

**RAID In Your Studio:**  
Data-saving hard-drive  
configuration tips

**Master Class: Getting  
the Most From BFD2**

**Success Tips for Your  
Next Vocal Session**

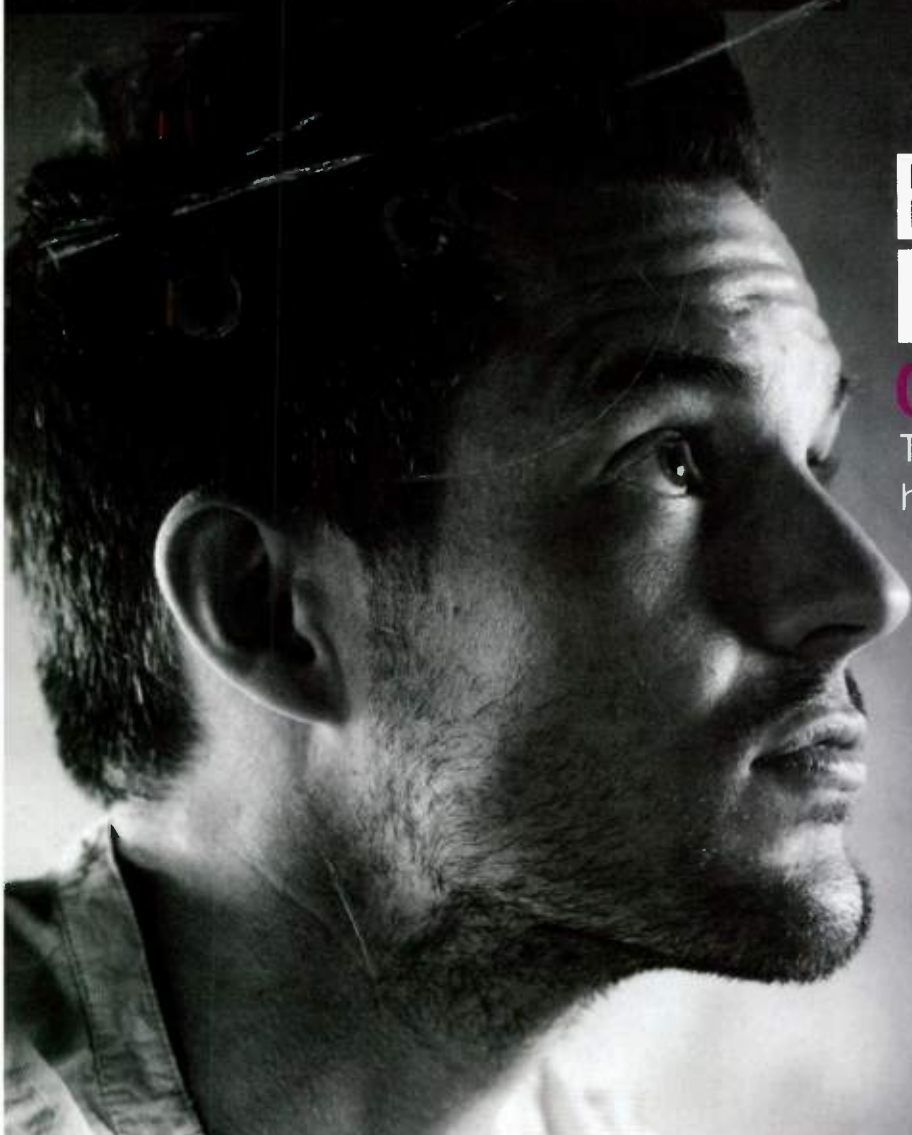
# em

ELECTRONIC MUSICIAN

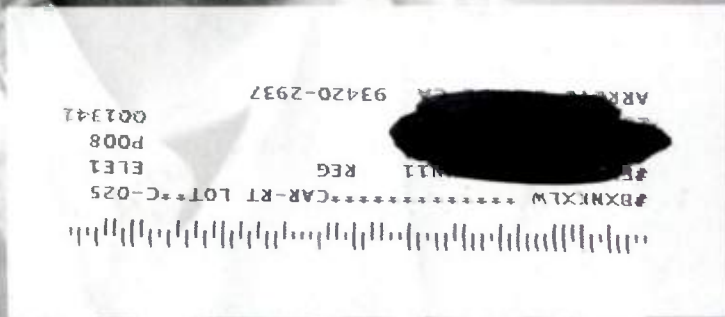
# BRANDON FLOWERS

**OF THE KILLERS**

Three top producers help  
him craft his solo debut



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FEATURES

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COVER STORY

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With the help of three producers—Daniel Lanois, Brendan O’Brien, and Stuart Price—The Killers lead singer Brandon Flowers recently completed his solo album, *Flamingo*, which will be released in mid-September. *EM* spoke to Flowers and his engineer, Robert Root, to get the lowdown on the production process, and the dynamics of having three top producers on a single project.

REVIEWS



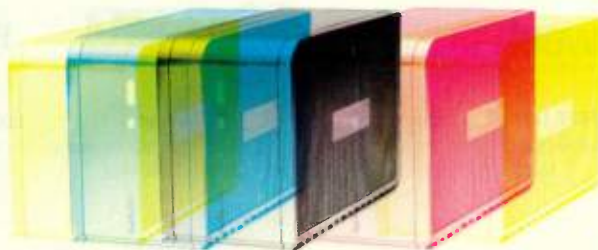
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# FIRST TAKE

## Pirates of the Net

I recently contacted a software manufacturer to ask him why his new product had been delayed, and he told me he had found out a hacker had cracked the code of the copy-protection system he used. He was afraid that if he released the software (which was otherwise ready to go), it was likely to be stolen and made available for download on one of the many sites that offer free software on the Web. If this happened, it could ruin the company, which, though successful, is hardly a corporate behemoth.

It got me thinking about the whole issue of cracked software, and how it's way more than just an annoyance to software developers. The reason that software companies have to employ the copy-protection schemes that we all



moan and groan about (some of which are truly byzantine) is that there are software pirates out there, ready to rip off their creations and sell them illegally or make them available for free.

Now I know some people out there think that there's nothing wrong with downloading a cracked plug-in, DAW, or soft synth. "It's not hurting anybody, and it's helping me," is how it's rationalized. The fact is, that is simply not the case.

There are significant downsides to downloading illegal software. First, you're hurting the developers and making it harder and more expensive for them to innovate, and to write and release new products. And in some cases, piracy could drive a developer out of business. Many music software companies are small operations, but even for the bigger ones, a lot of sweat, hard work, and company assets go into writing good, bug-free code. And using cracked software only makes it more expensive for the majority who pay for their software legitimately because developers have to spend money to license copy-protection systems.

What's more, having cracked software on your hard drive can make it difficult to install legitimately purchased software on that same drive. Even worse, those cracked-software download sites are surely not making the programs available out of the goodness of their hearts or to spread the ability to make music to the masses. They're run by shady operators in faraway and hard-to-get-at (from a legal standpoint) countries, and they frequently embed spyware, viruses, and other dangerous code into the cracked software. When you install a crack on your computer, you could be opening yourself up to a destruction of your data and identity theft.

The world of music technology is fueled by innovation, but the more that companies have to focus their resources on security, the less time, energy, and money is available for R&D and other product development. We want our music software to continue to get better and less expensive, so let's all do the right thing when it comes to cracked software: not use it.



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# FRONT PANEL

DOWNLOAD OF THE MONTH

## XILS LAB XILS 3 LE

By Len Sasso

**X**ILS 3 LE (Mac/Win, VST/AU/RTAS, \$30) is a low-cost version of XILS Lab's (xils-lab.com) flagship matrix-modular synthesizer XILS 3, a spiffed-up emulation of the classic EMS VCS 3. Except for its updated file browser and the use of password rather than dongle copy protection, LE is version 1 of the XILS 3. It's a great way to try out this unusual synth, and there is a no-penalty upgrade path to the full version in the likely event that you become hopelessly addicted. The full version has more connection possibilities, a more flexible step sequencer, some additional modules, and more presets, but the LE version is by no means underpowered, and the impressive collection of presets includes offerings from noted sound designers such as Kevin Lamb,

Chris Pitman, and Cliff Douse.

The XILS 3 LE has three oscillators with flexible waveform controls, a noise generator, and two inputs for external audio with associated envelope and transient followers, a pitch tracker, and a gate effect. There's a resonant 2-, 3-, or 4-pole lowpass filter and one envelope generator, which is switchable between trapezoid and standard ADSR shapes. A built-in joystick and robust MIDI Learn implementation give you plenty of real-time and automation options. Effects include ring modulation, chorus, reverb, and a tempo-synchable stereo delay.

The 128-step sequencer is especially noteworthy because it forces

you to rethink step sequencing. It is, in fact, three pairs of step sequencers. You can map each of these six sequencers to a variety of synth parameters including, of course, oscillator frequency. You can vary the output range and each step value. While programming is time-consuming, the possibilities are endless. For more details on XILS 3 and its history, check out Geary Yelton's soft synth roundup, "A Perfect 10," in the March 2010 issue of *EM*, available at [emusician.com](http://emusician.com). \*



### OPTION-CLICK



You can use Program 199 on the Korg Kaossilator Pro as a fifth track—and even merge it into the standard tracks.

## THE KAOSILATOR PRO'S SECRET FIFTH TRACK

Discover hidden features

The Korg Kaossilator Pro is a very cool 4-track loop recorder (see my "Quick Pick" review on p. 58). But unlike the original Kaossilator, it can't undo

overdubs. And unlike the Korg KP3, it can't bounce two tracks into one—unless you use this trick.

Record one to four loops and then

## THIS MONTH'S SOUNDTRACK

By Mike Levine

The following are some of the more noteworthy releases that came across my desk this month. Many of these albums are self-produced. Three of the five lean to the electronic side, while the other two represent two very different rock styles.



### **LAURA ESCUDÉ: POROROCA (AUTODIDACTIC)**

Escudé, an expert in Ableton Live, offers up a compelling set of compositions that skillfully blend electronic textures with her live violin and cello playing. DAW-wise, she used both Live and Apple Logic in the production process.



### **TRANCES ARC: TA (SLUSH FUND RECORDINGS)**

Melodic songs, hard-hitting rock instrumentation, a rough-edged sound, and plenty of energy all add up to a very impressive album from this Atlanta-based quartet. The band used kickstarter.com, an unusual creative-project funding website, to finance this record from fan donations.



### **REPOSE: AFTER THE EQUINOX (SOUNDSCAPE MEDIA)**

Repose is the baby of Canadian composer/producer Jason Greenberg, who has put together a self-produced collection of mostly instrumental music he classifies as "ambient chill-out indie electronica." Whatever you call it, it's very well done.



### **GOOD OLD WAR: GOOD OLD WAR (SARGENT HOUSE)**

In a bit of an odd twist, this is the Pennsylvania trio's second self-titled album. Musically, they fall on the folk side of indie rock, with high harmonies, jangly guitars, and very catchy songs.

### **VARIOUS ARTISTS: OUTER SPACES (RETRONYMS)**

This free EP was put together by software company Retronyms, and the prerequisite for the artists involved (Eskmo, Exillon, Jneiro Jarel, and Starkey) was that they had to use the company's iPhone music app, DopplerPad, in at least some part of their production. The result is four cool-sounding, electronic tracks.

switch to Program 199, Audio-Looper. This effect continuously samples the last four beats of audio arriving at the mic or line inputs. Press and hold the far right of the x-y pad, and you'll hear any external audio you just played, looping. Messed up? Lift your finger,

play again, and then touch the pad to capture your riff: It's instant undo, without stopping the music. To merge your new loop into one of the other tracks, just hold that track's button for the duration of the loop. —DAVID BATTINO, [BATMOSPHERE.COM](http://BATMOSPHERE.COM)

## THIS MONTH ON EMUSICIAN.COM



### **VIDEO// BRANDON FLOWERS**

Watch as The Killers frontman Brandon Flowers discusses recording the vocals for his solo effort *Flamingo*.

### **VIDEO// TRENTEMØLLER**

In this exclusive, EM TV interview, Danish electronic artist Trentemøller discusses the production of his recently released album, *The Great Wide Yonder*.



### **IN DEPTH// KORG KAOSILATOR PRO**

Get more details on the Kaossilator Pro, including reviewer David Battino's favorite sounds and a comparison of the Kaoss Pad with the iPad.



### **EM CAST// DEVO'S MARK MOTHERSBAUGH**

Get inside info on the recording of the new Devo album, *Something for Everybody*, and hear Mothersbaugh talk about his day job as a film/TV scorer.

# WHAT'S NEW

By George Petersen



## DAVE SMITH INSTRUMENTS

### MOPHO KEYBOARD

#### MO KEYS, MO FUN

Dave Smith Instruments' ([davesmithinstruments.com](http://davesmithinstruments.com)) Mopho desktop synth module (\$799) is now available as a full-sized, 32-note, semi-weighted keyboard version with velocity and aftertouch. This all-analog powerhouse features two oscillators, selectable 2/4-pole lowpass filter, two sub-octave generators, feedback, three envelope generators, four LFOs, onboard 16x4 step sequencer, USB interfacing, expression pedal/CV input, and MIDI I/O. It can process external audio through its filter and VCA sections. A free Mac/PC software editor is also offered.



## WHIRLWIND

### BYRDBOX

#### EIGHT MILE HIGH EFFECTS

Designed with famed guitar guru/author Andy Babiuk, the Whirlwind ([whirlwindusa.com](http://whirlwindusa.com)) ByrdBox (\$199) is a unique compressor/EQ pedal that provides the famous bell-like 12-string guitar sound and sustain heard on countless hit records. Usable with 6- or 12-string guitars, as well as bass, ByrdBox lets users dial in their own treble/bass settings or use the built-in Chime Boost preset to make solos jump out loud and clear.



## FXPANSION

### BFD ECO

#### BIG DRUM SOUNDS, LITTLE PRICE

Based on the award-winning BFD2 engine, BFD Eco (\$99) from FXpansion ([fxpansion.com](http://fxpansion.com)) is a streamlined software instrument for acoustic drums. Small in price but long on features, BFD Eco comes with a selection of the best BFD2 sounds (recorded at London's AIR Studios using high-end mics, a vintage Neve console, and state-of-the-art Prism converters) and is expandable with FXpansion and third-party add-ons. Some 40 presets provide great drum sounds in a hurry or dig in with 15 onboard effects (EQ, filtering, dynamics, drive, reverb, and more) and a groove section with 1,500 patterns, advanced humanization, and customizable keymaps to create your own personal sound. It's Mac- and PC-compatible, and it offers RTAS, AU, and VST support.



## BEST SERVICE

### GALAXY II K4

#### SIMPLY GRAND

The Best Service ([bestservice.de](http://bestservice.de)) Galaxy II (\$350) grand piano collection has been upgraded to Galaxy II K4, which includes the new Kontakt Player 4, a new user interface, new features, better performance, and additional samples. Version K4 has three grand pianos: the Vienna Grand (a Bösendorfer Imperial), the 1929 German Baby Grand (a Vintage Blüthner baby grand), and the Galaxy Steinway in stereo and 5.1 surround—more than 6,000 24-bit samples in all. The Mac/PC software can be used standalone or with VST, AU, RTAS, and DXi hosts.



## ROLAND

### LUCINA AX-09 SHOULDER SYNTH

#### STAND UP AND PLAY

The Lucina AX-09 (\$599) from Roland ([rolandus.com](http://rolandus.com)) is an ultralight synth designed for playing either in a standing position using a shoulder strap or in a traditional tabletop orientation. The unit has 37 velocity-sensitive keys, 128-voice polyphony, 150 onboard sounds ranging from synth leads to violin sounds, and 12 user-selected sounds can be assigned to a Favorites bank for instant access. Adding to the fun is a modulation bar and touch controller, and hands-free altering or morphing sounds by simply waving fingers over the D-Beam control. The Lucina AX-09 is offered in black sparkle or pearl white, and it runs on AC or up to four hours on eight NiMH AA batteries.

## NATIVE INSTRUMENTS

### SESSION STRINGS

#### STRING THINGS

Native Instruments Session Strings ([native-instruments.com](http://native-instruments.com); \$119) is a versatile, virtual string ensemble for Kontakt 4 and the free Kontakt Player.

The collection comprises four violins, three violas, two celli, and two double basses, captured by sampling expert Thomas Koritke, using rare 18th- and 19th-century instruments, played by musicians from top European orchestras. An Animator function can transform incoming notes into virtual staccato/spiccato/pizzicato chords and arpeggios, and a studio-grade convolution reverb provides realistic room ambiences. Also included are Motown versions, using special sonic treatment to recreate the distinctive vintage string sound of legendary '60s/'70s soul recordings.



## WAVE ALCHEMY

### DRUM MACHINES O2

#### RETURN OF THE (DRUM) BOXES

Offering more than 1,500 expertly recorded electronic drum samples, Drum Machines O2 (\$37) from Wave Alchemy ([wavealchemy.co.uk](http://wavealchemy.co.uk)) delves into the circuitry of the legendary TR-808 and TR-909, and lesser-known Drum Fire DF-2000 and MFB Schlagzwerk drum machines. Drum samples are captured using a unique, high-end signal chain to bring in the depth and character of the original devices, with further processing, editing, and sample layering that transforms these classic machines into the present for a "modern take on a classic sound." A taster pack of 170 samples from the collection is offered as a free download from Wave Alchemy's website.

## ZOOM

### H1

#### HIGH-RES, SMALL PACKAGE

The handheld H1 (\$99) recorder from Zoom ([zoomfx.com](http://zoomfx.com)) weighs just more than 2 ounces and has a newly designed user interface. The H1 records up to 24-bit/96kHz, and offers a track marker, auto-record, low-cut filter, and level and volume controls—all with onboard buttons and no menus. The H1 uses microSDHC memory cards (up to 32GB) for recording, providing more than 50 hours of recording time. A single AA battery provides up to 10 hours of continuous operation. An optional accessory kit (\$24.99) includes a windscreens, AC adapter, USB cable, adjustable tripod stand, carry pouch, and mic clip adapter.



## POWERFX FAIRLIGHT CMI REFILLS

PowerFX ([powerfx.com](http://powerfx.com)) has teamed up with Propellerhead Reason guru/sound designer Patrick Fridh to bring the classic Fairlight CMI to your desktop. The 644MB Fairlight CMI Legacy ReFill for Reason (\$69, download) begins with samples recorded from a mint-condition Fairlight IIx and its original 33-disk sample library. The ReFill expands on the original sounds, which are provided

as both sample data and NN-XT sampler instruments. Additional Combiator patches make liberal use of Reason's complement of effects (see **Web Clip 1**).

The library is topped off with Redrum patches sampled from classic drum machines by Roland, Korg, Linn, and Sequential Circuits, along with '80s-style synth patches for Reason synths Malström, Subtractor, and Thor. Free updates in the Fairlight CMI Supremacy Refill regularly add new material.

One of the first sampling synthesizers, the Fairlight CMI (Computer Musical Instrument) was designed in 1979 by Peter Vogel and Kim Ryrie. It was used by many popular groups of the '80s, including Vince Clarke, Peter Dinklage, and Art of Noise. Vogel, now head of Fairlight Instruments and working on a new CMI Series, has officially approved the ReFill.

## SAMPLE LOGIC/ABLETON ACOUSTIX

Acoustix (\$99, 760MB download) is one of the first releases in the Ableton Partner series of sound libraries such for Ableton ([ableton.com](http://ableton.com)) DAWs as Live 8, Suite 8, and Live Intro. Described by developer Sample Logic ([samplelogic.com](http://samplelogic.com)) as a toolkit of morphed acoustic



instruments, percussives, and atmospheric soundscapes, the library leans toward the cinematic, but you'll find lots here to add drama to tracks and performances in any genre (see **Web Clip 2**). Many of the 63 percussion audio loops have a decidedly ethnic flavor, and each is sliced into a matching Drum rack with a MIDI loop to replicate the original audio loop. The 207 Instrument racks are classified as atmospheres, ensembles, melodics, and percussives. Fourteen Live sets, called construction kits, combine several instruments and clips as convenient starting points for composition or performance. All instruments and clips have accompanying effects racks with pre-mapped Macro knobs for easy automation and MIDI control. You'll find demos on both the Ableton and Sample Logic websites.

## SONY CREATIVE SOFTWARE CONTINENTAL DRIFT: WORLD MUSIC LOOPS & SAMPLES

Continental Drift: World Music Loops & Samples (\$69.95, CD-ROM) is an assemblage of studio-recorded African, Arabic, Asian, Celtic, East Indian, Native American, and Ukrainian Gypsy percussion, pitched instruments, and vocals. Veteran sample-library producer Paul Vnuk recorded all the samples in his Wisconsin studio and laboriously processed them with hardware emulations of vintage console gear. The instruments were recorded separately, but the loops have an ensemble feel, owing to consistent miking and processing. The loops and one-shots were assembled and tweaked in Sony Acid Pro

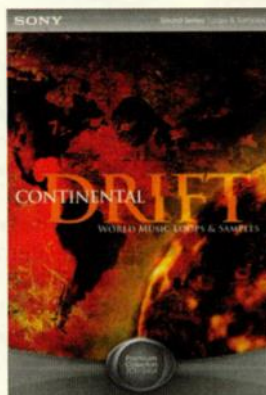
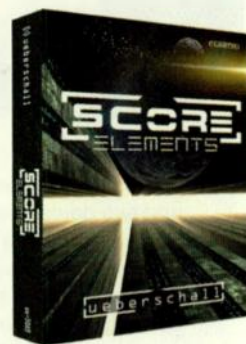
and Sound Forge, making it easy to adapt them to varying tempos and keys. Acid Pro users will find five song construction kits fashioned from loops in the library, and the individual stems are collected into song folders to get you started in other DAWs. Although from diverse cultures, the 469 (969MB) 24-bit, 44.1kHz loops and samples mix and match well (see **Web Clip 3**). You'll find demo songs and a few loops to try out at the Sony Creative Software website, [sonycreativesoftware.com](http://sonycreativesoftware.com).

## UEBERSCHALL SCORE ELEMENTS

Score Elements (\$99.95, DVD) is the inaugural module in Uberschall's new scoring elements series for its Elastik Player virtual instrument (Mac/Win, standalone/AU/VST/RTAS, included).

The 2.5GB library of 792 loops and one-shot samples is divided into five categories: Accents, Ambient Beds, Impacts, Transitions, and Whooshes. Together they provide a diverse array of material for film, video, and game scoring; sound effects; and audio logos. Use ambient beds to set the mood, combine impacts and accents into a percussion track, and add transi-

tions and whooshes for dramatic effect (see **Web Clip 4**). Score them using the multi-output, tempo-flexing Elastik Player plugin in your DAW to create or augment your scoring project. Get more information from the Uberschall website ([ueberschall.com](http://ueberschall.com)) and purchase the library from Big Fish Audio ([bigfishaudio.com](http://bigfishaudio.com)). \*



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# HELLO MUSIC ARTIST PROFILE LIGHT ALIVE

## MEMBERS:

Christopher d'Artois  
and Aileen Avikova

## HOMETOWN:

Dallas, TX

## THEIR SOUND:

Thick, hard-rocking house  
that takes a page out of the  
Ed Banger Records playbook

## SIMILAR ARTISTS:

Justice, Mr. Oizo, Daft Punk

## THEY SENT US:

A three-track EP titled "Bloggers"

## WE HEAR:

Hypercompressed snare drum samples,  
distorted bass synths, enough kick drum  
to undulate our spleens if played on the  
right sound system

## OUR SCREENERS WROTE:

"Great electronica tracks. Production value is similar to Justice,  
but contains elements that make it their own style.  
Very danceable and well-suited for Internet radio,  
and would be great for live performance."

## RECENTLY:

Hello Music got one of their tracks featured in a video game soundtrack

## FIND THEM AT:

[hellomusic.com/artists/lightalive](http://hellomusic.com/artists/lightalive)

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Almost as soon as the Alesis ADAT began shipping in 1992, it gained enormous popularity as the first affordable 8-track digital audio recorder. Thousands were sold before its eventual obsolescence.

# Alesis ADAT

An 8-track recorder that stirred a digital revolution

For years, the promise of affordable, digital multitrack recording was just that: a promise. Everyone knew in the late '80s that digital would be the next big thing, but until Alesis shipped the Alesis Digital Audio Tape (ADAT) recorder in 1992, digital multitracks were beyond the average musician's financial reach. If you wanted 24 tracks of digital, you would have to pay more than \$60,000 for any of several systems guaranteed to become obsolete in the very near future.

When the ADAT appeared, the promise became a reality; \$3,995 got you eight tracks of 16-bit, 48kHz recording on easy-to-find Super VHS (S-VHS) tape running at three times VHS' normal speed. With the right skills, musicians everywhere could suddenly afford the kind of quality previously available only to pro recording studios. Soon, the terms *project studio* and *digital audio workstation (DAW)* became part of the recording lexicon.

## AT THE SPEED OF LIGHTPIPE

It wasn't long before everyone from bedroom recordists to top-flight engineers

adopted ADAT as a new standard. You could sync up to 16 machines (though not always as seamlessly as users would have liked), making massive track counts available for a fraction of what previous rigs cost. If other bandmembers had ADATs, you could link them together for additional tracks in multiples of eight. Unlike traditional tape machines, you didn't need to replace your ADAT when you needed more tracks. Analog 8-track recorders all but disappeared, and it's easy to understand why: Recording 40 minutes on S-VHS tape was considerably less expensive than recording 40 minutes on 10-inch reels of half-inch tape, and the ADAT's sound quality and ease of use were arguably superior.

The original ADAT (later called the Blackface) was a solid rackmount unit with balanced and unbalanced analog audio connections and a new digital, fiber-optic protocol called Lightpipe, which used inexpensive Toslink connectors. ADAT Lightpipe could dependably route eight tracks from one device to any other that supported the protocol

over two impossibly thin cables, one for each direction. Shortly thereafter, Alesis licensed the ADAT recording format to Fostex, Panasonic, and Studer, which introduced their own ADAT recorders.

Alesis soon introduced the Big Remote Control, improving the user experience and giving ADAT recorders new synchronization and control capabilities. During the next six years, subsequent ADAT machines included the 16-bit XT and 20-bit XT20, LX20, and M20, which attempted to keep up with the increasing demands and cost-effectiveness of audio technology.

Inevitably, the advent of hard-disk recorders brought the age of tape-based DAWs to a close. As the cost of hard drives fell, computer-based DAWs became popular, offering random-access editing, highly visual GUIs, and easy integration with MIDI tracks. A few diehards claim that old ADAT machines in good working order are still a viable recording platform, but for the rest of us, the ADAT legacy lives on in the standardization of the Lightpipe protocol. \*





# Privia

## PX-3

## BREAKING THE RULES... AGAIN!

### **RULE #1 – AN 88 NOTE WEIGHTED ACTION KEYBOARD MUST BE HEAVY**

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### **RULE #2 – IT MUST BE EXPENSIVE**

The PX-3 offers four layer dynamic stereo piano samples, editable sounds, insert effects, a backlit LCD and more. It only sounds like it costs thousands.

### **RULE #3 – A STAGE PIANO CAN'T CONTROL OTHER GEAR**

The PX-3 allows for 4 simultaneous sounds. These can come from the PX-3's great sound engine, an external MIDI device or both at the same time. Use it on stage or in the studio with your computer, the class-compliant USB MIDI interface works seamlessly on any Mac or PC.

### **RULES WERE MEANT TO BE BROKEN**

The Privia PX-3 breaks all of the rules and more by delivering an extremely lightweight, high performance, 88 note weighted action stage piano and controller at a price that is an absolute steal.

**CASIO.**

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World Radio History



**Home base:** Bergen, Norway

**Key software:** Avid Pro Tools LE

**Main gear:** Casio/Casiotone MT-70, MT-100, SA-21, and SK-1; Korg M500 Micro-Preset; Roland Juno 60

**Website:** [casiokids.com](http://casiokids.com)



Photo by Pavla Kopečna

Casiokids, pictured clockwise, from top left: Omar Johnsen, Ketil Kinden Endresen, Kjetil Bjør Reid Aabø, Fredrik Øgreid Vogsborg, and Einar Olsson.

# Square Pegs

Casiokids churn out raw, catchy electro-pop for the nerd in us all

“It’s in the musician, not the instrument,” the old adage goes. If it weren’t for the ingenuity of artists like Trent Reznor, Autechre, and Hot Chip, the cheap Casio lap keyboard you had as a kid might still be just another throwaway children’s toy.

You can add Norway’s Casiokids (Ketil Kinden Endresen, lead vocals and keyboards; Fredrik Øgreid Vogsborg, guitar; Omar Johnsen, keyboards; Kjetil Bjør Reid Aabø, bass; and Einar Olsson, drums) to this elite company. Not only do they sing in their native tongue, they also boast a small clutch of road-beaten Casios that somehow generates a bigger sound than you might expect. Throw in some Afrobeat, Jamaican dub, and ’80s dance influences, and the band’s debut on Polyvinyl, *Topp Stemning På Lokal Bar* (loosely translated: “great vibes in the local bar”), takes indietronic music into some rough-and-tumble new territory.

“I think we have an affection for things that go wrong,” says bassist and co-producer Aabø. “When we first started, we were using a demo version of Cubase and we didn’t care too much about get-

ting the perfect recording. There’s also the rough sound that you get from a first take with the whole band—you can try many takes on the same vocal or Casio melody, but you don’t get the same unexpected improvisation. That’s something that we’ve learned to love.”

Instead of recording directly to Avid Pro Tools, the band plugs into a vintage Fender PA 135 tube amplifier and mikes everything—speakers, guitar amps, percussion, drum kit—with little concern for track bleed. They run each Casio keyboard through a number of guitar pedals (the Boss TR-2 Tremolo and CE-2 Chorus are the band’s favorites), and they will often supplement live drums with Roland TR-707 and TR-808 drum machines for added kick.

“There’s plenty of leakage, but I quite like that,” Aabø says. “We always try first to get the right feel and general sound of the whole song. After we’ve been banging out a lot of ideas, we go in and clean it up. What usually happens is, after a creative period, we have way too many instruments playing all kinds of melodies, and we just go through it and take

out as much as we can so there won’t be too much information going at once.”

The SA-21’s harp sound drives the intro of “Verdens Største Land” (see **Web Clip 1**) and the main riff of “Min Siste Dag”—a sunny, head-nodding slice of pure indie pop that features lead singer Endresen’s warbly falsetto, along with a serpentine solo on the MT-100’s oboe setting to close the song. “Grønt Lys i Alle Ledd” (see **Web Clip 2**) surges ahead on a hyped-up beat and the MT-70’s piano and chime presets, turning gradually psychedelic as the chime refracts through onboard vibrato effects and external Boss pedals.

“We never add effects in the mix,” Aabø explains. “They’re actually recorded on the track so they can’t be removed. Personally, I’m not such a fan of keeping all options open all the time. If you just nail the whole sound when you do the recording, you get more enthusiasm out of the process and that comes through in the music. We’ve tried from the beginning to do electronic music with some degree of a live element in it. It’s a risky way to do it, but when we’re lucky, I think it works.” \*

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Composer George Martindell is the "percussive" half of Science Friction.

# The Creep Factor

Science Friction brings its horror/sci-fi sound to the film world

That big break can come in unexpected places—or the local coffee shop. In 1999, Science Friction (scifrimusic.com) co-owner/composer George Martindell ran into the head of NFL Films (a company he had previously worked for) who was familiar with Martindell and Frank Sonsini's (the other half of Science Friction) progressive/hard rock band. Past the usual "How are you? What have you been up to?" chit-chat, the NFL Films official became intrigued with the duo's next project: a synth and electronic-drum-based instrumental soundtrack that was both unique and creepy. That chance meeting led to the creation of the TNT Network's documentary *Faces of Evil*. And so began Science Friction.

## How do you two split the duties?

**Frank Sonsini:** I write and compose on synthesizers, guitar synth, acoustic

and electric guitars, and bass guitars. With these instruments, I can compose whole string and horn sections, as well as write rock tracks and other genres incorporating the guitar synth with the rack of synths that I MIDI from a central controller.

**George Martindell:** I am the percussive half and incorporate and compose music using myriad electronic drum sets. I use four different digital drum modules, which contain hundreds of various acoustic and electronic percussive instruments. I am also able to tweak these sounds and manipulate them from these modules.

**Sonsini:** We write our music together, bouncing ideas and genres off of each other until we find a groove or a sound that we're looking for.

**Martindell:** The actual engineering, recording, and mastering is all done by Frank. After the initial recording, we

both analyze and mix the tracks, each of us bringing ideas to the table by suggesting certain effects, equalization, and other key components.

**Sonsini:** The same goes for all other areas of our business. George promotes us and makes the needed contacts.

## Are you working out of your own studio?

**Sonsini:** Yes, we own our own studio called Sci Fri Studio. We use the Roland VS-2480 24-bit, 24-track DAW. This is an incredible piece of equipment: From the initial recording, through the mixing, and all the way to the finished master, this DAW has incredible sound quality and everything you need to do the job. We also use Tannoy monitors for mixing.

**Martindell:** It also has the ability to mix in 5.1, which is a good tool to have in our studio arsenal.



**You're working on sound effects for your catalog. How did the catalog come about?**

**Martindell:** We have been recording sound effects for years now and we decided that they were unique enough to use them in sound design/Foley situations. It was great fun recording most of these. We would trundle around, sometimes at 3 in the morning, to get the sounds of the local tree frogs and insect life. We would also capture the sound of almost everything that wasn't bolted down and invented some of the strangest sounds one can make with a gloppy shampoo bottle or a child's toy [laughs].

**Sonsini:** Since acquiring our new publisher, Audiosparx, we've submitted many volumes of sound effects and music for purchase for use in film, television, video games, and other media applications. Another publisher, ACM Records, has had volumes of our genre-specific music for purchase for years.

**Do you work mostly in the dark/sci-fi realm?**

**Martindell:** For the most part, we have created music for horror/sci-fi

films and media productions because that is our favorite style of music to write. We have always incorporated this style into other areas and genres of music we compose, as well. Adding that realm of music to a classical or ethnic arrangement always gives the track and production that eerie quality.

**Sonsini:** We have been providing ethnic and rock tracks for a number of television shows for several years. For example, E! Entertainment Channel has used our music in productions such as swimsuit specials and celebrity countdowns.

**You've been working on the animated series *Dr. Shroud* since its debut. What's the next chapter?**

**Martindell:** We completed the music and sound design for his current episode, "Skeletons," and have begun to compose for the next episode's production. We also provided music for a DVD release of this series, and *Dr. Shroud* is currently being optioned by the industry in New York and Hollywood as we speak.

**Sonsini:** Our methods for composing a project are a mixture of the con-

ventional and unconventional. To start, we generally begin with what the client is trying to communicate to us, such as what instruments he would like to hear and the mood that he wants to invoke.

**Martindell:** From there, we watch the film footage to get a feel for what's going on and where the scenes of the film are heading. Then we choose our instruments and the mood we will create. At that point, we will run through a few rough takes to get us on the right track for a particular scene.

**Sonsini:** After we're comfortable with how the soundtrack is coming together, we then do the actual recordings. Once the tracks are chosen for all scenes in the movie, we will do the tedious task of mixing and mastering each track to fit the mood of the production. At that point, we assemble the tracks onto a CD along with a cue sheet to guide the client in applying the music to his production.

**What's next on your plate?**

**Martindell:** We are in the pre-production stages of a feature-length film we are scoring for a film company based in New Jersey. The film is the horror/suspense genre, and we have begun to score and compose music of a dark and orchestral nature, including heavy strings, percussion, and dark sound design.

**Sonsini:** We keep adding new material and music to our publishing companies catalog so that we can have our music library well-rounded to suit more television, film, and media needs, and to reinvent the wheel of soundtrack music [laughs].

**Martindell:** As we often say to interested producers, "Even silent films had music!" At that time, in that medium, the music was the backbone of those movies. It really helped carry the viewer along from scene to scene. Music is very important and should be very impactful.

**Sonsini:** It's electrifying when both the film and music worlds collide! ✨

Whether you choose CDBaby or another distribution outlet for your music, be sure you understand the fee structure.



# Get Out There

How to make the most out of music distribution to boost sales

Of all of the D.I.Y. options available to musicians, music distribution has changed the most and is probably the most exciting. Today, musicians can sell their music to nearly anyone in the world. Every artist can be on iTunes.

But not all music distributors are created equal. If you have songs to sell, you'll want to use the right service for the job.

## PHYSICAL DISTRIBUTION

If you have CDs to sell, you'll want a reputable distributor that will give you a good cut of every sale and allow you to set the price. Also, you'll want a service that collects and shares the purchaser's contact information with you. Services like CDBaby and Nimbit are good examples, and both have their particular strengths.

CDBaby handles distribution to stores that are interested in carrying your CD, as well as digital distribution for your tracks and the option to sell CDs via credit card at shows. Nimbit handles fulfillment of all sorts of items, including physical merchandise, show tickets, and anything else you would like to sell to fans. But all of these physical distribution stores have a hidden cost: You have to bear the cost of shipping your album to stock their shelves.

Some musicians skip physical music distribution to avoid CD duplication and save money, but that doesn't mean you have to miss out on selling physical CDs to fans. Sites like CreateSpace and Lulu allow you to upload the art and the media, and will make the CDs when fans purchase it. This gives you a profit on every sale, with no need for you to keep any inventory. Most of them have no up-front costs, as well.

## DIGITAL DISTRIBUTION

With digital distribution, you'll want a distributor that can sell your music in as many of the big stores as possible. Also, there are two different pricing models to consider, exemplified by CDBaby and Tunecore. And this is where musicians need to go in with their eyes open.

CDBaby has a single one-time fee and puts your music in all of the major online stores, but then it takes a cut of every sale. Tunecore charges an up-front fee and a yearly subscription to keep your music active, but you get to keep all of the sales proceeds. Nearly all of the other digital distribution stores use one of these two models. As a general rule, if you're expecting a lot of sales, you may do better in the long run with

Tunecore's model, which doesn't take a cut from each album sold. But if you're relatively unknown and will likely only sell sporadically, CDBaby might be more economical.

Keep in mind that once your music is available for sale, the other options at each digital sales outlet may affect which ones you decide to promote. For example, sales at CDBaby's digital store capture the fan's email address, which can bolster your mailing list. And you can boost sales at Amazon by joining its Associates Program, which will give you some extra income out of each sale you make.

Of course, no matter where you put your music up for sale, you should promote it on the Web. For example, iTunes now allows you to make direct links to your songs or albums, and most of these other stores make it easy to send your fans there or embed it in your own web presences. The more you make use of those tools, the more sales you can get for your music. No matter what you decide to do, it should be clear that, in this area, it pays to do your research. \*

Randy Chertkow and Jason Feehan are the authors of *The Indie Band Survival Guide* (IndieGuide.com).

# Can a music program create professional, real-sounding arrangements and solos for your songs from only a chord progression?

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# Our Customers Think So.

Devo (L-R): Mark Mothersbaugh, Bob Mothersbaugh, Jerry Casale, Josh Freese, and Bob Casale



Photo by Josh Dalsimer

# Whip It Again

Mark Mothersbaugh on the return of Devo

**T**hey're back. Devo—the prognosticators of de-evolution, and purveyors of high-tech, tongue-in-cheek, new wave/punk rock—recently released *Something For Everybody* (Warner Bros., 2010), their first album in 20 years. The band, which formed in the early '70s, had their biggest hit, “Whip It,” in 1980. They stayed together until 1991, but never regained their early '80s popularity and broke up after recording their eighth album, *Smooth Noodle Maps* (Enigma, 1990).

Although *Something For Everybody* harks back to the band's “Whip It”—era sound, it's far more than just a nostalgia trip. It's got good songwriting (the downfall of many comeback albums) and retains the band's edgy humor and social criticism. To find out about the album's production, I recently interviewed lead singer Mark Mothersbaugh, who, in the two decades between Devo albums, has established himself as a top-notch film, TV, and videogame scorer.

**The new album sounds really good. So are you satisfied with how it came out?**

Yeah. You know, we had the luxury of working on it as long as we did our first

album, almost. So we probably started on some of these songs three years ago. So that was kind of nice. It actually worked to our benefit. It gave us more material to choose from, and I think everybody's pretty happy with the way it sounds.

**What was the catalyst behind this project getting off the ground?**

I think the disintegration of the business of music as it was known when we were around the first time—the fact that the business model had exploded. It just seems like it's such a great time to be making music right now.

**Why?**

Because of the Internet and just technology—even the kind of instruments that are available—the way all that's progressed in the last 20 years. It's just really a nice time because the playing field, in a lot of ways, is leveled for people. You can be from some far-off corner of the planet, and if you have access to the Internet, you can own, for a very small amount of money, equipment far superior to what The Beatles recorded on back when they were doing their records. You can go directly to the public and find a public without neces-

sarily going through the filter of a record company, if you want to.

**Of course, the major labels would say that the Internet has badly harmed the record business.**

I see it as giving people so many more opportunities. I probably have a tiny little bit of sympathy for people at record companies that go, “Oh, man, the good old days, when everybody had to buy vinyl or everybody had to buy cassettes, or CDs even. I miss those days.” And I mean, I'm sorry for them that things have changed, but I'm happy for what it gives us as an alternative. It's just so powerful and so impressive—the idea that right now I could pick up my computer, and I could go, “I'd like to hear some Eskimo-clog-dance-death-metal-polka music.” And if you put those terms into the computer and Googled it, or looked it up on [another] search engine, chances are there's going to be music that comes up that fits that request. That's pretty great.

**How did the production of this album differ from the way you did things in Devo's heyday?**

Some things are just obvious. I have a music production house in Hollywood,



and we've been tapeless for decades. Although there's been machines around, that if we wanted to go back and listen to tapes we could do it. Most of the guys that work for me, they've never spliced tape. They've heard of that, but they've never done it. I did have this idea when we first started [the Devo comeback] that, "What if we used the same exact synthesizers because we still have them, and the same guitars, which we still have most of, and the same drums and the same tape decks that we did the first album with?" For about two or three months, we experimented doing something like that. And I was probably the last one to give in, but I finally came to the realization—we did, as a band—we came to the realization that, "Oh, wait a minute. That was not what being Devo was anyhow." We were always really into technology. We were always really avid fans of everything that was happening, and we were reading the tech magazines. And when polyphonic synths first came out, we went and found prototypes and talked to everybody that was manufacturing things then and tried to get things as soon as we could. I remember getting one of the very first Roger Linn drum machines, and I remember using the first big digital 3M—or was it Sony? I can't remember now—we used a big, gigantic digital machine when they first came out.

#### **A digital multitrack.**

We always were kind of changing with what was happening during the times, and so what we ended up keeping intact was the way we write and structure our songs and what we talk about. What changed has been constantly, from the beginning, the technology. So that ended up being the way this album finally came out, was taking advantage of [Apple] Logic and [MOTU] Digital Performer, and [Avid] Pro Tools, and using plug-ins. But at the same time, we still did use the Minimog that we used

in Germany when we recorded the first album, and some of the synthesizers from that time period—like the one that made the whip crack and was kind of the pulsing electronic percussion sound in *Freedom of Choice*, so we still used a lot of that gear. Those sounds are still in the new material.

#### **Did you use some software synths on this album in addition to the hardware stuff?**

There's people that'll kill me because I won't remember the right things. But we used a lot of [GForce Software] impOScar and [Way Out Ware] KikAxe, and even software Minimogs and Mellotrons.

#### **You mentioned that you guys used Digital Performer, Logic, and Pro Tools on this album. Which is your personal DAW of choice?**

I used to use [Opcode Studio] Vision for a really long time, and then when Gibson bought Vision and they shut it down, I went into a panic.

#### **What did you do?**

I kind of reluctantly went over to [MOTU] Digital Performer, and it was really difficult for me to go from Vision to Digital Performer at first. Then I got to where I could really work it, but then somehow Logic [owned at that time by Emagic] came into my life. It was kind of because there were a couple of younger guys that work at my company—I mostly do film stuff at my company, and these guys work more in commercials—they were all using Logic and they were always using these new sounds that they really liked, and somehow I started using Logic. And then it seemed kind of intuitive to me. Somehow the difference between Logic and where I had been a couple years before in the world of Vision seemed to be closer than where I was with Performer. For me, it was just a better fit. But at the same time, Bob 1 [Bob Mothersbaugh]

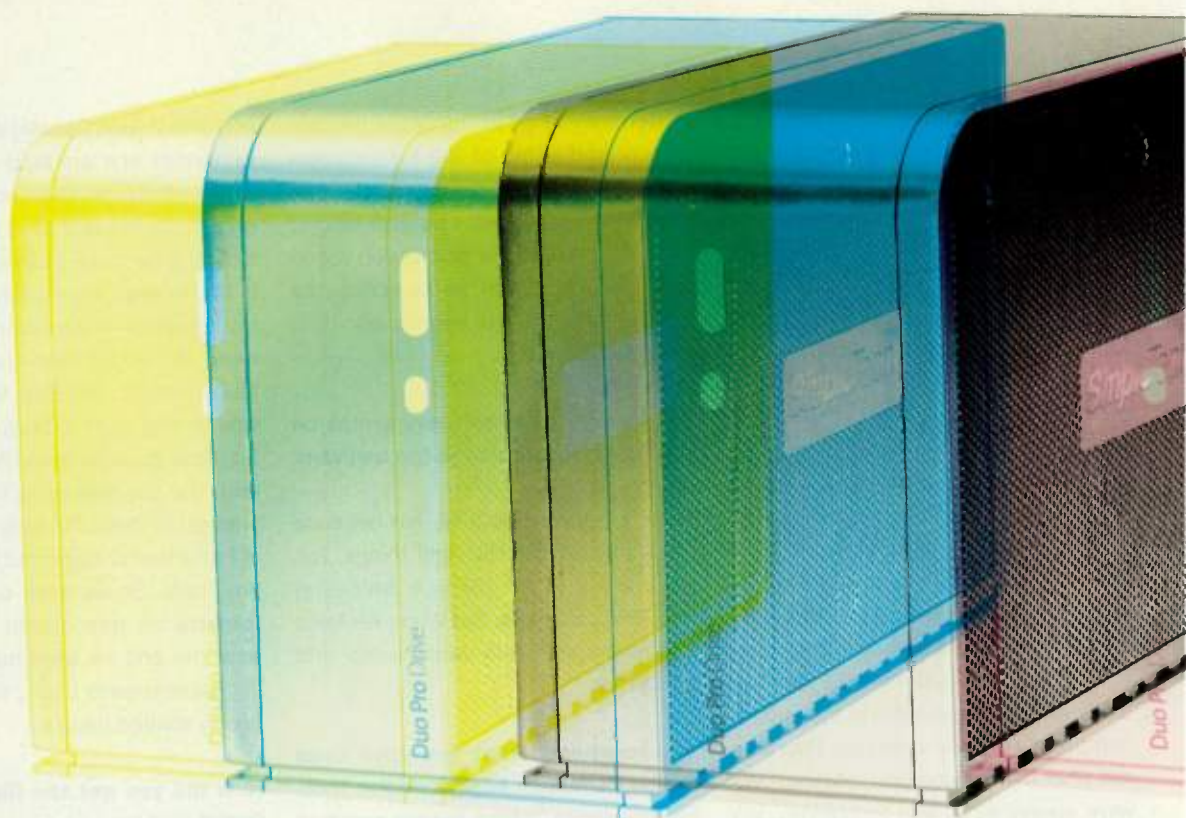
and Bob 2 [Bob Casale] were still using Performer and are kind of happy with it. So often, on this record, I'd write something in Logic, and then I'd give it to Bob 2 because he does most of the in-house engineering for Devo and for my company—he's like my main engineer. He would then transfer it over to Performer. And Bob Mothersbaugh was writing stuff in Performer already. So those guys preferred Performer, and then the guy that does front of house [mixing] for Devo, he wasn't really a fan of Performer or Logic, but he really likes Pro Tools. So we were using all three formats on this record. And I think near the end we were maybe gravitating more toward Logic, but it's pretty evenly divided [laughs].

#### **How did you get the files back and forth? Just by using stems and importing them in?**

I'm the most technically retarded of all the guys in the band; I just want to write music. Luckily, I always keep people around me that can work all that stuff out. But yeah, it was a lot of stems, and then some of the plug-ins are in both Performer and Logic. The interesting thing that we found out is they sound different sometimes. Sometimes we'd have a sound that sounded different in Logic than it did in Performer. And in that case, if we liked one better than the other and it was from the opposing software, we would then transfer it over to Pro Tools and do our mixes there. Also, the different producers we worked with worked in different software. It seemed to be a lot of people using Logic, but kind of everybody uses Pro Tools.

#### **Especially in album production.**

Yeah, so luckily it didn't have to be me. There were people in the band and that worked with us that were tech supporters that were keeping all the different software straight. When the smoke cleared, we ended up with an album. \*



# Back Up Your Backup

Use a RAID to protect your music data from catastrophic hard drive failure

By Reek Havok

Many people get a sinking feeling when asked about backing up their files. It's one of those inevitable tasks like taking out the garbage. We know we should be doing it on a regular basis, but the reality is that we frequently find other more pleasurable things to do—like writing and playing music—that gets in the way of what we should do. However, nothing hits home like working on your latest masterpiece and ending up with a lost or corrupt file—or worse yet, a completely failed hard drive.

## THE COLD, HARD TRUTH

It's a fact of our technology-saturated lives that hard drives fail. The old saying goes, "It's not if a hard drive will fail, but when." I've been playing the technology game of life for many years now, and I've found that hard drives fail for many reasons. I've had a brand-

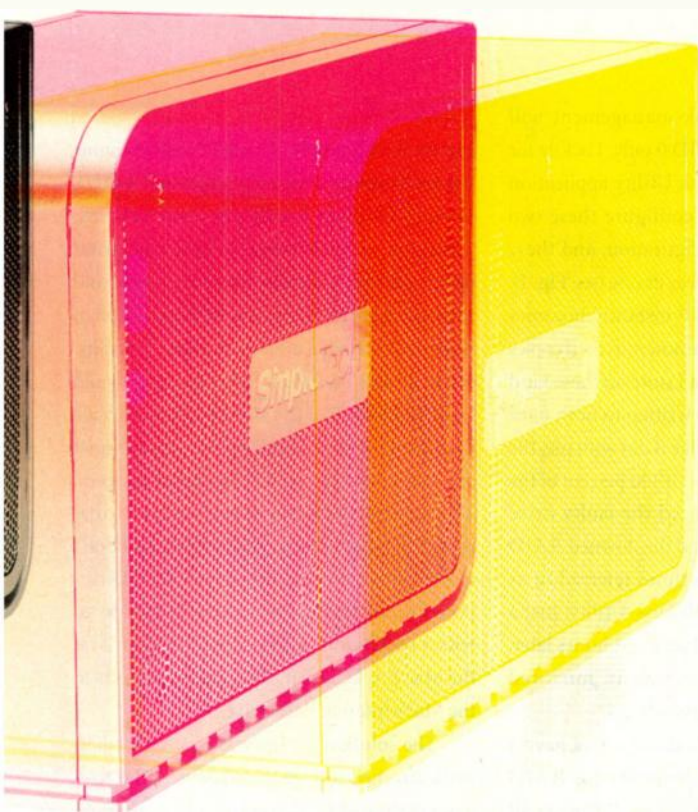
new computer that apparently was imaged poorly. The fix was to reformat the drive, which resulted in wiping off all the original files on the drive and all the programs and associated files I had spent hours installing from backup floppy disks and CDs. Another time, I had my laptop suddenly freeze up while I was using it, only to find that the culprit was the hard drive. It simply stopped working. Luckily, this was literally minutes after I had finished backing up the entire drive before going on a trip. It could have been that I overworked my hard drive in the long, sustained backup process or perhaps it was just a coincidence. I'll never know, but I was happy I had a backup.

The bottom line: You need to back up your files. Not only your music files, but anything irreplaceable like business documents, digital photos, etc.

## SET THE WAY-BACK MACHINE TO 1984

Stepping back in the not-so-distant past, as electronic musicians, our early backups for most modern computers were floppy disks. These were slow and held small amounts of data, but it was a relatively inexpensive way to back up. The data files themselves were fairly small, so the relatively small size of these disks worked just fine. We clawed our way up to double-sided, double-density (DSDD) floppies and archived 1.2MB.

Over time, we acquired larger data backup options. Removable cartridge disk drives seemed too good to be true; 45 megs on a SyQuest cartridge seemed huge; and writable compact disks gave us a jump to a glorious 650MB, with larger removable drives as a quick, yet relatively expensive option.



Next, writable DVDs bumped that number to 4.7GB (4700MB), followed by writable Blu-ray discs showing up on newer computers. Now we can have 25GB of data on a single disk. But backing up on disks is unfortunately a slow process; it can take hours to write your files onto a DVD or Blu-ray Disc.

## GETTING WITH THE TIMES

Technology continues to march on and our files keep getting bigger. Yesterday's state-of-the-art digital recordings at 16-bit/44kHz needed about 10.1MB per stereo minute, while today's standard of 24-bit/96kHz recordings (or greater in some circumstances) needs more than three times that amount for a 3-minute multitrack song, which may end up closing in on almost 100MB. A multitrack recording easily exceeds the gigabyte range; quickly, a 1TB drive doesn't seem so big. Luckily, the mass production and fierce competition in the hard drive market has brought the costs down to a point where you can buy a 1TB (1,000GB or 100,000MB) drive in an external USB or FireWire configuration for less than \$100, with prices falling daily. Currently, backing up a 1TB drive leaves you very few options except to use another 1TB drive as that archival target. This, however,

brings us back to the earlier statement, "It's not if a hard drive fails, but when."

If we worry about our backup failing as well as our main disk, how do we get ourselves out of this mess? Back up the backup? The answer, surprisingly enough, is yes. Ultimately, if you really want to be fail-safe, you'll even have a copy of your backup data offsite. The most common way to do this is with a bundle of DVD or Blu-ray Discs, or a hard drive for a faster approach locked away in your safe deposit box. But for local use, many users are migrating over to a multi-drive solution with inherent file protection: a RAID.

## IT'S A RAID!

A RAID is a grouping of two or more hard drives that can be configured in a variety of ways into a real-time or redundant backup configuration. RAID stands for "Redundant Array of Independent (some say inexpensive) Disks," and it is a way of formatting and controlling multiple hard drives that act as a single unit with built-in redundancy of data to ensure that your data is protected or to increase throughput, or both. A RAID can be configured with two or more drives and in a variety of ways. For simplicity, we'll focus on the common formats.

- **RAID 0** is not a backup solution but a way of striping multiple drives for higher data throughput. Each drive has a finite amount of throughput that can be reliably achieved, and the combination of two or more drives sharing this data throughput increases performance. Unfortunately, if you are looking for a file-protection scheme, RAID 0 is not the solution. Just like a regular drive, a hard drive failure means your data is lost. This is further complicated with RAID 0, as your single storage target comprises multiple drives.

- **RAID 1** is a simple mirrored disk array, meaning that the data from one disk is copied exactly onto a second disk. This is a great first step to backing up and probably the most common approach. Your computer should be able to work nicely with a RAID 1 array. If one disk fails, you simply replace it with a new drive. Using your backup with a RAID 1 array, you can have everything copied to the new drive in a few hours to restore the mirrored data.

- **RAID 3** distributes parity (duplicate) data in bytes over multiple drives, so if one drive fails, no data is lost. RAID 3 uses less space than a RAID 1 or RAID 5, but performance is better on RAID 5.

- **RAID 5** is like RAID 3, but it uses parity data in blocks instead of bytes spread across multiple drives. RAID 5 has acceptable performance, but as you are writing the original data and the parity information, write time does suffer. RAID 5 uses three or four disks, and you lose about 20 percent or more of your combined storage to the formatting.

- **RAID 10 (RAID 1 + 0)** uses multiple mirrored drive sets. Now we're getting into the big boys' systems. This provides the great performance of RAID 0 with the mirrored backup capability of RAID 1. This solution is costly per megabyte like RAID 1, where you've doubled the need for capacity per megabyte.

There is a balance on what your choice should be. The three things to consider are file protection, cost, and performance. RAID 10 offers the best of the file protection and performance by increasing throughput with the RAID 0 and adding the mirrored drives as in RAID 1. Cost-wise, this is the most expensive route, requiring the greatest number of drives and a robust hardware controller on an exist-

ing computer or large dedicated NAS device. More on this below.

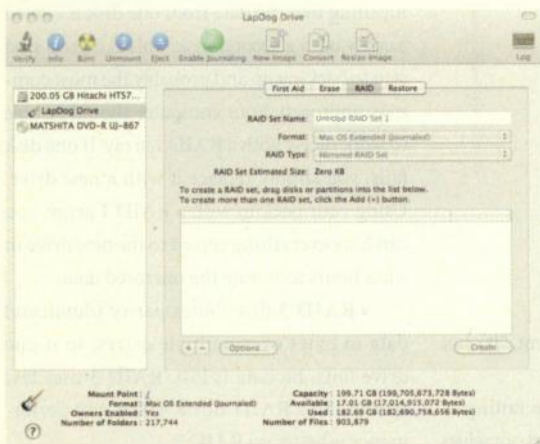
**FIRST THINGS FIRST**

An easy step to creating your first RAID is with an old computer. As we are in the habitual race to keep up with technology, you'll no doubt have an old computer from your studio that will work just fine. Keep in mind that the connection speed of the older computer should be at least 100Mbps. When I updated my studio computer, I realized the old G4 had very little

Windows XP's disk management will allow you to create a RAID 0 only. Luckily for Mac owners, Apple's Disk Utility application allows a simple way to configure these two drives in a RAID 1 configuration, and these two hard drives then appear as one (see Fig. 1). The downside is that 2TB instantly becomes 1TB because the drives are now mirrored copies of each other. All the data I store on these hard drives is simultaneously written to both hard drives. If one drive fails, like it did with me, the other drive is still intact with 100 percent of the data. I replaced the faulty drive and restored the downed RAID disk (sometimes referred to as leaves) with Disk Utility. Just a bit more than eight hours later, the data was again mirrored across the two drives.

**PLAYING IT SAFE**

I spoke with a couple of local IT heavyweights in town, and they personally had found RAID 5 more stable than RAID 1 in their systems. Things got a little more complicated from here. I decided I wanted a very accessible and very safe drive for my music and sound-design work, but I needed a lot of storage. Typically, if you do this on a local computer, you would want to buy a RAID card. These cards have their own CPU for handling the management of a disk array that could be taxing on a system. This is particularly true with a computer that is working hard like my studio Mac. As I don't really want to give up any of the CPU's horsepower to the hard drive control, I opted to go with a RAID card. Apple sells a RAID card for the Mac Pro for about \$700, and it connects to the Mac's internal hard drives.



**FIG. 1:** Apple's Disk Utility application allows for simple RAID creation and disk-repair functions.

value on the open market and these were selling for a couple hundred bucks on eBay. So I used it as a file server/backup machine. I built a small closet in the garage where the G4 computer and my Gigabit Ethernet switch live. Using an old computer is an inexpensive way to build your first RAID as the cost to do this is simply the cost of the new hard drives.

If your computer is already a few years old, start by replacing the main drive and then adding two brand-new internal or external hard drives for the RAID. These drives need to be the same size, and for best practice, they should be the same model. You could omit the main drive and put the OS on the RAID to keep things simple, but I started out simply by replacing the main drive before adding the RAID. This made creating the RAID much simpler because when you format the drive for the RAID configuration, it will wipe all data on that drive.

In Windows 7, you have a bit more flexibility for RAID options. Windows 7 Home will allow you to format for RAID 0, and Windows 7 Professional Enterprise and Ultimate also allow RAID 1. If you want to set up a RAID 5, Windows 7 does not directly support that with software control only so you'll need to purchase a dedicated RAID hardware controller. In either case, you'll need to convert your existing disk to a dynamic disk first, then add the second drive. You'll create the RAID in the computer management window. Go to Control Panel > System and Security > Administrative Tools > Create and Format Hard Disk Partitions.

You'll get the popup display for the Disk Management window. When formatting, be very careful you do not format the wrong drive as you can erase the data. I'd be sure I have an intact backup before performing any RAID setup.

**FIG. 2:** Synology's Disk Station DS409 is one of many compact network-attached storage (NAS) devices that can stand alone on a network.

The solution for me was to install a network-attached storage (NAS) device. The NAS has a dedicated CPU controller that manages the overhead necessary for a large RAID array. However, you don't need a dedicated computer. The NAS sits on the network and shows up like any other shared computer, and it has a Gigabit Ethernet connection to keep things running smoothly and quickly.

After some careful research, balancing cost, convenience and reliability, I purchased a Disk Station DS409 NAS by Synology (see Fig. 2).

The DS409 is a small box approximately 6.5-inches wide by 7.5-inches tall by 8.5-inches deep. It has bays for up to four 2TB hard drives, and it can be configured in a variety of ways. One of the clever features of this unit is that



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you can continue to add more disks, including disks of larger capacity. We all know that today's \$100 1TB drive will give way to 2TB, 3TB, and larger drives in a few years at the same price. The DS409 allows you to keep building your system and storage a little at a time, to the point of replacing older drives with newer and larger drives. The DS409 automatically copies the data to the newly added drive.

For my purposes, I wanted to use a RAID 5 configuration. My decision was based on achieving the large storage footprint and not spending too much on a NAS device. I could have formatted my DS409 for RAID 10, but I would have ended up with much less storage because of the full mirroring. For example, with RAID 5, my four 1.5TB drives provide about 4.2TB of storage. The same system formatted with RAID 10 would provide approximately 2.8TB of storage.

The RAID 5 formatting for this configuration ate up 1.5TB; my 6TB block quickly turned into 4.5TB. The formatting took about 12 hours to complete. I installed four brand-new Seagate 1.5TB Barracuda drives and powered on the DS409. I attached the DS409 to my network using a simple Ethernet cable attached to my Gigabit Ethernet switch. Then I launched my browser on one of my other computers and entered the default Internet Protocol (IP) address from the documentation from the NAS. An IP address typically looks something like this: 192.60.0.1. Most of the time, there's no need to change the IP address from the default. The only case would be if you had a larger network or perhaps had multiple devices from the same manufacturer. Most computers will avoid collision by dynamically allocating an IP address. This avoids two devices having the same IP address and creating a problem on the network.

A page opened up in my browser asking me to choose between RAID 0, RAID 1, RAID 4, RAID 5, or RAID 10. I selected RAID 5, and the formatting process started. Twelve hours later, I had a fast, secure, redundant 4.5TB bucket of love, just waiting to be populated with all my digital goodness. Because the majority of this data is a backup from my studio Mac, I'm pretty happy with the level of safety in file protection I now have.

## PROGRESSIVE BACKUPS

As mentioned above, having a RAID is not 100-percent failsafe, but a means to better protect data. If you have a corrupt file on your local drive, backing it up to your RAID only provides multiple copies of corruption. A solution I like to employ is what I call Progressive Backups. The concept is simple. When composing or creating sound and music, I start using the Save As command after every significant change to protect against corruption or acci-



If you have a corrupt file on your local drive, backing it up to your RAID only provides multiple copies of corruption.

dental editing mistakes. My song "Psychotic Ant" will start as *Psychotic Ant 1\_0*. The next save after a major addition, deletion, or other chainsaw massacre is *Psychotic Ant 1\_1*, and so on. I'll also tag a suffix to the name such as key change or drum double to identify where a significant change has occurred in case I need to revisit this later. This way, if there is any issue with the file, I can backtrack through previous saves and harvest a lost file or unintentional automation of mutes.

## DATA-PROTECTION TIPS

I should mention a couple of other points that will help keep your files safe. As I do not write directly to my NAS RAID 5 device while working, I routinely need to copy files from the studio Mac to this unit. To keep track of which files have made it onto the RAID, I use the color-coding utility in the finder. If you right-click (or option-click) on a folder, you can choose a color for your files or folders. When I've copied all the data from my Mac to the NAS, I color-code these folders green. When I'm working on a project, I remove that color so I know the file or folder is not current on the RAID drive. After backing up that folder, I return it to that happy color.

But in the end, a file saved offsite—DVDs or a hard drive in your safe deposit box, or one of the many online storage options—is the only 99-percent-sure way of protecting data.

Dedicated backup programs like Apple Time Machine on the Mac or Roxio Retrospect for the PC will automate backups for you. These programs vary in features and cost. Some, like SOS, even come with many gigabytes of online storage, which is convenient, but slow and typically inadequate for the data required to backup huge audio files and libraries.

## UPS AND DOWNS

Another must-have is an uninterruptible

power supply (UPS) unit. I have multiple UPS units scattered throughout the studio, server closet, and even on the Vonage phone. Simply put, a UPS unit has a big battery in it that can keep your system running for many minutes in the event of a power failure. Some UPS units can even power devices for hours, but those are typically reserved for large businesses. UPS units also work as great surge protectors and voltage regulators in case of a brownout or loss of full power that can horrendously damage your valuable electronics. The battery in the UPS will ensure your system never cuts out in the middle of writing a file to disk, which can damage your data. Having two copies of corrupt data is basically garbage.

If you purchase a UPS for your studio computer, remember that the more devices you have plugged into it, the shorter the time you'll have to shut down in case of an outage. Make sure that your computer monitor is connected to it, too (or, even better, to its own UPS), because the temporary power the UPS provides to your CPU if the power goes out will be useless if you can't see how to safely shut down. That's another lesson I learned the hard way. \*

*Reek Havok is a sound designer and interactive consultant in the Seattle area. His company, Sounds Amazing, has created audio for the Science Fiction Museum, Mötley Crüe, Yes, and Robert Palmer.*

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# A KILLER SOLO PROJECT

BRANDON FLOWERS TAPS THE TALENTS OF THREE TOP-SHELF PRODUCERS ON *FLAMINGO* BY MIKE LEVINE

When you're in a massively popular band, your life is often consumed by the endless cycles of touring and recording. Finding time to veer from the collective musical vision to work on your own project is not always so easy. For The Killers lead singer and keyboardist, Brandon Flowers, the opportunity came when the band went on hiatus early in 2010. Flowers had written a bunch of songs that he planned to use on The Killers' next album, but with the newfound time off provided by the band's break, he decided to record them on his own. The result was *Flamingo*.

The material ended up evolving into something pretty different than it likely would have had it been on a Killers album. Due for release in mid-September on Island Records, *Flamingo* is less edgy than the band's alternative-rock sound, and has an '80s-rock vibe, almost Springsteen-like at times. Songs like "Crossfire" and "Jilted Lovers and Broken Hearts" epitomize

that. Production-wise, many of the songs feature clean, in-your-face drum sounds; present, up-front vocals; and textural guitars and synths. There are a few eclectic moments such as the country-and-gospel-influenced "On the Floor," the ethereal-sounding and string-infused "Right Behind You," and the almost Spaghetti-Western-like "Playing With Fire."

To capture his wide-ranging musical vision, Flowers turned to three distinguished producers: Stuart Price (who produced the last Killers album and is known primarily for his work in the dance music world), and two production legends, Daniel Lanois and Brendan O'Brien. Much of the album was tracked at Battle Born in Las Vegas, the former commercial recording studio that is now The Killers' personal facility. Flowers recorded a lot of his lead vocals with a handheld Shure SM58, sometimes cupping the mic while he sang. He is comfortable with a 58 as he uses it onstage,

and he chose its familiarity over the sonics of a high-end studio vocal mic. (To watch a video of him talking about his vocal recording on the album, see **Web Clip 1.**)

I had a chance to speak to Flowers recently about the songwriting for and production of *Flamingo*. I also talked with Robert Root, who engineered much of the project. You can read what he said in the sidebar, "At the Controls," on p. 34.

**Although it's standard in pop and hip-hop, having multiple producers on a rock record is somewhat unusual. What was your rationale for going with three producers on *Flamingo*?**

The initial idea was to use only Stuart [Price]. And then the songs that started coming out were just going down dustier roads than Stuart was accustomed to [laughs]. I think he could've done fine; I just thought maybe we should explore and bring in some other people that have been down these roads.





**Stuart worked with you and The Killers on the last album, right?**

Yeah, *Day and Age* [Island, 2008]. We came to know him from a great remix of “Mr. Brightside” that he did.

**On *Flamingo*, which songs were produced by which producers?**

Brendan O’Brien worked solely on his songs. Those were “Crossfire,” “From Nogales to Magdalena,” and “Welcome to Fabulous Las Vegas.” And then the rest are pretty much a combination of Stuart and [Daniel] Lanois.

**They worked together?**

Except for “Only the Young,” which is just Stuart.

**Did Stuart and Daniel handle different phases of those co-produced songs, or were they together in the studio?**

It’s kind of a combination. Some of them Stuart started and Lanois came in. But the song “Hard Enough,” and

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## A KILLER SOLO PROJECT

then the songs like “On the Floor” or “Was It Something That I Said?”—those three were kind of a collaboration.

### And what about “Jilted Lovers and Broken Hearts”?

That used to be a different song. I never thought it was good enough until Lanois played some of those guitar parts on it.

### That one jumped out at me the most.

Yeah, it sounds very classic.

### So Daniel didn't just sit behind the board; he was actually playing?

Oh, yeah. He's very hands-on. And singing and dancing, and pedal steeling.

### He's kind of known for his ethereal, reverby kind of production.

Yeah, subsonics [laughs].

### Did he impart that on your songs?

Yeah, he brought some gear—you know, things I'm just not [familiar with]. It's just alien to me [laughs]. It was great. He and Stuart had fun with that, and it was right up Stuart's alley.

### It sounds like it wasn't a competitive situation between the producers.

There was a little bit of collision in the beginning, but it became very collaborative, and it was fun.

### A collision of styles?

Yeah. Stuart and Lanois come from two different worlds. I think if Daniel would have met him at an earlier age, it would've been different. But [Daniel] just has a different way of looking at things now because he's done things; he's worked with Peter Gabriel. So you know, it's not that foreign to do things the way that Stuart does, but he's just in a different place now.

### You recorded this in The Killers' studio, Battle Born. I guess it was more comfortable for you to work in a place that you're used to.

Yeah, it's nice. It's good for me. It's a decent excuse for me to keep working, [and] to my wife, that I'm just going down the street [laughs]. But I did have to go to L.A. to Henson Studios with Brendan. That's where he feels comfortable.

### How different is his style from those of Stuart and Daniel?

He's very professional and efficient. Stuart's quick, maybe faster, but it's a different kind of mentality. [With Stuart] it's more about just trying things and experimenting; he's just a wizard on [Apple] Logic. Whereas I think Brendan's just got so much experience and knows what he likes, and is very concise.

### Did you use the same musicians with Brendan?

Different musicians. Brendan is a band in himself [laughs]. If you could clone him into four guys, I think you'd have an amazing band. He's a great piano and organ player, and he's amazing on the guitar. He also brought an instrument called the [Yamaha] Tenori-On. Have you heard of it?

### Yes, it's an electronic instrument.

Yeah, it's on all three of the Brendan songs, and it's amazing. I never associated any kind of electronic device with him, and he whipped this thing out right away [laughs].

### So what kinds of sounds did he get on it? Just like synthy kind of things?

Yeah. And they just blend right in. When a lot of people think of synthesizers, their minds go toward OMD or Flock of Seagulls, or something like that. But it's amazing the landscapes that can be provided by these things and the sentiments that follow.

### And it can be really beautiful having real instruments, acoustic instruments, and electronic stuff mixing up.

A pad to me—as soon as a pad starts, I see the desert. I'm sure a lot of people don't get that, but it's very

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## AT THE CONTROLS



Photo courtesy Robert Root

As the engineer for much of the *Flamingo* tracking sessions, and for The Killers' *Day and Age*, Robert Root is pretty familiar with Brandon Flowers and how he works. In fact, Root was there from the beginning on Flowers' solo effort, engineering the demo sessions. “I got to see the songs take form from the ground up,” Root says.

The primary DAW used for the tracking sessions was Apple Logic Pro. Although the studio is also equipped with Avid Pro Tools, Root says that he primarily uses Logic. *Battle Born* is based around an API console, whose mic pres were used heavily on the *Flamingo* project. The studio also has a small



In this shot from *Battle Born*, Flowers is singing into his SM58, Price is on bass, Lanois on guitar, and Darren Beckett on drums.

organic to me, that sense of openness and sort of ethereal—I don't know what it is.

#### Which keyboards did you play on the album?

I've always kind of been conscious with The Killers to try to use something that I used on the first album. But I didn't do that on this one. So maybe that's one case where it's going to be a little bit different. It was always the Nord Lead 2 and the MicroKorg. Those were just the things that I had enough money to have when we first started, and so they kind of made their way onto all three Killers records. But with Stuart, it's a lot of presets from Logic.

#### Using synths in Logic?

Yeah, they're as good as anything I've ever heard. It's amazing. And at home, Stuart—he didn't bring them with him, but he may have used them while he was mixing things and added things—you know, he's got some great analog stuff at home.

#### Were most of your keyboard parts synth-based or were you also doing piano parts?

Mostly synths. I play piano on there, too, but it's nothing to write home about.

#### What's your songwriting process like? Do you just get an inspiration and jot it down, or do you sit at your piano and play to get inspired?

It's kind of both; it kind of works each way. I take it as it comes. Sometimes I like to just sit down and see what happens, and then other times an idea will pop into my head and I'll record it onto my phone. I'll be looking like a crazy person singing into my phone [laughs].

#### When you were working on your pre-production demos with Robert Root, was it mainly keyboard and vocal tracks, or did you use any loops or anything?

There was a lot of getting world beats and loops and layering things and adding things, and trying to add percussion.

#### You mean live percussion?

Yeah, on top of these loops. There was a lot of that stuff going on. I like to be playful in the studio; it's fun.

#### Were there any situations where you fell in love with the demo and couldn't match the feel on the final version?

Yeah. I'm still going through the struggles of that. I guess they call it demotitis. You know, I don't know if it's the simplicity or if it's just that you like that it's not perfect or you like that it sounds weathered, or whatever it is, [with] the demos. And then you hear this glossed-up, big version of the song, and it maybe doesn't capture

but high-quality selection of outboard gear including preamps from D.W. Fearn, Avalon, and Neve; and compressors from Universal Audio and Purple Audio, among others.

The latter two compressors were both put to use on Flowers' Shure SM58-recorded vocal tracks. In the studio, Root says, Flowers has two techniques with the 58. "Sometimes he'll just kind of hold the back of the mic and sing into it as he's performing onstage, and sometimes he'll cup it to give more of a dry—I guess the best way to describe it is kind of an intimate sound. It really picks up the proximity of his voice if he cups the mic. And as far as processing, a little bit of subtractive EQing usually with an API 560 and some compression; usually we would run him through an 1176 or a Purple Audio Action compressor."

Flowers did use some other vocal mics, as well. "We tried a [Shure] SM7," Root says. And on the sessions for the Brendan O'Brien-produced songs, which were tracked in L.A., Flowers sang through a Telefunken 251. "I think immediately he noticed a difference going to a more defined microphone. It took him a little while to warm up to it, but he sounded amazing on it, and it was just a matter of going through the motions enough times to get comfortable with that kind of sound coming back at you."

As for the mixing, Root says, "For the most part, it was done by Stuart [Price] and by O'Brien in their studios. As much as Stuart felt could be done at the same time as recording, editing, arranging. [Price] was also doing mixing at Battle Born. But for the most part, the final mixes were at least touched up by him in London."

## A KILLER SOLO PROJECT

the sentiment as well as the demo did. I struggle with that every time we record.

### **Are you ever tempted to do an album that you just self-produce and don't even go into a big studio?**

Maybe. Yeah, I guess I would be afraid that it wouldn't sound good enough. But I guess it's a possibility.

### **Back to the multiple producers issue. Were you concerned about not having a cohesive sound across the whole album?**

Yeah, I started to worry about that. I've never felt great about The Killers records; I've never felt like they, from front to back, were like a piece of art. I never thought it was like this work—this perfect, cohesive thing. I don't think any of us really do. We struggled with that. So now I'm making it harder on myself [laughs].

### **Did you ever have to say to any of the producers, "This is really going off in the wrong direction"?**

There were songs that didn't make it that felt like they were just too different. I struggled with placing "Only the Young" next to all of these other songs.

### **That's the slow one?**

Yeah, it's the only one that has a programmed beat. For me, it's an amazing song; it's just weird putting it next to the other ones. But it's so good that it's got to go on there.

### **Then there's "On the Floor," which has a bit of a country feel to it.**

Yeah. There's another version that's even more country—Stuart brought that one into the future. Daniel was on his way to Las Vegas for a couple of days, just to meet. He hadn't really heard much and he wanted to find out if he even, I think, liked me enough to do this. So he was coming just to shake my hand and just stare me in the eye, I think. And so I kind of wanted to impress him with some-

thing, and I knew he liked gospel music so I kind of conjured that one up.

### **I know you've performed at least once with Springsteen. In certain songs I could hear his influence. I don't know if it was an intentional homage to him or just the kind of material that you were writing.**

His influence has—I refer to it as the pot—he's been added into the pot [laughs]. So I guess it's just definitely going to come out every now and then. It's nothing that I'm consciously doing.

### **Do you have any desire to get more deeply into the gear so that you can sit and record yourself without needing an engineer?**

I just don't have the desire to do it. I don't know if it would make my life easier or if it would start to consume my life [laughs].

### **It is time-consuming and money-consuming. So was everything mixed in the same place, or did each producer do their own mixes?**

Brendan mixed his three and Stuart mixed the others.

### **And do you get involved in the mixing?**

Yes. For some reason, I have kind of fantastic hearing. I've never used in-ears [for onstage monitoring], and I have no damage. I get paranoid that I have damage and I go to the doctor, and they put me in the booth. Every time, the doctor just can't believe the paper when he looks at it because I'm above the normal. I should knock on wood; I don't know why. It's loud as hell onstage [laughs].

### **Do you wear earplugs onstage?**

I don't. [But in the studio] I hear every little thing. It could be a little edit or a mistake that nobody else hears deep in there, and I find it. I don't know if I can just zone in there or what it is.

### **Musically, do you consider yourself a perfectionist?**

Maybe I micromanage too much. I think it's just that you're so close to it and worried about it and want it to be perfect. You know, you want it to be amazing. So maybe I just get too involved.

### **Do you have musicians redo parts in the studio, where they think they nailed it, and you're like, "Try that again"?**

[Laughs] I'm not too bad. I think I've seen people worse than me.

### **So do you sit in on mixes or do they just give you mixes when they get to a certain point? Or are you there for the whole thing?**

Brendan is able to say, "Leave me for 20 minutes," and he will have it mixed. I mean, he's very quick. The other thing that he does differently is if there are changes, he doesn't pull up the mix and just fix the changes; he re-mixes the whole thing.

### **And what about Daniel? Was he involved in the mix?**

No, he was really impressed with Stuart, I think, and seeing somebody that worked—you know, it's a totally modern way of working that Stuart has. So I think he was really impressed with that.

### **So are you going to be doing a lot of touring for this?**

Yeah, I think we're definitely going to tour. I don't know how extensive or how much it's going to be. But around the time it comes out, we're going to do a run in Europe and a run in America, and I'll just kind of see what happens.

### **It seems like great material to play live with a band. No need for backing tracks or anything like that. Just a rock band playing.**

Yeah, it's going to be fun. \*

*Mike Levine is EM's editor and senior media producer.*



**Pat Thrall**  
Producer/Engineer  
Beyonce

**Marco Migliari**  
Producer/Engineer  
Robert Plant

**John Seymour**  
Producer/Engineer  
Santana

**Tony Mangurian**  
Producer/Engineer  
Willie Nelson

**Chuck Ainlay**  
Producer/Engineer  
Vince Gill

**Bob Bullock**  
Producer/Engineer  
Shania Twain

**Blake Eiseman**  
Producer/Engineer  
Kanye West

**Thom Russo**  
Engineer  
Michael Jackson

**Allen Morgan**  
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**FIG. 1 (far left):** Subtle positive Vel to Damp and Vel to Pitch settings create realistic nuances when kit pieces are triggered at different velocities.

**FIG. 2:** Master bleed levels, as well as distance and width settings for each of the three pairs of ambience mics, are set from the Mic tools panel on the Mixer page.

# FXpansion BFD2

Get the most out of this top-notch drum sampler

By Eli Krantzberg

**B**FD2 is arguably the most advanced acoustic drum-production environment around. The standalone and plug-in versions are nearly identical, and they're equally well-suited for playing, mixing, and sequencing. BFD2 packs a lot of punch, and I'll show you how to really power up this multifaceted drum instrument.

BFD2 is built around a collection of kit-piece slots. The kit pieces are made up of one or more articulations or hit types, each including multiple velocity layers. Each layer has been recorded with 12 different micro-

phones: three pairs of stereo ambience mics, a direct mic, and bleed signals from top and bottom kick and snare mics (two on the snare top).

Kit-piece and articulation parameters are controlled in the Kit Piece Inspector. They are mixed on the Mixer page, programmed into patterns on the Grooves page, and mapped on the Keymapping/Automation page. You can save settings for each page separately. Presets contain the settings for the entire state of the BFD2 interface and are used to save and load settings for all of the pages at once.

## WORKING WITH KIT PIECES

BFD2's large library of pre-assembled drum kits (and optional expansion packs) are loaded from the Kit Chooser panel. But the real fun starts when you mix and match different kit pieces and kit-piece settings. Use the Kit Chooser panel's slot-load switches to mix and match which kit-piece slots will be loaded and which will remain unchanged when loading in new kits. The Load

Audio Only button will leave the individual Kit Piece Inspector settings unchanged.

You can access individual kit pieces from the Kit Piece Chooser, available on most pages of the interface. Click the

Sticky button to leave the Chooser open for quick auditioning of kit pieces. On the kit page, press the kit piece's slot-load button or double-click anywhere in the slot to access the Kit Piece Chooser. Use the Inspector's quick-load controls or Control-click directly on a kit-piece slot to bypass the Chooser and load or swap kit pieces directly.

On the Mixer page, double-click directly on the channel icon (when the FX Sends view is disabled) to bring up the Kit Piece Chooser, or use the Inspector's quick-load controls. Double-click in the kit-piece or articulation lane on the Grooves page to access the Chooser there.

## ROLL YOUR OWN

Use the Kit Piece Chooser's Import button to create your own custom, multisampled kit pieces. Once you've set the file pathway, name, and kit-piece type for your new creation, press the Add Layer button to load in 44.1kHz WAV file samples. Start from the quietest samples and repeat until they are all added. Correct any mistakes with the Move Layer Up/Down buttons, and finally press the Import button to copy the samples to the new directory and create the kit piece.

BFD2 maps the velocity splits automatically. If necessary, tweak the response further



**FIG. 3:** The Kit Piece Inspector's routing selector shows aux tracks created in the Ambience bus' outputs.

in the Kit Piece Inspector with the Velocity to Amp control. When it is set to 0 percent, there is no amplitude scaling. Either negative or positive values are available, and you can set a default value in the Synth Engine section of the Preferences page.

Dampening, tuning, and dynamics for kit pieces, and individual offsets for each articulation, are controlled in the Inspector. A small positive offset on the Vel to Pitch slider yields realistic and musical results. Louder triggering results in a slight increase in pitch like you sometimes get when hitting a drum harder.

Similarly, a subtle, positive Vel to Damp setting with a modest Damp Amount setting dampens the articulation slightly more the louder it is triggered. This is particularly realistic on kick drums and toms (see Fig. 1 and Web Clip 1).

## TO BLEED OR NOT TO BLEED

In addition to basic trim, pan, and phase-flipping controls, each kit piece's ambience-sends and bleed settings are controlled in the Inspector. Three sliders control the discrete amounts sent to each of the three ambience buses. Each ambience bus is routed to its own channel, which is controlled from the Mixer page or the mini-mixer at the bottom-right of the Kit Piece Inspector on the Kit page.

Bleed refers to the real-world leakage that happens when direct mics pick up signals from other kit pieces as they are played. You can attenuate and route these BFD2 bleed signals to the Snare 1 and Kik1 mixer channels by pressing the On button and dialing in the desired amount with the Kit Piece Inspector bleed controls. Alternatively, you can mix them in with the kit piece's direct mic by pressing the Direct button, or you can suppress them altogether with the Off button.

Used judiciously and with the ambience channels, bleed can add a sense of depth and realism to the overall blend of a BFD2 drum kit. Control the distance and width of each of the three pairs of ambience mics, as well as the master bleed levels, from the Mic Tools panel on the Mixer page (see Fig. 2 and Web Clip 2).

For greater mixing flexibility, you can route these ambience mics to custom auxil-

iary (aux) channels instead of their default assignments. Click the Add Aux button in the Mixer page toolbar and reassign the ambience channels from their output routing field. Alternatively, select the channels in advance and Option-click (Alt on a PC) the Add Aux button to reroute them to the new aux channel automatically. One caveat: Aux channels must be created on the Mixer page first to reassign the ambience bus destinations directly from the Kit Piece Inspector (see Fig. 3).

## PAD MAPPING

BFD2 really shines as a musical instrument when it is played with drum pads. Factory-preset MIDI key maps for most popular drum pads (which take care of mapping pad zones to kit-piece articulations) are available in the Grooves section of the Preferences; additional mapping features are also available.

On the Kit page, click and drag one kit piece on top of another with the Link tool to layer two kit pieces together. Control-click on the source kit piece to remove the link.

Use the Status Bar's Learn button or the Kit page's Note Learn tool, or simply Control-click on a kit-piece slot to launch the MIDI Note Learn Wizard. Hit the zone on your pad to map it to the currently selected kit-piece articulation. There are several preference settings to simplify stepping through the mapping process for all of the drum-pad zones and articulations automatically.

Disable the MIDI Learn Wait mode default checkbox in the MIDI section of the Preferences page and enter a custom time in the MIDI Learn skip-time field. This allows you to skip through articulations you may not want to map without touching the interface. Enable the MIDI Learn Next Slot mode default checkbox from the same Preferences page, and the Note Learn Wizard will step through all of the kit pieces based on the skip time, allowing you to map an entire kit directly from your pads without ever touching the computer.

## THE HEIMLICH MANEUVER

Use the Key Mapping page for more nuanced control. Drag and drop a kit piece onto the keyboard layout on the left side of the window and choose which articulation to map from the

dropdown list that appears once you release the mouse button. Or automatically map all of the kit pieces' articulations to adjacent keys. Drag other articulations from other kit pieces to create layers on a single key.

Drag an already-mapped cymbal onto an unused slot and choose Slot Choke from the articulations pop-up list; when you trigger it, it will choke the cymbal sound based on the fade settings in the Engine section of the Preferences page. For electronic kits that support manual cymbal choking, enable the choke with aftertouch setting in the MIDI section of the Preferences.

If your electronic drum kit doesn't send out the full MIDI velocity range, use the Mapping Inspector in the lower part of the Key Mapping page to scale velocity response for specific articulations. Use the variable tip or shank choice of hi-hat articulations for electronic kits that use hi-hat height to send out MIDI CC messages to transition between the various articulations. MIDI CC 4 is the normal message used for this, but you can change it in the Mapping Inspector if necessary.

Use the four adjustable points on the large slider on the right of the Mapping Inspector to adjust for the response of your hi-hat pedal by setting the values at which articulations change. The Engine section of the Preferences page offers further control of the transitions between the variable articulations.

That process is great for live playing but can generate an unwieldy stream of CC data for editing in a sequencer. If you are programming your drum parts, use non-variable mode to avoid the CC messages and map the different tip and shank articulations to separate notes. Adjust the tip- and shank-tighten amounts in the Preference's Session section to set how tightly closed the hi-hat samples sound.

## MIX IT IN THE FIX

BFD2's built-in effects plug-ins run the gamut from corrective to creative. The independent control of the three ambience channels truly makes mixing within BFD2 sublime. Unlike in the physical world, they can be processed separately from the kit-piece dry signals.

Here's a simple recipe for applying parallel compression to only the ambience channels.

On the Mixer page, Shift-click the three ambience channels to select them and Option-click on the Add Aux button in the toolbar to automatically assign their outputs to a newly created aux track. Place a Comp Bus plug-in on this subgroup with some extreme settings and use the Mix knob to dial in the amount you want to be blended with the dry signal.

To set up some creative sidechaining, create a new aux

track and then use the Sends panel to assign some healthy send levels from each of the three snare channels to the newly created aux. Enable the SideChain button in the Sends panel. Place another compressor with some extreme settings on the new aux channel and engage its SideChain button so that it responds to the signal from the snare track's sends. Set the compressor's mix knob to completely wet and dial up the aux channel's sidechain trim level.

To add to this traffic jam, assign the output of the first aux track to the second aux track, and dial up the input trim on the second aux. If you're not suffering from motion sickness by now, remember that you can mix this all in with completely natural-sounding dry signals from each kit piece (see Fig. 4 and Web Clip 3).

### A PALETTE O' PLENTY

In addition to programming within your host sequencer, you can create parts within BFD2 by recording MIDI input or using the Groove page editor. Grooves are assembled into a Palette so you can trigger them with MIDI notes.

The palette's Groove Actions are the perfect environment for creating parts in real time from a pre-organized palette. Set the start- and end-groove slot actions to determine if newly triggered grooves will start in sync with what is already playing, at the next beat, next bar, or at the end of the current groove. Command-click (Control on a PC) on grooves in the palette to create multiple selections. Slot actions can then be applied to the entire selection. Set the Default Actions at the top for grooves without specific slot actions assigned.



FIG. 4: The three ambience channels are sub-grouped to aux 1. Sidechain sends from the snare channels and the output of aux 1 feed the aux 2 channel.

Use the Fill button in the Groove Actions area of the Grooves page to identify which of your palette's slots contains fills. With the Auto-Fill button on, they will be triggered at regular intervals that you set with the Auto-Fill period field in the Session preferences. For a classic drum machine-style fill technique, set the End Action to return to the previous groove for the slots designated as fills.

If you are triggering loops from pads, enable the Latching mode in the Session preferences and set the Slot End Action to loop. The loops will keep playing until another loop is triggered; make sure that at least one is assigned with its Slot End Action set to stop. Enable the polyphony preference to allow multiple grooves to play simultaneously, letting you create a symphony of interconnecting loop bits on the fly.

### HUMAN NATURE

BFD2's Groove Engine offers powerful swing, humanization, quantization, and automation features not found in many DAWs. This makes it compelling to use for programming grooves.

Use the new Roll tool to quickly and easily create and snap multiple notes of the same articulation to the grid value. Use the Swing control to create swung grooves when entering new notes with the Snap function enabled. Adjust subtle differences in the swing value for different kit pieces to get a less machine-like feel for repeating grooves.

The Groove FX section contains MIDI effects that take humanizing the feel to the next level. They are at the final stage of BFD2's Groove Engine stream and can oper-

ate either destructively or nondestructively. Set a value in the first dropdown menu and use the Quantize effect knob to add a variable amount of quantizing to events in the groove. Add a variable amount of swing with the Q-Swing knob.

Set the Swing effects dropdown menu to a different value from the Quantize type and use the Swing knob to vary the intensity of the

swing. This way, you can create different (and funky!) swing settings for eighth and 16th notes. For more variety, add some randomization to event positions and velocities with the Humanize velocity and timing controls.

Unlike most DAWs, you can automate these variable quantize, swing, and humanize amounts in real time. Set the Mapping page to Automation Mapping view. Set the automation source to either MIDI CC or host automation, and select the parameter in the Automation table that you want to assign. Expand the item for Groove FX controls in the BFD2 Parameters section on the left. Double-click any of the groove, swing, or humanize parameters (they will become highlighted in yellow) to assign them so that they can be automated over time.

Once the Groove FX are set, you can choose to apply the settings permanently to the individual groove using the Apply Groove button or to all of the grooves loaded into the current palette by using the Apply All button. This is a great way to ensure consistency within a full palette of grooves. Lay out the grooves on the drum track at the top of the Grooves page to create a completed drum part within BFD2 Groove Engine. Set the Auto-Play mode to drum track to have it play in sync with your DAW. Or export the entire drum track as either audio or MIDI from the Save menu.

Whether you play BFD2 live or use it as a sound source in your DAW, your drum tracks will be more varied and inspired. \*

*Eli Krantzberg is a drummer who plays acoustic drums whenever BFD2 is not available. You can find his BFD2 tutorial videos at groove3.com.*



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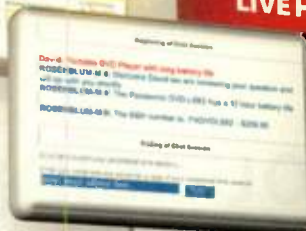
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**FIG. 1:** This modified version of Aether's 150 Cathedral preset uses a mostly serial LR to ER signal path as indicated by the Cascade knob and switch settings.

# Bouncing Off the Wall

## Creative effects using reverb plug-ins

You can do a lot more with reverb than control the ambience and sense of space in your tracks and mixes. A little creative routing, knob tweaking, and automation will bring out sounds you never knew were in there.

For my examples, I'll use the Mac/Win reverb plug-in Aether 1.5 from 2CAudio, but you can rig up some variation of most of these examples with your favorite reverb. Aether offers features and routing options that make it ideal for creative processing.

### REFLECT ON THIS

Most full-featured reverb plug-ins give you some degree of separate control over the early and late parts of the reverberation process. Early reflections (ER) occur in the first few hundred milliseconds and often border on discrete echoes. Late reflections (LR), also called reverb decay, take up where early reflections leave off; they are more dense and diffuse, and can last far longer.

Aether blurs those distinctions by letting you predelay both the ER and LR phase for up to a second, and even more unusually by letting you route the output

of either stage into the other instead of restricting you to standard, parallel routing. That is managed with the ER section's Cascade knob and switch (new in Version 1.5). The switch sets which section comes first, and the knob determines the ratio of parallel to serial operation—0 for fully parallel and 100 for fully serial. If you're not using Aether but your reverb lets you turn off or neutralize ER and LR separately, insert copies on two separate aux buses and then use an aux-bus send to route one to the other.

Cascading is particularly effective with rhythmic parts such as rhythm guitar. Start with a fairly long reverb tail (time) and no predelay in the LR section, as in Aether's 150 Cathedral preset, and use an ER predelay of roughly an eighth- or 16th-note (30,000 or 15,000 divided by the tempo). Disable the LR section using the button adjacent to its gain knob's label and set up a clean ER repeat (see **Fig. 1**). Then with both sections enabled and the Cascade switch in the LR position (LR feeds ER), use the Cascade knob to go from distinct ER pulses to blurred pulsing of the reverb tail. Next, try automating the Cascade knob (see **Web Clip 1**).

### MID BY SIDE

In addition to standard mono and stereo operation, Aether integrates mid-side (M-S) conversion in both the ER and LR sections. If you're using a different reverb, see the October 2008 *EM* "Making Tracks" column, available at [emusician.com](http://emusician.com), for instructions on mid-side conversion.

M-S processing works well for sub-mixes with a mono solo part such as bass or lead vocal combined with an ambient background spread across the stereo field. (Thanks to Andrew Souter of 2CAudio for suggesting this example.) Although not obvious from the name, mono material, no matter where it is panned in the mix, shows up in the mid channel after conversion. On the other hand, phase differences in material spread across the stereo field will be captured in the side channel. ER processing (ER Cross = 0.0) works well for the mid channel where you want to keep the part cohesive. LR processing (LR Cross = 200) can add space and motion to an already diffuse ambient background (see **Web Clip 2**). \*

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## The Other Side of the Glass

During the past 10 years, improvements in gear have made the art of vocal production much easier. Even so, vocal tracking and production can still be the most demanding aspect of producing a song. Getting that perfect vocal often requires a lot more than just a good mic processed through a quality chain of outboard gear.

Why is it so difficult? Singing in the studio is often daunting even for those who are experienced at it, and for singers not used to the intricacies of the studio, it can be a nightmare. It's the producer's job to bring the best qualities out of singers' voices while hiding their weaknesses.

### CREATE TRUST

I've recorded a lot of vocalists, and here are some of the techniques that I've found to help make a vocal session more productive.

First and foremost, try to establish a good rapport with the talent. I try to cre-

ate a comfortable setting that feels like a safe creative space to the singer. No matter whether the vocalist is a seasoned recording artist or a demo singer, you'll get a better response to your direction if this person trusts your judgment as a producer. The more trust that's there, the easier it is for the vocalist to focus more on emotion and less on technique.

One way to gain this trust is to speak in a musical language that the singer understands. The adjectives or slang the singer employs may be a lot different from yours. By establishing a set of terms that work for that vocalist, you can be sure you're speaking the same language. For example, you may refer to a rushed vocal as "ahead of the beat" while the singer thinks of a rushed vocal as "uptight." If I want the singer to sing the phrase a little behind the beat, I might use terminology like "lay back" or "loosen up." And slang is an important part of understanding someone's point of view. The slang terms in rock or metal may be different than the slang terms in hip-hop. Pay attention to these details or you may alienate your singer by sounding out of touch, which could lead to a loss of confidence in you.

I often find out what singers the vocalist listens to or is inspired by so that I can refer to vocal takes from that artist as a reference. For example, if I was cutting an R&B vocal with Big Mike (of *American Idol* fame), I might say, "put some R-Kelly in this, but lay it back like Snoop." He knows those references,

so the meaning is much deeper than, "make this section staccato but swing the placement of the notes."

### PROVIDE COMFORT

Find out what kind of physical environment the singer enjoys—dark, bright, warm, cold, etc.—and try to recreate it. Studios can be really sterile; don't expect a great vibe if the studio has none. Even just dimming the lights or lighting a candle may put the singer in a better headspace. Offer warm water with lemon or a bottle of water. This kind of hospitality puts the singer at ease and gives you time to have a conversation to get to know him or her better. Asking singers

Before the singer steps into the booth, it's important to make him or her feel comfortable and confident.



about themselves lets them know that you care about how they feel and you're concerned with their success.

Time of day and session length can make a huge difference in a singer's tone. Some sound better in the late afternoon or evening. This is most likely due to the vocal-chord warmup they receive from regular daily conversations. Find out in advance and schedule accordingly.

For TV-commercial vocal productions where time is pressing, I may not be able to shift the time of the session to the evening because the clients may want to work a standard 9-to-5 day and there may be multiple vocalists in one session. This limits my schedule a bit, but if I speak with the singers ahead of time and ask them when their voice seems to be the strongest, I may be able to schedule them in an order that's nearest their best performance time.

I try to avoid marathon vocal sessions where the singers start to get physically tired and have to drink caffeine to keep their energy level up. Caffeine dries out the vocal chords, which can change the overall quality of a singer's tone. Having two 4-hour sessions over a two-day period is often better than one 8-hour session. So it's best to leave enough time to learn a singer's stamina and then proceed accordingly.

## KEEP AN EAR OUT

In the vocal booth, I usually have a couple of different pairs of headphones from which to choose. I recommend that the singer keep one ear off to keep better pitch, and I try to keep the headphone volume at a comfortable level. If the headphone volume is too loud, the playback will fatigue the ears and make it hard to perform well during the course of the session. It can also ruin a take due to bleed-through, which most commonly occurs when the headphone volume is so loud that the microphone picks up the music or click track during a take. It's often masked by the music itself, but if it occurs in a quiet section, or where a chord is ringing and there are no drums hitting, it can be a real problem. And to compound it, the normal compression that you'd use on that vocal track can accentuate the bleeding click.

You can help vocalists hear themselves better by EQing the monitor bus. Rolling off the low end of a track makes the vocals pop out more. Many vocalists like to have a little reverb on the monitor bus, but you can just as easily add a vocal compressor to the same bus, which evens out their performance and brings up the perceived volume of the vocals in the headphone mix.

The classic vocal chain goes from your favorite microphone to preamp to compressor to EQ, and then into your DAW, but it's not necessary to compress and EQ the vocal on the way in.

I tend to set the sensitivity of my mic according to the performance's dynamics. I figured it out the old-

fashioned way: having the vocalist practice the take. The practice take lets me adjust the gain, mic placement, headphone mix, etc., while the vocalist gets comfortable with the track. We run the take a couple of times, and when I've got it sounding pretty good and the singer is loose, we can rock 'n' roll. Even though settings will vary from singer to singer and song to song, it's worth practicing getting these levels set on your own time without the pressure of having someone there waiting for you to get it together. Taking too much time getting levels will bore the singer, and you could lose the vibe.

Microphone placement differs with each vocalist, but I tend to align the mic slightly off axis so that vocalist is not singing directly into the mic. I hide the off-axis mic with the popscreen because the asymmetry can be visually disconcerting.

This next step is crucial if your vocal sessions will take place on multiple days. After finding a good position for the singer relative to the microphone, mark that spot on the floor with some tape in a way that allows for reorientation each time he or she returns to the booth. For example, use a line that shows distance from the mic and maybe a "+" mark that shows orientation. If you don't do this, you may not be able to comp takes from different days into one seamless performance without EQing each take prior to comping.

Finally, try to keep it fun. You get much better takes if you're encouraging your vocalist and offer only constructive criticism. Just remember what it's like to be on the other side of the glass. \*

---

*Ming (mingsmusic.com) is a New York City-based artist, producer, and DJ. He owns Hood Famous Music and co-owns Habitat Music (habitatmusic.com).*



Studios can be really sterile; don't expect a great vibe if the studio has none.

# REVIEWS

**FIG. 1:** Velvet captures the sound and vibe of classic electric pianos from Rhodes and Wurlitzer.



MAC/  
WIN

## Avid Pro Tools Instrument Expansion Pack

Five great reasons to do more than just record and edit in Pro Tools

By Brian Smithers



### PRODUCT SUMMARY

#### SOFTWARE INSTRUMENT BUNDLE

PRICE: \$459

(upgrade pricing available)

**PROS:** Intelligent, imaginative feature sets. Great sounds. Tight integration with Pro Tools. 55GB of bundled content. Extensive real-time control.

**CONS:** Restricted to Pro Tools.

|                    |   |   |   |   |   |
|--------------------|---|---|---|---|---|
| FEATURES:          | 1 | 2 | 3 | 4 | 5 |
| EASE OF USE:       | 1 | 2 | 3 | 4 | 5 |
| QUALITY OF SOUNDS: | 1 | 2 | 3 | 4 | 5 |
| VALUE:             | 1 | 2 | 3 | 4 | 5 |

avid.com

#### 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

The Pro Tools Instrument Expansion Pack bundles the latest versions of five existing virtual instruments from Avid's AIR division. The five—Structure 1.1, Transfuser 1.3, Velvet 1.3, Strike 1.5, and Hybrid 1.6—make up the entire AIR instrument line. The pack includes 55GB of content, 16.5GB of which is new, and more presets than you can shake a virtual stick at. In its previous incarnation, it was called the Virtual Instrument Box Set, but that version's Xpand (now included with Pro Tools) is supplanted by Transfuser.

Previous versions of everything but Hybrid have been reviewed in these pages, so I will focus on the new features and spend a bit of extra time introducing Hybrid. Those reviews spoke very highly of the AIR instruments, and I share my colleagues' enthusiasm: These are high-quality instruments with well-developed feature sets that are smoothly integrated into the Pro Tools environment.

### SOUNDS LIKE FUN

The electric piano Velvet nails the most common Rhodes and Wurlitzer instruments and adds a number of nice touches (see **Fig. 1**). It models the condition of the piano—and the noise created by the pedal, the key release, and the key mechanism—for a remarkably realistic playing experience. The latest version adds a three-mode reverb (spring, room, ambience) to a simple but well-thought-out effects section. I'm particularly fond of Velvet's ability to emulate the stereo tremolo of the Rhodes Suitcase piano (see **Web Clip 1**).

Another new touch is the addition of several synthesized tines, including classic FM piano sounds. Blend these tines with the existing timbres to create rich, layered sounds. The best measure of success I can apply to Velvet is that I spend more time playing it than tweaking it because it takes only a couple of clicks to find a preset with sufficient character

to lull you into believing you're not playing a computer. However, considering the number of variable parameters and suitable effects, as well as the simplicity of MIDI learn on every control, mondo knob-twisting is an attractive approach, too.

If you've used FXpansion BFD or any of its competing drum kit romplers, you have a good idea of what Strike is all about (see **Fig. 2**). It doesn't have any particular innovation that sets it apart from the field, but the quality of its kits and grooves makes it competitive. Strike can be played simply or controlled obsessively. Its main window gives access to the kit and style browser, essential mix controls, and a keyboard that allows you to play the built-in MIDI performances (called styles) or the individual elements of the kit (see **Web Clip 2**).

Songwriters will find plenty of prefab beats with which to build basic drum tracks for a song demo. Tweakheads will enjoy customizing grooves in an improved Style Editor, importing samples to create the perfect kit and routing kit elements to individual Pro Tools tracks for complete mixing control. I often search for realistic drum tracks, so this is my favorite feature as it lets me mix the kit exactly as I would a live drummer. The new version also includes 55 new styles and more than 10GB of new kits recorded in Nashville's Blackbird studios. With the quality of the kits and styles, and the daunting level of fine-tuning Strike makes possible, you'll have no more excuses for unconvincing drum tracks.

## SOUND IDEAS

Structure is a full-featured sampler that ships with almost 18GB of content, including new orchestral samples replacing the East/West samples in version 1. What it lacks in sophisticated performance features (such as Kontakt's scripting) it makes up for in the ability to drag in selected audio directly from a Pro Tools track. You needn't even edit the audio first—just select and drag it into Structure. Structure is as much a sample-

**FIG. 2:** Strike combines great-sounding acoustic drum kits with sophisticated mix integration with Pro Tools. You can play it in the traditional way or trigger its built-in patterns.

**FIG. 3:** Transfuser has more ways to bend and twist loops than you can shake your booty at. It combines dance-oriented synth modules with the ability to drag loops directly from Pro Tools.



based synthesizer as a sampler. It offers two multistage envelopes, a wide variety of filter types, layering, multitimbral mode, multiple audio outputs, a modulation matrix, and built-in effects.

Structure's latest version fixes problems with EXS import and adds Giga import. It also includes 5GB of new sounds—including orchestra, drums, and a new piano—that are on par with its previous sonic offerings.

If you use loops in your production, Transfuser is worth every second you spend mastering it (see **Fig. 3**). It combines powerful, musical loop manipulation with essential dance-oriented synths, including a new Roland TB-303-esque module. A single instance of Transfuser can hold enough tracks of loops and synths to create an entire rhythm background for a song. Each track comprises a sequencer, a synth or loop slicer, four effects slots, and mix controls. There are also two effects sends, groove quantization, extensive MIDI control (including the ability to record MIDI control to a loop), and intelligent randomization.

With respect to the included content, it pales in comparison to the beat manipulation of Transfuser. The Beatcutter effect alone is worth a thorough examination, and when you start assigning knobs to each variable, it quickly gets deep (see **Web Clip 3**). Transfuser takes the often tedious work of slicing and dicing loops and turns it into a performance.

## LIKE THIS, LIKE THAT

Hybrid is a synthesizer that combines the best of analog-style subtractive synthesis with digital wavetable synthesis (see **Fig. 4**). Its design comprises two parts, each of which has three oscillators and a sub-oscillator, multimode resonant filter, three LFOs, and four complex envelope generators (filter, amplitude, and two assignable). Each part has a 4-track step sequencer: Two parts are for pitch and velocity, and two are assignable modulation sources. Each part also has two insert effects; chorus, delay, and reverb are available as master effects.

Each oscillator, the filter, and the amplifier stage have a Modulation page on which you can assign as many as three modulation sources. The level (amount) of each modulation source ranges from -100 percent to +100 percent. This degree of control is easy to take for granted, but it can make the difference between a good sound and one with subtlety and vibe. And you can assign virtually everything to a MIDI control for

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**FIG. 4:** Hybrid is a sophisticated subtractive/wavetable synthesizer with oodles of modulation options. Between its LFOs, envelope generators, step sequencers, and MIDI control, it is capable of creating complex, evolving textures and pads.


real-time variation. In short, the amount of movement and shape that you can bring to bear on a Hybrid patch is nothing short of spectacular. The most recent version adds a multisquare waveform, three new noise types, and a bunch of new patches (see **Web Clip 4**).


**PACKING IT IN**

Installing the Expansion Pack's five DVDs was seamless on my PC desktop and MacBook Pro; iLok authorization means I can use the instruments on both computers easily and legally. Be sure to copy the documentation folder from the first installation disc as it doesn't install automatically, and the documentation in Pro Tools 8's documentation folder is for the older versions. The AIR documentation is thorough and clear, offering tables of default MIDI assignments, signal flow diagrams, and lots of shortcuts.

For less than \$500, you can afford to like some of these synths more than others, but each of them offers plenty to love. The Instrument Expansion Pack contains five top-shelf instruments designed with character and flexibility. Their feature sets are deep but accessible, and opportunities for MIDI control are everywhere. They are an outstanding complement to your Pro Tools system. \*

*Brian Smithers wrote Mixing in Pro Tools: Skill Pack, 2nd Edition and is department chair of workstations at Full Sail University.*





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**FIG 1:** AmpliTube 3 features numerous improvements in a variety of areas. The most significant may be the revamped cabinet section, which lets you use two virtual mics, position them horizontally and back and forth from the cabinet, and pan their signals if desired.

MAC/  
WIN

# IK Multimedia AmpliTube 3

A modeling powerhouse gets even stronger

By Mike Levine



## PRODUCT SUMMARY

**GUITAR/BASS AMP-AND-EFFECTS-MODELING SOFTWARE**

**PRICE:** \$299  
\$199 (Upgrade from previous version)

**PROS:** Flexible new cabinet section. Superb Leslie emulations. Numerous new models. Stereo input routing.

**CONS:** 4-Track Recorder/Player's pitch shifting algorithms mediocre at best.

|                           |   |   |   |   |   |
|---------------------------|---|---|---|---|---|
| <b>FEATURES:</b>          | 1 | 2 | 3 | 4 | 5 |
| <b>EASE OF USE:</b>       | 1 | 2 | 3 | 4 | 5 |
| <b>QUALITY OF SOUNDS:</b> | 1 | 2 | 3 | 4 | 5 |
| <b>VALUE:</b>             | 1 | 2 | 3 | 4 | 5 |

ikmultimedia.com

AmpliTube is one of the perennial leaders in the competitive world of amp-and-effects-modeling software, and its latest incarnation, AmpliTube 3 (see Fig. 1), represents a lot more than just an incremental upgrade. It's a huge overhaul that takes a successful product and improves upon it in almost every way. That's a good thing for IK Multimedia, because the competition in the modeling software category has increased both in quality and quantity during the past couple of years. In AmpliTube 3, IK has not only significantly beefed up its model set, it has also revamped some of the fundamental aspects of how the plug-in (which also runs standalone) functions.

In this review, I will focus on what's new, of which there is plenty. If you want to read about legacy features, check out *EM*'s review of AmpliTube 2 in the October 2006 issue, available at [emusician.com](http://emusician.com).

### FIRST THINGS

I installed AmpliTube 3 on my 8-core, 3GHz Mac Pro. The installation process

was smooth, and authorization was easy using IK's serial-number-and-digital-ID (the identifier of the host computer) system, which generates an authorization code that you then enter into the program's interface.

One of the first things I noticed when opening the plug-in was that it now lets you choose between three different levels of audio quality with correspondingly different CPU drain. If you are running on a slow computer, or you're planning on opening a lot of instances of AmpliTube or a lot of plug-ins in general in your session, this could be a handy feature. AmpliTube 3, like its competitors, eats up a lot of CPU on its high settings. For many situations, you won't notice much of a difference in sound quality when using the lower settings.

### MORE OF EVERYTHING

As with any amp-modeling software, the focal point of AmpliTube 3 is its amp models. IK has upgraded an already solid collection with a combination of new models, models imported from

other Powered-by-AmpliTube products, and upgraded versions of its existing model set.

To my ears, highlights of the new models include the British Copper 30TB, which emulates an early '60s copper-top Vox AC30 (a nice supplement to AmpliTube's existing AC30 model); and British OR, which is based on an Orange OR-120, and gives you some massively fat tube-like tone, especially when you turn the gain up. You also get three additional Fender models (to go with the two existing ones) ported over from AmpliTube Jimi Hendrix. My favorite of the three is American Vintage D, which emulates a Dual Showman (see **Web Clip 1**).

Other new amps include American Clean MKIII, an emulation of a Mesa/Boogie MKIII combo's clean channel, and American Lead MKIII, which covers the lead channel. Also new is Jazz Amp 120, which does a nice job of emulating the classic Roland JC-120 sound (replete with chorus, vibrato, and distortion). From AmpliTube Metal, you get five models, including emulations of a Mesa/Boogie Triple Rectifier lead channel, a Randall Warhead, a Marshall JMP100, and a Peavey 5150 100W head.

The new models supplement the existing collection brought forward from AmpliTube 2, which includes Fenders, Marshalls, a Vox, and a Supro—all of which have been reworked to offer a more realistic feel. I compared some of those AmpliTube 2 models against their revamped counterparts in AmpliTube 3, using the same amps and settings, and found that the differences were subtle, but the revised models did sound a bit fuller and felt a tad more realistic in the way they responded.

Three additional bass amp models were also added, including a Gallien-Krueger MB150, an Acoustic 360 pre-amp, and a Trace Elliot AH250 emulation (see **Fig. 2**). All three sound good, but I particularly liked the GK and the Trace Elliot, which made my DI-recorded bass parts come alive.

From an amp-model standpoint, everything in AmpliTube 3 is either new or upgraded. I was extremely impressed with the quality and variety of sounds. What's more, AmpliTube 3's clean sounds are convincing, which is no small feat for an amp modeler. Usually, the distorted sounds are easier to make sound realistic. AmpliTube's models are also flexible because many of them give you the ability to swap out preamps, EQ sections, and power amp sections so that you can make your own hybrid custom rigs.

### IN THE CABINET

Perhaps the most dramatic change in AmpliTube 3 is its revamped cabinet section. As with the amps and effects, the number of models available has been greatly increased. What's more, unlike in previous versions where you had only one mic model that could be used on a cabinet and only a couple of choices for placement, AmpliTube 3 offers two virtual mics that you can freely move around, both forward and back and left and right; you can't move them vertically. This really opens up a lot more sonic possibilities. One cool application for the dual mics is to spread the two on the cabinet and pan them, which lets you get some really wide sounds that are great for rock rhythm guitar, among other things (see **Web Clip 2**). Each of the two mic slots has Solo, Mute, and Phase buttons. If you only want one mic, you can turn off the second one. Another new parameter is the Size control, which lets you vary the virtual cabinet size, and has a pretty dramatic effect from one extreme to the other.

The number of mic models has been increased significantly from six to 15. In addition to an enhanced selection of classic dynamic and condenser models (including several more Neumann emulations), you also now get ribbon mics (including a modeled Royer 121). Without A/B'ing them, it's hard to completely judge the accuracy of the mic models, but they do seem to capture the essence of the mic types they're emulating and certainly give you lots of additional sonic options.

IK has also changed the room-mic scheme in AmpliTube 3. In AmpliTube 2, you just had an Ambience slider with which you could dial in room sound. The new version offers you two virtual room mics that can be moved from a close to a wide alignment, and everything in between. You also get to choose from five different types of rooms, with the smallest being Amp Closet and the largest Hall. What's more, you can control the pan of the room mics.

My favorite additions to the cabinet section are the two Rotary models, which provide excellent-sounding Leslie simulations. Each has Width and Balance controls, and a three-way speed control. The reproduction from these models is crisp, clean, and



**FIG. 2:** Three new bass amp models are provided, including this emulation of a Trace Elliot AH250.

stunning. They are some of the best Leslie emulations I've ever heard.

**SLICING AND DICING**

A huge amount of new effects have been put into AmpliTube 3. Nearly every category in the Stomp effects section has been substantially beefed up, and there are also additions in the Rack effects. Some of the Stomp highlights include a new group of beat-synched effects including Step Filter, Step Slicer, and Tap Delay. All are capable of yielding excellent, contemporary-sounding effects (see Fig. 3 and Web Clip 3).

Also new are several wahs; distortion pedals, including models of the Electro-Harmonix Big Muff Pi and Boss Metal Zone, among many others; a bunch of flangers and phasers, including an MXR Phase 90 model; a

**FIG 3:** Several new beat-synched effects are part of AmpliTube 3's significantly upgraded effects collection, including Step Filter Step Slicer, and Tap Delay.

Uni-Vibe emulation; and a resonant filter. Space doesn't allow me to detail all the new processors, but suffice it to say the effects selection is much bigger and more varied than before. Plus, all of the effects parameters can now be automated by your DAW, which is a huge improvement.

**FOLLOW THE SIGNAL**

Another significant upgrade is that AmpliTube 3 gives you the choice of

mono or stereo input, whereas the previous versions only had the former. Adding stereo means that you can use AmpliTube 3's significant processing on stereo sources, which opens the program to being a processor for non-guitar



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tracks and loops. I actually tried it out on drums, and while it wouldn't be my first choice for standard drum processing, it was great for off-the-wall, sound-design kind of stuff. You can get some pretty savage sounds when you put a fuzz box on a drum loop (see **Web Clip 4**).

An additional benefit of the stereo input capability is that you can have parallel mono amp-and-effects chains, which can each be addressed by a different input. (AmpliTube 3 offers a variety of signal-chain routing alternatives.) Now, two people can plug into AmpliTube and each have his/her own amp, cabinet, and effects chain.

#### TRACKING THE CHANGES

Also new is the 4-track audio player/recorder, which is a completely revamped and tricked-out version of AmpliTube 2's Speed Trainer. The recorder (which is

only available when AmpliTube 3 is in standalone mode) lets you either import an audio file (from a wide selection of formats) or record your own. It has tempo (speed) and pitch controls, which let you slow things down or speed them up. (A Link feature lets you choose to have all four tracks follow the tempo control if you want.) There are also pan and volume controls for each track, and you can use a separate instance of AmpliTube 3 on each track if desired. You can also export your finished recording in several different audio file formats.

I was not overly impressed with the algorithms used in the recorder's tempo and pitch controls, although they're fine for just slowing down a track to learn a part. Overall, the 4-track recorder is pretty feature-rich, but if you already have a DAW installed on your computer (and what person who owns AmpliTube wouldn't?), why

would you choose AmpliTube's recorder over your DAW, which has way more features? So for my money, IK would have been better off just leaving the Speed Trainer from AmpliTube 2 and beefing up the pitch and time algorithms.

#### ICING ON THE CAKE

Some of the other improvements in AmpliTube 3 include plug-and-play integration with IK's interfaces (StompiO, StealthBoard, and StealthPedal) and a new and improved preset-management scheme.

From the models to the cabinet section to the signal routing and automation, IK has taken an already strong program and made it substantially better. Now that is the definition of an upgrade. \*

*Mike Levine is EM's editor and senior media producer.*

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**FIG. 1:** Casio's very playable PX-3 keyboard instrument can be used onstage or in the studio.

# Casio Privia PX-3

A digital piano aimed at the pro market

By Asher Fulero

To help celebrate its 30th anniversary of making musical instruments, Casio has released its most focused and playable keyboard instrument yet: the PX-3 (see **Fig. 1**). This stage piano represents Casio's most serious foray into the pro keyboard market in recent years, and it aims to create a true-to-life playing experience that sounds and feels good enough to be considered a real choice on the stage or in the studio.

Although it has enough features to make it flexible and powerful, Casio has managed to keep the price relatively low (\$799). It weighs in at only 23.8lbs., which is incredibly light for a keyboard with real hammer action. The PX-3 offers a lot of value for the money, delivering on its promise of playability and portability.

## BEGGING TO BE PLAYED

The PX-3's Ivory Touch keys—which use a slightly rough-matte coating that gently grips the fingers in a similar way to the real thing—are a big part of what makes the piano feel authentic. Casio uses a three-sensor system combined with what feels like well-crafted hammer-action moving parts inside. Combined with the Ivory Touch, the PX-3 gives you a convincingly real playing experience. The keys have a measured evenness to their vertical throw and an even more evident key-to-key consistency.

The click of the secondary hammer is just enough to help the fingers subconsciously align, giving an even return/upswing that propels the fingers forward without kicking too hard or sticking too long. The PX-3's keyed action is my favorite of its features; in that department, it really shines.

The main Grand Piano patch (see **Web Clip 1**) is reasonably good, although it doesn't stack up from a realism standpoint against some of the more expensive, name-brand digital pianos I've heard. But compared to other 88-key, weighted-action keyboards in the same basic price range (for example, M-Audio's ProKeys 88, which costs about \$200 less), it sounds quite good.

Using Casio's version of velocity layering (called Linear Morphing), the PX-3 does an effective job creating tonal variation using four stereo AIF samples per note. Combined with the great key action, you get a much more engrossing playing experience than with other digital pianos in its price range. Many of the PX-3's other patches aren't quite as strong, but the main piano patch is believable and very playable, as are a few of the electric pianos (see **Web Clip 2**). I also liked some of the synth patches, especially when tweaked with the PX-3's DSP effects and filters.



### PRODUCT SUMMARY

#### DIGITAL PIANO

PRICE: \$799.99

**PROS:** Ivory Touch matte keys. Great hammer action. Lightweight. USB/SD card integration.

**CONS:** No knobs or sliders for control. No mod wheel. Complicated menu system.

|                           |   |   |   |   |   |
|---------------------------|---|---|---|---|---|
| <b>FEATURES:</b>          | 1 | 2 | 3 | 4 | 5 |
| <b>EASE OF USE:</b>       | 1 | 2 | 3 | 4 | 5 |
| <b>QUALITY OF SOUNDS:</b> | 1 | 2 | 3 | 4 | 5 |
| <b>VALUE:</b>             | 1 | 2 | 3 | 4 | 5 |

casio.com

## HOW TO READ THE MENU

Though the PX-3 has no sliders or knobs (besides the dedicated Volume knob), there is always instant access to Transposition, Bend Range (for the pitch bend wheel), Brilliance, EQ On/Off, and dedicated On/Off buttons for reverb and chorus. There are also two assignable buttons that perform patch-specific on/off functions. Because there is no mod wheel, these act as similarly utilitarian controls for Modulation, Portamento, Rotary Effect, assignable CC# output, and more.

Any further setting changes require a series of button pushes that take a bit of getting used to, especially on an unlit stage. The LCD screen is a tad small, resulting in the displayed information being a bit condensed, and making foreknowledge of the system layout important for making fast adjustments. The buttons themselves are slim with thin white text.

On the left-hand side of the piano are two grids filled with parameters. Pressing the Zone Edit button surfs between the five Common Parameters menus listed in the right-hand grid, the first being the default choices mentioned above. The front panel A/B/C/D buttons select each of the four values at the bottom of the display, and the Edit Up/Down arrows change the setting. Hold them down to move quickly, or hold the Shift button to jump by 10. A single slider or knob would have made the process easier.

## DIVIDE AND CONQUER

The PX-3 has basic layer and split features that can be combined to create four unique zones, two layers on each side. Each zone can load a patch. Including the main piano there are 250 total patches: 92 highly customized flagship patches along with 158 GM Level 1 patches. These can be played directly from the piano or used with MIDI files from an external sequencer or a card in the PX-3's multifunction SD card slot.

Registration data can be saved into 64 presets or backed up to the SD card, which will recall settings for layer, split, reverb, chorus, and more; plus Patch information for the four Zones. Holding the Zone Edit button for two seconds brings up Zone Parameter mode, which contains seven menus of zone-specific parameters for mixer and MIDI, DSP-effects, ADSR envelopes and filters, and more.

Despite the complex menu system, the PX-3 is packed with user-friendly design elements. I love that the rear ports are listed on the top so that I can patch without having to turn the unit around. Along with the 1/4-inch stereo output are 1/4-inch inputs, although they are routed as is—they have no onboard volume control. There's also a MIDI file player built in, which can play back sequences to internal sounds or external devices and transmit SysEx. The USB port lets you back up your data and can also be used to transmit MIDI (in addition to the standard MIDI In and Out jacks).

## GETTING IN FOCUS

Though it may not be perfect, the PX-3 represents a landmark moment in Casio's focus on remaking its image in the eyes of keyboardists. What the PX-3 lacks in interface clarity it certainly makes up for in quality physical action that will help it find a home in many rigs simply as a great hammer-action controller. Because Casio is making the PX-3 in limited quantities, it may not find as widespread acceptance as it should, but hopefully it will inspire the next addition to its PX family toward an even more keyboardist-centric design. \*

*Asher Fulero is a pianist/keyboardist and tech-savvy electronic music producer with a long résumé and endorsements from Moog and Nord. Visit [asherfulero.com](http://asherfulero.com) to hear his newest independent release, The Green Piano.*

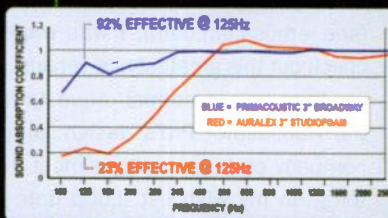
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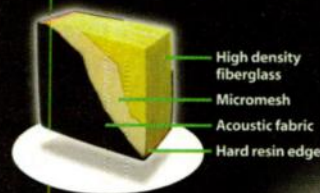


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# QUICK PICKS

## KORG \* KAOSILATOR PRO

By David Battino

The Kaossilator Pro (\$399) combines the one-finger fun of the original Kaossilator touchpad synth with the burly hardware of the KP3 Kaoss Pad effects processor and MIDI controller. It also adds one of my favorite microSampler features: continuous audio overdubbing. Having reviewed all three instruments (see [emusician.com](#)), I was eager to check out this greatest-hits version.

Korg says customer requests drove the Kaossilator Pro's design, and the company certainly nailed almost everything on my wish list. Loop time now goes to 16 beats (four bars), you get four loop pads, and there are twice as many sounds. You can back up loops and settings to an SD card and via USB, although transfers are slow. The Program Volume knob works as a third controller for the sound you're playing on the pad, even transmitting its value over MIDI so you can edit your performance. However, this mode transmits notes as MIDI CCs, making editing awkward.

Some favorite features didn't make it. Korg replaced the Kaossilator's 50 galloping arpeggiator patterns with a slider that outputs only steady streams of notes. There's no overdub-undo function, and unlike the KP3, the Kaossilator Pro can't resample loops to free up pads or process loops with the internal effects.

### A GREEN SLATE

Physically, the Kaossilator Pro is almost identical to the KP3, although several controls have new functions. The fader now has two modes, toggled by a switch on the back panel (a terrible place for a performance switch, but I'm glad Korg offered the bonus mode). In Speed mode, the fader retriggers the sound you're



The Korg Kaossilator Pro is a monophonic touchpad synth with four stereo loopers (plus a secret fifth one), audio input, and USB MIDI controller capability.

playing in increments from half notes up to 64ths, with a few triplet values along the way. That lets you build quantized drum loops from individual drum hits, as well as create stuttering effects. In Time mode, the fader adjusts the decay time of the triggered notes, adding variety.

Dedicated Scale and Key buttons make selecting appropriate notes easier. As on the original Kaossilator, you choose a scale mode, starting note, and note range, and the instrument plays only those notes as you slide your finger horizontally on the pad. Vertical movements change parameters like modulation and effects depth. Small note ranges offer more precision; it's easier to hit individual notes reliably (see [Web Clip 1](#)). Larger ranges generate real chaos, especially fun when controlling external synths over MIDI. (In External Control mode, the pad does transmit MIDI note numbers.)

### SOUNDS OF KAOSS

The Kaossilator Pro offers 185 preset sounds, grouped into leads, acoustic simulations, basses, chords, sound effects, drum hits, and drum patterns. The acoustic sounds are still weak; I got more realistic results playing a General MIDI module

from the pad. Most of the rest are truly wonderful (see [Web Clip 2](#)). You'll find 15 effects programs, including 10 vocoder variants, that process the mic or line input. Now that you can set the starting note, the vocoder is much more usable than that of the KP3, although still not especially intelligible (see [Web Clip 3](#)).

Hold down one of the four loop pads, and it records what you're playing on the X/Y pad and then loops it. You can overdub unlimited passes on the same pad with the same or different sounds, setting their initial level with the Program Volume knob. That's a huge advantage over the original Kaossilator. You can also overdub unlimited external audio. I whipped up some amazing textures by singing through the delay and pitch effects (see [Web Clip 4](#)).

The loops automatically sync with each other, but if you're syncing to external MIDI clock, you'll want to retrigger them at the top of each phrase for the tightest timing. Changing the tempo changes the loops' pitch; there's no time-stretching. One cool feature is that you can replace parts of a loop in real time if you hold the Erase Loop button while recording.



The Kaossilator Pro builds on the breakthrough features of its predecessors, becoming even more inspiring. How does it stack up in these days of multi-touch, motion-sensitive iPad synths? See **Web Clip 5**. For me, the most important

advantage is in sound quality and immediacy. Korg's sound and effects programs are bold and animated, and you can flip between 200 of them instantly. You can't customize those sounds, but the ability to control other synths over MIDI helps

make up for that. The Kaossilator Pro is a powerful instrument that does far more than you'd expect. \*

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**Overall rating (1 through 5): 4**  
korg.com

## QUICK PICKS

## NEO INSTRUMENTS \* VENTILATOR

By Rob Shrock

**N**eo Instruments' Ventilator (\$499) is a digital rotary cabinet simulator in the form and feel of a high-end analog stompbox. Specifically modeled on a Leslie 122, the Ventilator sets the new standard for those who want to carry their rotating speaker effect in one hand rather than strapped to a dolly.

Like a real Leslie, the Ventilator is a mono-input unit; all the magic emerges from stereo outputs. Its virtual microphones are a stereo pair on the treble rotor and a single mic on the bass rotor. A Hi/Lo gain button accommodates the levels of keyboards and guitars, and the output is level-compensated to maintain consistency between the gain settings.

A Key/Git switch controls the speaker emulation. Key mode reproduces the frequency response and characteristics of a Leslie 122, and is intended for use with full-frequency studio monitors, P.A.s, and keyboard monitors. The Git bypasses the speaker emulation and is primarily for running into a guitar amp for coloration.

A Bypass footswitch activates the effect or sends the uncolored input signal to both outputs via a true-bypass circuit. A Slow/Fast footswitch toggles between Chorale (slow) and Tremolo (fast). Unfortunately, there is no way to access Brake (full stop) from the unit without the use of a remote dual-footswitch or Hammond CU-1 half-moon-type manual switch. Both the remote and onboard switches are simultaneously active, allowing Ventilator to be placed on top of a keyboard for hands-on control while also being controlled by foot.

The control knobs are large enough to easily tweak in a stage environment.

The single Speed adjusts the upper and bottom rotors simultaneously and affects both Fast and Slow settings. At times, I felt the fast setting a bit too modulated and I perceived a slight added brightness, but these are minor criticisms.

Acceleration adjusts the time it takes the rotors to slow down and speed up, again affecting both. The Balance control adjusts the relative level of the top rotor to the bottom rotor, acting as a general way to brighten or darken the sound. The Drive knob controls the tube amp simulator, which provides an authentic grind that sounds analog. The Drive pot is level-compensated, so changing the distortion does not change the volume. Going from pristine jazz to Jon Lord territory is just a knob twist away.

The Distance control moves the virtual mics closer or farther from the rotors. Up close, there is a very pronounced sense of amplitude modulation and a very wide stereo image. Increasing the distance blends the rotors more, creating a less wide overall effect and imparts a pleasing sense of room and space. Either extreme setting sounds nearly identical to a real Leslie miked up in the same manner, with all the various nuances in between.

Setting the controls to straight-up 12:00 (except Drive) matches the average response of a Leslie 122. This was a great starting place for my Korg CX-3, although I eventually settled on slowing down the Acceleration to 2:00. The recommended Speed and Balance settings were spot-on to my ears, and I tended to like the Distance set a little farther away, at around 1:30.



The Ventilator sets the new standard for rotary cabinet simulation.

A real Hammond B-V sounds great through the Ventilator, as does an electric guitar. Although my two organs don't sound identical, both sounded authentic in recording and were very satisfying cranked through a pair of powered stage monitors. While cutting an organ track with the CX-3, I would have believed I was hearing a real Hammond and Leslie if I didn't know better.

A simulator is never going to sound like a real rotary cabinet because it's the 360-degree source's bouncing around the room that creates the actual Leslie sound. However, when you mike a real rotary cabinet and squeeze that into a stereo recording or amplify it through a P.A. in a performance, much of the real magic of the original is lost, and what you're left with is a representation of a rotary cabinet. No matter the settings on the Ventilator, the overall illusion of real 3-D movement, wood, and air is always present and nearly sounds exactly like what a miked Leslie sounds like in a recording or projected through a sound system. \*

---

**Overall Rating (1 through 5): 4**  
neo-instruments.de

Stompbox tuners aren't typically fodder for *EM* reviews, but because of the groundbreaking polyphonic detection technology in TC Electronic's PolyTune (\$99), we thought it deserved coverage.

The size of a standard stompbox, the shiny white unit features spiffy-looking blue-and-black lettering, and has a single footswitch in the middle that toggles from active tuning status (with the output muted) to True Bypass. The latter is an important feature because it means the unit won't adversely affect your tone when plugged into your signal chain.

PolyTune's I/O comprises mono ¼-inch jacks, with the input on the right side and the output on the left. (Typical of a floor tuner, it has no built-in mic.) The display is an LED, but it's not one of those cheesy ones where you only see part of a letter—it looks really good. It's easy to read indoors and on a dark stage. In direct sunlight, the readability drops significantly, but you can still see enough to tune.

### POLY WANNA TUNE?

What makes PolyTune different is its polyphonic detection of string pitches, which means you can strum your guitar when it's set to Guitar mode or your bass when it's in Bass mode (which can accommodate 4-, 5-, and 6-string basses), and you'll get a reading of all the strings at a glance, showing which are sharp, which are flat, and which are in tune. In Polyphonic mode, the strings are represented in a semicircular pattern of green-light pairs, each of which indicates an individual string.

If you see red lights below the green pair for a particular string, it indicates flatness; above indicates sharpness. (If a string is more than a half-step sharp or flat, the green lights will either blink or not even show up, but red ones will indicate sharpness or flatness.) When you begin to tune, the unit switches automatically into Chromatic mode—for

which you can choose either a Needle display or a Stream display (similar to a strobe tuner)—for the string you're tuning.

I asked the product manager at TC for more details on the technology used for the polyphonic detection, and he was understandably reticent, explaining that the company needs to keep its methods secret for competitive reasons. He said that what made that feature particularly challenging to engineer was the amount of harmonics created when a string is plucked. To give you the near instantaneous all-strings-at-a-glance display, PolyTune's software has to be able to quickly separate the fundamentals from the harmonics.

### STRING-DRIVEN THING

In Polyphonic mode, you strum an open chord (assuming you're in standard guitar or bass tuning), and you instantly see your tuning status and know which strings need to be tuned and in which direction. I've been using the tuner, both in my pedal board and in my studio, and I've found it to be extremely accurate and stable. PolyTune also has a very handy feature called Tuning Magnet, which slows down the Needle or Stream display in Chromatic mode as it gets closer to the target pitch, making it easier not to overshoot.

However, PolyTune is not for everyone. If you play in open tunings and want to use the Polyphonic tuning mode, you're out of luck. That mode can only recognize standard guitar tuning, although it allows you to drop the entire tuning down as far as a fifth below standard. Other instruments, like violins or mandolins, are not recognized in Polyphonic mode either. That said, the Chromatic mode is awesome and will smoothly detect any note



PolyTune's Polyphonic mode lets you see the in-tune status of your strings all at once.

on any instrument, which is the best you can say about any other tuner.

When I tried PolyTune with my Taylor 510 acoustic, which has a built-in piezo pickup and with a piezo-equipped resonator guitar, the display wouldn't stay in Polyphonic mode for more than a couple of seconds before snapping back to Chromatic mode. Not a deal-breaker by any stretch, but curious. One other minor drawback is that the tuning indicator doesn't read out in cents, so if you want to use a tempered tuning, it will be difficult to gauge what the correct pitches are.

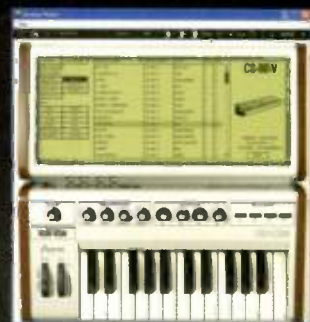
Overall, PolyTune is an excellent product that gives you accurate tuning and the unique all-strings view of Polyphonic mode. If you're an iPhone user, you can get the PolyTune app, which offers essentially the same functionality (albeit with the iPhone mic substituting for ¼-inch jack) for \$9.99. It wouldn't be as useful onstage, but in a quiet studio environment, it provides a very inexpensive way to tap into TC's impressive new technology. \*

**Overall rating (1 through 5): 4**  
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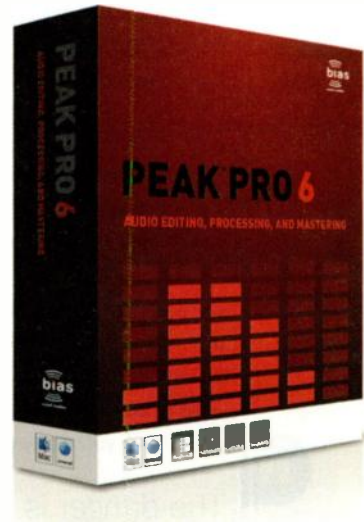


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## Compression Blues

One thing that the history of the human race tells us is that, where technology is concerned, convenience will always win out over quality of experience. But ask yourself this question: If you had the choice, would you rather see the *Mona Lisa* in the flesh or look at a thumbnail jpeg of it on your mobile phone? And if you'd only ever seen the virtual *Mona Lisa*, would you really feel honest saying you'd seen it at all?

As we enter the second decade of the MP3 era, it's a good time to point out that fans of music face a similar dilemma as above. If you've only experienced an album as compressed audio files on your iPod, have you really experienced it?

“

The danger is that with the ubiquity of MP3 players, convenience and portability will come to trump sound quality and aesthetic beauty as the measure of what is worth listening to.

The Internet and cheap computing power have given initiative back to artists by making the act of recording and distributing music available to all. However, the attendant danger is that with the ubiquity of MP3 players, convenience and portability will come to trump sound quality and aesthetic beauty as the measure of what is worth listening to. While the download culture means that perhaps more music is being listened to now than ever before, isn't this just a hollow victory of quantity over quality? Isn't there such a thing as an art to listening to music?

I believe so. Anybody who has heard a piece of music properly mixed, mastered, and played back at even standard CD resolution versus that same piece of

music as an MP3 will appreciate the chasm between the relative quality of experience. Like making a photocopy of a priceless work of art and then mounting it in a dusty picture frame, compression of music flattens out the nuance and beauty of sound that we work so hard to achieve in our recordings.

More than that, the whole downloading phenomenon cheapens the music, reducing it to the level of mere software. As a teenager, I could only afford to buy one record per month with my pocket money, but you can bet that once I made that difficult decision about which record to invest in, I took it home and devoured it for days, pored over the lyrics and artwork, decoding it to get everything I could from it.

Now, because people can download an artist's entire back catalog in minutes, they can dismiss it just as easily. If a kid wants to check out Pink Floyd or The Beatles, he or she simply downloads everything (which doesn't cost a cent), listens to a few tracks, and, because there's no investment in time, energy, or money, if it doesn't connect immediately, it likely never gets another chance. But how many albums that you really love did you connect with the first time you heard them? I'm not alone in saying the albums I love the most are the ones that did not connect with me the first time through. But if I'd just downloaded this stuff for free, I probably would never have given any of it a second chance.

As well as a beautiful sonic experience, I want to see the artists carry their aesthetic through to the presentation—if music is art (which I think at least some of it is), then it should be presented as such—with beautiful cover designs, elaborate packaging, special limited editions, and so forth. Yes, these things are more expensive to make and sell, but one thing that experience has taught me is that if you give people something to treasure, they barely even notice the price tag, or that they could probably get the audio for nothing elsewhere if they wanted to.

Make the fans believe that you care about the art and quality, and it's my belief that they will reciprocate in their buying and listening habits, the care and attention we ourselves have given to creating the music. Before we all lose the art of listening altogether. \*

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*Steven Wilson is the lead vocalist, guitarist, and founding member of the band Porcupine Tree. His most recent solo album, *Insurgentes*, was released in 2008. Go to [swhq.co.uk](http://swhq.co.uk) for more info.*



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