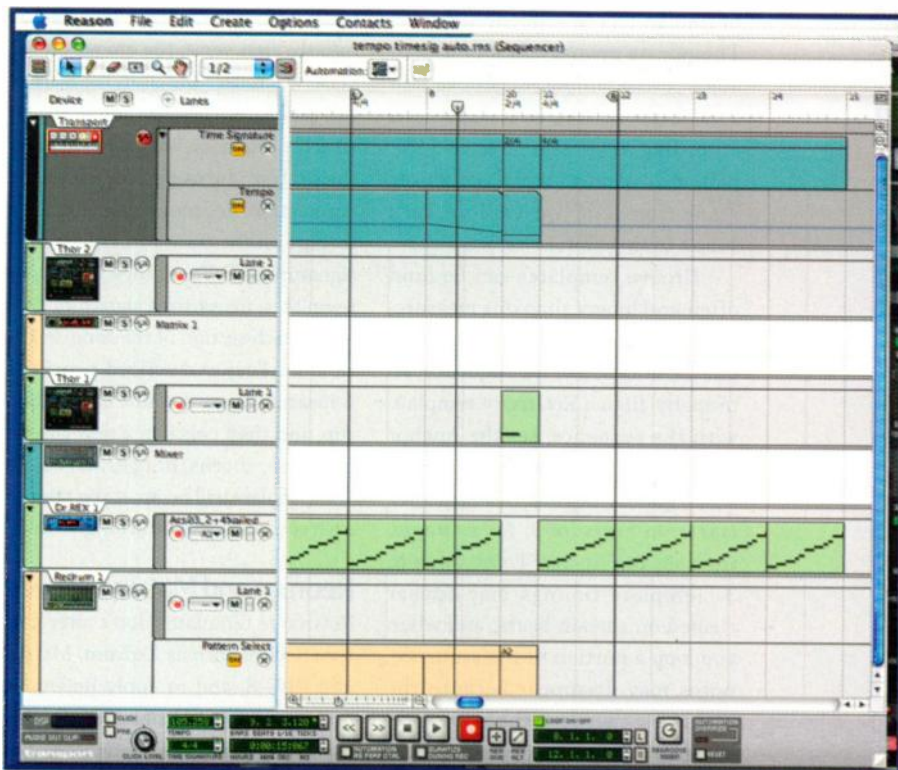


FIG. 3: Here you see time signature changes and measure adjustments along the timeline. Time signature changes keep the timeline consistent for fractional measure breaks.

compose with meter changes, time signature automation is useful for introducing truncated transition points at the end of a phrase, and tempo automation can add excitement or dramatic pause (see Fig. 3). To insert time signature automation, enable the automation lane by clicking on the Transport Sequencer track, select Time Signature from the Automation pull-down menu, and pencil in a clip for the duration of the song.

To mix things up in an arrangement, try using a transition with a duration of one or two beats by changing the time signature to 1/4 or 1/2 meter. For instance, to insert a 2-beat break at measure 9, start by inserting a 2-beat space in the sequence. Move the Left Loop locator to measure 9 and the Right Loop locator to position 9.3.1.0. Then select Insert Bars Between Locators from the Edit menu. This inserts empty space in the sequence and adds a 1/2 meter time signature automation event.

Because short transitions can interrupt a song's natural flow, they

provide a useful point at which to add tempo changes to a track. As the sequence nears a 2-beat transition point, insert a ritardando (a decrease in tempo); after the transition, restore the original tempo. You can explore tempo automation by starting with the 2-beat transition I've described. First, enable the tempo-automation track and draw in a clip from position 8.3.1.0 through to measure 9. Add a vector point at the beginning of the clip that is equal to the current tempo. (For example, if the tempo is 120 bpm, then the new vector point should be 120 bpm.) Next, add a second vector point with a lower tempo at the end of the clip. Pencil in a new clip through measure 9, and add a single breakpoint with the lower tempo. During the last two beats of measure 8, the tempo slows down going into the transition, and at measure 10, the song resumes at its normal tempo and meter.

### ReGroove Management

The ReGroove Mixer is a powerful quantization tool that adds a touch

Mojave Audio  
by David Royer



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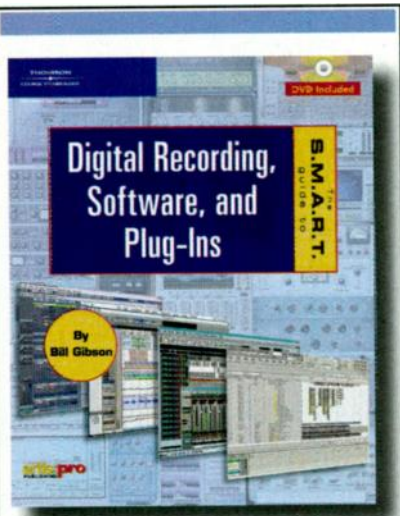
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Whether you are recording voice, instruments, or field audio for a movie soundtrack, you need to understand the digital recording process and the seemingly limitless potential of all the available software and hardware tools. With this guide, you'll learn what you need to know about modern digital recording — whether you're operating in your home studio or in a professional recording facility.

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of human feel to sequenced music. Though its primary function is to adjust event timing, ReGroove also transforms note Velocity and length according to preset groove templates. Reason's ample sequencer resolution lets you explore very subtle timing shifts.

Groove templates can be (and often are) longer than one measure, and the template repeats throughout the duration of the sequence. To properly align a ReGroove template with the sequence, set the Anchor Point value to the measure where the sequence begins. If a sequence starts on measure 3, for example, then set the Anchor Point value to 3. Template timings may appear rushed on certain beats, and when you loop a portion of the sequence, notes may disappear because the events are outside of the loop range. Setting loop points that are multiples of the Anchor Point value should prevent that from occurring.

The length of musical phrases might not correspond to the length of groove templates, which can potentially cause problems throughout an arrangement. If, for instance, you're applying a 4-measure template to a

track with a 6-measure intro going into the first verse, the groove on the verse will reflect the third measure of the template. This may unpleasantly alter the sequence, but you can correct the problem by using time signature automation. ReGroove templates align to clips on the transport track's time signature lane. To arrange the groove templates, insert time signature clips across each section of the song. In the situation I've just described, pencil in a 6-measure time-signature automation clip, and then pencil in a new clip for the verse, chorus, bridge, and so on. The template will begin at the start of each section along the arrangement.

## Redrum and Matrix Grooves

ReGroove templates don't alter pattern devices such as Redrum, Matrix, and RPG-8, and to apply ReGroove quantization, you need to convert their patterns to MIDI sequences. For Redrum and Matrix, the Copy Pattern To Track and the Convert Pattern To Track Notes functions export patterns to the sequencer. Once a pattern has been converted to a sequence, apply the ReGroove template by assigning a channel to the sequencer track.

Applying a subtle amount of randomization to rigid pattern sequences also leads to interesting results. Open the Groove Editor, find a free channel on the ReGroove Mixer, and click on the Edit button. Select a converted pattern clip, and choose Get Groove From Clip from the contextual menu. In the Groove Editor's Tool menu, adjust the random timing slider in the range of 2 to 10 ticks. To add even further inconsistency, use the Note Velocity tool to randomize the Velocity messages by 5 percent.

## Arpeggio Variations

RPG-8 is a pattern-sequencing arpeggiator that creates a spray of individual notes based on incoming chords. Before RPG-8 transforms its arpeggiator patterns into sequencer events, you must first sequence a chord progression on the RPG-8 track. Then click on a target track in the device list, set



FIG. 4: The Note Lengths tool is useful for maintaining precise durations for RPG-8 chord-progression sequences.



# With practice, the key commands will become second nature.

the loop locators, and select Arpeggio Notes To Track from the contextual menu to render a pattern, which is calculated from the chord progression and the RPG-8 settings.

Sequencing RPG-8 patterns may be confusing because its arpeggios don't always add up to exactly 16 steps. After a chord ends and RPG-8 receives a new chord, the pattern resets to the first step. One technique for creating consistent patterns is to perform or sequence chords at every measure. After recording a chord progression, quantize the notes at the bar setting, and then use the Note Lengths tool to set the events to a fixed 1-measure duration (see Fig. 4).

RPG-8 can generate several variations of a sequence from a single chord progression. For example, start with SubTractor and play a sequenced chord progression using an Up default pattern on RPG-8. While holding down the Shift key, right-click on SubTractor and select Duplicate Devices And Tracks from the contextual menu. This will copy SubTractor, connect the audio to a free mixer channel, and duplicate its corresponding track. On the mixer, pan the two channels hard left and right. Select the SubTractor Copy track, and apply Arpeggio Notes To

Track to render the current RPG-8 pattern to the sequence. Now change the RPG-8 mode to Down to alter the original pattern, and play the sequence to hear the two variations

simultaneously. Repeat this process with other instruments, and change each track's settings for Octave, Insert, Mode (direction), Steps, and Rate (note resolution).

## More Hands-on Training

Although Reason 4 has dozens of keyboard commands not mentioned in this article, learning them will make producing music a more fluid process. Time spent learning these shortcuts will certainly be time saved down the road, especially during those fleeting moments of inspiration. Full documentation on these commands is available in the Downloads section of Propellerhead Software's Web site ([www.propellerheads.se](http://www.propellerheads.se)). And for additional tips, see the **online bonus material** at [www.emusician.com](http://www.emusician.com). **EM**



*Kurt Kurasaki worked on the Reason 4 sound-design team. He is the author of the book series Power Tools for Reason (Backbeat Books) and is the developer of the video Music Production with Reason 4.0 (Grovebox Music). Visit [www.peff.com](http://www.peff.com) for more information.*

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# 2008 EDITORS' CHOICE AWARDS

CELEBRATING THE 27 BEST PRODUCTS

WE TESTED IN THE PAST YEAR.

By the EM Staff

As EM editors, we are in an enviable position: hundreds of new products are introduced each year, and a majority of them cross our desks. Although testing tons of gear isn't all fun and games—how many manuals do *you* want to read a year?—the biggest reward is finding something that knocks our socks off, either for its sound quality, feature set, innovativeness, or just plain coolness. To recognize these standout products and the manufacturers that make them, we created the Editors' Choice Awards.

Each fall, we select the *crème de la crème* that we've tested in the past 12 months based on our own experiences as well as those of our writers. (It is impossible to thoroughly test everything released in a year, but we make an effort to check out the most promising candidates.) All of the winning products have been field-tested by EM's editors and a select group of authors, with additional feedback provided by the editors of our sister publications *Mix* and *Remix*. The final selections were made by EM technical editors Mike Levine, Dennis Miller, Gino Robair, Len Sasso, and Geary Yelton, with much-appreciated help from EM editor in chief Steve Oppenheimer and *Remix* technology editor Markkus Rovito. All of the award-winning products have been covered in EM reviews, or the review is in progress and our tests are far enough along that we feel confi-

dent about our conclusions (see the sidebar "The Award Winners in Review").

To be eligible for an Editors' Choice Award, products must have shipped between October 1, 2006, and October 1, 2007, when we began editing our January issue. We also considered several products that shipped close enough to the 2007 Editors' Choice Awards deadline that it was not possible for us to test them in time for that year's awards. If a product shipped too close to this year's deadline for us to properly evaluate it, it will be considered for an award next year. Awards are given to software upgrades only if we think there were major improvements over the previous version.

And now it's our privilege to introduce to you the winners of the 16th annual EM Editors' Choice Awards.

## ANCILLARY HARDWARE

### Dangerous Music D-Box (\$1,699 [MSRP])

Though Ancillary Hardware may sound like a boring category, there's nothing dull about this year's winner, the versatile Dangerous Music D-Box. Dangerous Music has a reputation for making high-quality products, but many of them are priced for the pro-audio market rather than the personal studio. But with the introduction of the 1U



D-Box, the company has combined some of the key features of two of its top-shelf products—the 2-Bus and the Monitor ST—into a single, surprisingly affordable unit.

Analog summing is touted by many as a way to improve the sound of DAW mixes, and the D-Box offers eight channels of it. But summing is only part of the D-Box's story. Dangerous Music has also included a comprehensive monitoring section that offers speaker switching, D/A conversion through its digital inputs, a talkback mic, an input for an auxiliary talkback mic, an input selector, simultaneous input monitoring, and headphone outputs.

When you consider the D-Box's versatility, compact footprint, vaunted Dangerous Music quality, and reasonable price tag, you've got yourself the makings of an Editors' Choice winner.

## ANCILLARY SOFTWARE

### Redmatica Keymap (Mac, \$273 [MSRP])

Keymap grew out of the need for more convenient and sophisticated multisample editing and mapping in Apple Logic's EXS24 sampler. Although it still targets the EXS24, Keymap has grown into arguably the most advanced utility for creating sampler instruments.

Keymap is useful with any sampler because it is a standalone application, and it imports a variety of audio



file formats and exports AIFF and WAV files with looping and multisample mapping information. Samplers that import EXS24 instruments (as most major samplers do) get the full benefit of Keymap's advanced multisample management.

One of the program's standout features is harmonic resynthesis, which lets you modify a sound's pitch, formant, amplitude, and time parameters in the context of a multisampled instrument to shape a new, but still coherent, multisample. A variety of easy-to-use looping algorithms help you identify optimal loop points quickly. Automatic pitch detection algorithms let you create multisample maps in a fraction of the time it takes to do it manually. If you're tired of the tedium and limits of working with multisampled sampler instruments, Keymap will lighten the load.

## AUDIO INTERFACE

### PreSonus FireStudio (\$899.95 [MSRP])

Although there was no shortage of audio interfaces introduced this year, the PreSonus FireStudio is an all-around winner that offers quality and quantity in almost every feature category. The 24-bit, 96 kHz interface gives you 8 Class A preamps (2 mic/instrument, 6 mic/line),



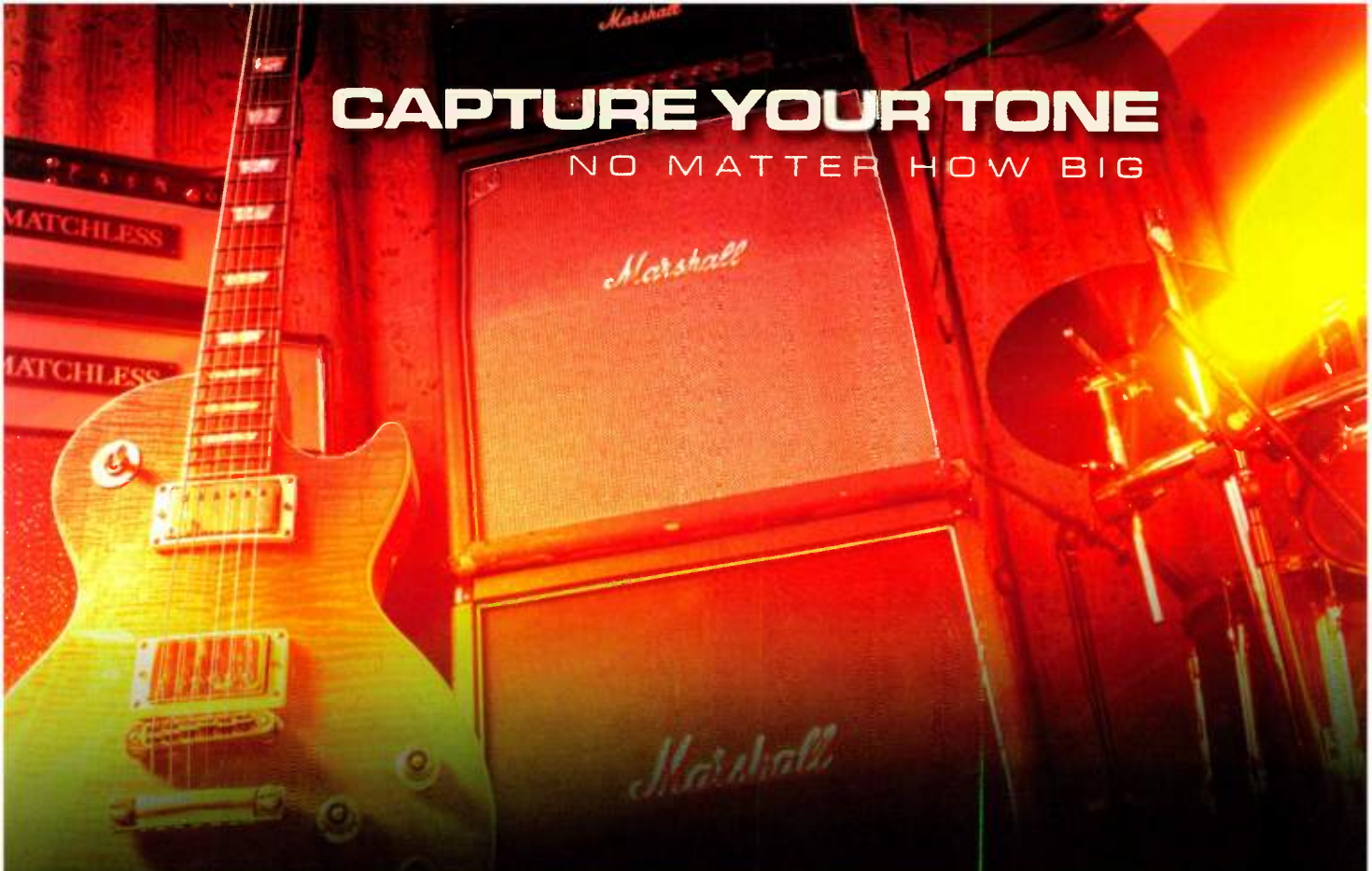
16 channels of ADAT Lightpipe I/O, S/PDIF stereo I/O, as well as analog line outs, for a total of 26 simultaneous inputs and outputs.

The unit also offers MIDI I/O, jitter-resistant word clock, and two headphone outputs. If you want additional monitoring and input-switching capabilities along with talkback facilities, the FireStudio is designed to work with the optional Monitor Station Remote.

Also included with the FireStudio is PreSonus's Control Console software, which gives users a 36 × 36 × 18 software mixer/router as well as zero-latency monitoring—a key feature for any audio interface. On top of that, you get a comprehensive software bundle that includes Steinberg Cubase LE, Propellerhead Reason Adapted PreSonus Edition, IK Multimedia AmpliTube LE, FXpansion BFD Lite, Sonoma Wire Works Riffworks Jr., Drumagog LE, and Wave Arts MasterVerb LE and



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## CHANNEL STRIP/PREAMP

### Universal Audio DCS Remote Preamp (\$1,199 [MSRP])

A well-matched pair of mic preamps is something every studio needs for critical recording. Universal Audio, known for its attention to detail in the digital *and* analog realm, has combined both



in its DCS Remote Preamp system, which puts a pair of high-quality transimpedance analog preamps under digital control for accurate gain staging. But what sets this product apart from other preamps released this year is that it adds control room functionality, such as a cue system with effects, that is elegantly designed and easy to use.

Created for studios where space is limited, the Desktop Console System (DCS) uses a Cat-5 cable to connect the analog I/O to the digital controller, allowing you to place them in separate rooms if needed. The preamps can be configured for dual-mono, stereo, and M-S use. Onboard reverb and EQ effects enable you to customize the cue mix to the tastes of the recording talent, and an additional stereo input lets you mix in audio from your DAW. Other features include a pair of VU meters, a built-in talkback mic, and a pair of DI inputs that automatically switch to line inputs when TRS cables are used. Is it any surprise that the DCS Remote Preamp swept this category?

## DIGITAL AUDIO SEQUENCER

### Apple Logic Studio (Mac, \$499 [MSRP])

Among EM's editors, Apple Logic Studio was the hands-down winner for Digital Audio Sequencer this year. When a company completely redesigns a complex product, making it both easier to use and more powerful, bundles it with other top-notch audio applications (such as MainStage, Soundtrack Pro 2, and WaveBurner), adds 40 GB of content, and cuts the price in half, it certainly deserves a prize.

Although Logic Pro 8 was the recipient of a major face-lift, it is still recognizably Logic Pro.

You'll do most of your editing, browsing, and mixing in new pop-up panes in the Arrange window, but separate windows are still available. You can ignore the Environment or harness its considerable power. You record multiple takes in drop-down lanes, then use Quick Swipe Comping to create as many alternate comps as you like. Context-sensitive browsing provides fast access to all your media. Best of all, you can throw your old XSKey in the trash.

For live performance on a laptop using Logic-proprietary and AU instruments and effects, MainStage is a vast improvement over trying to manage Logic and perform at the same time. For audio editing and postproduction, Soundtrack Pro 2 has the bases covered. Compressor 3 and WaveBurner provide surround encoding and CD mastering. Finally, the Studio Instruments and Studio Effects plug-in collections have been both expanded and improved. There's



so much to like in this all-encompassing audio solution that we couldn't help but give it the recognition it deserves.



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## DOWNLOAD OF THE YEAR

### Andyware Analog Box 2 (Win, free)

We're always on the lookout for unusual and inexpensive music-making tools, and the best of the best appear in our "Download of the Month" column. From those we cull an annual Editors' Choice winner, which this year is Analog Box 2 from Andy Turner of Andyware. Unlike with the other categories, the Download of the Year need not be a new product; we're just happy it's still around. However, the most recent version of Analog Box 2 was released in March 2007.

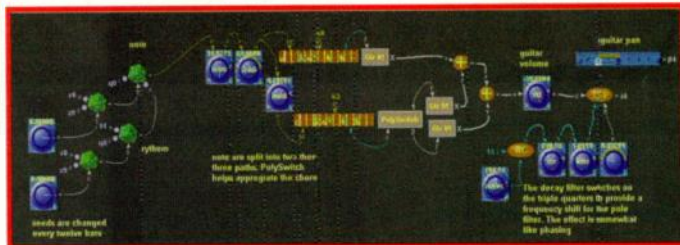
Analog Box 2 is billed as a modular software synthesizer. It's as much an algorithmic music generator as a synth, though, and that may be where it is most useful. The more than 50 Jambots (jamming robots) in the Andyware online gallery run the gamut from quirky, robotic sound effects to interesting and useful grooves. A little time and attention to the Help documentation will have you happily tweaking the Jambots and other prebuilt devices in the library. If you want to build your own synths and music generators, you'll find tools for that as well.

In a forest of do-it-yourself music software, Analog Box 2 stands out as both unusual and powerful. Putting in the effort and making the results free for the downloading is in the true spirit of our Download of the Year award.

## DRUM MACHINE/MODULE (Software)

### XLN Audio Addictive Drums (Mac/Win, \$249 [MSRP])

There was plenty of competition in the Software Drum Machine/Module category this year. But the product the editors kept coming back to for its sheer innovation was XLN Audio Addictive Drums. This cross-platform plug-in combines 2 GB of samples, an onscreen mixer with effects, and a collection of MIDI files of live performances. The drum samples are organized in an assort-



ment of layered, multimiked kits (with alternative hits), making it easy to tweak the included performances. A drag-and-drop groove browser provides quick access to the more than 3,000 beats and fills.

The 12-channel mixer gives you even more control over your performances. In addition to using the standard mixer controls, you can invert phrases, create pitch and volume envelopes, and insert filter, EQ, compression, reverb, and other plug-in effects. The content is rounded out with 100 production-ready presets covering a cross-section of styles. Whether you want to create your own drum parts from scratch, layer in a few top-notch performances, or use a preconfigured production setup, Addictive Drums gives you a lot of great material to work with.



## EFFECTS PROCESSOR (Hardware)

### Roland VG-99 (\$1,399 [MSRP])

Ever since it released the VG-8, Roland has been in the forefront of guitar-modeling technology. However, the company pulled out all the stops for its VG-99 V-Guitar system and produced an outstanding and versatile new processor.

To get the most from the VG-99, you'll need a guitar with a 13-pin output (such as the optional Roland GK-3 pickup), which gives you access to two separate COSM modeling engines that can be layered together. Available models include a range of acoustic and electric guitars, synth sounds (including the GR-300), and amp emulations. You get a dual effects processor to further shape your sounds, and you can choose from a selection of alternate tuning presets or program your own.

One of the most useful features the VG-99 has that its predecessors didn't is a guitar-to-MIDI converter,





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which turns your 13-pin output into MIDI and allows you to trigger external instruments. And in addition to the ribbon controller, Roland has added a D-Beam controller to the VG-99, which lets you sustain notes, control the filter, create whammy-bar-style effects, and more just by waving your hand over the unit.

VG processors have always been easy to use, but what's impressive about the VG-99 is that it's still quite user friendly despite being more complex than its predecessors. Editing is made even easier with the included software-based graphical editor (Mac/Win) and USB 2.0 connectivity.

With the VG-99, Roland has exceeded the standards that it set with its previous VG products. As a result, it gets a unanimous nod for the Editors' Choice Award in this category.

## FIELD RECORDER

### Korg MR-1000 (\$1,499 [MSRP])

Handheld stereo digital recorders have been appearing at an unprecedented rate. Two of the most exciting models to come along are the Korg MR-1000 and its pint-size sibling, the MR-1 (\$899 [MSRP]). Both offer capabilities you won't find in other field recorders—most notably support for 1-bit audio, the encoding scheme used by Super Audio Compact Discs (SACD) and other ultra-high-fidelity formats. They also record 16- and 24-bit Broadcast WAV files at rates as high as 192 kHz.

The MR-1000 is a compact tabletop recorder that's powered by eight AA batteries or a 12 VDC adapter and comes with a handy padded carrying case. For 1-bit recording, its maximum sampling rate is 5.64 MHz, twice that of the MR-1 and 128 times that of a standard audio CD. But we aren't awarding the MR-1000 for its specs; we're simply knocked out by its sound. With good mics and good technique, just about anything you record with the MR-1000 sounds as natural and lifelike as any recording you've ever heard, at any price.

The MR-1000's 40 GB internal hard drive holds hours of recordings, which you can easily transfer to and from your computer with the unit's built-in USB 2.0 jack and accompanying AudioGate (Mac/Win) software.



With balanced XLR/TRS combo inputs, balanced XLR outputs, unbalanced RCA outputs, switchable phantom power, and an onboard limiter, the MR-1000 offers a variety of analog connectivity. A bright LCD lets you easily access the recorder's intuitive user interface, and dedicated transport buttons and level knobs control traditional recorder functions. Because it's ideal for live or field recordings, as well as for archiving recordings in any format with the highest possible accuracy, the MR-1000 gets EM's strongest recommendation.

## GUITAR AMP/EFFECTS MODELER (Software)

### Line 6 GearBox Plug-In Gold 3.10 (Mac/Win, \$499 [street])

Every time you turn around, someone is launching software that models guitar amps, speakers, and effects. But Line 6 has stayed on top by constantly bringing new hardware and software to the table. Over the years, the company has pioneered multi-effects pedalboards, standalone



computer software, guitar and bass amplifiers and cabinets, and even acoustic and electric guitars that incorporate physical modeling to give you the most sounds in the least amount of space. Now GearBox Plug-In Gold gives you every model and tone in Line 6's extensive collection of virtual stompboxes, rackmount effects, mics, preamps, and amp and cabinet combinations.

Because you can use GearBox Plug-In within AU, RTAS, and VST hosts, all your settings are saved along with your song files. Want to put some Roland Space Echo and Vox Uni-Vibe on your solo guitar part, played through a vintage 1973 Hiwatt 100 and a 4 x 10 Fender Bassman cabinet? Not a problem—and you can save the whole rig as a user preset.

GearBox Plug-In comes with its own low-latency USB audio interface, a direct box called the TonePort DI. It also includes GearBox, a standalone application containing features the streamlined plug-in lacks, such as a rock-solid tuner, a file player, and online access to Line 6's library of tones, tunes, and lessons. Though optimized for guitar and bass, the collection supplies tons of presets



# BRING ON THE HEAT. TUBEFIRE8

Eight Channel Tube Preamplifier with Firewire



The ART TubeFire8™ delivers the best of all worlds in one tube driven digital audio interface package. Ideal for any recording application, the TubeFire8™ adds eight incredibly warm tube driven microphone or line inputs and eight balanced outputs to any FireWire equipped computer.

### Complete FireWire Based Studio Solution

Designed as a complete studio package, the TubeFire8™ is shipped with Steinberg's Cubase LE 48-track for both Mac and Windows operating systems making it a truly plug and play recording solution, although it is compatible with many popular ASIO and Core Audio based applications.

### Class-A Tube Design

ART's TubeFire8™ packs eight quality second-generation discrete Class-A vacuum tube microphone preamps in a single rack space audio interface with balanced I/O and FireWire connectivity.

### Versatile I/O

ART's microphone preamps provide clean quiet gain while maintaining incredible transparency through the input stage. The eight balanced outputs of the TubeFire8™ can be driven from either the analog microphone preamp inputs making the TubeFire8™ an in-line eight channel tube preamp, or from the internal high quality D/A converters making it a high quality multi-channel audio output for your PC.

### Full Input Control & Low Latency Monitoring

Every input channel offers both XLR input and 1/4-inch TRS balanced input with 70dB of gain. All inputs have -10dB Pad, High Pass filter, Phase Invert clip indicators and a wide range LED meter to monitor the preamp levels. The eight balanced outputs can be summed to an integrated headphone output providing either a mono or stereo mix function for low latency input monitoring and for monitoring audio playback from the computer.

## Features

- Shipped with Steinberg's Cubase LE 48-track (for both Mac and Windows operating systems)
- 8 x quality second-generation discrete Class-A vacuum tube microphone preamps
- 8 x XLR & 1/4-inch TRS Combi-jack Inputs
- 2 x 1/4-inch instrument jack Inputs (CH1 & 2)
- 8 x 1/4-inch TRS balanced Outputs
- 1 x 1/4-inch TRS headphone jack
- 8 x Input Gain / Channel Level / HPF / Phase Invert
- 8 x Channel Metering (4 bar led graph w/ clip indicator)
- 44.1KHz, 48KHz, 88.2KHz, 96KHz Sample Rates
- 24-204KHz External sample rate
- 44.1K, 48K, 88.2K, 96K, 176.4K, 192K Internal sample rates

ART  
APPLIED RESEARCH AND TECHNOLOGY

We have delivered leading edge products with exceptional tone and versatility which have gained the loyalty of musicians and sound engineers worldwide – on the road, in nightclubs, arenas, recording studios, auditoriums, churches, basements, garages, bedrooms – wherever there's a need to capture your creativity or amplify it, ART is a brand you can trust.

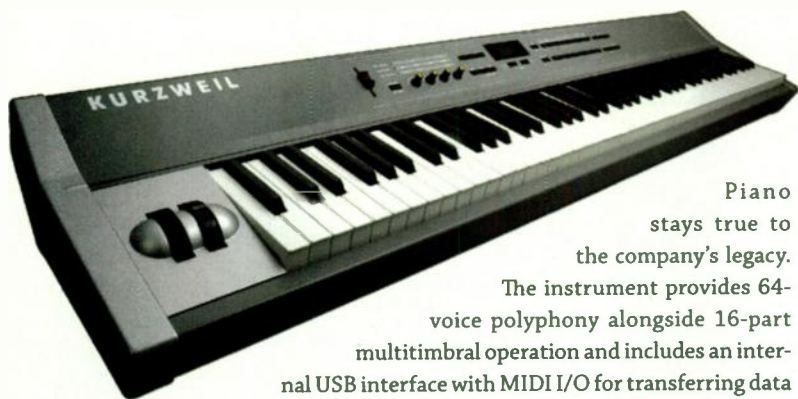


suitable for keyboards, drums, vocals—in fact, any sound assigned to any audio track. GearBox Plug-In is available in two bundles, Silver and Gold, which differ in the number of models and tones they include. For the real deal, go for the Gold; it's the best amp and effects modeling software EM has tried in the past year, and it's a winner.

## INSTRUMENT CONTROLLER

### Kurzweil SP2X Stage Piano (\$1,390 [MSRP])

Kurzweil is a name that's been synonymous with high-quality piano sounds for years, and the new SP2X Stage



Piano stays true to the company's legacy. The instrument provides 64-voice polyphony alongside 16-part multitimbral operation and includes an internal USB interface with MIDI I/O for transferring data to a computer or updating its operating system.

The keyboard will be at home in your studio, onstage, or anywhere in between. At just under 50 pounds, and designed with travel in mind, it's light enough for one person to manage. Its well-designed front panel, complete with four flexible multipurpose knobs, makes it easy to adjust parameters, even in low-light situations.

The SP2X's action is well suited to both rapid staccato passages and smooth lyrical lines, and the 88-key fully weighted action offers just the right amount of response, though you can pick from any of seven Velocity sensitivity levels to configure the axe to your playing style. With a wide range of internal sounds that extends well beyond the basics, not to mention its 64 prerecorded drum grooves and large number of effects, the SP2X will be a great partner in any musical situation.

## MICROPHONE

### Mojave Audio MA-100 (\$795 [MSRP])

There were plenty of microphones in the running this year, many of which were ribbon transducers. However, it was a small-diaphragm tube condenser mic that swept the votes. Designed by David Royer, the man behind a handful of top-notch ribbon mics (including two previous Editors' Choice Award winners), the Mojave Audio MA-100 provides a modern take on a classic configuration.

The MA-100 features a 0.8-inch diaphragm and utilizes a JAN 5840 vacuum tube and a



Jensen transformer. The mic's frequency response includes peaks around 200 Hz and 6 kHz, which give it a lively presence and bite without sacrificing dimensionality and depth. In fact, the MA-100's presence peak, as well as its ability to handle high SPLs, means it can cover a number of applications, according to reviewer Eli Crews, such as miking drums, electric and acoustic guitars, bowed strings, and vocals.

The MA-100 comes with a pair of interchangeable capsules—omnidirectional and cardioid—to give you additional flexibility. The result is a high-quality, all-around tube microphone with a modern sound that won't break the bank.

## MIDI CONTROLLER

### Frontier Design Group AlphaTrack (\$249 [MSRP])

Everyone working with a DAW or soft instrument needs an efficient way to control their programs, and a good control surface is usually the best way to go. The Frontier Design AlphaTrack, a USB control surface with a motorized fader, 3 continuous rotary knobs, and 22 buttons, is our idea of the right tool for the job when desk space is at a premium. The AlphaTrack gives you nearly full



control-surface capability with only a small footprint, and because it is bus powered, you'll find it especially suitable for sessions on the go. It also provides a multifunction ribbon controller for situations that require continuous data values, and an LCD that is more legible than most.

The AlphaTrack works in native mode with many popular programs—Cakewalk Sonar 6, MOTU Digital Performer 5, and Steinberg Cubase 4, for starters—and we learned of updated support information even after deciding on its award (Logic Pro 8 has added a plug-in for direct AlphaTrack support). And if your own software is not on its support list, you can probably use it in HUI- or MCU-emulation mode. That news is sure to please Digidesign



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## MicroTrack II

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- 2-channel WAV (BWF) and MP3 recording and playback
- new features include extended input gain range, analog input limiter and BWF file marking ability
- balanced 1/4" TRS inputs with line inputs and 48V phantom-powered mic preamps
- drag-and-drop file transfer to PC and Mac via high-speed USB 2.0
- storage via CompactFlash or Microdrives (not included)



Includes stereo electret microphone, earbuds, headphone extension cable with lapel clip, power supply, USB cable (A to Mini B) and protective carrying case with mic pouch

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World Radio History

Pro Tools and Apple Final Cut users, among others.

Once you try an AlphaTrack, you'll be hooked on its ease of use, ergonomic design, and overall efficiency. One thing's for sure: you'll never again find yourself mixing music with a mouse.

## MIXER

**Toft Audio Designs ATB 16** (\$3,999.99 [street])

As personal-studio technology marches inexorably toward in-the-box solutions, mixers, especially of the analog variety, have become more like specialty items than essential pieces. Still, when an analog mixer comes along that offers features and quality well beyond its price range, we think it's important to tip our cap to it. That's why we bestowed an Editors' Choice Award in the Mixer category on the Toft Audio Designs ATB 16, part of the ATB Series of 8-bus consoles. The boards were designed by Malcolm Toft, who was the brains behind Trident's A Range and 80B, so it should come as little surprise that these are quality units.

The three mixers in the line are identical featurewise except for their channel counts. The most affordable is the

ATB 16, but the 24-channel (\$5,099.99 [street]) and 32-channel (\$6,499.99 [street]) models are still well priced considering what they have to offer.

The ATB mixers have plenty of virtues to extol. For instance, although they have comprehensive feature

sets, their footprints—especially on the ATB 16—are surprisingly compact. They also offer a generous selection of direct outputs, insert points, and aux sends, and they can support two sets of monitors.

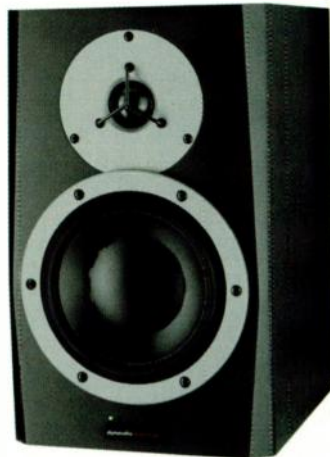
Obviously, sound quality is crucial to any mixer, and the ATB gets high marks in that area, too. We were also impressed with the mixer's modular construction, ribbon cables, and socketed ICs, all of which help make repairing or replacing parts easier and less expensive than on many other consoles. All in all, the ATB Series offers a winning mix of quality, value, and smart design.

## MONITOR SPEAKER

**Dynaudio Acoustics BM 6A MKII** (\$1,745 per pair [MSRP])

With a number of top-notch entries, such as the KRK VXT6 and Digidesign RM1, the Monitor Speaker category was once again an exciting one. However, when it came down to price versus performance, the Dynaudio Acoustics BM 6A MKII easily swept the votes.

The BM 6A MKII is a 2-way, bi-amplified close-field



monitor that combines a 6.5-inch woofer with a 1.1-inch dome tweeter, driven by 100W and 50W amplifiers, respectively. The monitor features an all-wood cabinet with a rear bass port, highpass settings when using a subwoofer, and low-, mid-, and high-frequency cut/

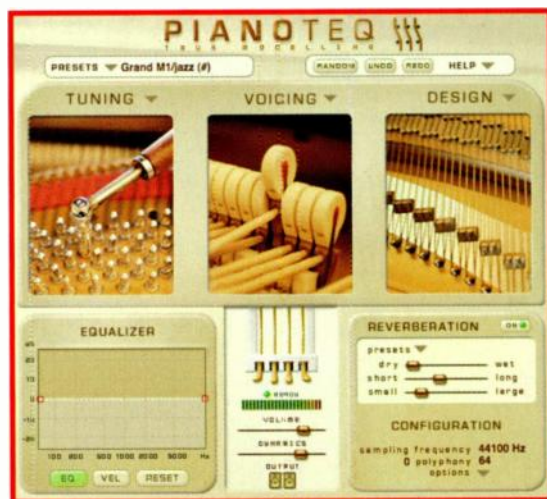
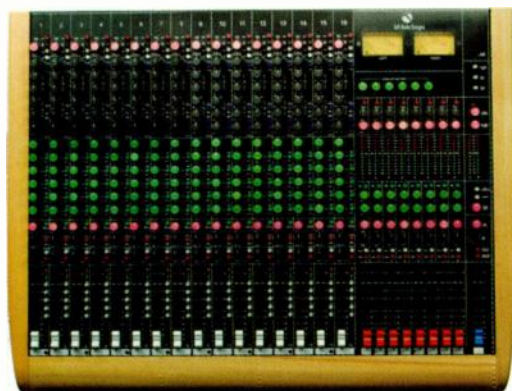
boost switches for tailoring its response to your room. At roughly 24 pounds each, these heavyweight speakers pack a punch, serving a maximum SPL of 115 dB (RMS).

Reviewer Rusty Cutchin praised the BM 6A MKII for its uniformity across the frequency range—at high and low volumes—as well as for its reliability for power handling and its remarkable bass response. Just as important, the BM 6A MKII is capable of revealing the subtleties in a mix, whether it's percussive transients or reverb tails—just what you want from a reference monitor. In a year of stiff competition, these features added up to a winning combination.

## MOST INNOVATIVE PRODUCT

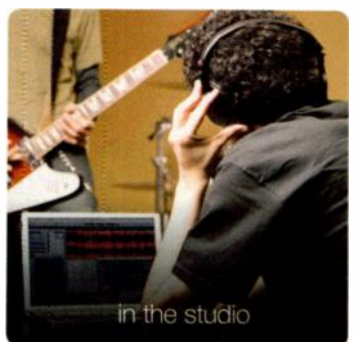
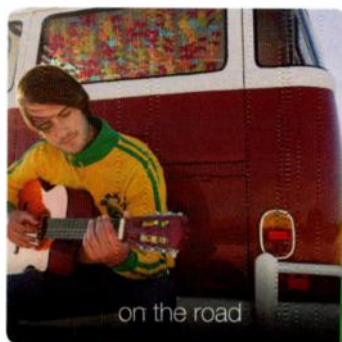
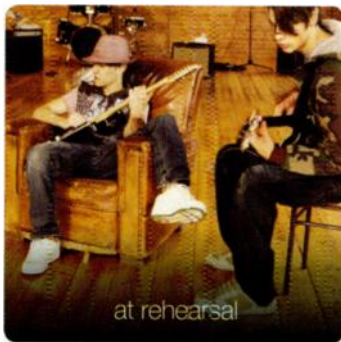
**Modartt Pianoteq 2** (Mac/Win, \$337 [MSRP])

It's been over a decade since Yamaha introduced the VL1, the first commercially viable physical-modeling synth, and the technology has held great promise in becoming the be-all of synthesis methods. This year's Most Innovative Product, Modartt's Pianoteq 2, is a giant step forward toward realizing that dream. Pianoteq 2 is the most advanced physically modeled grand piano available today, and it just might be the Holy Grail for





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**iMultiMix8 USB**

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anyone needing high-quality piano sounds in a compact and efficient package.

Altering the impedance, cutoff, and Q factor of your piano's soundboard and modifying the hardness and spectral characteristics of a piano's hammers are definitely not features you'll find in your sampler or sample player. Nor will many sampled pianos let you use the variety of alternate tunings you can employ now that Pianoteq supports the Scala microtuning system. And, unlike a piano sample library, Pianoteq requires a mere 15 MB of drive space to do its magic. A well-designed and intuitive interface makes adjusting the program's parameters a breeze, and the new AU, RTAS, and native Receptor support will make it even easier to use Pianoteq on a track.

Modartt is doing a lot to support its users, including sponsoring a composition contest, maintaining an active users forum, and, best of all, regularly releasing free updates and add-ons to registered owners. So whether you're playing keys in a Top 40 band, earning a living reading charts in a studio, or simply eager to explore a vast range of new keyboard-based sonic landscapes in your music, you'll find Pianoteq 2 a perfect tool for the job.

## NOTATION SOFTWARE

**Sibelius Software Sibelius 5** (Mac/Win, \$599 [MSRP])

Sibelius and MakeMusic Finale have been leapfrogging each other for years to be the most full-featured notation program around. This year Sibelius 5 has jumped ahead and leads the race. Packed with loads of great-sounding samples, new fonts, and creative composer's tools, Sibelius 5 is a composition powerhouse ideal for anyone working with standard notation.

Sibelius's new Ideas Hub is a useful tool for keeping track of musical snippets that you want to develop into full-blown themes; use it to turn an original 3-note motif into a main title theme or use one of the thousands of included tagged snippets to jump-start a mel-

ody. The new Reprise family of fonts can give your music a hand-drawn look, and new fonts for chord symbols, note names, and alternative performance practices will add realism and accuracy to the look of any score.

Thanks to newly added VST and AU plug-in support, you'll have access to an unlimited number of instrumental timbres for your parts. If you crave an even wider variety of sounds, you can pick up the World Music and Choral sound libraries. Using the new Panorama view, you'll be able to spot minute details in your score and compose in a more intuitive and efficient manner.

We've heard music professionals call Sibelius 5 "the perfect notation program," and we'd be hard-pressed to find fault with that statement.

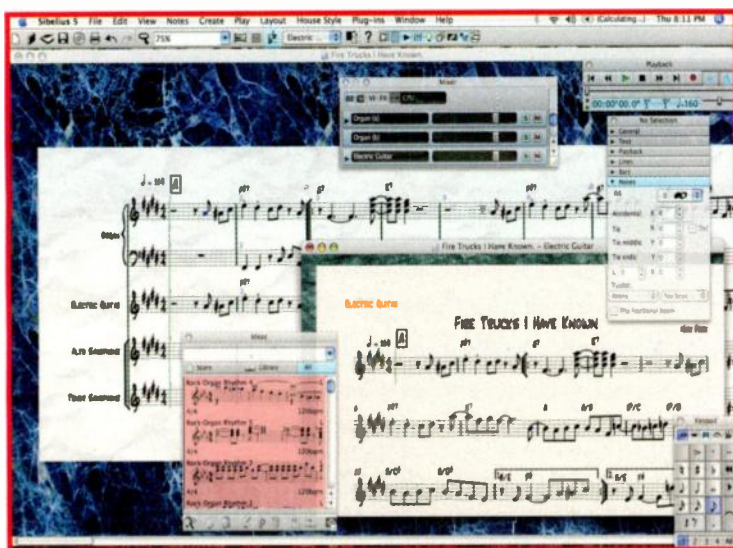


## PORTABLE DIGITAL STUDIO

**Roland MV-8800** (\$2,295 [street])

Not many companies have as much experience manufacturing self-contained DAWs, groove boxes, and synthesizer workstations as Roland. And not many portable digital studios let you do as much as you can with the MV-8800. Combining a multitrack hard-disk recorder, a 64-track MIDI sequencer, drum pads, sample-playback synthesis, user sampling, and loads of effects, the MV-8800 is a complete production studio in a box. Just add a MIDI keyboard, a mouse, and a monitor, and it can perform virtually any production task a well-equipped computer-based studio can.

With lots of buttons, 8 faders, a data dial, and 16 Aftertouch- and Velocity-sensitive pads, the MV-8800 invites human interaction. You can load as many as 128 simultaneous instruments with 64-voice polyphony, drawing from a large internal sound library on a 40 GB hard drive. Loads of ready-to-use loops and vocal phrases let you build your tracks from scratch and then match their pitch and tempo. You get drum kits with sounds from the TR-808 and 15 other vintage Roland drum machines, as well as an effects collection with classic Roland reverbs, choruses, echoes, and more. When you're finished, take





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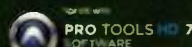


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advantage of the parametric EQ, limiter, and multiband compressor designed for mastering, and then burn an audio disc on the built-in CD burner.

With its assortment of I/O ports, connecting to the outside world is a snap. In addition to balanced analog audio inputs and outputs on ¼-inch jacks, turntable inputs on RCA jacks, and a ¼-inch headphone output, the MV-8800 has coaxial and optical S/PDIF out, USB, mouse and VGA ports, a footswitch jack, and MIDI In, Out, and Thru. Need more? The MV-8800 is expandable. Options include multiport analog and digital I/O, additional sample libraries, and many more synth patches. In a product line that has grown more powerful with each generation, the MV-8800 represents just how far tabletop production studios can take you.

## SIGNAL-PROCESSING SOFTWARE

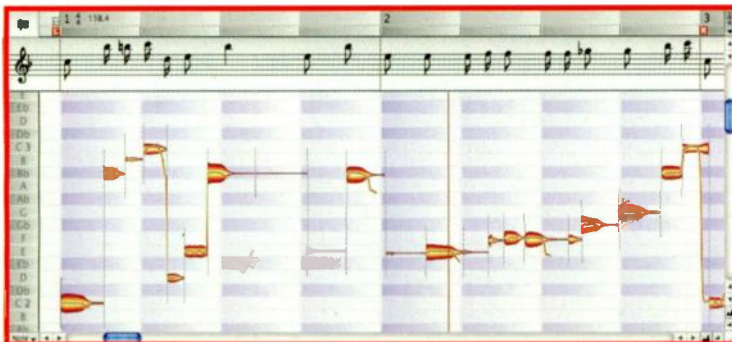
### Celemony Software Melodyne Studio 3.2.1

(Mac/Win, \$699 [MSRP])

We've been big fans of Melodyne since it first appeared, and the 3.2.1 update shows that the program just gets better with age. New algorithms for analyzing percussion material enhance already powerful pitch-shifting and time-stretching tools, and the much-improved control over formants in polyphonic music means you'll be able to use Melodyne for even more musical material than before.

Melodyne provides lots of visual cues about the music you're processing, some of which are enhanced through its new zoom and scroll capabilities. You'll see small marks (called Blobs) that indicate what the base pitch is for the notes in your piece as well as other symbols that indicate pitch events such as scoops, falls, and vibrato. The amplitude of a note is also indicated clearly via the width of the Blob, so even a quick glance shows you what the program has found in the audio you feed it.

Once Melodyne has analyzed your audio, it's simple to edit the note data using the same types of techniques you'd find in a MIDI sequencer. In fact, you can even convert audio events to MIDI notes, and in our experience, the program is amazingly accurate in that task.



Celemony now offers a plug-in version that will analyze the audio on a track in your DAW, then let you use its GUI to manipulate that material. Coupled with its support for ReWire and its improvements in many other areas, including work flow and activation, Melodyne will be a great complement to your other audio tools.

## SOFTWARE SAMPLE PLAYER

### SoniVox Muse 1.04 (Win, \$495 [street])

When it comes to sample collections and the software instruments built around them, you'll find no shortage of choices. For most musicians, the best of the bunch offer the greatest variety of sounds, just like the finest keyboard workstations do. SoniVox (formerly Sonic Implants), a company long held in high regard for its outstanding soundware, has launched its first sample player that runs standalone and as a plug-in. Built around Tascam's Giga Virtual Instrument (GVI) platform, Muse comes with nearly 38 GB of 24-bit, 48 kHz content that includes some of SoniVox's finest efforts.

Vintage keyboards, classic synths, electric and



acoustic guitars, powerful horns and saxes, and ethnic instruments from around the world are at your beck and call. You also get drum kits to suit any occasion, with percussion instruments from Africa, Asia, and Latin America. But the real stars of the show are Muse's orchestral sounds. Culled from the acclaimed *Complete Symphonic Collection*, the strings, brass, winds, and percussion make up more than half of the content and are among the finest samples you can buy.

Muse organizes its sounds into groups and subgroups you select from a pop-up menu, and you can layer just as many as your computer can handle. Instruments come in all forms, from resource-friendly EZ versions to a grand piano that takes more than 2 GB on your hard drive. If you're looking for a sample player that gives you every instrumental sound you're likely to need, Muse covers all the bases at a price that won't make you sorry.



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XLogic Alpha Analogue products feature our unique VHD technology, a 100% analogue circuit that adds a variable blend of 2nd or 3rd harmonic distortion to your signal. At relatively low input gain settings 'VHD' preamps deliver ultra-clean recordings. Increase the input gain and adjust the VHD control and you can inject your source recordings with anything from '50s valve-style overdrive through to hard-edged '70s transistor-style grit - or any blend of the two.

Designed by the engineers behind our legendary recording consoles, the new XLogic Alpha range brings the 'big record sound' of SSL to your home or project studio at a surprisingly affordable price. Alpha VHD Pre adds four SSL mic preamps to any line level DAW audio interface, transforming it into a high quality, multi-channel SSL analogue recording system. Alpha Channel is a classic console-style channel strip, with analogue & digital outputs and all the features you need to record great vocal and instrument tracks.

Find out more about bringing the SSL sound to your studio at [www.solid-state-logic.com/xlogic](http://www.solid-state-logic.com/xlogic)

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## SOFTWARE SAMPLER

### Digidesign Structure (Mac/Win, \$499 [street])

In 1991, Digidesign became the first manufacturer to introduce a full-fledged sampler you could run on your computer: SampleCell. Since the subsequent Soft SampleCell was discontinued several years ago, however, samplers have been conspicuously absent from the company's offerings. That changed a few months ago.

Digidesign's Advanced Instrument Research division (A.I.R., formerly the wizards at Wizoo Sound Design) has been on a roll ever since Avid acquired the team in 2005. Software instruments specifically for Pro Tools are its stock-in-trade, and certainly the most powerful is

shaping functions run the gamut from 10-stage envelope generators to 20-mode resonant filters. Structure loads unencrypted Native Instruments Kontakt, EXS24, and SampleCell sample libraries, and it also has a sophisticated built-in REX player. All told, it's a powerful instrument, and we're giving it the kudos it deserves.

## SOUNDS

### HandHeld Sound FlyingHand Percussion

(\$259 [MSRP])

A couple of NAMM shows ago, when an early, unpublished version of this sound library was on display, it created quite a buzz among the EM editors who checked it out. We all hoped it would get to market, and in 2007, it did. *FlyingHand Percussion* is a remarkable hand-percussion library for the Kontakt 2 sampler, developed by HandHeld Sound and distributed by SoniVox. The product aims to make the experience of playing sampled percussion instruments as realistic as possible, and it succeeds.

*FlyingHand Percussion* comes on four DVDs and includes many thousands of multisamples. Focused primarily on individual hand-percussion instruments, the library's success lies in its excellent-sounding and extraordinarily detailed sound set. Multiple articulations, plentiful Velocity layers, and separate attack and release samples are included for all the instruments. In addition, you can choose samples miked from the top or bottom or through room mics.

You get samples of a range of world percussion instruments, including congas, bongos, djembe, timbales, clay drum, boomwhacker, ashiko, naal, and many others. Also included are a couple of nontraditional instruments: Morphosis is made from found sounds, and Mutants features repitched instruments that produce "cinematic" sounds.

The developer's incredible attention to detail, the



Structure, an RTAS sampler plug-in. Structure maintains a tight integration with Pro Tools' audio engine, which manages its distribution of 128 parts and 1,024 simultaneous 24-bit voices at rates as high as 192 kHz. We're especially impressed that Digidesign launched Structure as a full-fledged and relatively mature sampling plug-in, with everything you need to create and refine your own multisampled instruments with drag-and-drop simplicity. It comes complete with more than 16 GB of original and EastWest content, as well as 40 GB that comprise a trial edition of EastWest Goliath.

Together with quick access to just about any parameter you can imagine, Structure's user interface provides keymapping and waveform editors you can stretch to any size. A robust effects-processing matrix delivers 20 algorithms ranging from tremolo and parametric EQ to quad rotation and surround convolution. Reassignable onscreen knobs respond to MIDI Control Changes, and you can use the MIDI Modules feature to control how instruments respond to your performance gestures. Sound-





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multiple options, and, of course, the great-sounding samples make this a must-have library.

## SYNTHESIZER (Hardware)

**Yamaha Motif XS6** (\$2,199)

Although dozens of synthesizer workstations have come and gone, Yamaha's Motif line has evolved considerably since its launch in 2001. In a field filled with worthy competitors, all three models in the latest Motif XS series deliver serious music-production firepower, but the XS6 stands out as the model that gives you the most cluck for the least buck. Its versatile timbral palette can handle just about any type of music you throw at it, from lounge standards to full-tilt rock 'n' roll, from folk songs to fully orchestrated film soundtracks.

The Motif XS6 furnishes most everything you'd want in a sample-playback synthesizer workstation. Its big, bright color LCD is easy to read, and you'll have no trouble navigating its well-organized operating system. Loads of real-time controls, from front-panel sliders and knobs to assignable footpedal inputs, invite hands-on operation and suggest all manner of expressive possibilities. Thanks to built-in Ethernet and USB 2.0, the XS6 can directly access computers and external drives, and you can download software to extend its parameter-editing faculties. You can also add as much as a gigabyte of RAM for 16-bit stereo user sampling, and install an mLAN expansion card for 128-channel MIDI and 6-channel digital audio connectivity via FireWire.

The XS6 puts a huge assortment of lifelike sounds at your fingertips, from a General MIDI bank to a full concert grand piano. Yamaha's Mega Voice and Expanded Articulation presets add to the realism. The XS6 does every-

thing a synth can do to make songwriting and composition as trouble-free as possible. Its onboard 16-track sequencer records audio and MIDI data, and you can quickly switch from linear multitrack sequencing to arranging patterns with as many as 256 phrases each. Edit sequencer data in an event list with 480 ppqn precision. Four intelligent arpeggiators tap into more than 6,000 patterns, simultaneously and in sync. Put it all together—great sounds, versatile sequencing, excellent effects, computer interactivity, and plenty of hands-on control with lots of visual feedback, all at a reasonable price—and you have this year's Editors' Choice for Hardware Synthesizer.



## SYNTHESIZER (Software)

**Native Instruments Massive 1.1** (Mac/Win, \$339)  
**u-he Zebra 2.1** (Mac/Win, \$199)

Software Synthesizer is a perennially tough category for the EM editors because there are always several stellar competitors. This year we decided to award a tie to two quite different wavetable-based virtual instruments. Beyond their incredible sound, one important factor in choosing these two synths was their extensive factory preset



libraries—more than 500 presets for Native Instruments Massive and more than 1,000 for u-he Zebra.

Zebra is a wireless modular synthesizer; you fill cells in its patch matrix with sound generating and processing modules and then right-click on those modules to choose other cells as their input(s). Modulation is accomplished with drop-down menus on a module's control panel, and virtually anything can modulate anything else. Four onscreen, MIDI remote controllable and automatable x-y controllers facilitate real-time performance.

Zebra offers a full spectrum of sound generators and filters, the most unusual of which is the WaveWarp oscillator. It is based on a table of 16 waveforms through which you either morph or crossfade using built-in modulators, MIDI, and automation. You draw in your own waveforms by waveshape or by additive spectrum, and the ergonomic user interface makes the process relatively easy. Zebra not only gives you your money's







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Andyware Analog Box 2	Feb. 2007
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Celemony Software Melodyne Studio 3.2.1	Oct. 2007
Dangerous Music D-Box	in progress
Digidesign Structure	in progress
Dynaudio Acoustics BM 6A MKII	Nov. 2007
Frontier Design Group AlphaTrack	Oct. 2007
HandHeld Sound <i>FlyingHand Percussion</i>	Aug. 2007
Korg MR-1000	Aug. 2007
Kurzweil SP2X Stage Piano	in progress
Line 6 GearBox Plug-In Gold 3.10	Dec. 2007
Modartt Pianoteq 2	in progress
Mojave Audio MA-100	Oct. 2007
Native Instruments Massive 1.1	May 2007
PreSonus FireStudio	in progress
Propellerhead Software Reason 4	Dec. 2007
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Sibelius Software Sibelius 5	in progress
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Toft Audio Designs ATB 16	Jan. 2008
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XLN Audio Addictive Drums	in progress
Yamaha Motif XS6	Jan. 2008

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## VIRTUAL ORCHESTRA

### Vienna Symphonic Library Vienna Special Edition

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Vienna Special Edition comes in several flavors and offers fewer layers and samples than its big brother. But there's more than enough here to get excited about. The collection covers all the traditional orchestral families nicely, and you'll also find saxophones, acoustic and electric guitar, and samples from the Vienna Konzerthaus organ if your scoring needs require those resources. In total, the complete library puts 80 GB of 24-bit, 44.1 kHz orchestral samples on your desktop, awaiting your creative direction. Vienna Special Edition also includes the company's vaunted performance-detection algorithms, which make transitions between sampled notes especially smooth and lifelike.

Whether you're doing orchestral mock-ups to demonstrate your orchestration chops or creating ready-to-lay-back scores for films, you'll find all the sounds you need in Vienna Special Edition, at a price that will keep you smiling. **EM**





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worth, but also offers plenty of fodder for those who don't want to program their own sounds.

Massive is a bit less modular than Zebra, but it stays true to its name. It has a typical subtractive-synth configuration of modules, but a signal-path block diagram allows for some rerouting. The oscillators use 89 preconfigured wavetables. Several wavetable traversing options, along with several configurations for Massive's two multimode filters, add considerable flexibility. Beyond that you get a noise source, a dedicated Modulation oscillator capable of audio frequencies, a programmable feedback path, and four effects (two inserts and two at the output).

The key to Massive is its unique, user-friendly modulation scheme. Modulators—four looping breakpoint envelopes, four LFOs that double as pattern sequencers, eight Macro knobs, and various MIDI messages—are numbered and color coded. To apply a modulator, you drag its handle to a slot below the knob or slider you want to target. Dragging up and down on the number produces a ring or bar to indicate the range of modulation. It takes only a quick look at the panel to decipher the modulation scheme, and modulation is the key to this synth.

Whether you stick to their extensive factory libraries or roll up your sleeves and create your own sounds, Zebra and Massive are worthy additions to your virtual rack. Both offer fresh sounds and novel approaches to wavetable synthesis, MIDI modulation, and automation.

## SYNTHESIZER WORKSTATION

### Propellerhead Software Reason 4 (Mac/Win, \$399.99)

Every couple of years, Propellerhead Software gives Reason users something to celebrate. This was one of those years, and true to form, the EM editors broke out the champagne.

Reason's flashiest new feature is the semimodular synth, Thor. Not only can you fill its six sound-generator and filter slots with different models, but you also have a

fair amount of control over the signal path, you can process audio from other devices, and anything can modulate anything else via Thor's robust modulation matrix. For good measure, the company has thrown in a step sequencer with lanes for pitch, Velocity, gate length, step duration, and two controller curves. Each lane has a back-panel output for driving other modules.

Reason 4's other new module is RPG-8, an excellent arpeggiator with selective note muting and the option to arpeggiate only when two or more notes are held. RPG-8 also functions as a MIDI-to-CV and -Gate converter, a much-needed addition. On the enhancement

## THE WINNING MANUFACTURERS

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Apple	<a href="http://www.apple.com">www.apple.com</a>
Celemony Software	<a href="http://www.celemony.com">www.celemony.com</a>
Dangerous Music	<a href="http://www.dangerousmusic.com">www.dangerousmusic.com</a>
Digidesign	<a href="http://www.digidesign.com">www.digidesign.com</a>
Dynaudio Acoustics	<a href="http://www.dynaudioacoustics.com">www.dynaudioacoustics.com</a>
Frontier Design Group	<a href="http://www.frontierdesign.com">www.frontierdesign.com</a>
HandHeld Sound	<a href="http://www.flyinghandpercussion.com">www.flyinghandpercussion.com</a>
Korg	<a href="http://www.korg.com">www.korg.com</a>
Kurzweil	<a href="http://www.kurzweilmusicsystems.com">www.kurzweilmusicsystems.com</a>
Line 6	<a href="http://www.line6.com">www.line6.com</a>
Modartt	<a href="http://www.pianoteq.com">www.pianoteq.com</a>
Mojave Audio	<a href="http://www.mojaveaudio.com">www.mojaveaudio.com</a>
Native Instruments	<a href="http://www.native-instruments.com">www.native-instruments.com</a>
PreSonus	<a href="http://www.presonus.com">www.presonus.com</a>
Propellerhead Software	<a href="http://www.propellerheads.se">www.propellerheads.se</a>
Redmatica	<a href="http://www.redmatica.com">www.redmatica.com</a>
Roland	<a href="http://www.rolandus.com">www.rolandus.com</a>
Sibelius Software	<a href="http://www.sibelius.com">www.sibelius.com</a>
SoniVox	<a href="http://www.sonivoxmi.com">www.sonivoxmi.com</a>
Toft Audio Designs	<a href="http://www.toftaudio.com">www.toftaudio.com</a>
u-he	<a href="http://www.u-he.com">www.u-he.com</a>
Universal Audio	<a href="http://www.uaudio.com">www.uaudio.com</a>
Vienna Symphonic Library	<a href="http://www.vsl.co.at">www.vsl.co.at</a>
XLN Audio	<a href="http://www.xlnaudio.com">www.xlnaudio.com</a>
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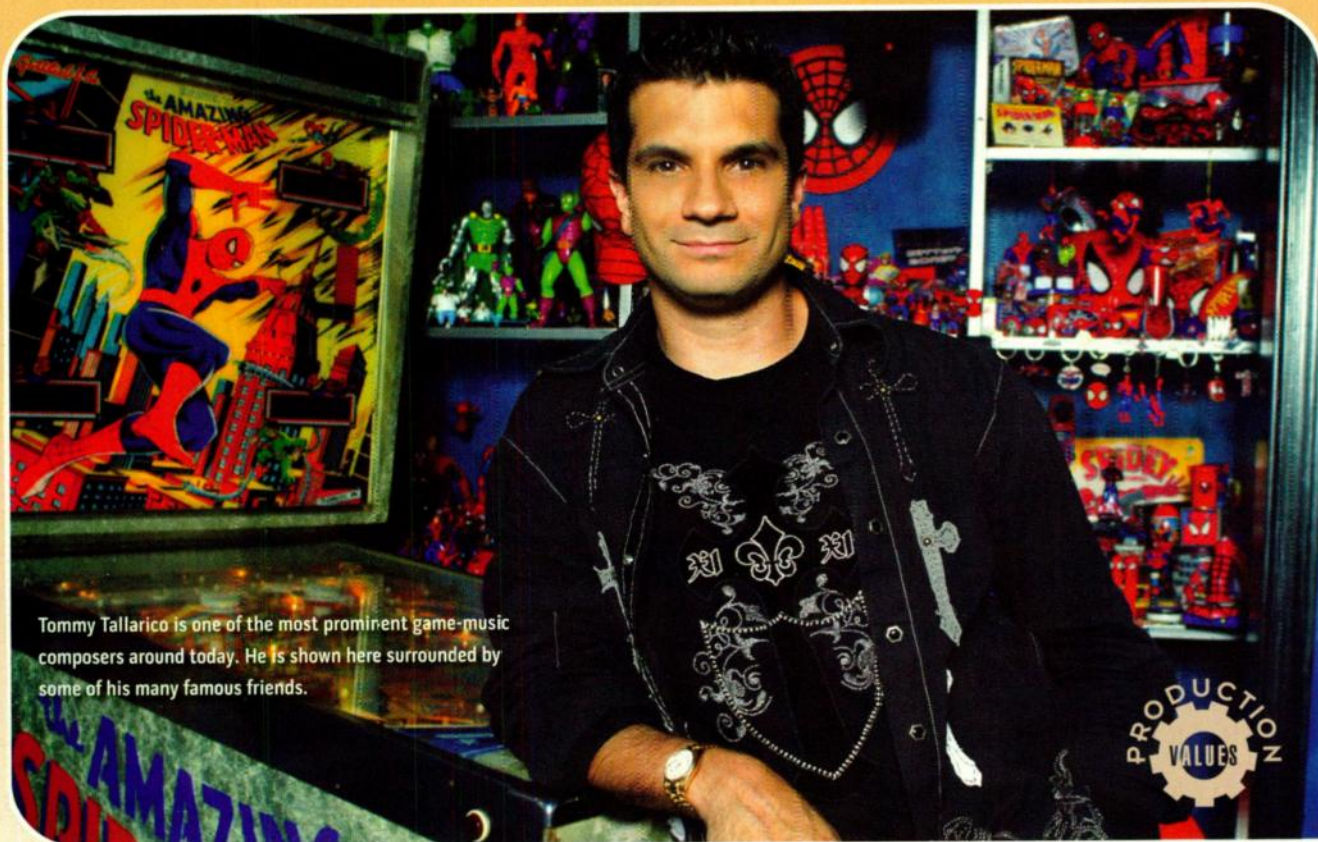


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Tommy Tallarico is one of the most prominent game-music composers around today. He is shown here surrounded by some of his many famous friends.

JASON VAUGHN

# Games People Play

By Larry the O

An interview with Tommy Tallarico, game-composing superhero.

In the world of video games, Tommy Tallarico might be the most visible of all music composers. Born and raised in Massachusetts, he started playing piano at age three but never had formal music training and does not read music. He grew up being inspired by the exploits of his cousin Steven Tallarico, better known as Steven Tyler of Aerosmith. When Tommy turned 21, he moved to California with nothing to his name and, within days, landed a job as a tester at Virgin Games. This opportunity quickly led to his scoring his first game, the early monster hit *Prince of Persia* (see the sidebar “Tommy Tallarico: Selected Credits” for a list of his major scoring activities).

In 1994 Tallarico left Virgin to found Tommy Tallarico Studios, and today he cohosts two TV shows on games: the Telly Award-winning *Electric Playground* and *Reviews on the Run*, both currently on G4techTV Canada. He also hosts the Video Games Live concerts he initiated with fellow game composer Jack Wall (see the sidebar “VGL: Coming Soon to an Entertainment Megaplex Near You”), oversees the Game Audio Network Guild (see [Web Clip 1](#)), and, oh yes, creates music and sound design for games. Tallarico has scored music and/or sound effects for hundreds of games, including *Earthworm Jim*, *Tony Hawk's Pro Skater*, and *Metroid Prime* (on which he worked with Nintendo's iconic video-game designer Shigeru Miyamoto). In 2005 Tallarico produced a critically acclaimed orchestral and choral score for *Advent Rising*.

Tallarico is a flamboyant figure (he drives a yellow Ferrari), and he isn't shy about promoting his work and accomplishments. This has occasionally drawn fire from detractors who find him boastful. But his track record and actions reveal someone who is devoted to advancing the technology and status of game audio and the game-audio community as a whole, as well as his own fortunes within it. In addition to overseeing G.A.N.G., Tallarico is a governor of the Los



Angeles chapter of the National Academy of Recording Arts and Sciences and has worked with NARAS (along with many others in the game industry, including this author) to establish a Grammy Award for video-game music. He is an advisory board member of the Game Developers Conference and a nominating peer leader for the Academy of Interactive Arts and Sciences.

### **How does composing for interactive media differ from writing for linear media?**

The thing that makes video-game composers and sound designers so different from film and television composers is that for the most part, film and TV music is called “underscore” because story and dialog is what drives film and television. Whereas with video games, action is what drives the whole experience, and it’s up to the composer not to write background music for the dialog but to drive that action. We’re in control more than composers in any other form of media.

Another difference from working with linear media is this: When John Williams sits down with George Lucas [to score a *Star Wars* movie], Lucas says, “At 45 seconds, Darth Vader is going to walk through the door, so the music has to do *this* when that happens. At 55 seconds, the Death Star blows up and the music has to do *this*.” Well, he now is confined by that linear medium. In contrast, a game designer will sit down with me and say, “Okay, here’s the situation: There’s a hundred guys on horseback, and they all have swords and are coming to kick your ass. Write me a 3-minute piece of music.” There are no barriers or limitations on me at that point. My mind can go crazy and think of writing an amazing piece of music for that emotion and that scenario.

Now, I’m writing that piece of music depending on how many guys are starting to come after me [in the game]. Let’s say we’re in a battle with 100 guys, then it’s down to 50, then down to 10, then 2, then I clear them all out. As I’m writing that 3-minute, 100-guys battle music, I’m also thinking of it in terms of what it would sound like if there were only 10 guys left. So I’ll take this exact same piece of music and maybe make it a lot lighter, or make the percussion less. Instead of doing 16th notes, maybe the violins are playing eighths and not playing as staccato. Maybe it’s not a whole choir at that point, but one solo voice. I might come up with two or three different versions of this exact same piece of music, and we’ll record each with a live orchestra and a live choir playing to a click track. I might record the same song four different ways.

Then I sit down with the programmer and say, “Look, start all of the same pieces playing at the same time. When there are only 10 guys, let’s crossfade into the 10-guys version of that song.” And the game engine never misses a beat, because it’s always in perfect time and knows exactly to the bit where each of those songs is playing. So when you crossfade, the music kind of comes

down and the player doesn’t even realize it, but it’s different. And it’s seamless. So that’s what I’ve been doing a lot of lately: writing different music for different scenarios, but it’s all the same piece of music written and recorded in different ways.

[In game engines, an audio file can play with zero volume, so that multiple files might be “playing” simultaneously, with the nonzero files being audible. Tallarico’s scenario describes multiple files having identical structure and tempo playing simultaneously, so that all remain in sync. However, volume is under program control and can be changed dynamically by the game engine to allow different versions to be heard.]

### **Let’s talk a bit about interactive composition tools. When you and I started in the industry, all of the tools were homemade, built in-house by each developer. More recently, we’ve seen the rise of middleware tools that are credible. What’s your take on the current state of the tools?**

That’s a great question. I think the tools really took a big turn about a year or so after the PlayStation 2 and Xbox came out. With the *Scream* engine for the PlayStation 2, which Buzz Burrowes designed, and the *XACT* engine for the Xbox, which Brian Schmidt and Scott Selfon and the boys at Microsoft designed, you’re talking about real musicians and composers and sound designers creating these tools, with these big companies behind them. The reason those engines were so much better than anything before was that for the first time, you could do things [to author the sound] in real time, on the fly. So all of the power was in the hands of the composers and sound designers. At that point in video-game history, we no longer had to sit there and tell the programmer, “Oh, could you turn that sound effect down? And could you trigger this song at that point in the game?”

What these new tools did was enable us [composers and sound designers] to do everything; we put the songs in, we put the sound

Tallarico notes that game composers now have the resources to compose and edit while playing the game they are scoring.



JASON VAUGHAN

effects in. We were able to load up the game, have it and the sound engine running, and tweak all of that stuff as we were playing the game.

**That overcame a major hurdle in game-audio production. Overcoming hurdles really is the essence of audio for video games, isn't it?**

Absolutely. One of the challenges of being in the video-game industry as an audio person is—still—knowing the limitations of the machine [on which the game will run] and always working around the technology. That's kind of the fun and challenging part, really. Every six to nine months, the technology [involved in producing audio for video games] changes. A lot of times people will ask me to tell them exactly how I do music for video games. But the reality is that it's different every single time. It's always a different approach, a different engine, a different budget, a different technology.

I'll give you an example. At one point, I was work-

ing on two basketball games—one for Activision and one for Electronic Arts. You think to yourself, "Oh, two basketball games—at least they have to do something the same. They're the same genre." But the two were being done completely differently: one was streaming in 30-second looping ambiences, and the other had to have the ambience downloaded into RAM because [the game developers] were streaming the trash-talking that was going on down on the court. One [game] had background music because it was more of a street basketball game, and the other was streaming college drum-corps riffs because it was a college basketball game. So even when the games are the same, the approach is still different.

**Now we come to Jack and Tommy's Flying Circus. Tell me about Video Games Live.**

Jack [Wall] and I really saw the industry change, especially after we started G.A.N.G. We saw the quality

of video-game music go way up, so we wanted to create something for the masses—not just for video-game fans, but for the masses. Something that said, "Look, video games aren't a bunch of bleeps and bloops anymore; this is a legitimate art form. Not only the music, but the craft of video games in general."

That's why we created the show the way we did. It's not just a symphony playing video-game music; Video Games Live is all completely synchronized to the video and to the special effects. The lights are automated, there's interactivity with the crowd, [and there are] preshow festivals, costume contests, and meet-and-greets with designers and composers afterward. It has the power and emotion of a symphony orchestra, combined with the energy and excitement of a rock concert, mixed with the interactivity, cutting-edge visuals, and fun that video games provide. That's really the best description of Video Games Live.

We have parts of the show where I randomly pick

## TOMMY TALLARICO: SELECTED CREDITS

This list represents only a small fraction of the games Tommy Tallarico has worked on. Visit his Web site at [www.tallarico.com](http://www.tallarico.com) for a complete list.

Title	Release Date	Publisher	Platform
<i>Advent Rising</i>	2005	Majesco	Xbox/PC
<i>Bard's Tale</i>	2004	InXile	PS2/Xbox/PC
<i>Demolition Man</i>	1994	Virgin	3DO
<i>Earthworm Jim 1</i>	1994	Playmates	Sega Genesis
<i>Earthworm Jim 2</i>	1995	Playmates	Sega Genesis
<i>Fight Club</i>	2004	VU Games	PS2/Xbox
<i>The Incredibles</i>	2004	THQ	PS2/Xbox/GameCube/PC
<i>The Incredibles: Rise of the Underminer</i>	2005	THQ	PS2/Xbox/GameCube/PC
<i>Knockout Kings 2000</i>	1999	EA Sports	Nintendo 64
<i>Maximo</i>	2002	Capcom	PS2
<i>Metroid Prime</i>	2002	Nintendo	GameCube
<i>Metroid Prime 2: Echoes</i>	2004	Nintendo	GameCube
<i>Prince of Persia</i>	1992	Virgin	Game Boy
<i>Spider-Man</i>	2000	Activision	PS1
<i>SpongeBob SquarePants The Movie</i>	2004	THQ	PS2/Xbox/GameCube
<i>Spy Hunter 2</i>	2003	Midway Games	PS2/Xbox
<i>Street Hoops</i>	2002	Activision	PS2/Xbox/GameCube
<i>Tony Hawk's Pro Skater</i>	1999	Activision	PS1
<i>Unreal 2</i>	2003	Atari	Xbox/PC
<i>Unreal Championship 2</i>	2005	Midway Games	Xbox

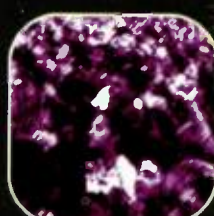


# Analog Factory Experience



## THE FIRST HYBRID SYNTHESIZER

Analog Factory Experience offers the immediacy of a Hardware synthesizer combined with the flexibility of a Software based solution. How is it possible? Analog Factory Experience is a unique combination of a software synthesizer that brings 3500 sounds, along with a high quality dedicated hardware controller. Once the Software is started, you can put your mouse away, all functions can be activated from within the keyboard controller.



people to come out onstage, and they actually become the video game while the orchestra plays the music and changes it on the fly in real time, depending on what the person is doing onstage and onscreen. That's the fun aspect of video games.

**Now we come to the obligatory question about your tips for people who want to get into the business.**

If you want to get into video games, there are three or four things you can do that will get you in, if you have the talent. But the biggest advice I have to give to everyone before I get to those four things is that talent isn't everything in this industry. Talent is 50 percent of it; the other 50 percent is networking and being able to sell yourself. If all the people out there spent as much time working on the networking as they did on the talent aspect, they'd go a lot further.

People are afraid to say that sometimes. They want you to think that it's all about your chops and your composing. But I'm here to tell you it's not. I'm not the best composer in the video-game industry—I'll leave that recognition to people like Michael Giacchino. But I'm one of the best networkers. The four things I have to say all have to do with networking and not the talent side.

How do you get into the video-game industry? The first thing is to join G.A.N.G., and this isn't just a plug for my own thing. G.A.N.G. is an organization run by everyone and it's for everyone; it's a nonprofit organization.

The second thing I'd recommend is to go to the Game Developers Conference. GDC is the best place to meet producers, designers, and other audio people, of course, and to learn from the masters who are doing game audio already. It's not just technical; [it gives you] information about business and the creative aspect and marketing yourself, as well as having a huge job fair where all of the developers and publishers looking for people are sitting right there.

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**Tal Bergman**  
Drummer / Producer

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# The guitar player's definitive answer to expression and control of their DAWs and computer based music systems

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For over 15 years Starr Labs has been hand-crafting custom electronic controller systems for the biggest stars in the world. Each unique design costing thousands of dollars.

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The third thing is to join the IGDA, the International Game Developers Association. That's also a nonprofit organization, and they have a ton of local chapters all over the world. If you're just looking to get into the industry, there are a lot of other people just like you but who are programmers, artists, or smaller developers.

Larry the O met Tommy Tallarico during Larry's eight years as a video-game sound designer for LucasArts Entertainment and Electronic Arts. He attended Project BarBQ the year G.A.N.G. was formed and has performed in two Video Games Live concerts.

have to get hired to work on a \$20 million budget project. You can get in the game industry by working on somebody's cell-phone game that has a \$50,000 budget.

The fourth thing is to read. There are a couple of great books out there. There's *The Complete Guide to Game Audio* [Focal Press, 2001], by Aaron Marks, and the other great one is from Alexander Brandon and is called *Audio for Games: Planning, Process, and Production* [New Riders Games, a series of Peachpit Press; 2004]. These are two fantastic books that give you great insight on the "how" aspect of making games. EM



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\*Patent applied for



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Triangle trap neatly nestles into ceiling corners. The first acoustic device you should add to any room!  
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High density Z-Fab™ on backing panels for more absorption with less material.  
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High density fiberglass panels with hardened edges in a variety of sizes, shapes and thicknesses to suit every application and budget. Prices start at: \$41.29 /sq ft

World's Best History



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cities and still sell enough tickets to put on a show, that's when you know it's really starting to take off. We're doing a European tour this fall: Spain, Italy, France, England again, Sweden, Germany. We're going back to Brazil and playing more cities there.

But probably our biggest and most exciting show this year, and for our third year in Los Angeles, [is] the E4 expo, or "E for all" as it is known. It's being put on by the same people that did the E3 [Electronic Entertainment Expo] show, but now they're opening it up to the public. It's going to be held at the L.A. Convention Center—like E3. But AEG, the promoters, have built a \$1.7-billion project called L.A. Live right across the street from the Staples Center in downtown Los Angeles, right next to the convention center. They want [it] to be the Times Square of the West Coast. They have 28 big plasma

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Razorblade™ quadratic diffuser

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### MAKING TRACKS

## The Right Choice

By Babz

### Tips for selecting objects in MOTU Digital Performer.

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In the Tracks window, if you click in the middle of a data block, your cursor will become a pointer, which selects the object, but toward the edges it changes to a crosshair to select by dragging. In the MIDI Graphic Editor, your cursor will change from a pointer to a crosshair to a hand icon, which lets you extend the note's length.

With the Edit Grid checkbox enabled, your selections will snap to the current grid resolution. Uncheck the box or hold the Command key to temporarily select free of the grid. Hold the Shift key and click (or drag in crosshair mode) to extend a selection. With an object selected, use

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#### It's About Time

DP makes an important distinction between selecting data events and selecting time-based events. Without a full understanding of this difference, you can run into unexpected results. Certain editing operations require a time-range selection. Two examples are the Snip and Splice commands. You Snip to cut out a region of a track and have all subsequent data shift backward in time. You Splice to insert data and have the rest of the track shift later in time (see "Step-by-Step Instructions: Snip and Splice" on p. 72). Note that for data-based selections, the Snip command is grayed and doing a Splice will paste your data on top of the audio at your insertion point.

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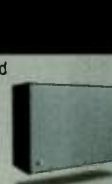
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JASON VAUGHN

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World Radio History

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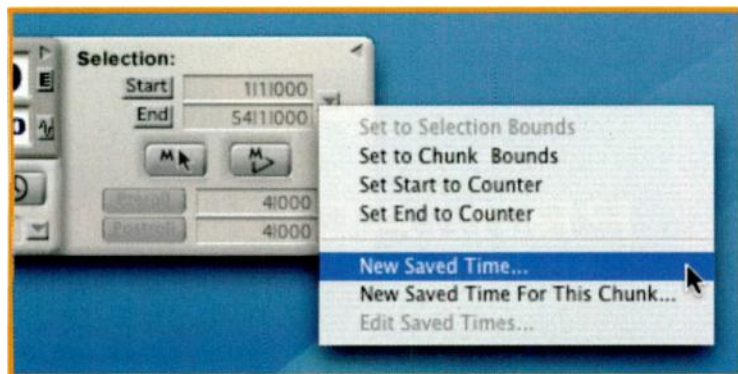
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# Introducing the **Fast Track Ultra** DSP-enabled USB 2.0 interface



M-Audio®—the world's best-selling manufacturer of audio interfaces—now brings you high-speed USB 2.0 and DSP with the new Fast Track® Ultra 8 x 8 interface. M-Audio's MX Core™ DSP technology provides flexible on-board mixing and routing—plus ultra-low-latency direct monitoring complete with reverb. Four preamps with our award-winning Octane™ technology ensure a transparent front end for your recordings. High-speed USB 2.0 delivers up to 24-bit/96kHz on all eight inputs and outputs simultaneously. The Fast Track just got faster.

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- create two separate headphone mixes
- set up and mix external effects loops



8 x 8 audio interface with S/PDIF and MIDI I/O

## STEP-BY-STEP INSTRUCTIONS: SNIP AND SPLICE

### SNIP

1



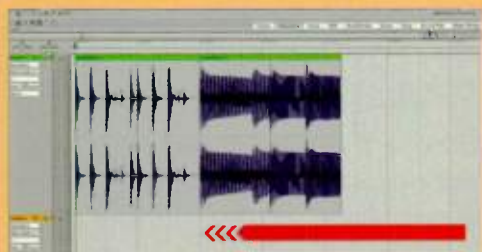
Arrange three different Soundbites in a track in the Sequence Editor.

2



Make a time-range selection in the time ruler over Soundbite 2.

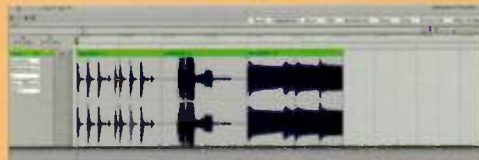
3



Choose the Edit→Snip command (Command + J). Soundbite 2 is removed and subsequent audio data is moved backward, closing the gap.

### SPLICE

1



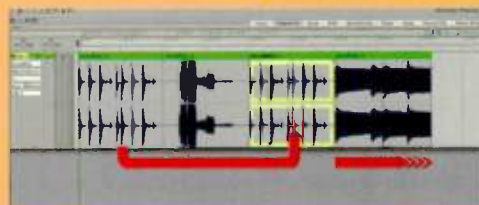
For Splice, copy Soundbite 1, insert it after Soundbite 2, and move the rest of the track to the right.

2



If you select Soundbite 1 with the pointer (a data selection), you get the wrong results.

3



If you first make a time-range selection of Soundbite 1 and then copy it and do the Splice command, you get the desired result.

### Selection Bar None

If you're uncertain whether you've made a data- or time-based selection, take a look at DP's Selection Bar (in the Tracks window) or Selection Panel (visible in all windows). Start and end times will appear there for time-based selections but not for data-based selections.

You can also use the Selection Bar and Panel to enter (or modify) selection boundaries directly using their Start and End fields or using a drop-down menu

that includes various common edit times. Click on the Start or End button to load the current counter location or double-click to load the beginning or end of the sequence. Finally, the New Saved Time drop-down menu command is a handy way to save, name, and recall multiple time-range selections (see Fig. 1). **EM**

*Babz is a composer, multi-instrumentalist, and music-technology writer based in New York City who actually does sleep with a copy of the DP5 manual next to her bed.*





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# Steal the Thunder

By Kurt Kurasaki

## Using Thor's filters for effects processing in Reason 4.

One of the exciting features of Propellerhead Software Reason 4's new Thor Polysonic Synthesizer is its ability to route audio into the device and process signals with its variety of new filters. These include a classic lowpass filter with selectable poles, a state-variable filter with sweepable passband, a comb filter, and a formant filter.

Of Thor's three filter slots, Filter 1 and Filter 2 are monophonic and are not active until an incoming MIDI event instantiates a voice. Filter 3, in Thor's Global section, is stereo and always active, making it ideal for creating a filter-bank effect (see Web Clip 1).

Reason's browser does not distinguish between Thor instrument and effects patches, but it does identify Combinator patches as effects if a cable is connected to at least one of the Combinator's To Devices jacks. (Otherwise, Combinator patches are identified as instruments.) I've embedded the Thor patch described here in a Combinator effects patch for easy access (see Web Clip 2). This Combinator provides a framework for developing a flexible effects unit that's usable in a variety of applications.

### Thor Modulation Bus Routing

Thor's programmable routing matrix offers a variety of signal-patching possibilities. To process audio with Thor, I've routed two of Thor's audio inputs to Filter 3 and set their amount parameters to 100 so as not to attenuate the signal (see Fig. 1). This should be the only signal path, and I've disabled the three oscillators and the other two filters. I've also set the polyphony to zero in the Keyboard Modes section to prevent the synthesizer section from instantiating a voice.

The Combinator's dedicated controls give you more flexibility than you have when using Thor alone. For example, a single knob or button can affect more than one target, and each routing's range and polarity is set independently.

FIG. 1: Oscillators, filters, and polyphony are disabled when using Thor exclusively as a filter device.



I've mapped Rotary 1 to the cutoff frequency, Rotary 2 to filter resonance, as well as Rotary 3 to the filter Drive control. Rotary 4 is routed to Filter 3's Type parameter, which lets you switch between the four different filter algorithms in real time without noticeable artifacts. The first three buttons are assigned to parameters that change aspects of the filter: passband mode (bandpass or highpass), self-oscillation, and comb-filter feedback polarity.

Button 4 is mapped to the delay-effect wet/dry balance to toggle delay at the output. Automating the wet/dry balance rather than the Delay On parameter prevents audio artifacts, making the control usable in performance. The delay is set to a tempo-synchronized duration of 3/16th notes, and the button toggles the wet/dry balance between 0 and 35.

### Pattern Control

Thor's step sequencer is programmed with a gate pattern using the step-duration and gate-length parameters. Rather than modulate the filter-cutoff frequency directly, the step sequencer gates the global envelope, which has a fixed modulation routing to Filter 3's cutoff. The sequencer rate is set to eighth notes, the mode is set to Repeat, and Thor's programmable Button 1 is routed to trigger the step sequencer. With Button 1 in the On position, the step sequencer continues to cycle regardless of the transport state.

The Combinator lets you assign Pitch Bend and Modulation Wheel as modulation sources, and I've used these to affect Thor's pattern modulation. The Modulation Wheel is assigned to Filter 3's Global Env Amount in the Combinator Programmer, so the Modulation Wheel determines the global envelope's effect on the Filter 3 cutoff.

The Pitch Bend wheel is mapped to select from three 1-step patterns on a Matrix Pattern Sequencer. The Matrix Curve CV output is routed to set Thor's step-sequencer rate. The three patterns set the rate to either quarter, eighth, or 16th notes.

Once you've set up the desired routings, you can automate the Combinator's rotaries and buttons in Reason's sequencer. In the example song, I've processed a Dr.REX drum loop and automated all the Combinator controls. For performance, you might want to automate some controls and MIDI map others to **EMWEB: 0000** change them on the fly. EM

Kurt Kurasaki works on the Reason sound-design team.



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# Going, Going, Gone . . .

By Jim Aikin

## Shape your mixes using fades.

Unless your music consists of a single phrase that loops repeatedly, your recordings will include transitions—places where one section or texture ends and another starts. If you've mastered the art of making transitions, your listeners will experience the music as dramatically coherent. Like a theatrical lighting designer, you'll be able to bring up a spotlight in one corner of the stage while dimming out other areas to allow the stage crew to scurry in and unobtrusively move the furniture. But if your transitions aren't working, the musical drama will contain moments that are jarring or confusing.

Transitions can be abrupt or gradual, and both can be musically useful. In the days of tape recording, abrupt transitions were handled with a razor blade and a splicing block. The tape would be physically cut apart and taped back together in as many as a dozen places in a single master multitrack recording. One careless slip, and days of expensive sessions would be ruined. Today we can do the same thing safely (nondestructively) by moving chunks of audio data with the mouse.

Gradual transitions are called fades. To create fades, tape operators would push the gain attenuation sliders (called faders) up or pull them down while recording the output of the mixing console onto a new tape track or a different reel of tape. The computer makes this process much easier and gives us more options. For one thing, we can experiment with different fade

shapes until we're satisfied, without needing to worry about wearing out a strip of magnetic tape.

### Beware the Curves

Everybody has heard fade-outs at the ends of recorded songs. At a strategic moment (usually when the last chorus starts to repeat), the level begins to drop. The music transitions smoothly to silence. But there's more to programming a satisfying fade-out than grabbing an amplitude envelope point with the mouse and dragging it down; a good editor will take advantage of the various fade shapes available to him or her.

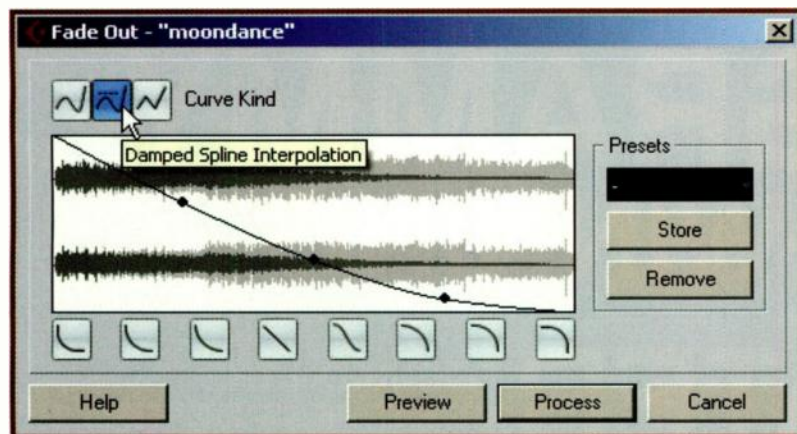
A song fade-out should usually begin with a definite-enough drop in loudness that listeners will notice it, but it may end with the last faint notes lingering for quite a while. In other words, the fade will have a concave shape (see Fig. 1). If it has a convex shape, beginning very gradually and then finishing with a more abrupt drop, listeners may feel less satisfied.

When one section of a song transitions to another, individual tracks from the first section may fade out while tracks from the second section are fading in. Such a transition is called a crossfade. With crossfades, a slightly convex shape (called an equal-power crossfade) is often the right choice for both the fade-in and the fade-out. For technical reasons, if you use a straight linear fade-out of one track at the same time as a straight linear fade-in of another, the ear will perceive a drop in loudness during the middle of the fade. In an equal-power crossfade, the overall loudness will remain constant throughout the transition.

This is also true when a track is being panned across the stereo field. Stereo panning is a type of crossfade between the left speaker and the right speaker. If the crossfade is linear, the panned signal will get quieter as it passes through the center position. An equal-power crossfade, which is implemented by default in many mixers, solves the problem.

On occasion, you may want an abrupt transition from one texture to another, but simply jumping from one audio clip directly into another may be too abrupt. You may even hear a pop, click, or thump at the transition point. The solution is a quick fade, also known as a de-click envelope. An audio clip can be given a fade-in or fade-out that's only a few milliseconds in length. The ear won't hear it as a fade, but the transition will be smoothed.

**FIG. 1:** After selecting an audio clip in Steinberg Cubase, you can apply a fade-out using this dialog box. Preset curve shapes can be selected using the lower row of buttons, and the shape can be edited by adding breakpoints to the fade envelope. When you click on the Process button, the data in the audio file will be altered: this is a destructive edit operation, so you may want to make a backup copy of the audio file before proceeding.





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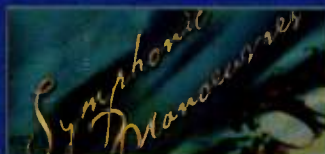
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## Fadeology 101

The manual for your multitrack recorder will help you understand the features it provides for creating fades. Several methods are in common use. You may be able to drag a fade handle at the beginning or end of an audio clip using the mouse (see Fig. 2). If you drag one audio clip so that it overlaps another, the recorder may crossfade between them automatically and allow you to choose a crossfade type from a dialog box.

More-complex fades can be handled using track automation. For instance, at the end of a song, you might want all the instruments to fade out smoothly while the vocal starts to fade out and then fades in again (perhaps with different effects processing) for a final moment of intimacy. To accomplish this, you would need to control the instrument fades with one automation envelope, perhaps by assigning those tracks to a mixer group for convenience, while controlling the vocal with separate automation envelopes.

Recording your fades as automation data is a good technique if you prefer to “play” the fade intuitively rather than relying on a visual analysis. With a hardware fader box, you can mix fade-ins and fade-outs exactly the way tape operators did in the days of analog recording, yet retain the ability to edit the fades afterward (handy if someone jogs your elbow in the middle of a sensitive move).

Some DAWs provide a multisegment amplitude envelope for each audio clip. A multisegment envelope can be used to program a fade-in or fade-out of any required shape (see Fig. 3). Some DAWs allow the curvature of each envelope segment to be adjusted (see Fig. 4). In that case, you can create curved fades using fewer segments.

If an instrument is fading in at the beginning of a new section, you might find an EQ fade or an effect fade useful. Try applying a lowpass filter to a track, and then produce the fade-in by raising the filter cutoff frequency so that the track starts as a low rumble and then emerges into the foreground as the high frequencies are added.

For an effective reverb fade-in, use a prefader send to route the track to a reverb. At the beginning of the fade-in, only the reverb return will be heard, so the track will sound distant or ghostly. As the dry signal fades in, bring the reverb return down (using another fade envelope) so that the wet and dry signals are balanced the way you want them.

As these examples show, the humble fade can be turned into a potent dramatic tool. With a little experimentation, you’ll discover an unlimited number of uses for this handy function. **EM**

*Jim Aikin is a frequent contributor to EM. His new interactive fiction novella, Lydia’s Heart, is available for download from his Web site ([www.musicwords.net](http://www.musicwords.net)).*

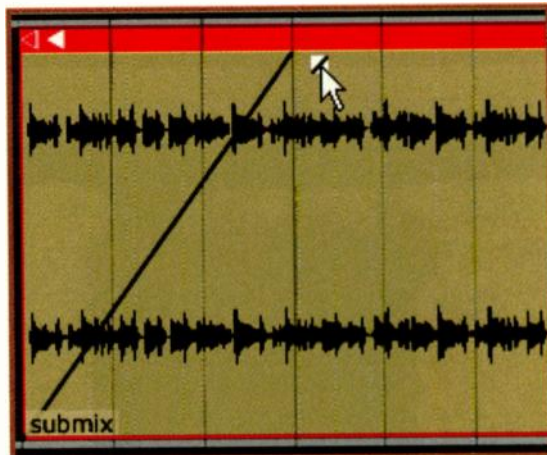


FIG. 2: By clicking-and-dragging a fade handle in Mackie Tracktion, you can create a smooth linear fade-in or fade-out.

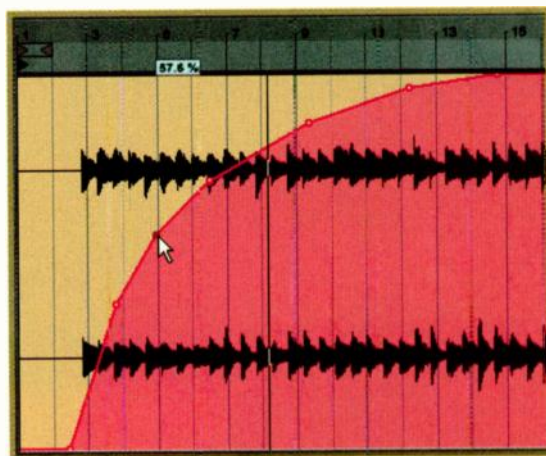


FIG. 3: Each audio clip in Ableton Live can have its own volume envelope. Here, a 6-segment convex envelope is being programmed to create a fade-in.

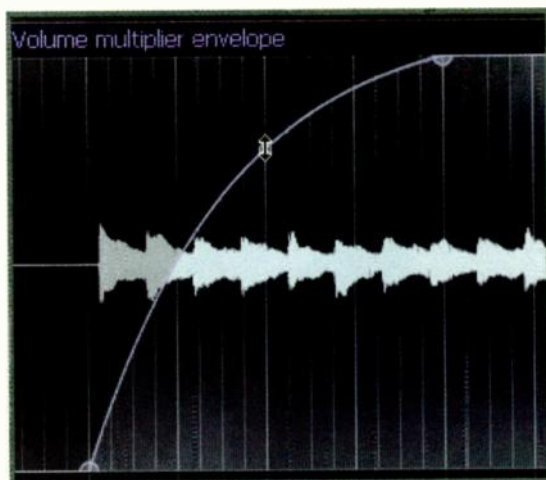


FIG. 4: In Image Line FL Studio, volume envelope segments can be given a positive or negative curvature. Here, a convex fade-in envelope requires only one segment.



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SOUND AMAZING

# Q&A: Mark Willis and Angie DeVore-Green

By Ravi

## Capitalizing on music-business conferences.

**M**usic-business conferences offer the opportunity to learn about the inner workings of the recording industry. These forums, which occur all over the country, also provide valuable ways for bands and artists to network and showcase their talents. Conferences provide building blocks for career-oriented artists, and do so in a consolidated, fun, and interactive environment. Regrettably, only a small percentage of musicians take advantage of such opportunities. Too many believe that their talent alone will spawn success, but learning to market that talent and having access to movers and shakers is a major part of the equation.

So how do you make the most of a music conference? I asked the founders of two of my favorite events (both of which I also speak at each year): Mark Willis (see Fig. 1) of the Atlantis Music Conference and Festival held in Atlanta ([www.atlantismusic.com](http://www.atlantismusic.com)), and Angie DeVore-Green (see Fig. 2) of Diversafest, usually referred to as Dfest ([www.dfest.com](http://www.dfest.com)), which is held every year in Tulsa.



COURTESY MARK WILLIS

FIG. 1: Mark Willis is the founder of the Atlantis Music Conference and Festival, which is held annually in Atlanta.



COURTESY ANGIE DEVORE-GREEN

FIG. 2: Angie DeVore-Green founded Dfest, a music conference and festival that's going into its seventh year in Tulsa.

### Why should artists attend conferences?

**Willis:** Education, networking, and shared experience.

**DeVore-Green:** The music industry is a business, and if you want to be successful, you must treat it as such, while maintaining your artistic vision. This industry is largely based on relationships. Conferences are great for networking. [As a musical artist] it's also easy to get sidetracked, frustrated, and discouraged. At conferences, you can see that you're not alone.

### When is it that artists are ready to start investing in conferences?

**Willis:** When they average more hours a week practicing than socializing!

**DeVore-Green:** As soon as they are serious about their careers. Many don't know much about the industry. Conferences are places to learn, gain insight, and figure out where one should focus.

### Some conferences boast about opportunities for musicians to be discovered and signed. Is that realistic?

**Willis:** That's most likely not going to happen until you have a well-connected team to draw the industry to your show. If your only motivation to play a conference is that you hope that an A&R person "happens" upon your showcase and signs you, you're gambling on a penny stock rather than making a wise investment.

**DeVore-Green:** It's probably the worst reason to attend. You might get on someone's radar, but don't kid yourself into thinking that it will lead to a record deal. I've seen artists signed shortly after attending and showcasing at a conference, but they were already on someone's radar. I've also seen bands from nowhere attend and put the ideas they learned at the conference into motion, which led to real interest and a management deal, a booking-agency deal, and ultimately a record deal. It certainly wasn't an "add-water-and-become-a-rock-star" scenario.



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### Should artists who are rejected for a showcase performance attend anyway?

**Willis:** More so than anyone else. Through the education, networking, and shared experience, they will have the tools needed to reach the next level. At Atlantis, any artist who is rejected receives one complimentary registration.

### Taking all expenses into consideration, how much does it cost to attend?

**Willis:** A four-piece local band showcasing would spend around \$120: [approximately] \$35 for the submission fee, \$24 for parking, and \$60 for food. For out-of-towners staying overnight, it's between \$500 and \$600: \$35 for the submission fee, \$129 for a one-bedroom suite, \$12 for parking overnight, \$100 for gas, and \$240 for food. Accepted artists receive one complimentary conference registration, and all other members get free entrance to four days of showcases.

**DeVore-Green:** For us, it's a \$15 submission fee, and all performing musicians accepted can attend the conference for free. Additional nonperformer artist badges are available to them at \$50. For artists not selected, one member can attend for free [like at Atlantis] if registered within a limited time frame, and additional artist badges are \$50 each until one week prior to the event, and then it's a \$150 walk-up rate. Our hotel ranges from \$79 to \$109 per night. There are cheaper options, but staying at the host hotel is worth it because that's where panelists stay, and you can actually hang out with them. Also, remember that it's entirely a business expense!

### What topics do panels typically cover?

**Willis:** Songwriting, producing, A&R, touring, promotion, distribution, legal, management, marketing, recording, Internet, and DIY and major-label options. There are also keynote speakers and high-profile interviews.

**DeVore-Green:** Our panels cover everything from promotion, marketing, booking, and touring to more-complex issues like record deals, digital and traditional distribution, licensing, publishing, and songwriting. We also have several clinics for drums, bass, and guitar; keynote speakers and well-known-musician interviews covering a variety of topics; and both demo-listening sessions and one-on-one mentoring. Dfest is geared toward finding success without a label. If you can be successful as an artist, then you can be successful with a label, have more leverage, and be more attractive to indie and major labels.

### What are the biggest mistakes that conference-attending artists make in terms of missing opportunities?

**DeVore-Green:** They don't participate actively. I see artists bellied up to the bar doing too many shots trying to

look like rock stars, rather than sitting in front rows of panels asking questions. Some show up literally a few hours before their showcase—just in time to grab their credentials and head to the club for load-in, and never spending a minute at the conference. Later they complain that no “industry” showed up and that if someone “important” had, they'd be signed right now. The successful bands are learning, networking, promoting, and so on. The ones that bitch [usually] slept in, hung out at the pool, and sat at the bar whining about how the music industry sucks, their town's scene sucks, and nobody cares about original music. This past year, I had Wayne Coyne of the Flaming Lips with his manager. It was a hugely unique opportunity to ask some real questions about the music business. However, people asked, “What inspired you to write ‘The Yeah Yeah Yeah Song?’” and “Thanks for giving back, Wayne.” Is that even a question? Why weren't people asking, “What were major obstacles in negotiating your first deal with Warner Brothers?” or “If you had to do it all again, is there anything you would have done differently?” or “Do you think that you passed up an opportunity to reach cult status faster, or do you think you did it exactly right?”

### Is it better to attend multiple conferences, or try to develop a buzz at one annually?

**Willis:** I'm biased and think everyone should come here every year. But if you can afford it, it's best to do both. Go to the industry wherever they are regionally congregated in one place. Their jobs are to research, investigate, and discover new talent. Spending money searching them out in their own respective markets could be futile, [especially] when you can potentially reach them at closer-to-home events.

**DeVore-Green:** If you're taking the things you learn and actively putting that information to action, then keep coming back until you don't have the time because you're too busy successfully touring and selling records. I don't think it's necessary to run around the country unless you have a plan to tour between the events. If touring includes conferences, take a couple days off to actually attend the conference. If you're unable to tour and attend a conference where you can return in six months, focus on closer events and try to develop a buzz there. Also, if your band can't all attend, budget so that one person can go and network and learn. Some of my best networking was achieved when I wasn't playing a showcase. Arm yourself with business cards and follow up with everyone, because you don't know who you don't know—and you never know when someone you meet could be the huge link to something or someone that could change your career path. **EM**

*Ravi (www.HeyRavi.com), former guitarist of three-time Grammy nominee Hanson, tours the country performing, lecturing, and conducting guitar clinics. He writes for several magazines, and Simon & Schuster published his tour journal.*



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# REVIEWS



## APPLE Logic Studio (Mac)

### Logic's new logic.

By Len Sasso

Apple has taken a bold leap forward with the release of Logic Studio. The package bundles Logic Pro 8 with Soundtrack Pro 2 audio postproduction software and the brand-new performance-oriented MainStage virtual-instrument and effects host. You also get several useful production utilities: WaveBurner for CD mastering, Compressor 3 for surround encoding, and Apple Loops and Impulse Response utilities. Then there are the 40 Studio Instruments; the 80 Studio Effects; and the 40 GB Studio Sound Library,

which consists of Apple Loops, sound effects, EXS24 instruments, channel strip and plug-in settings, and surround impulse responses. At \$499 (MSRP), the price is half that of previous versions of Logic Pro, and last but not least, the XSKey (dongle) is gone.

Logic Pro 8 is a major upgrade, and far from being dumbed down, as its user-friendly redesign might suggest, it is both simpler and more powerful. The redesign is more evolutionary than revolutionary, and current Logic Pro users will be right at home with the new version. I'll start with Logic Pro 8, then move on to the bundled content and MainStage. You'll find a separate discussion of Soundtrack Pro 2 in the Apple Final Cut Studio 2 review in the December 2007 issue (available online at [www.emusician.com](http://www.emusician.com)).

### By Special Arrangement

The first thing to notice about Logic Pro 8 is the consolidated Arrange window. Collapsible panes on the left, bottom, and right house a variety of editors, media browsers, channel strips, and data displays. A transport is permanently affixed to the bottom of the window, and a customizable toolbar



FIG. 1: Logic Pro 8's newly consolidated Arrange window gives you collapsible editing panes, including a browser on the right and a redesigned Inspector on the left.

#### 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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and key commands to toggle each type of display within each pane make going back and forth easy.

LOGIC STUDIO

**Studio Effects**

The big effects news is the new multitap delay, Delay Designer. It supports True Surround and features 26 independent taps. In a nice touch, you can designate some taps as repeats of other taps for quick, complex echo-style setups. Each tap has its own filter, pan, and pitch controls. The Space Designer convolution reverb also supports True Surround and includes 138 new surround impulse responses.

Not strictly part of the content but worth noting are the production-ready templates, from which you can easily build projects of various types. You get templates

for exploring Logic Pro's instruments and effects, for composing in popular styles, and for accommodating different production setups. Of course, you can create and save your own templates.

**Onstage**

Until now, if you wanted to use Logic Pro's excellent built-in instruments and effects onstage, you had to run Logic and configure separate tracks, or possibly separate songs, for your various setups. Dangle anxiety aside, this was not a very performance-friendly solution. Enter MainStage.

MainStage gives you access to all the channel strip settings in the Studio Sound Library as well as any settings you might create using Logic Pro built-in or AU plugins. A complete setup (called a patch) includes multiple channel strips, performance settings such as key splits and layers, and controller mappings. You organize patches into Sets (folders) in any way that is convenient—parts of a song, songs in a Set, patches of a similar kind, and so on. Clever buffering makes for glitch-free switching between patches.

A collection of Sets is called a Concert. MainStage comes with a goodly assortment of factory Concerts to guide you, but you'll want to create your own. The process is fairly straightforward, but given the wide range of options, some work is involved.

MainStage has two setup modes: Layout for designing the GUI and mapping its knobs, sliders, and buttons to your MIDI devices, and Edit for creating patches and organizing Sets. The layout (which applies to the whole Concert) can get very complex, but the layout used in the factory Concerts is close to ideal. It houses eight knobs, a master volume slider, a keyboard with splits and layers clearly indicated, MIDI wheels and pedals, and a large patch selector (see Fig. 4). Onstage, anything more would probably be overkill.

Edit mode is where you configure channel strips, keyboard splits and layers, and the mapping of control panel controls to plug-in parameters. The keyboard zoning scheme is especially clever. As you might expect, you set both a key and a Velocity range for each virtual-instrument channel strip. Two additional key-range parameters called Floating Split determine how far, if at all, a key range will adjust as you play close to its boundary. For example, you might map drum-loop triggers, a bass,

REVIEW

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FIG. 2: Quick Swipe Comping lets you quickly create multiple composites from the same takes.

along the top gives 1-click access to common activities such as setting locators and merging data (see Fig. 1).

The Inspector (previously called the Parameter area) in the left pane sports two channel strips. The one to the right is context sensitive; it displays the bus or output selected on the left channel strip, giving you access to a track's entire signal path. The top of the Inspector holds fold-down versions of the familiar displays for track and region parameters.

Above the transport, you'll find tabs that reveal embedded Mixer, Sample Editor, Piano Roll (formerly Matrix), Score, and Hyper Editor panes. Using these panes is much handier for quick edits than opening new windows or changing screen sets, although both those options remain and are useful for more-detailed editing. The embedded Mixer pane is probably the only Mixer window you'll ever need, and it is improved with the addition of Single, Arrange, and All buttons accompanying the original buttons for toggling individual channel-strip types.

The collapsible pane on the right has tabs for media browsing and embedded list-style editors (Event, Marker, Tempo, and Signature). Collapsing all panes maximizes the space for arrangement tracks,

FIG. 3: The redesigned Ultrabeat drum machine incorporates automation in its step sequencer.



and key commands to toggle each type of display within each pane make going back and forth easy.

### Bin There

The Media area replaces the Project Manager from earlier versions of Logic Pro. Four tabs give you organized access to all media on your hard drives. The Bin tab shows audio files used in the project (all Logic Pro songs are now saved as part of a project). The Bin replaces the Audio window, and you can still open it as a standalone window, which reveals more information. You can drag files from the Bin directly to audio tracks, and you can add files to the Bin without using them on tracks.

The Loops tab reveals the familiar Apple Loops browser. The Library tab is perhaps the biggest browsing enhancement. It is context sensitive and gives you instant access to media appropriate for the selected track and channel strip slot. For example, if you have a virtual instrument track with an EXS24 and a Delay Designer installed, you'll see EXS24 instruments when you click on the EXS24 slot in the channel strip, and you'll see Delay Designer patches when you click on the Delay Designer slot. If all slots are empty, you'll see a list of relevant channel-strip settings. If the track is assigned to an external MIDI channel strip, you'll see the possible MIDI destinations, including devices in the Audio MIDI Setup utility, objects in the Environment, and resident ReWire clients.

Finally, the Browser tab displays and supports Spotlight searches for all Logic-compatible files on all connected volumes. You can mix and match search criteria at will and restrict the search area. For instance, you might search for all ReCycle files less than a megabyte in size located on a specific hard drive.

### Done That

Many common Arrange window tasks have been simplified or enhanced. At sufficiently high zoom levels, you can select and edit data as well as draw automation with sample-accurate placement. When making selections with the Marquee tool, key commands let you snap the beginning or end of the marquee to audio transients or MIDI note events. You can time-stretch audio files by Option-dragging their end points, and you can even use time-stretching algorithms from installed third-party software such as Serato Pitch 'n Time.

Multitake recording of MIDI or audio is as simple as setting the loop boundaries and then recording as many takes as you like. When you're finished, you have a fold-down region with individual takes appearing in lanes. Once you have that, creating comps amounts to selecting the desired part of each take until you've filled the space (see Fig. 2 and Web Clip 1). Unfortunately, that process, called Quick Swipe Comping, is not implemented for MIDI, but for audio it's a great time-saver, and you can even create multiple comps. Multitake recording does



come at a price, however—overdub recording (in which you hear previous takes) with consecutive passes automatically placed in separate regions on their own tracks is no longer possible.

The Environment, although still there and useful for do-it-yourself setup and MIDI processing, is something you can completely ignore. Creating tracks, using send buses, activating ReWire channels, and so on automatically creates the requisite Environment objects. Furthermore, to create tracks, you select how many and what kind from a drop-down menu, and Logic Pro does the rest.

Surround configurations up to 7.1 are supported throughout the signal path. You can play, record, and process interleaved, multichannel files. You get surround level meters and a cleverly designed Surround Panner window. Busing is multichannel, and many of the newer plug-ins such as Space Designer and Delay Designer are True Surround, Logic's term for plug-ins that handle surround processing themselves. Other Logic and AU plug-ins, whether stereo or mono, support surround by means of Logic's multi-mono architecture.

### Studio Sound Library

Logic Studio's 40 GB Studio Sound Library contains 18,000 Apple Loops, including all the Apple Loops from the first five Jam Packs; 5,000 sound effects and music beds from Final Cut Studio 2; 1,300 EXS24 sampled instruments; 2,400 channel strip settings combining instruments and effects; hundreds more individual plug-in settings; and a large collection of impulse responses for Space Designer, many of which are in full surround.

The library is impressive for its sheer size and considerable reworking to take advantage of new features. Although much of the content has been around for a while, purchasing it separately costs more than the full price of Logic Studio.

### Studio Instruments

On the instrument side of things, you get significant and welcome redesigns of the EXS24 editor and the Ultrabeat drum synth. Other changes include True Surround for the Sculpture modeling synth and surround panning along with an optional compact control panel showing only the ES2 Macro controls.

One of the few complaints with the EXS24 sampler has been its cumbersome multisample editor. The redesigned editor is a big improvement. It has a more conventional multisample display, shows group and zone settings in a matrix-style layout rather than as fold-downs, and supports graphical editing of group and zone Velocity ranges.

The big changes in Ultrabeat are the Full View step-sequencer display, which lets you see and edit the steps for all 25 drum voices simultaneously, and the addition of Step Automation edit mode. In that mode, you can set a variety of voice parameters on a per-step basis (see Fig. 3 and Web Clip 2). Ultrabeat comes with a bunch of new sounds and drum kits.

#### PRODUCT SUMMARY

#### APPLE Logic Studio

digital audio sequencer  
\$499 (MSRP)  
upgrade from previous versions, \$199  
upgrade from Logic Express, \$299

FEATURES	4
EASE OF USE	4
AUDIO QUALITY	4
VALUE	5

#### RATING PRODUCTS FROM 1 TO 5

**PROS:** Bundle includes all essential audio applications. Huge library of content. Complete ergonomic redesign. No XSKey (dongle) required.

**CONS:** Some popular features dropped from the redesign. Much of the audio content is not new.

#### MANUFACTURER

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**Studio Effects**

The big effects news is the new multitap delay, Delay Designer. It supports True Surround and features 26 independent taps. In a nice touch, you can designate some taps as repeats of other taps for quick, complex echo-style setups. Each tap has its own filter, pan, and pitch controls. The Space Designer convolution reverb also supports True Surround and includes 138 new surround impulse responses.

Not strictly part of the content but worth noting are the production-ready templates, from which you can easily build projects of various types. You get templates

for exploring Logic Pro's instruments and effects, for composing in popular styles, and for accommodating different production setups. Of course, you can create and save your own templates.

**Onstage**

Until now, if you wanted to use Logic Pro's excellent built-in instruments and effects onstage, you had to run Logic and configure separate tracks, or possibly separate songs, for your various setups. Dangle anxiety aside, this was not a very performance-friendly solution. Enter MainStage.

MainStage gives you access to all the channel strip settings in the Studio Sound Library as well as any settings you might create using Logic Pro built-in or AU plug-ins. A complete setup (called a patch) includes multiple channel strips, performance settings such as key splits and layers, and controller mappings. You organize patches into Sets (folders) in any way that is convenient—parts of a song, songs in a Set, patches of a similar kind, and so on. Clever buffering makes for glitch-free switching between patches.

A collection of Sets is called a Concert. MainStage comes with a goodly assortment of factory Concerts to guide you, but you'll want to create your own. The process is fairly straightforward, but given the wide range of options, some work is involved.

MainStage has two setup modes: Layout for designing the GUI and mapping its knobs, sliders, and buttons to your MIDI devices, and Edit for creating patches and organizing Sets. The layout (which applies to the whole Concert) can get very complex, but the layout used in the factory Concerts is close to ideal. It houses eight knobs, a master volume slider, a keyboard with splits and layers clearly indicated, MIDI wheels and pedals, and a large patch selector (see Fig. 4). Onstage, anything more would probably be overkill.

Edit mode is where you configure channel strips, keyboard splits and layers, and the mapping of control panel controls to plug-in parameters. The keyboard zoning scheme is especially clever. As you might expect, you set both a key and a Velocity range for each virtual-instrument channel strip. Two additional key-range parameters called Floating Split determine how far, if at all, a key range will adjust as you play close to its boundary. For example, you might map drum-loop triggers, a bass,

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FIG. 4: MainStage gives you a performance rig for Logic Pro and AU plug-ins without the encumbrance of running Logic.

and a piano to lower, middle, and upper key ranges, and then set the upper Floating Split for the bass and the lower Floating Split for the piano to six semitones each. The range of drum-loop triggers will then remain fixed, whereas if you play up the bass or down the piano, the split will adjust a tritone to keep you from running out of notes.

## Express Yourself

Logic Express 8 (\$199 [MSRP]) is an option to consider if you're not already a Logic user. It is identical to Logic Pro except that it doesn't support surround, distributed audio, TDM, or high-end control surfaces. It lacks Space Designer and a few instruments and effects, but it does now include Ultrabeat, Guitar Amp Pro, ES2, and the full EXS24. Upgrading from Logic Express 8 to Logic Studio costs no more than if you'd bought the latter outright (the upgrade is \$299).

The pricing and bundled content set Logic Studio apart as a low-cost, professional virtual-audio solution. For composing, live recording, postproduction, and scoring for picture, it has all the bases covered.

If you already own a recent version of Logic, you can upgrade for \$199. If you make music on an Apple computer and have outgrown GarageBand, Apple has **EMWEB** made it very easy to stick with the program. **CLIPS**

*Len Sasso is an associate editor of EM. For an earful, visit his Web site at [www.swiftkick.com](http://www.swiftkick.com).*

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FIG. 1: The Motif XS's front panel just screams "user control." The eight sliders let you control the volume of various sound elements. The knobs have multiple assignments, and the buttons on the right choose tracks, Voices, or other objects, depending on the current mode.

**YAMAHA** Motif XS

See Product Specs @[emusician.com](http://emusician.com)

**A flagship synth workstation aims for the top of the heap.**

By Jim Aikin

**F**or years I've been an enthusiastic proponent of the software studio. But the Yamaha Motif XS has forced me to rethink my philosophy. The convenience of having everything in one box that I can take to a gig is a powerful enticement—but the key difference for me is how easy the Motif makes it to sketch out good-sounding song ideas quickly. The Motif integrates beautifully with my computer setup, too; it's the best of both worlds.

**The Motif in God's Eye**

The Motif XS is a full-featured workstation featuring sample-playback synthesis, optional user sampling (just add RAM), complex keyboard layouts for gigging, two types of sequencing, a multitrack arpeggiator, and computer interfacing. A full list of comparisons between the various Motif models would take pages, so this review will focus strictly on the XS. It's available in three models: the XS6 (61 keys), XS7 (76 keys), and XS8 (88 weighted keys).

The factory sound set is huge, and the presets are excellent.

I received an XS6 for review. It's heavy and solidly built. The large, high-resolution color LCD is not easy to read at oblique viewing angles, but it's wonderful if you're sitting in a normal position. Located beneath it are a dozen function buttons for selecting onscreen menu tabs. The OS is quite complex, but it's clearly and logically laid out, and I had no trouble navigating.

The front panel is studded with almost 100 buttons, most of which have built-in LEDs (see Fig. 1). A bank of eight knobs can be switched to six different groups of clearly labeled functions. Beneath the knobs are eight sliders for controlling the volume of various sound components. Mounted below the pitch-bend and modulation wheels is a short ribbon controller. You can't assign the eight sliders to send MIDI CC messages, but two of the knobs, two of the buttons, and the ribbon controller are assignable. The keyboard transmits both Velocity and Channel Aftertouch.

Around the back are pairs of main and assignable audio outputs, a headphone output, and stereo audio inputs—all on ¼-inch jacks (see Fig. 2). In addition to a coaxial S/PDIF output and MIDI In, Out, and Thru jacks, you'll find a trim pot for the audio inputs, two footswitch inputs, two expression-pedal inputs, an Ethernet port, and





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two USB ports (one for the host and one for a storage device). By removing a blank panel on the XS6 or XS7, you can install an optional mLAN16E2 card (\$259), which provides two FireWire ports; the mLAN board is included in the XS8.

The XS ships with no sample RAM, but you can install up to 1 GB. Installation of RAM and the mLAN card were painless. The most significant feature missing from the hardware spec is compatibility with Yamaha's line of PLG add-on synthesis boards, which can be installed in older Motif models. The XS is strictly a sample-playback synth.

### Hearing Voices

The XS's factory sound set is huge, and the presets are excellent (for details, see **Web Clips 1 and 2** and the **online bonus material** at [www.emusician.com](http://www.emusician.com)). Yamaha says that the XS has the losslessly compressed equivalent of 355 MB of waveform ROM.

The Voice ROM provides 8 banks of 128 presets each, as well as a General MIDI bank and 64 drum kits. A Category Search utility makes it easy to find the type of Voice you're looking for. The XS also supplies 3 banks of 128 user-programmable Voice memory slots, along with 32 user drum kits.

The XS is capable of 128-voice polyphony, but the actual number of simultaneous voices you'll be able to hear depends on how many Elements are used in the Voices you're playing. The XS uses as many as eight Elements per Voice, and they can be split and layered across the keyboard. Each Element contains its own oscillator, filter, envelopes, and LFO. The Voice as a whole has another LFO, modulation routings, settings for the effects and arpeggiator, and a few other functions.

New in the XS are Expanded Articulation (XA) switches for the Elements. These allow any Element to respond to your keyboard performance in various ways. An Element can play release noises by responding to key up rather than key down, for example, or it can play only when one of the assignable function buttons is pressed, be part of a random or cycling Element group, and so on.

The resonant filter has 18 modes ranging from a 4-pole analog emulation to a response that combines

FIG. 2: The XS6's rear-panel audio and footpedal control jacks are not unusual, but the Ethernet port is a luxury item that provides direct access to your computer's hard drive. The blank plate at lower left is for the optional mLAN board, which adds real-time digital audio I/O.

a 1-pole lowpass with a 1-pole highpass. In addition to reverb and chorus, a Voice can have two insert effects routed in series or parallel. Each

### PRODUCT SUMMARY

#### YAMAHA Motif XS

synthesizer workstation

XS6, \$2,199

XS7, \$2,799

XS8, \$3,199

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

RATING PRODUCTS FROM 1 TO 5

**PROS:** Powerful voice design. Huge memory. Capable sequencing. Excellent arpeggiator accompaniment. Great effects. Interactive front panel. Effective computer interfacing.

**CONS:** Not compatible with Yamaha's PLG expansion boards. Only six routings in voice modulation matrix. No internal hard drive. Audio input is not XLR.

#### MANUFACTURER

Yamaha  
[www.yamaha.com](http://www.yamaha.com)

of the 53 insert-effects types has a handful of useful presets to get you started. The Voice's common LFO has a user-designable 16-step waveform.

Certain essential modulation routings, such as Velocity to amplitude and to filter cutoff frequency, are hardwired. The Element LFO has three dedicated outputs—one each for pitch, cutoff, and amplitude. The common LFO has a switching matrix that allows it to modulate the pitch, cutoff, or amplitude of any Element. Beyond that, the XS provides a modulation matrix with six routings.

The matrix has 12 possible inputs, including the 2 wheels, the ribbon, Channel Aftertouch, 2 assignable knobs, 2 assignable buttons, and the 2 expression-pedal inputs. Each routing can be switched on or off for each Element, and the list of possible destinations is long. Because you can control certain parameters—including filter cutoff and resonance, envelope ADSR values, and reverb and chorus depth—directly from dedicated front-panel knobs, the matrix isn't needed for them. Even so, six routings is just not enough; having to choose between using Aftertouch, the ribbon, or an assignable knob, for instance, is frustrating.





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## Command Performance

The XS provides 384 Performance memory slots and 128 Master slots, all of them user programmable. In a Performance, you can split, layer, or both split and layer four Parts across the keyboard, with each Part containing a Voice. You can assign a separate arpeggio to each Part, and all four arpeggiators can run simultaneously and in sync.

Many of the factory Performances put drums, bass, and a chording instrument on the left half of the keyboard, all three with active arpeggios, while the right hand can play a separate lead sound. If you play lounge gigs and need to play requests, you're going to love this feature. Just dial up a Performance in some appropriate style (many pop styles are well represented), and you're ready to go. Each Performance stores settings for the audio input, allowing you to route a mic through the chorus and delay effects, assuming you have a separate mixer or a mic with a ¼-inch plug. A mono XLR input would have been useful.

In Performance mode, you can press the Record button and record a 4-Part keyboard performance into a Song or Pattern Section. This capability is one of my favorite XS features. For sketching a song into the sequencer, it can save days of work.

Like Performance mode, the Master section is intended mainly for gigging. Each Master can call up a Voice, a Performance, a Pattern, or a Song. Each can also map keyboard zones to the MIDI Out port for controlling external modules. Master mode is useful for gigging with backing tracks in the sequencer, because a Master lets you layer two or more internal Voices within a single keyboard zone.

## Arp Me Up

The XS's arpeggiator gives the synth a second identity as an auto-accompaniment keyboard. The styles are much more modern than what you'd find in a mall organ—hip-hop, dance, reggae, and '80s guitar rock are all on call. The XS's implementation of fills, intros, and endings is less comprehensive or convenient than in a home keyboard, however. You can switch among five arpeggios selected in advance. Most factory presets are set up so that the ARP5 button is a fill.

More than 6,000 arpeggio patterns are stored in the

XS, and if you can't find what you need, you can add more of your own by transferring data from the sequencer. The manual lacks a dedicated chapter describing arpeggiator operations, but you can download a PDF document listing 46 pages of factory patterns. Additionally, you can view the 17 arpeggio categories in the LCD by pressing the handy List button.

Some of the arpeggios respond intelligently to chord voicings on the keyboard. A bass line may sketch out a dominant seventh chord for you, locking in on the root on the downbeat even if you played the voicing in the third inversion (with the seventh on the bottom). The drum arpeggios always sound identical no matter what key you play, so you'll get a reliable beat.

Because a legato overlap can cause the arpeggiator to misunderstand what chord you intended to play, it's essential that you lift all your left-hand fingers between chords when controlling the arpeggiator. If you're planning to use the arpeggiator at gigs, you should practice until you can do it smoothly.

## The Song of Solo Man

The XS's sequencer can operate in either Song or Pattern mode. Both modes provide 16 tracks for MIDI and audio data. Voices assigned to eight of the MIDI tracks can retain their own insert effects, greatly increasing the sequencer's sonic versatility. Songs and Patterns remain in memory even when you power the instrument down and back up again; no loading is required unless you have audio tracks.

In Song mode, track data is continuous from the beginning of the song to the end. Pattern mode is more versatile, with each Pattern containing 16 independent Sections. You can interact with the Sections onstage, improvising an arrangement to allow a soloist to take as many choruses as desired, for example. Switching from Section to Section is a 1-button operation. Alternatively, the Sections can be joined in a Chain, which will play back seamlessly from start to finish. Chains can include tempo changes and track mute and unmute data.

A Phrase is the data played by a single track within a single Section, and each Pattern includes up to 256 Phrases. The grid layout shown in the LCD in Pattern Play mode makes the setup instantly clear (see Fig. 3). You can name Phrases, but the Motif's method for entering alphanumeric characters is rather laborious.

The editing functions in Songs and Patterns are fairly comprehensive. You'll find options for copying, quantizing, modifying Velocities or controller data, shifting blocks of data forward or backward in time, and so on. All regions can be defined with bar:beat:tick precision. If you need to drill deeper, you can open a MIDI event list. The event list is well implemented, with a view filter, keyboard entry of note numbers and Velocities, and even a numeric keypad. Sequence editing is undeniably easier on a computer, but the XS makes editing easier than you might expect.

FIG. 3: Pattern mode furnishes a graphical grid layout for arranging musical phrases.





You can edit Voices freely within a Song or Pattern and store them as Mix Voices. Voices stored in this way don't overwrite anything in the normal Voice memory, and that's extremely handy. You can edit a Voice to fit a particular song without worrying about whether some other song uses the same Voice. However, for some reason, Drumkit Voices can't be stored as Mix Voices.

### Audio Excursions

With optional sample RAM installed, the XS can sample from its external inputs (including mLAN, if your XS has it) or resample your real-time performance. Your songs can include RAM-based audio tracks. You can divide drum-loop samples into eighth-note or 16th-note slices, allowing you to rearrange the loops or change their tempo.

The XS supplies all the expected audio-editing utilities. Sampling is always 16-bit mono or stereo; the XS can't load 24-bit audio files. It supports sampling rates of 44.1, 22.05, and even 11.025 kHz.

### All Together Now

The Motif XS is an extremely powerful workstation and a significant step forward in the Motif line. Add some RAM for audio and an external USB hard drive for storage, and you'll have a system capable of producing pro-quality demos and more. The live-performance possibilities are brilliant, and the mLAN computer hookup makes the XS a studio champ.

The XS's only significant drawback is its lack of compatibility with PLG add-on boards. Otherwise, the items on my wish list are trivial. If you're shopping for a does-it-all keyboard, the Motif XS is simply not an instrument you can afford to ignore.



*When not writing about music technology, Jim Aikin plays electric cello in a band. You can download his latest text-based computer game, Lydia's Heart, from [www.musicwords.net](http://www.musicwords.net).*

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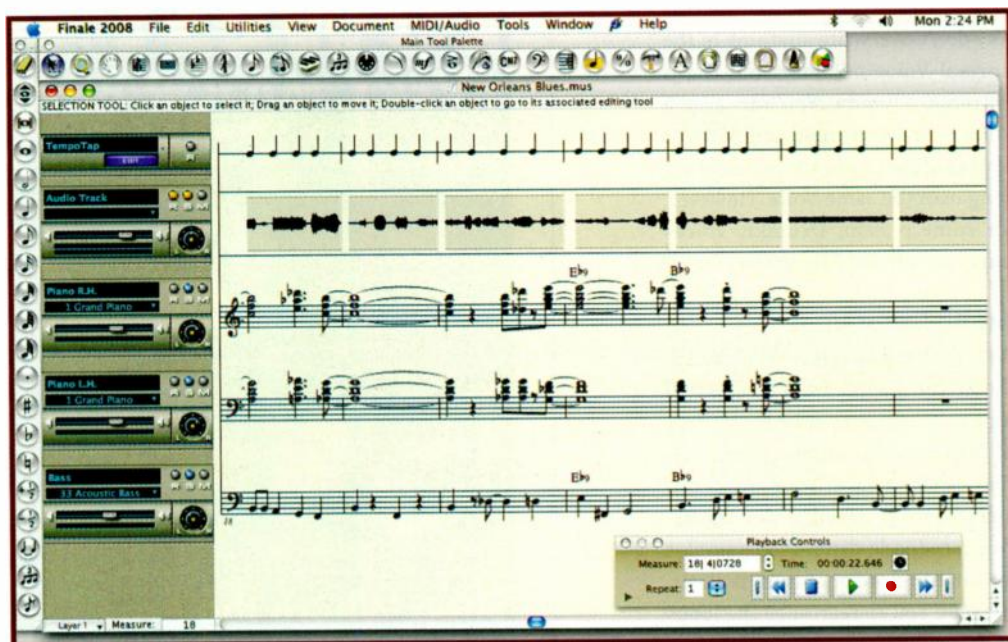
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## MAKEMUSIC Finale 2008 (Mac/Win)

### A superb music-notation program gets even better.

By Peter Hamlin

**M**akeMusic's Finale has been a leading music-notation program since it was introduced in 1988. Each upgrade has offered significant new features and improvements, and Finale 2008 is no exception.



FIG. 1: A partial measure in the top staff has been selected, then copied into the two bottom staves. Notice how the five selected notes fold around, creating an interesting cross-rhythm against the four beats of the time signature. Previous versions of Finale didn't allow multiple copies of partial selections like this.

### Big Changes

In older versions of the program, there were many tools to work with, each tool had a fairly specific function, and a user often switched between tools in the course of entering a score. For example, you entered notes with the Simple Note Entry tool, and you added articulations with the Articulation tool. There were tools for adding key and time signatures and for adding measures, and there was the Mass Edit tool when you wanted to perform a range of editing functions (copying and pasting) and select utilities (such as transposing, respacing, and rebeaming).

Over time, Finale has consolidated its features in a way that reduced the need to switch between tools, and the latest version takes another major step in this direction by eliminating the Mass Edit tool. Its functions have now been incorporated into a much-enhanced Selection tool and an expanded Edit menu.

In addition, a new Utilities menu has been added to the menu bar, which includes tools for transposition, rebaring, rebeaming, compressing several staves into one, expanding one multivoice staff into several staves,





# “I’ve Already Earned \$50,000 Using TAXI and My Little Home Studio.”

*Matt Hirt – TAXI Member*

**I**s your music good enough to make money?

I was pretty sure mine was too, but I didn’t have a clue how to make great connections. I’m just not good at playing the “schmoozing” game. And even if I was, I had little chance of meeting the right people.

I needed a way to market my music, so I joined TAXI and the results were nothing short of incredible.

Now, all I have to worry about is making great music. The people at TAXI do an amazing job of hooking me up with opportunities that I would never uncover on my own.

I’ve already cut deals for more than 70 of my songs, and they’re getting used in TV shows like *Dateline*, *Law and Order SVU*, and *The Osbournes*. And yes, I’m making money.

I was kind of surprised that the recordings I make in my little home

studio were good enough. I guess size really doesn’t matter;-)

Want to know what does matter? Versatility. Being able to supply tracks in different genres makes you even more desirable for Film and TV projects. I didn’t know that until I became a TAXI member and started going to their members-only convention, the Road Rally.

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business, and the cool part is that it’s FREE!

Unlike some of the other conventions I’ve attended, the panelists at the Rally are friendly and accessible. I’ve never been anywhere that gives you so much great information, and so many chances to meet people who can help your career.

If you’ve needed proof that a regular guy with ordinary equipment can be successful at placing music in TV shows and movies, then my story should do the trick.

Don’t let your music go to waste. Join TAXI. It’s the best service on the planet for people like you and me – they really can turn your dreams into reality if you’re making great music.

Do what I did. Call TAXI’s toll-free number, and get their free information kit. You’ve got nothing to lose, and a whole lot to gain!

and other spacing and layout functions. Additionally, the Selection tool has a contextual menu (right-click in Windows or Control-click on a Mac) that gives you access to commands that used to require switching between the Key Signature, Time Signature, Clef, Measure, Staff, Repeats, and Mass Edit tools.

Other improvements include a smoother and more natural way of selecting full or partial measures and a new Paste Multiple command that lets you make multiple copies. (You can also specify copies vertically in staves below as well as horizontally.) And, unlike with earlier versions of Finale, you can now make multiple copies of partial measures to create interesting cross-rhythmic patterns (see Fig. 1). These changes will help you find the feature you want quickly so you can work more efficiently.

Another important addition is that you can now add an audio track to your Finale score. One of many ways to use this feature would be to have a recording of a real singer mixed into your song playback, rather than the soft synth singing "oohs" and "ahs." (Fig. 2 shows a score with an audio track added, and Web Clip 1 lets you hear what an audio track integrated with score playback sounds like.)

Finale's playback has improved significantly over the years with the addition of Garritan Personal Orchestra (GPO) and SmartMusic SoftSynth (see Web Clips 2 through 5). Saxophone, choir, drum set, guitar, marching percussion, and world instruments have been added to the GPO collection in this update. You will want to use Finale's Human Playback feature, which responds to

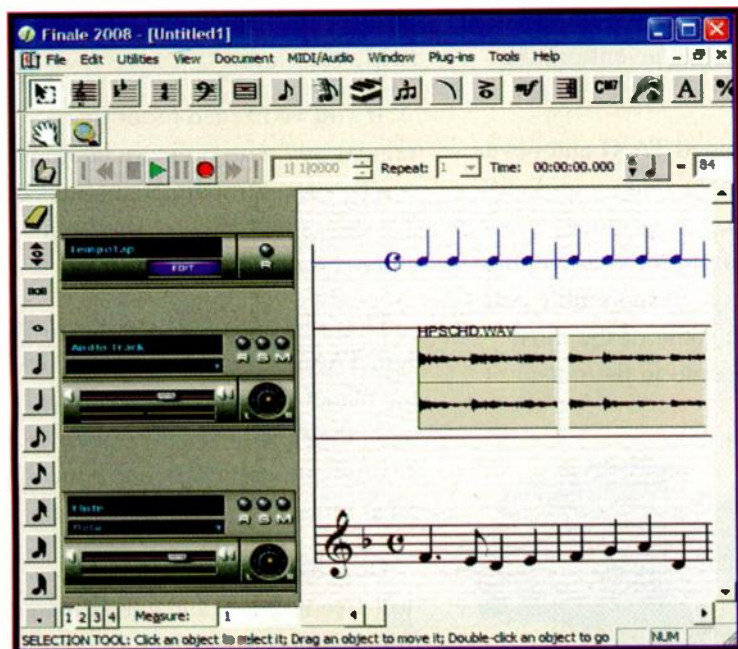


FIG. 2: Finale 2008 allows you to add an audio clip to your score. The TempoTap feature (in the top staff) makes it easy to synchronize your score to the audio track, even if the tempo changes.

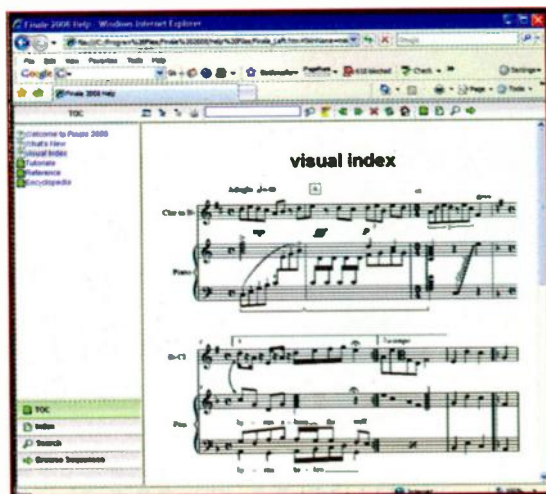


FIG. 3: A much-improved HTML help system provides easy navigation through Table of Contents, Index, and Search options. The Visual Index lets you click on any item to get more information about it.

dynamics, expression, and tempo changes in the score as well as performance techniques idiomatic to each instrument (such as pizzicato, harmonics, and note bends). Web Clips 6a and 6b illustrate the difference Human Playback makes when a score is realized.

To get the best results from sample playback, you will need at least a gigabyte of memory. Finale 2008 put a strain on my four-year-old computer until I increased my RAM to 1 GB. And I also find it helpful to work on pieces in smaller chunks, because you can effortlessly assemble the sections into a larger whole using the new ScoreMerger command.

## Papers, Please

One of Finale's biggest shortcomings has been documentation. The program had a PDF manual, which was complete and thorough but rather inconvenient to navigate, as well as a contextual help system that was not as detailed as the manual, so you often had to search through the PDF document anyway.

Finale 2008 offers a big improvement in documentation. The manual is now offered as an interactive HTML document displayed in your browser. The contextual help is tied to this information, so you get the same level of detail when you press F1 within the program. The index is much easier to navigate, the table of contents is well organized, and a powerful search function is also included.

An option called Browse Sequences points you to a number of topics that you can read about in more detail. For example, select the topic "Creating Parts," and you will find eight articles detailing the entire process of creating parts in Finale. And if you don't know the word for something but know what it looks like, there is an inventive idea called a Visual Index, which shows a sample score page. Click on an item to find out more about it (see Fig. 3).



On my computer, the help documentation takes a moment to load the first time I call it up. After it's launched, it's fast and responsive.

There are lots of other improvements that you will appreciate as you use Finale 2008. Document Styles allow you to create templates for scores that specify fonts, libraries, graphics, page size and layout, measure numbering, and other items of that sort, making it very easy to create distinctive-looking score styles for different types of projects.

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## PRODUCT SUMMARY

### MAKEMUSIC Finale 2008

music-notation program  
\$600 (MSRP)  
academic/theological price, \$350

FEATURES	5
EASE OF USE	4
DOCUMENTATION	5
VALUE	4

#### RATING PRODUCTS FROM 1 TO 5

**PROS:** Numerous improvements and expanded features. User interface is more streamlined, better organized, easier to use, and more efficient.

**CONS:** Expanded features, especially the instrumental library, require additional RAM and computer resources.

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MakeMusic, Inc.  
www.finalemusic.com

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As Finale has grown more powerful, it has also become more streamlined and elegant and easier to use. For current users, I strongly recommend an upgrade to Finale 2008. And anyone new to music-notation software will want to give this program serious consideration.



*Peter Hamlin teaches composition, theory, and electronic music at Middlebury College in Vermont and also plays in the live electronic improv band Data Stream.*

# The Professional S3, A Composer's Wet Dream

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Built by Les Bateman, our S3 has 1.2 terabytes of storage on 4 SATA-2 hard drives - enough for over 4 months of CD audio. CPU power is abundant with a Core 2 Duo screaming at 2.4GHz on a 1.33 GHz front side bus. The machine is topped off with 2GB of custom-made DDR2 800 MHz RAM. We built the ultra-quiet S3 to blow away all other music computers and we succeeded.

You work hard. You deserve something great.



## The World's Finest Music Computers

### PROFESSIONAL S3

- Intel® Core 2 Duo 2.4GHz
- 1.3GHz FSB, 4MB cache
- 2GB DDR2-800 RAM
- 1.2 TeraBytes HD storage
- PCI & PCI-E slots
- 2 FireWire® ports
- 6 USB 2.0 ports
- SATA on the GO
- 50-in-1 media reader
- 16X DL DVD+/-RW
- Gigabit LAN
- Dual Display Support
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- Tweaked for Music



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pre- and postfader. Further down is a monitor section that allows you to listen to a separate input signal, with a switch that lets you apply the channel's EQ if desired. This signal can also be sent out of aux sends 5 and 6. Directly above the fader is a pan knob along with solo and mute buttons for the channel, and the 100 mm fader is metal bodied. To the right of the fader are signal-presence and overload LEDs, and buttons for sending the signal to the main L/R output as well as to any of the eight buses.

In addition to a fader, pan knob, and solo button, each bus channel has its own 12-LED level meter and knobs for aux sends 5 and 6. Aux send 5 can be set pre- or postfader to a monitor-level control for each bus. This is handy for setting headphone mixes or effects sends from the bus section. An effects return level control and associated pan knob round out the bus strip. Possibly the coolest feature here is that the bus section can be soloed at the main outputs, and its level controlled with a dedicated knob.

On the back panel, each channel has mic and line inputs, a line-level direct output, an insert jack, and a monitor input. For the bus section, there are inserts, outputs, and monitor returns for each bus. The bus section also has stereo effects returns for each bus, which can be used as 16 extra inputs on mixdown. The master section allows for two sets of monitors to be connected, and it has main L/R stereo insert points in addition to 2-track return jacks and main outputs.

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In each case, I had to crank the gain considerably more on the ATB than on the other board's preamp. This was even more pronounced when the comparison was with a preamp on an RME Fireface 800. Similarly, the outputs at every stage had noticeably less maximum output level than at similar stages on my Ghost; this applied to the channel direct outs, the individual bus outs, and the summed line and monitor outs. There wasn't any more noise on the ATB when I matched levels between it and the Ghost (though its THD spec is an order of magnitude greater than that of the Ghost or the Mackie), but the discrepancy was, at the very least, peculiar. Also, when listening to the channel's line input, the same gain knob is used to adjust input level: there is no separate "tape trim" knob, as is found on some consoles.

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Perhaps most important for the long haul of ownership, the ATB's modular construction allows 8-channel sections to be removed easily from the top of the unit, and ribbon cables aid further disconnection. Similar consoles are much more unforgiving in the event of a breakdown. Active components such as ICs are socketed for easy replacement (or even upgrade with different ICs of compatible spec), while passive components such as resistors and capacitors are through-hole rather than surface mounted, which makes the ATB infinitely more serviceable should a component fail or fall outside of specification over time. Instead of requiring the replacement of an entire channel strip, the failed component can be removed easily and a new one soldered into place.

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 ATB 24, \$5,099.99 (street)  
 ATB 32, \$6,499.99 (street)

FEATURES	5
EASE OF USE	4
AUDIO QUALITY	4
VALUE	4

#### RATING PRODUCTS FROM 1 TO 5

**PROS:** Comprehensive in both functionality and user adjustment. Great-sounding preamps. Modular construction. Excellent build quality. Power supply cooled silently—no fan noise. Sweet-sounding EQ.

**CONS:** Overly compact bus section. Some output levels lower than expected. No Q controls on low- and high-mid EQ bands.

**MANUFACTURER**  
 Toft Audio Designs  
 www.toftaudio.com



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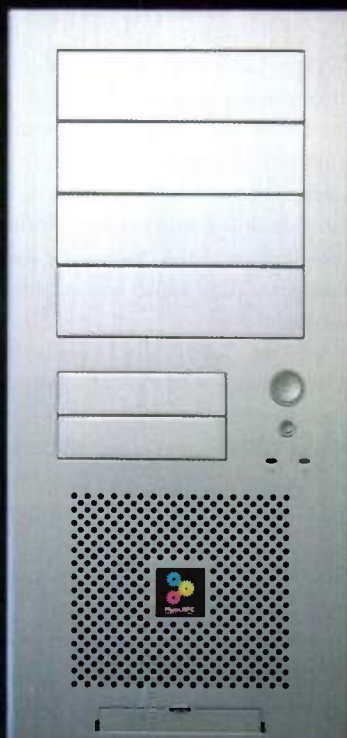
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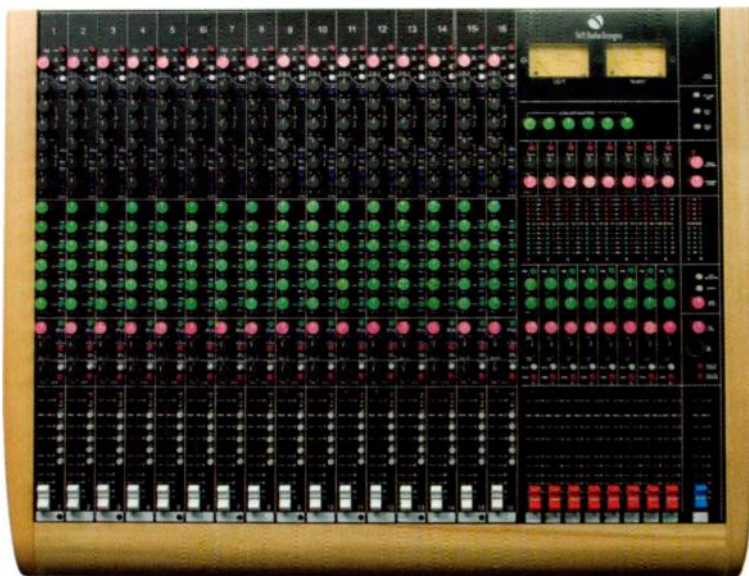
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- Recovery Software
- Extremely Quiet
- Tweaked for Music



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FIG. 1: The ATB Series mixers come in three configurations: 16, 24, and 32 channel. The 16-channel model is shown here.



## TOFT AUDIO DESIGNS

ATB Series

See Product Specs  
@emusician.com

### Compact mixers in a class by themselves.

By Rich Wells

**M**alcolm Toft has played an integral role in the creation of a number of important and interesting products over the last 40 years. He's best known as the founder and chief design engineer of Trident Audio, the manufacturer of legendary consoles such as the A Range and the 80B. He later designed another large-format analog desk, the now-defunct MTA 980 series, along with some rackmount gear, all of which was reminiscent of his most famous products.

His latest venture, Toft Audio Designs, has produced a board that is unique in the current audio market. The ultracompact ATB Series 8-bus console is available in 16-, 24-, and 32-channel configurations, which are identical featurewise except for the number of input channels. Its feature set is topflight, and its footprint is remarkably small considering its comprehensive functionality. I reviewed the 16-channel ATB 16 (see Fig. 1).

When it comes to low-cost, compact analog mixing boards, the 800-pound gorilla is the Mackie 8-Bus, along with the competitors that were quick to capitalize on its success. However, the ATB Series consoles are more closely aligned with the long-discontinued Soundcraft Ghost, a console that offered more channel strip and

routing features than the Mackie does and had optional MIDI-based functions. Although the Toft mixer currently doesn't have MIDI or digital I/O, it does have a slot for a MIDI/digital I/O card, which should be available sometime in 2008. The ATB Series mixers set themselves apart from pretty much any other product in their price range in several aspects of their design, avoiding issues that have compromised other low-end consoles.

#### Cruising the Strip

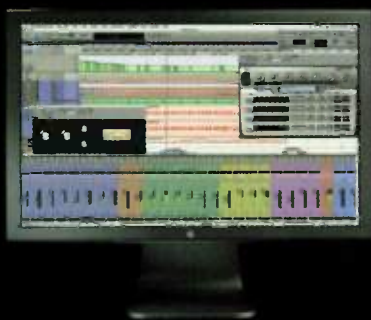
I'll begin with a look at a single channel strip (see Fig. 2). Starting at the top, in the mic-pre section, you'll find buttons for +48V phantom power, input/monitor selection, line-level input selection, and phase reverse. An input gain knob provides 6 to 65 dB gain at the mic input. Next up is the EQ section, featuring four bands that each provide  $\pm 15$  dB boost and cut. The high-frequency shelving filter can be set at either 8 or 12 kHz. High- and low-mid EQs can be swept from 1 to 15 kHz and from 100 Hz to 1.5 kHz, respectively. A low-frequency filter can be set at 60 or 120 Hz. There is a button to engage an 80 Hz highpass filter, and another to turn the EQ on or off.

Below the EQ controls are six aux sends; aux 1 is pre-fader, while auxes 2 through 6 can be switched between





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**MANUFACTURER**  
 Toft Audio Designs  
[www.toftaudio.com](http://www.toftaudio.com)



## ATB: All the Best

The ATB is a powerful mixer in a relatively small package. It has several features that I have encountered only on much more expensive mixers. Its small footprint does come at a slight ergonomic cost, as the knobs in the bus section are situated extremely close together. But it's not as if that's a high-traffic area of the board, and overall it's a small price to pay for all the benefits you get. There are a few other curious things, most notably the relatively low output level from the direct, bus, and main outs. Also, the cord that connects the mixer to its power supply is shorter than I would have expected. (Because the power supply is silent, this isn't quite as big an issue as it might otherwise be, because power-supply placement won't be as critical.)

But all in all, the ATB is built better from the ground up than anything else in its price range—its preamps and summing amplifier sound just fine. The EQ has lots of flexibility and is better than anything I've heard in a similar type of mixer (at least in those on the market now; the Ghost was close but it's no longer available new). Importantly, the ATB mixers are more readily serviceable than other mixers currently in their class. (As long as Toft has manufactured plenty of extra parts, that is—the way console manufacturers and models come and go, you never know how long the ATB will be



CHUCK DASHNER

FIG. 2: A look at the controls that make up an ATB Series mixer's channel strip: (A) the preamp and EQ sections; (B) the aux and monitor sends; and (C) the fader and pan knob and the mute, solo, and bus assign switches.

in production.) The ATB Series mixers deliver, and I'm sure anybody who purchases one will agree.

Rich Wells runs the *Supreme Reality* (<http://thesupremereality.org>), a recording studio in Portland, Oregon.

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Master Engineer Series

# JOE BARRESI

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FIG. 1: The Dexter control surface sits neatly on your desktop, giving you hands-on control of all mixing and plug-in effects parameters.

## JAZZMUTANT Dexter (Mac/Win)

See Product Specs  
@emusician.com

### The ultimate control surface?

By Len Sasso

When JazzMutant introduced its Lemur multitouch graphical control surface, the typical reaction was shock and awe. The eye-popping price was shocking, and the look, feel, and function were awe inspiring. The company's second offering, Dexter, follows in the Lemur's footsteps. Upon learning the price was \$3,299, my first reaction was, Wow, that'll buy you a high-end computer and a lot of software. On the other hand, this is one impressive piece of gear, and by the time you read this, JazzMutant will probably have released a new version (free to Dexter owners) that allows the unit to toggle between the Dexter and Lemur software at the click of a button.

Unlike the Lemur, Dexter does not require you to design your own graphical interface, program its output, and set up your software to respond. It works right out of the box with the software it supports: Cakewalk Sonar and Steinberg Nuendo and Cubase on the PC, and Cubase and Apple Logic Pro on the Mac. The unit's 14.5 × 1.2 × 11.6-inch frame sits neatly on your desktop and is mostly taken up by a 12-inch, 800 × 600-pixel screen

(see Fig. 1). Installing the hardware and ancillary software is quick and painless. For installation details, see the **online bonus material** at [www.emusician.com](http://www.emusician.com).



### Mix Master

Dexter's controls are spread across four pages: Mixer, Equalizer, Insert, and Surround. A fifth page, Channel Edit, gives you more-compact access to all parameters for a single channel. All pages share a navigation bar across the top containing transport, bank-select, and group buttons. Names for the eight tracks in the current bank appear below the navigation bar and are used on most pages to change the track targeted by the page. The unit picks up the track names automatically from your sequencer.

The Mixer page is selected by default when you power up the unit, and it is the page that gets the most use. Channel strips for eight tracks are arranged side by side in standard mixer fashion with an outsized fader at the right that is always linked to the master output. Next to each channel fader, you'll find color-coded mute, solo, and record-arming buttons. Automation read and write buttons are below those. A simplified view that suppresses the button display is convenient when you're concentrating on mixing. All buttons are toggles, and a channel's mute, solo, or armed status is indicated by the channel's background color, which is the only indicator of the channel's status in the simplified view. If any channels are soloed, the mute buttons of all unsoloed channels flash; that is especially helpful if the soloed channels are in other banks.



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You can assign each channel strip to one or more of eight display groups. When group display is active, only the channel strips in the group are visible, but the controls for each channel remain independent. Group display is almost essential for projects with a large number of tracks, and the one downside of this implementation is that group setups don't persist between sessions.

In addition to manual grouping, mute, solo, and arm buttons in the navigation bar toggle the display to show only the corresponding channels. In the simplified view, those buttons appear in the master channel strip, and they toggle the status of all displayed channels.

Although the channel faders are nearly four inches long and have fairly precise resolution, JazzMutant goes a step further. Zoom buttons and a Zoom slider on the master strip change the resolution of all channel faders, allowing extremely precise adjustment. Buttons that at first glance look like pan knobs toggle the channel faders between level and pan adjustment, allowing the same precision in setting pan position.

It does take a few minutes to adapt to using the onscreen faders. You need to apply a slight bit of pressure and use as small a contact point as possible—fingertips or fingernails are recommended, and JazzMutant claims that fingernails won't scratch the surface. The unit's multitouch sensitivity lets you move several faders simultaneously, but doing a 10-finger mix is an exercise worthy of Bartók.

However, you can easily manage two or three sliders at a time.

### Insert, Equalize, and Surround

Buttons at the top of each Mixer channel bring up Dexter's other pages. The Equalizer page displays an equalizer graphic with numbered circles that you move to set a band's frequency, bandwidth (Q), and level. The EQ configuration (the number of bands and their format) matches the sequencer's EQ options and current settings. You can scroll the display ver-



FIG. 2: You adjust the positions of eight channels at a time on the Surround page.

tically and horizontally to bring hidden bands into view, and as with the faders, the resolution is zoomable. You use handy x- and y-lock buttons to keep band frequencies or levels from being changed. A Q button toggles vertical adjustment between level and bandwidth.

The Insert page is a tabbed display with a tab for each plug-in effect inserted in the selected track. As on the Mixer page, faders for the effects parameters are arranged in banks of eight, and you use tabs and scroll buttons along the bottom to move between parameter banks. On the Insert page, the controls for the master channel are replaced by the mixing controls for the selected channel. Bus send buttons, which work in the same way as the pan button, appear there as well.

Adjusting surround panorama has never been so easy. Tracks are adjusted in banks of eight, and they are represented as colored balls on a grid of concentric circles representing the surround field (see Fig. 2). You can drag the balls to any position or use handy mode buttons to move all balls simultaneously. In Rotate mode, you drag anywhere on the display to rotate all balls around the center. In Distance mode, you place two fingers on the display and then move them farther apart or closer together to move all balls away from or toward the center. Finally, each ball has Angle Lock, Distance Lock, and Solo buttons. Rotate and Distance modes honor a ball's locked status.

### Everything at Your Fingertips

The Mixer and Surround pages give you access to eight tracks at a time. The Equalizer and Insert pages give you maximum resolution for a single track. But when you want the most information about a single track, the Channel Edit page is the place to turn (see Fig. 3). It gives you a compact, interactive view of a channel's EQ, surround, inserts, and mixer settings.

#### PRODUCT SUMMARY

### JAZZMUTANT Dexter

multitouch graphical control surface  
\$3,299

FEATURES	5
EASE OF USE	4
DOCUMENTATION	3
VALUE	3

RATING PRODUCTS FROM 1 TO 5

PROS: Easy to set up. Instant access to all mixing parameters. Great eye candy.

CONS: Expensive. Multitouch control takes some practice.

#### MANUFACTURER

JazzMutant  
www.jazzmutant.com



The Channel Edit page's Equalizer section is a shrunken version of the full Equalizer page. The Surround section lets you adjust the ball for that channel. The Insert section is a little different; it gives you access to two plug-in parameters at a time, which you adjust on an x-y grid. You use a small scroll button at the right to select which two parameters are affected, and you can freeze either the x- or y-dimension to adjust a single parameter. The channel strip at the far right gives you a giant fader for the channel level or pan position along with the eight bus send buttons described previously.

If what you've read so far has you thinking of the Apple iPhone or Microsoft Surface, the comparison is apt. JazzMutant has made a terrific effort to place flexible graphical control of all aspects of mixing at your fingertips. The obvious question is, How does it compare with a physical control surface such as the Mackie Control Universal? Graphically, it is a great advance—the controls you manipulate clearly reflect what you're changing. For surround mixing and equalization, it is particularly nice. For functions that incorporate onscreen faders—mixing, plug-in programming, and automation—the edge probably goes to having motorized faders with good-quality LCD labels. Still, if Dexter is in your budget and your

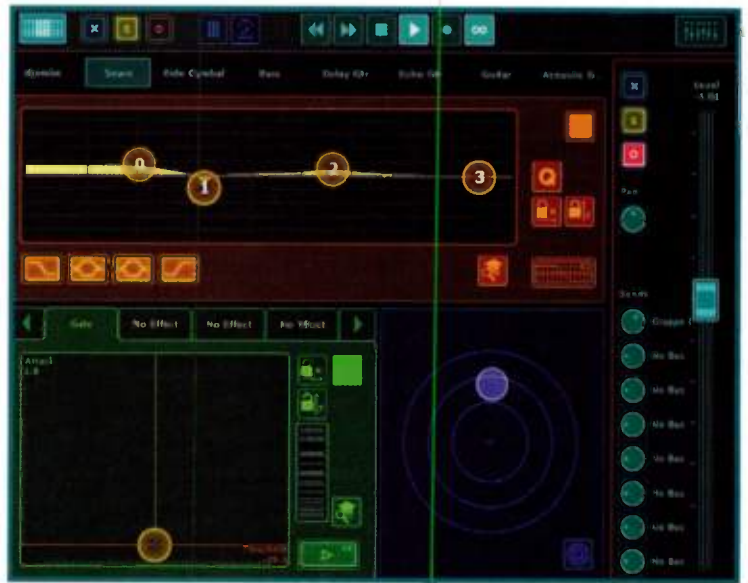


FIG. 3: The Channel Edit page puts compact versions of all channel controls at your fingertips.

sequencer supports it, the wow factor is undeniable.

*Len Sasso is an associate editor of EM. For an earful, visit his Web site at [www.swiftkick.com](http://www.swiftkick.com).*

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## LINE 6

### Pocket POD

By Mike Levine

Line 6's Pocket POD (\$129.99) is a hardware-based guitar modeler that has the distinctive red color and kidney shape of its POD predecessors but is only about one-third as big. Despite its size, it is no slouch in the sound department. The Pocket POD offers the same model set as Line 6's POD 2.0. Its combination of price, sound, and size makes it perfect to throw in your guitar case when you don't want to schlep your full rig around.

#### The Skinny

Because the Pocket POD is so small (it measures roughly 5.5 x 3.5 x 1.5 inches), Line 6 wisely kept the number of knobs and buttons to a minimum but gave them each multiple functions. For example, there are four knobs on the unit, and each does double duty. Pressing the Save button while turning a knob enables its alternate function. From left to right, the knobs edit Drive/Bass, Effects (level or speed)/Mid, Delay/Treble, and Channel Volume/Reverb, respectively. You get a Tap tempo button that also accesses the tuner (which

you can set for silent operation), and a 4-way navigation button at the top left, which changes different parameters or functions depending on which of its four sides you press. I initially found this button to be counterintuitive, and after testing the unit over the course of several weeks, I still don't feel entirely comfortable with it.

The display is a small but useful 1-line LCD. Its backlight comes on when you're making a parameter change, but after a few seconds it shuts back off to save power. The Pocket POD is so light that it slides around a tabletop or desk from the slightest tug on the cables plugged into it. It does come with a belt clip, which allows you to use the unit live without it moving around.

The back panel is equipped with a ¼-inch guitar input, a ¼-inch mono Amp output, a jack for the optional DC-1 power adapter (\$14.95), an ¼-inch stereo Direct Out/Phones output, and an ¼-inch stereo jack for plugging in CD or MP3 players. Unlike with other PODs, there's no input for plugging in a foot controller.

Out of the box, the Amp output is set to be used with an open-backed guitar amp, so the cabinet simulator on the Pocket POD is disabled. You can change

the output for use with a close-backed amp or cabinet, with a power amp (with either close- or open-backed cabinets), or as a DI, with the cabinet simulator on.

Not all of the Pocket POD's patch parameters can be edited from the front panel. However, you can access them all by connecting the unit's mini USB port to a computer using the included cable, and editing with Psicraft's Vyzex editor-librarian

software for Mac or Windows (available as a free download). Vyzex has a nice graphic display, replete with virtual knobs and switches, and lets you easily set up and edit patches and send them between the unit and the computer. Each patch can have an amp model, cabinet model, preamp EQ and drive settings, reverb, compressor or modulation effect (chorus, flanger, tremolo, rotary speaker) or Swell effect, and a delay.

The Pocket POD's USB capabilities are for patch data only. You can't output audio through USB, nor does USB power the unit. Power comes from four AAA batteries, making it the only battery-powered POD that Line 6 makes. According to the company, typical battery life is about four to six hours.

#### The Phat

I was impressed with the sound of this unit for direct recording (see **Web Clip 1**). I found its tones to be warm and generally quite usable. You get more than 300 presets, which are organized into 3 major categories: Style, User, and Band. The latter consists of presets programmed by guitarists from a variety of contemporary bands, including P.O.D., Hoobastank, Maroon 5, Hawthorne Heights, and many more. Some of these sounds correspond to particular songs, while others are more generic. The Style heading has several subcategories, including one called Song, which consists of factory presets designed to sound like guitar tones from a range of (mostly classic) rock songs. Many of these are quite impressive and succeed in capturing the essence of the well-known guitar tones they emulate.

All in all, the Pocket POD offers a lot of bang for the buck. If you don't mind editing your tones using your computer, you can have much of the power of the POD 2.0 in a highly portable unit for about \$70 less.



**Value (1 through 5): 4**

Line 6  
[www.line6.com](http://www.line6.com)



Though small enough to fit in a guitar-case pocket, the Pocket POD offers the same model set as the full-size POD 2.0.



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## DIGIDESIGN

**Velvet** (Mac/Win)

By Tony DiLorenzo

Because I learned to play on a Rhodes Suitcase 73, I was thrilled to hear that Digidesign had developed an electromechanical piano plug-in. By combining high sampling rates and sophisticated modeling technologies, the company's Advanced Instrument Research group has made Velvet (\$249) one of the most realistic virtual electric pianos I've heard. This RTAS plug-in accurately emulates the Rhodes Suitcase 73, Rhodes Mark I and Mark II, and Wurlitzer A200. To successfully capture the personalities of these electromechanical pianos, the development team paid strict attention to their individual characters and idiosyncrasies, resulting in a software emulation that sounds remarkably authentic.

**The Real Thing**

I used Velvet with a Digidesign 002 and Pro Tools LE 7.3.1 on a dual-processor Power Mac G5. Installation went without incident. Digidesign sampled some prime specimens of Rhodes and Wurlitzer pianos and captured every quirk and nuance.

As soon as I played the first preset, it was instantly apparent that Velvet sounded surprisingly like the real deal.

Exclusively for Pro Tools users, Digidesign Velvet delivers realistic samples of a Wurlitzer and three Fender Rhodes electric pianos.

The original Rhodes and Wurlitzer pianos

were very straightforward but were limited in their tweakability. Velvet's user interface lets you customize the piano sound, and programming could not be simpler. If you just want to install Velvet and start making music right away, the plug-in ships with some of the most convincing electric piano presets I've heard from any software instrument.

Velvet's Model Selector allows you to choose from four piano models: SC73, MK.I, MK.II, and A200, each with 50 presets. The Wurlitzer A200 has a range of A0 through C6, whereas the Rhodes pianos have a range of E0 through E6. A Key Extension switch lets you access notes beyond the default ranges.

**It's a Setup**

Although the plug-in's interface resembles the original pianos' front panels, it offers additional parameters for tailoring the sound's character. The Mechanics settings let you enable the kinds of mechanical noises a vintage piano would make, even re-creating the sound of a piano with its lid removed. Likewise, Key Off triggers the sound of releasing the keys and provides a Staccato setting. The Pickup Level knob controls the amount of signal coming from the piano's pickup. You can turn it down if you want to blend in more mechanical noise. The Condition knob ages the pianos virtually by simulating the tuning and dynamics issues present in older

instruments needing maintenance; it ranges from Mint to Bad.

As with a real Rhodes, the timbre of the Rhodes models changes drastically depending on how hard you play. Play softly and you'll hear a mellow tone; strike hard and the timbre will burst out at you. The Timbre, Velocity Response, and 4-slider Velocity Curve functions let you control how Velvet responds to your playing. The Timbre knob works in conjunction with the two Velocity Response knobs. Additionally, the Memory selection switch lets you conserve memory by determining how much data will load for each piano; your choices are Eco, Mid, and XXL.

Velvet's tremolo model is based on the original tremolo that was standard on the Wurlitzer A200 and Rhodes Suitcase pianos, but its onboard signal processing goes way beyond tremolo. The preamp section features a single-knob compressor, tube drive, and an equalizer with Bass and Treble knobs and a parametric mid band. Mono and stereo delay effects simulate tape echo (with a maximum 2-second delay) and supply knobs that control Time, Feedback, Tone, and Mix. Other effects include three types of distortion, footpedal-controlled wah, and chorus, flanger, and phaser modulation in mono or stereo. You can also choose from three cabinet models with 3-band EQ and Ambience controls.

**Always en Vogue**

By now, it must be obvious that Velvet impressed me in a big way. Its user interface is a breeze to navigate, and the onboard signal processing and effects are perfect for spicing up your sounds. Its presets are so convincing, you'd swear you're hearing the real thing. The raw pianos are modeled to perfection, and the ability to add the idiosyncrasies of the originals gives Velvet a huge advantage. If you want to add authentic-sounding electroacoustic piano to your bag of tricks, this plug-in is more than worthy of your consideration.

**Value (1 through 5): 5**

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## STUDIO PROJECTS

## CS5

By Karen Stackpole

To say that the Studio Projects CS5 (\$1,149.99 [MSRP]) is a full-featured microphone would be an understatement. This hefty large-diaphragm condenser mic offers five selectable polar patterns (cardioid, wide cardioid, hypercardioid, omnidirectional, and figure-8) as well as four pads (-5, -10, -15, and -20 dB), four lowpass filters (3, 5, 7, and 15 kHz at 6 dB per octave), and four highpass filters (50, 75, 150, and 300 Hz at 6 dB per octave). The pickup patterns, pads, and filters are selected

with thumbwheels positioned around the top of the mic's body. This array of options, together with the ability to handle SPLs up to 136 dB without a pad, makes the CS5 a true multiapplication tool for recording.

I received a pair of CS5s, each packaged in a foam-lined aluminum carrying case along with a wind-screen and a halo-type shockmount. The stand-adaptor can be screwed onto either the top or bottom of the mount, allowing you to easily position the CS5 as needed. The mount is sturdy and can handle the weight of the mic (1.7 pounds) without drooping.

**Studio Scene**

I put the CS5 through its paces while recording the upcoming release for engineer Steve Orlando's band, the Jingle Punx. During these sessions, the CS5 was

used to capture male and female vocals, electric guitars, trumpet, and drum set. I also used it to reamplify vocals, drums, and guitar solos.

For heavily distorted electric guitar, I set the mic to cardioid, engaged the -10 dB pad, and placed it as close to the amp grille as possible. Orlando switched in the 50 Hz highpass filter and the 15 kHz lowpass filter to help clean up a somewhat mucky aspect of the sound and tame the bright overtones. The resulting sound was full and chunky. The CS5 also performed well as overheads and as room mics on drum set, sounding bright and clear with plenty of detail and fullness, especially on the toms. This mic is relatively flat in the midrange, and with the help of the onboard filters, there was no need to add EQ while tracking.

On a female vocalist with a mellow voice, the CS5 sounded clear and smooth. However, it wasn't particularly flattering on a male singer with a harsh-sounding voice: it accentuated his voice's high, nasal quality. The other male singer fared better because his voice was less harsh, and its gravelly timbre was well represented by the CS5.

The Studio Projects mic sounded nice on trumpet. I placed the CS5 about two and a half inches from the bell with the 7 kHz lowpass filter engaged. Without the lowpass filter selected, the sound was too bright. With this setting, however, the CS5 took on the darker quality of a ribbon mic. Orlando compared it favorably to the Cascade Microphones Fat Head, one of his favorite ribbon mics, saying that while the Fat Head had a bit more fullness in the low end, the highs (with the CS5's 7 kHz rolloff engaged) were fairly similar.

For reamplifying vocals, drums, and guitars, the CS5s were set up in an ORTF arrangement at a height of 7 feet and placed 35 feet away from a Crate P.A. system. The mics were angled up at the ceiling, with the wide cardioid pattern selected on each. The 75 Hz highpass filters also were engaged to remove low-end rumble. With their relatively flat frequency response, the mics worked well in this application

because they didn't add unwanted color to the sound.

**Swiss Army Mic**

The CS5 can be tailored to suit a variety of sound sources and high-volume situations. With its array of selectable patterns, pads, and filters, not to mention a street price of around \$850, the CS5 offers maximum versatility at a reasonable cost. What's not to like about that?

**Value (1 through 5): 4**

Studio Projects  
www.studioprojects.com

## IMAGE LINE SOFTWARE

**Morphine 1.3** (Mac/Win)

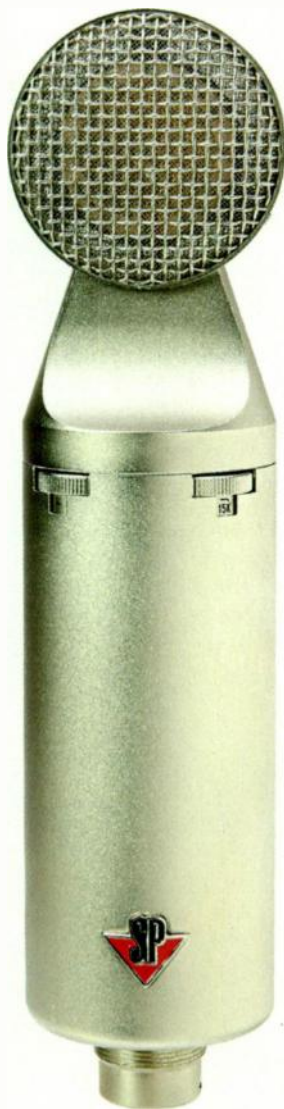
By Marty Cutler

Today's music-software offerings include a spate of additive synthesizers. Image Line has joined the fray by releasing Morphine (\$159, download only), which, like Camel Audio's Cameleon and VirSyn's Cube, is a hybrid of additive and subtractive techniques along with resynthesis tools (for more on additive synthesis, see the online bonus material at [www.emusician.com](http://www.emusician.com)).

Morphine offers spectral models for emulating acoustic instruments and can serve as a springboard for creating fresh new sounds out of familiar harmonic content. It relies on four Generators (roughly equivalent to oscillators) to play spectral models from its own supply or from user-supplied samples.

**Getting into Morphine**

Morphine runs standalone or as a VST 2.4 (Mac and PC) or AU (Mac) plug-in. Its intuitive layout includes the header panel, which holds global menus for polyphony, transposition, and other parameters on the top left and knobs for Glide amount, Velocity curves, and more on the top right. An array of bread-and-butter effects—chorus, delay, reverb, and equalizer—occupies the bottom panel. The upper and lower panels are constant fixtures throughout the other windows, so it's easy to audition edits unadorned by



The Studio Projects CS5 offers an astounding amount of control, with selectable pads, filters, and polar patterns.







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effects or make basic tweaks to envelopes, all without interrupting your work flow.

Rectangular buttons on the left panel provide access to the various edit pages in the center, where most of the in-depth programming occurs. The first button opens an intuitive but extensive modulation matrix: 12 sources and destinations appear in pull-down menus, each with a knob to dial in the desired amount of positive or negative modulation. Although modulation sources are comprehensive, Morphine's ability to map spectra to individual key zones makes a case for including Polyphonic Aftertouch.

Buttons for each of the four envelope generators appear in the lower right-hand corner. It's a breeze to build envelopes from breakpoints by clicking from left to right across the timeline. I built a complex, bipolar envelope that I used to detune harmonics on a second oscillator, creating pulsating, inharmonic frequencies (see [Web Clip 1](#)). Selecting a start and end point, I set a back-and-forth loop in the envelope (you can also choose forward or reverse directions and add a release loop).

The Rate knob is a nice feature: it expands or compresses the envelope's duration, and turning the knob provides instant visual feedback. Directly to its right are knobs for key or Velocity scaling of the rate, an especially important feature if you are emulating acoustic instruments.

The Morph/Mix button opens a center section hosting two main areas. The leftmost is a square, with each quadrant representing the maximum amplitude of each Generator; the center point represents an equal, balanced mix. I easily created complex morphing patterns by Option-clicking-and-dragging on the small white boxes in the square. In the right area, you can edit Generator pairs in more familiar horizontal envelopes, but I found the 4-quadrant panel conceptually easier.

The Noise SMP section provides access to factory-supplied sampled attacks. If you don't find something useful in the factory set, load your own. (I got more-interesting results by importing short rhythm loops; see [Web Clip 2](#).) Samples get their own multimode filter, mix, pan, tuning, Velocity, and loop settings.


Each Generator has an associated button that reveals its spectrum. Mouse over the partials to adjust amplitude, panning, detune, Velocity, and global volume. Editing partials one by one can get tedious, but mercifully, you can group partials by selecting from available options (even, odd, third, fourth, or fifth harmonics, or preset bandwidths surrounding the target frequency) found in the Tool pull-down menu. You can also jump from individual partials to group edits instantly.

You can load WAV or AIFF files in the Resynthesis section, which is found below the Generator buttons.

and acoustic instruments alike generated some truly awesome sounds.

### Bugs on Drugs

I had no operational problems when working with the plug-in versions, but Morphine in standalone mode had a few bugs. For example, I had to assign MIDI inputs every time I launched the application, so each time I wanted to switch from keyboard to MIDI guitar for input, I had to open the Settings window. Also, the Windows standalone was plagued by stuck notes. (Image Line says it is working on a fix.)

Morphine provides terrific tools for designing living, breathing sounds with elements of realism or hints of familiar but not easily discernible origin. It is capable of anything from samplelike emulations to animated, inharmonic, and cloudy soundscapes suitable for film. Morphine offers a streamlined path to the nitty-gritty of additive synthesis. I'm addicted. 

### Value (1 through 5): 4

Image Line Software  
www.image-line.com



Morphine's well-designed user interface lets you instantly access high- and low-level programming tasks quickly. The center work space shown here displays the modulation matrix and one of four envelope generators, but you can immediately access transposition parameters, Master Envelope settings, or overall gain in the top panel.

## NEURATRON

### PhotoScore Ultimate 5.5

(Mac/Win)

By Jim Aikin

When I heard that PhotoScore Ultimate (\$249) could read handwritten manuscript, I had to try it. Like many old-school musicians, I have piles of music written in pencil. When I perused the manual, though, I learned that PhotoScore's handwriting algorithm is intended to read freshly copied manuscript, not existing material. And even that process has some severe limitations.

If you need a program for simply scanning published sheet music into Sibelius—for transposing it to an easier key, for instance—PhotoScore is an excellent choice. Sibelius comes bundled with PhotoScore Lite, but PhotoScore Ultimate has many more features, such as the ability to read slurs, triplets, and grace notes.

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If you need a program for simply scanning published sheet music into Sibelius—for transposing it to an easier key, for instance—PhotoScore is an excellent choice. Sibelius comes bundled with PhotoScore Lite, but PhotoScore Ultimate has many more features, such as the ability to read slurs, triplets, and grace notes.



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**Easy Does It**

Setup was hassle-free. PhotoScore had no trouble communicating with my HP Officejet J5780 scanner. I chose a high-quality page for my first experiment: a cello part originally done in Finale.

Scanning took a couple of minutes, and PhotoScore needed another minute or two to interpret the data. The results were close to perfect—PhotoScore captured all the notes, accidentals, slurs, dynamics, staccato dots, and accent marks, though it did miss one down-bow mark and doesn't read bar numbers. If the spacing of the accents hadn't changed, I would have thought I was looking at the scan itself, not the resulting notation file.

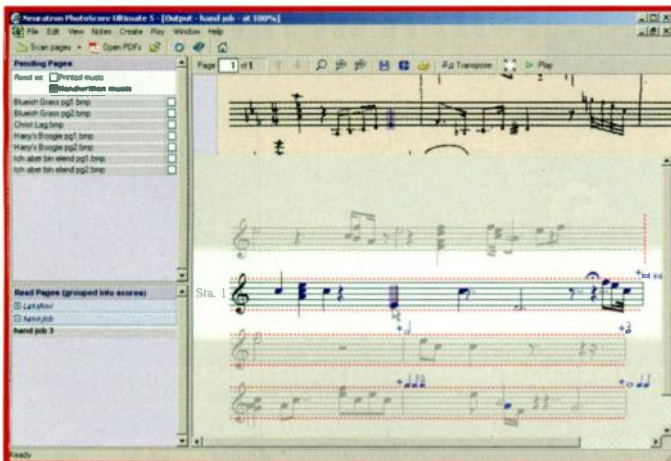
**Challenges**

The next page I tried, though still publication quality, threw a few curves at PhotoScore. It had penciled-in fingerings and bowings, bars that ran off the end of one staff and continued on the next, 3/4 time with triplets that weren't consistently marked with little 3s, and 16th-note pickups at two spots. The pencil marks were mostly ignored, though some were turned into random bits of clutter.

The manual advises fixing any rhythmic problems using PhotoScore's editing tools before exporting the notation file to Sibelius. When I tried exporting to Sibelius without doing that, the result

was a train wreck, so I went back and tried again. After I spent 10 or 15 minutes editing in PhotoScore,

The main window's top pane shows a scanned portion of my handwritten score. The area below is PhotoScore Ultimate's attempt to interpret it. The two bars contain six or seven mistakes.



Sibelius read the file with reasonable fidelity, though one entire bar (visible in PhotoScore) near the end of the page mysteriously vanished, along with two notes in an earlier bar. The transcription needed another half hour of editing in Sibelius to deal with incorrect accidentals and numerous slurs that crossed over notes and stems. Being reasonably proficient with Sibelius, I could have created the same page from scratch just as fast, without the fussy process of hunting for glitches.

**The Acid Test**

Neuratron provides guidelines for writing a score that PhotoScore will read more accurately, but they're quite restrictive. The company recommends using a pen rather than a pencil. Because mistakes are inevitable with a pen, I was relieved to find that PhotoScore ignores notes that have been crossed out.

The program recognizes handwritten notes and rests, including dotted and double-dotted rhythms. It also understands accidentals and slurs but not clefs, time signatures, or dynamics. Neuratron recommends using score paper of precise dimensions and supplies blank templates as PDF files you can print. PhotoScore had no trouble finding the staves on pages printed from templates.

In one test, PhotoScore correctly guessed that the music was in tenor clef (based on the sharp's position in the key signature). But when I tried some piano music in the key of B-flat, it missed a flat and consequently guessed that the lower staff was in tenor clef rather than bass.

In both tests, it assumed 4/4 time and arbitrarily dropped notes to make the bars come out right. Other rhythms were misinterpreted, and some chords were turned into single notes.

The whole point of transcribing by hand rather than using Sibelius's very fine input methods is that you should be able to sit with your instrument, relax, and just write. If you have to conform to restrictions such as using

a pen, ensuring that ledger lines are straight, leaving out symbols that won't be scanned and then adding them afterward, avoiding stems on the wrong side of note heads, ensuring that stems on eighth rests are long enough and beams aren't too curvy, and so on—then even if the process of scanning the manuscript worked far better than it does, I would never use it.

I hope Neuratron keeps working on its handwriting-recognition technology, because it could be a terrific boon to musicians someday. Unfortunately, however, I would be very surprised to see usable results anytime soon.

**Value (1 through 5): 2**

Neuratron (distributed by Sibelius)  
www.sibelius.com

**KEYTOSOUND**

**Nexsyn 1.1r11** (Mac/Win)

By Marty Cutler

KeyToSound's Nexsyn (\$339) is a software synth that combines sample playback with traditional synthesis techniques. It supports AU, VST, and RTAS on the Mac and VST and RTAS on Windows. A standalone version for both platforms is included.

Installation is simple, with a second, separate procedure to install the instrument's sample library. If you decide to move the sounds elsewhere, you can set the new path at any time. A challenge-and-response procedure is used for authorization, and KeyToSound generously allows you to authorize Nexsyn on up to three machines.

I installed Nexsyn on my dual 1.42 GHz Power Mac with 2 GB of RAM and Mac OS X 10.4.10. In addition to testing it as a standalone instrument, I hosted the synth in Ableton Live 6.0.3, MOTU Digital Performer 5.1.2, Apple Logic 7.1, and Steinberg Cubase 4.0.3. All tests were channeled through my MOTU 896 FireWire audio interface with version 1.4.4 driver software.

Unfortunately, I could never get the standalone version to work with my interface; everything sounded as if it





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were passing through a ring modulator (see **Web Clip 1**). Nexsyn has had similar problems with other FireWire interfaces, and an update has corrected this problem for Windows users. KeyToSound is aware that the problem persists for the Mac, and it is working on a solution.

**Nexsyn Administration**

Nexsyn mines the familiar territories of virtual analog and sample-playback synthesis; oscillators can generate standard

and band-limited waveforms or load proprietary XWM sample maps. However, its signal flow takes a somewhat different tack. Each oscillator furnishes discrete stereo signal paths, allowing them to be modulated and processed independently. In addition, you can configure two of the filters to process independent left and right channels or use them monophonically. A third filter sums the output of the first two. The instrument's modulation and processing capabilities

are considerable, with three stereo oscillators, and three multimode filters with bandpass, lowpass, and highpass modes and a variety of slopes.

Nexsyn's LFO setup is similarly well endowed, with a choice of a dozen possible waveforms, a multiplier for the rate that can take it into audio frequencies, and knobs for the waveform's attack, phase, and smoothing. Other handy sound-design amenities include amplitude and frequency modulation.

Nexsyn's neatly designed user interface keeps modules out of the way until you need them, at which point you can open them up with a single click. For example, you can invoke a filter's envelope generator (EG) with a click in the module section, and then set the typical cutoff, spread, and resonance settings. A click on the triangular Expert button lets you tie the envelope rates and amplitude to MIDI Note Number and Velocity, with knobs that can adjust those sources positively or negatively. You also get knobs to select predefined Attack, Decay, and Release slopes.

Although some modulation sources and destinations are hardwired, three pairs of modulation matrices offer up to two destinations and four sources for each pair. You can invoke as many or as few matrices as you need, and clicking on the small diamond for any module neatly tucks it away without obscuring the overall signal flow.

**The Nexsyn Library**

However capable its architecture may be, the success of an instrument can often hang on the quality of its presets. In that regard, Nexsyn is disappointing, either due to coarse envelope generator and modulation settings, obvious loops, or, in some cases, mediocre samples. Many samples—especially the violins and violin sections—are harsh and unpleasant, with overly prominent bowing noise in the upper registers.

Considering the synth's modulation capabilities, there is a surprising lack of depth or animation in many of the presets, particularly in pads, where a bit of sonic evolution would be welcome. A visual inspection of the pad and string-ensemble EGs showed almost organlike

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on-and-off settings, with predominantly linear slopes. Another quirk is that some Programs that are described as monophonic leads are, in fact, polyphonic.

A novel aspect of Nexsyn's design that could make up for the dearth of interesting presets is its direct access to a Web-based sound library created by registered users. Once you have set up an account, you can audition and download files directly from the synth's patch browser. When you contribute Programs, you earn credits to download the work of others, with the idea that this could foster a viable online library. I didn't have the time to audition all the patches, but a considerable random sampling revealed the same disappointing lack of subtlety and expression.

### Nexsyn Impeached

Nexsyn has significant barriers to overcome. Anyone with a FireWire audio interface will probably find the problems with the standalone version to be



KeyToSound Nexsyn lets you hide or reveal parameters as needed.

a deal breaker. And it is possible that few will see past Nexsyn's largely inelegant sound design to its true potential. However, there is much to appreciate about the instrument's capabilities, so keep an eye on KeyToSound's Web

site for fixes and future developments. **EM**



**Value (1 through 5): 1**  
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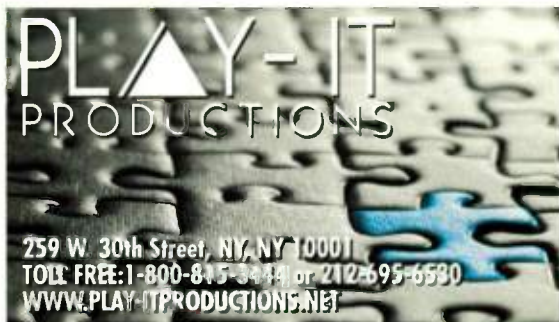
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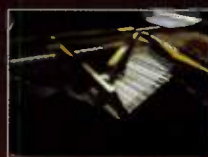


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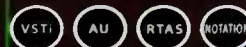
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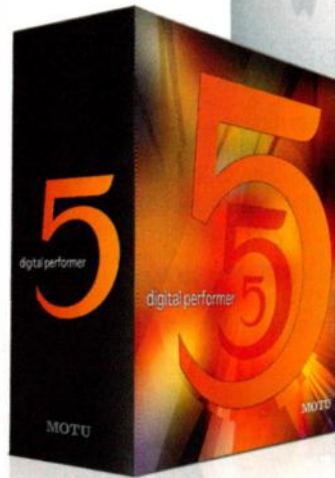
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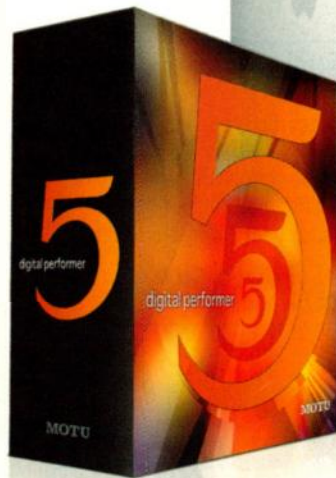
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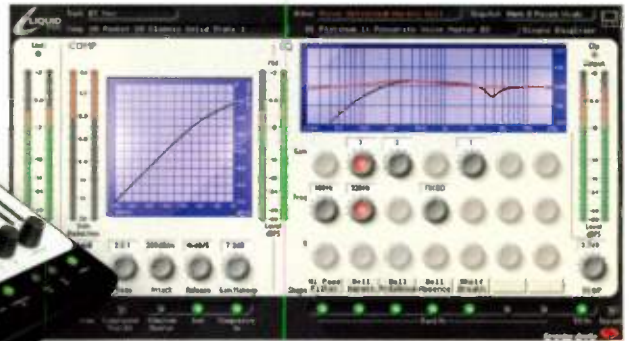
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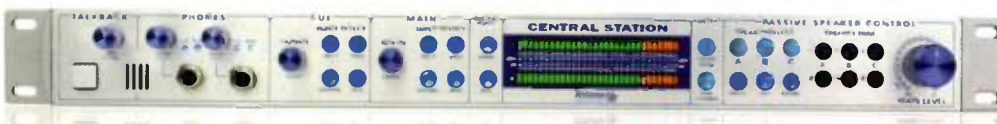
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# New Sense from Old Ideas

By Diane Gershuny

## An analog mind-set for Grace Basement's debut CD.

The creative spark comes in many ways. For renowned fiddler Kevin Buckley, it started innocently enough with a project recorded on a Tascam 424 mkII 4-track cassette machine in his parents' basement and ended up as *New Sense* (Dren Records, 2007), a full-length CD recorded in Adobe Audition that blended power pop and Americana rock and was released under the moniker Grace Basement. Buckley played all the instruments on the project.

In 2005 the family home in St. Louis was bought out by Lambert Airport for a runway expansion. After his parents moved out, Buckley squatted in the abandoned house—which had at that point become airport property—for three months while working on the recordings. He then found an apartment in the city and finished the CD there and at his parents' new house.

During the songwriting and preproduction phases, Buckley moved from the original 4-track cassette machine to a Tascam TSR-8 reel-to-reel. When that recorder died, he switched full-time to Adobe Audition, on which he recorded the CD's "keeper" tracks. "I'm not an analog snob, but I could hear a difference," he said of comparing the analog and computer-recorded tracks. "However, recording is also a matter of utility, so I opted to use the

computer. To make up for the potential loss in fidelity, I started collecting better outboard gear: a Sytek MPX-4Aii preamp; a couple of Shure SM57s, Oktava MC319s, and MK012s; and a Marshall MXL V69 tube mic,

### RIFFS

#### Grace Basement

Home base: St. Louis, Missouri

Multitracks used: Adobe Audition, Tascam TSR-8, Tascam 424 mkII

Favorite piece of gear: Sytek MPX-4Aii mic pre

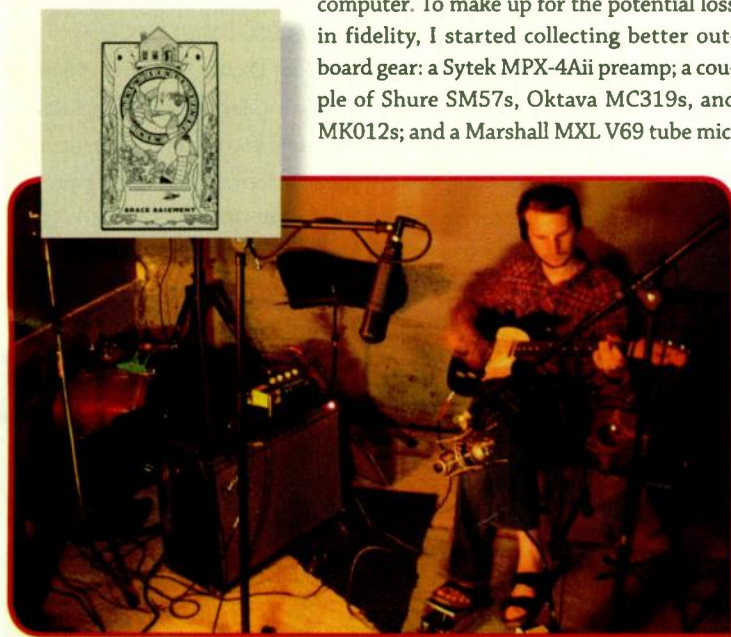
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the latter of which I tried to use on most things. The signal then ran through my Alesis Studio 24 [console] into my M-Audio Delta 1010 [sound card]—nothing to write home about, but good enough to record a rock record."

Once he'd switched to Audition, Buckley still tried to keep an analog mind-set. Most of the songs on *New Sense* are the original tracks, written and recorded spontaneously. "I didn't use any triggers or samples; all the instrumentation is live and fairly unprocessed—lots of doubling and panning techniques. 'Santa Fe' in particular is probably the best recording on the album. I started with a click track and an acoustic guitar and built it up from there. The only thing that comes close to sampling is at the end of 'She's a Dream,' where I used some mellotron samples to give the end a nice psychedelic swell. All the other strings I played myself, incorporating a 'fake string quartet' technique I've developed using two violins and two violas."

When he finished tracking, Buckley took the files to Matt DeWine at Pieholden Suite Sounds in Champaign, Illinois. The studio is owned by Jay Bennett (of Wilco fame) and houses a collection of vintage gear, much of which was used on Wilco's *Yankee Hotel Foxtrot* (Nonesuch, 2002). DeWine ran Buckley's multitrack files through an analog tape machine and selected analog outboard gear. "All that reamplification served to color and tighten up the sound and give the record a lot more warmth," says Buckley. "Matt and I both saw that process as another creative stage, besides just being a way to clean up the frequencies. When you record solo, it's easy to get lost in what you're doing. Having a second party is crucial for editing and creative input.

"I attempted to record with a certain level of integrity for the performances," Buckley says of the project overall. "It's important to put limits on yourself when technology allows you to do nearly everything." **EM**



KEVIN BUCKLEY

*New Sense*/Kevin Buckley in his studio.



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