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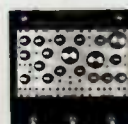


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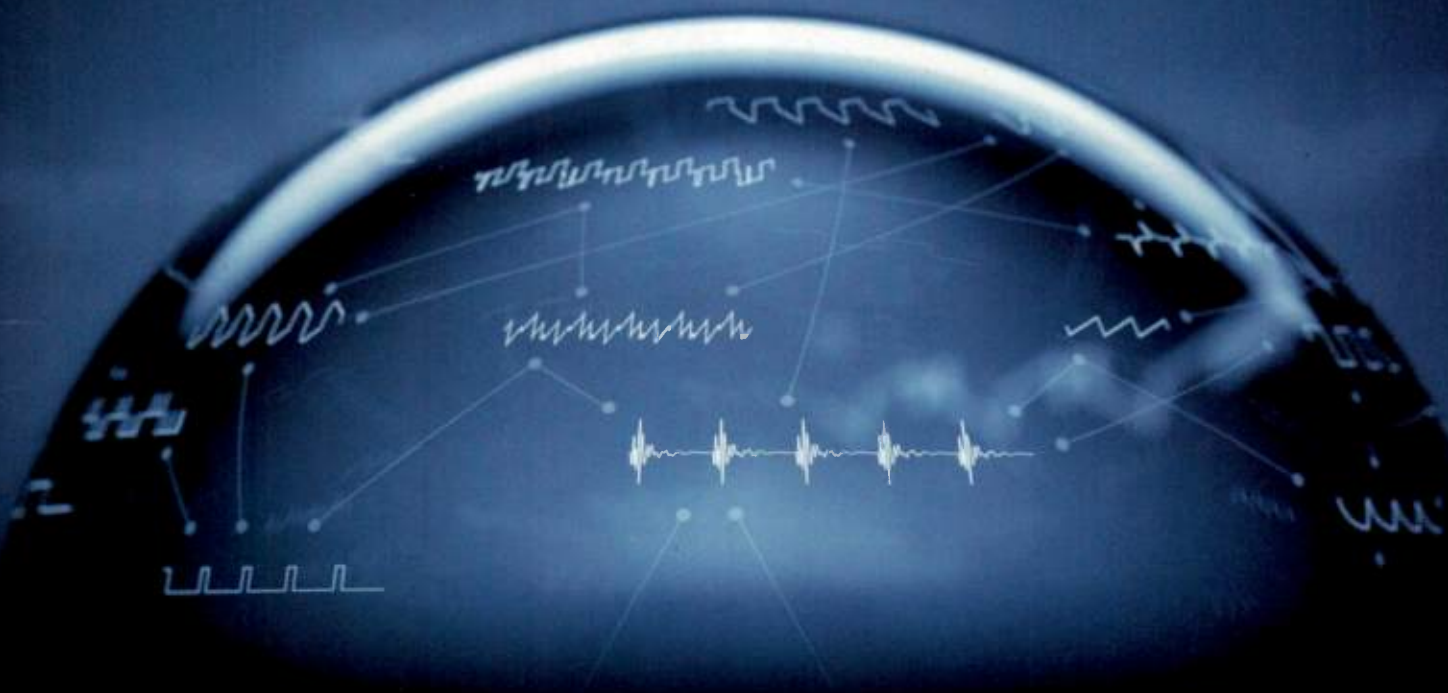
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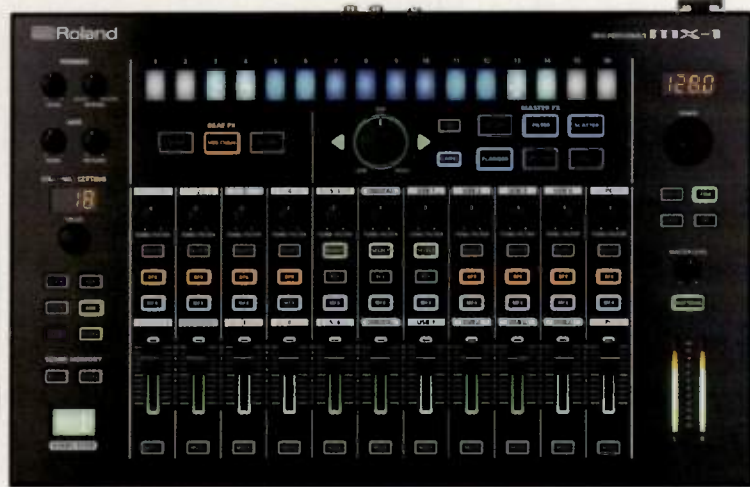


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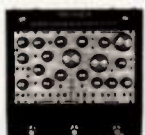
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CHVRCHES

Former guitar rockers capture the hearts of a synth-pop generation



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New releases from Aphex Twin, Big Talk, Kevin Gordon, and more

**Duran Duran****DURAN DURAN**

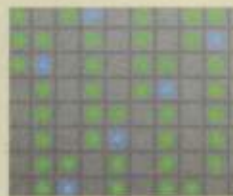
Once and forever pop stars Duran Duran joined with super-producers Mark Ronson, Nile Rodgers, Josh Blair, and Mr. Hudson, as well as an array of guest artists, to create their 14th album, *Paper Gods*.

GEAR REVIEWS



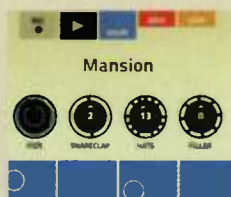
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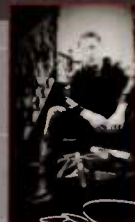
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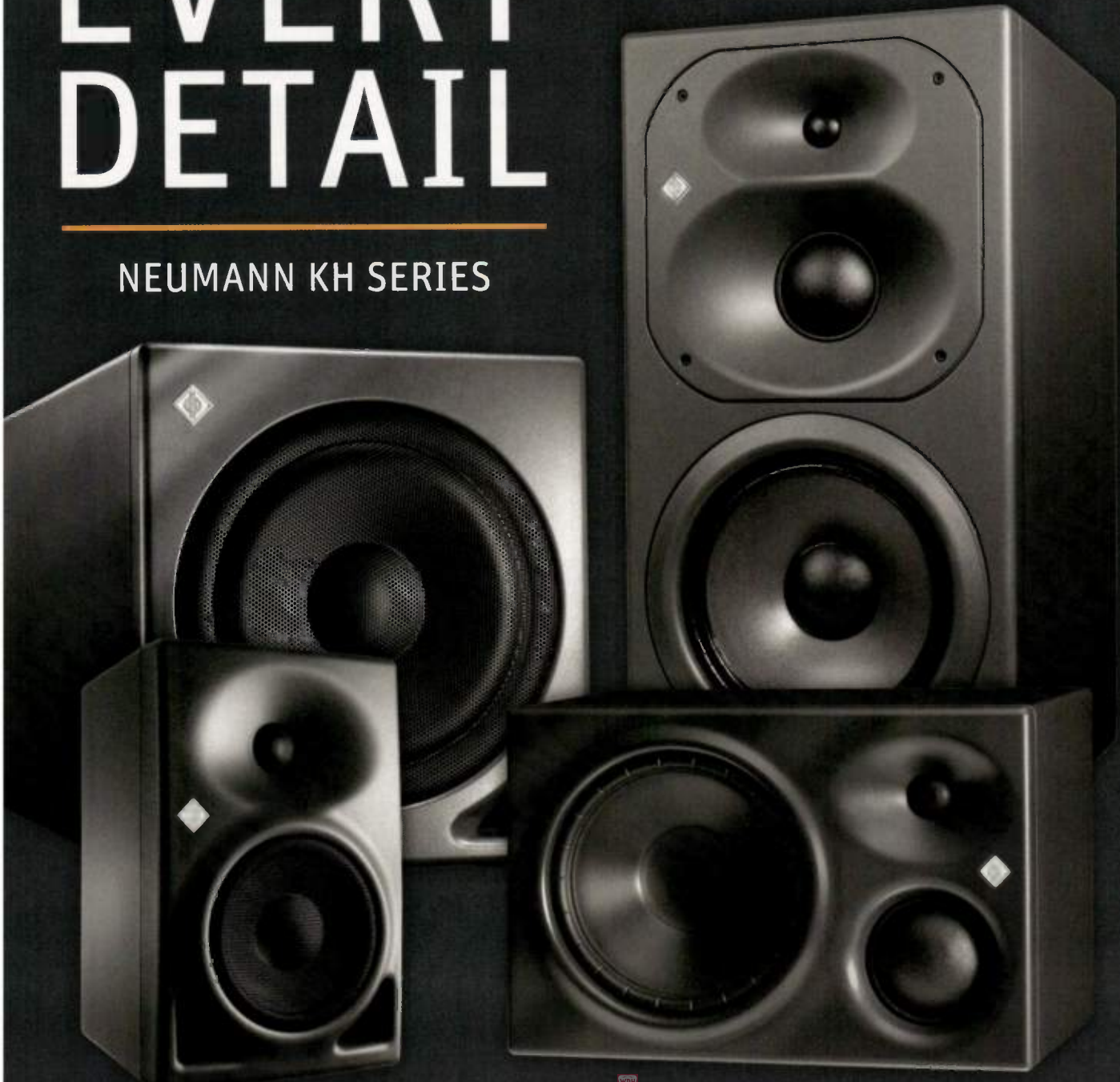


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insight

Headphone Hunting

MANY OF us are finding ourselves mixing more frequently on headphones, whether we're traveling, looking to keep noise down and/or take room acoustics out of the equation, or just recreating a typical user experience. Maybe your choice is purely economic: Top-range headphones usually cost a lot less than top-range speakers.

Headphone quality and comfort are crucial in many music scenarios, from tracking to performing to DJing. (Headphones can even make or break an artist's performance in the studio.)

And just like selecting the right microphone for the instrument that you are recording, it's important to choose the right headphones for your application (critical listening versus tracking, for example).

When shopping for headphones, evaluate them carefully, just like you would monitors. Listen to familiar material—ideally, something that you've recorded. Bring raw tracks of instruments you know well; audition mixed and mastered tracks, in a variety of formats. Use the same headphone amp in

all of your evaluations. But unlike with monitors, comfort is a key factor with headphones. Consider ergonomic design, build quality, and physical fit.

Headphones are available at wildly different price points. Often, you get what you pay for, but we've rounded up a host of solid, affordable models in this month's cover story ("Headphones for Musicians," starting on page 20), with prices starting at just \$99. So if you're on a budget, dig in: We know you'll find a pair that sounds good and feels good.



SARAH JONES
EDITOR

sjones@musicplayer.com

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WEB HIGHLIGHTS
**This month on
emusician.com**

Felix Da Housecat
Interview Outtakes

Plus...

The DIY Advisor: 5 Ways to Improve
Every Marketing Message

Bonus headphone guide:
We review units up to \$500

...and lots more!



gadget geek

Squarp Instruments' Pyramid



Need more hands-on time in your MIDI-based sessions or gigs?

Check out Squarp Instruments' Pyramid, a fully polyrhythmic, fully standalone hardware sequencer offering MIDI, USB, CV/Gate, and (Sync48- and Sync24-configurable) DIN Sync connectivity. The unit runs on the proprietary PyraOS system, which allows any parameter to be controlled on the fly and for changes to be immediately auditioned. Features include a multipoint touchpad inspired by Korg's Kaoss Pad and Kaossilator, and even an algorithmic Euclidian engine. Available for \$799 at squarp.net.

app tip Soundness VideoSoap 2

BY MARKKUS ROVITO

Clean up the audio from your iOS videos

WHEN YOU'RE a musician or audio pro, people will expect great sound from anything you create—even mobile videos. From the makers of the popular SoundSoap audio restoration software comes VideoSoap (soundness-

llc.com), which builds in certain SoundSoap technology for removing noise and enhancing the audio from your iPad and iPhone videos.

1. Tap the Plus button in VideoSoap to choose a video from your Camera Roll.

2. While playing the video, find a segment that has the noise profile you want to reduce, but not the audio elements you want to keep. Swipe your finger across the video to scrub it backward or forward. While your chosen segment plays, hold the Learn button so the app can examine the noise.

3. VideoSoap will set a point on the Denoise slider based on its Learn

assessment of the video's noise. You can adjust the setting or bypass it for comparison.

4. A Boost slider applies compression to the video's audio track to boost quieter elements. We recommend dialing in this setting after you find your preferred Denoise setting.

5. As a final step, the Enhance slider adds algorithms for brightening or clearing up the audio. We found that it can be a pleasant touch to the audio track.

6. When you're satisfied, tap the Share button to save the video back to the Camera Roll, email it, or send it available apps like Dropbox, Vimeo, Facebook, Evernote, etc.

VideoSoap costs \$9.99 at the iTunes App Store.



ASK!

I WANT TO TRY USING MY GUITAR AS A MIDI CONTROLLER. IS THERE AN INEXPENSIVE SETUP AVAILABLE, ESPECIALLY ONE WHERE I DON'T HAVE TO MODIFY MY INSTRUMENT?

R. WHITE
SAN JOSE, CA
VIA EMAIL

Using your guitar as MIDI controller has never been easier. One of the most basic yet musically useful products for audio-to-MIDI conversion is

Jam Origin MIDI Guitar (jamorigin.com), which lets you use your electric guitar as a polyphonic MIDI controller. MIDI Guitar is available in three formats—as a standalone program for Mac/Win, as an AU/VST plug-in, and as an iOS app. Ver-

sion 2 is in beta as of this writing, and each version is available as a free trial.

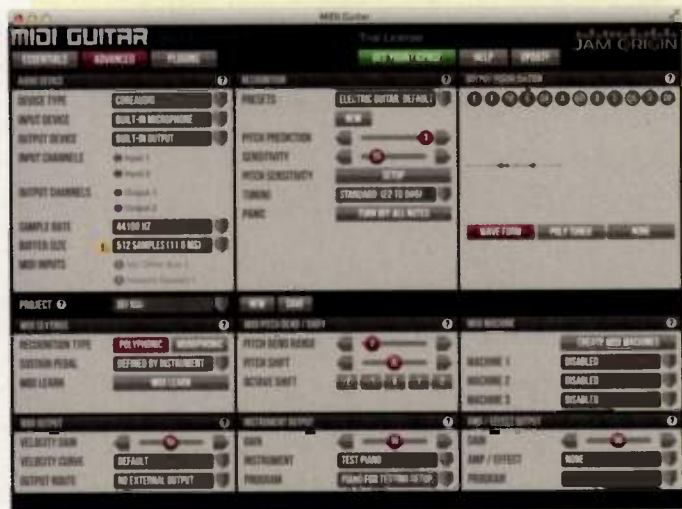
To use MIDI Guitar 2, simply plug your instrument into an audio interface connected to your computer or mobile device, then launch the app. You can load a soft synth into the standalone version as well as the plug-in and run it from there, or have MIDI Guitar 2 send MIDI data to a track in a DAW's piano roll or notation program. Unfortunately, MIDI Guitar doesn't let you assign individual strings to independently control different instruments as you can with a hard-

ware-based guitar system. Nor can you send control change and other MIDI message directly from your instrument.

Nonetheless, MIDI Guitar tracks very well once you go through the setup process to adjust overall string sensitivity. If you use different guitars, the program lets you save and recall these settings for each of your instruments.

What about bassists, you ask? Although it currently operates only as a monophonic converter, Jam Origin now offers MIDI Bass Beta 1, which you can grab for free online.

THE EDITORS



Plug and play: Jam Origin MIDI Guitar is an inexpensive way to get polyphonic audio-to-MIDI conversion for controlling software synthesizers on your computer or iOS device.



Got a question about recording, gigging, or technology? Ask us! Send it to ElectronicMusician@musicplayer.com.

YOUR TAKE

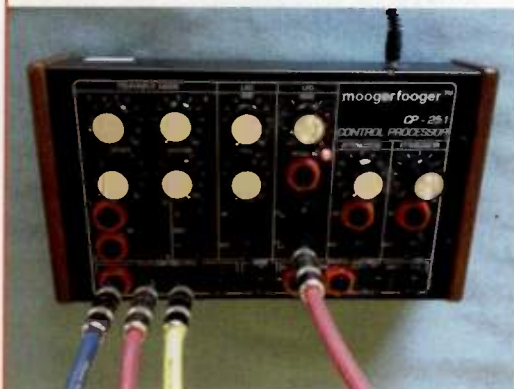
Novation MoroderNova Giveaway: THE WINNING ENTRY

TO CELEBRATE our August interview with Giorgio Moroder, we asked readers to submit their favorite retro-style synth tips for the chance to win one of Novation's limited-edition MoroderNova synths, and the next thing we knew, our inbox was inundated with a mountain of awesome production tricks. Our favorite submission comes from Chris Catalina, who shares a great technique for creating killer drum patterns; Chris wins a 37-key MoroderSynth instrument featuring 51 "Moroder-approved" custom patches and a sleek, one-of-a-kind design. Congratulations!



The limited-edition MoroderNova synth: a 37-key instrument featuring 51 "Moroder-approved" custom patches and a sleek design.

Chris' favorite retro-sounding synth production trick:



1. Take an LFO CV out (modular, synth with CV, etc.) and turn the LFO knob all the way to the left (essentially "zero").

2. Hook it up to a CV splitter (like the 4-way multiple on the Moog CP-251, or even a splitter cable).

3. Hook up one CV output from the splitter (or 4-way multiple) to your synth's filter cv input.

4. Hook up the second CV output from the splitter (or 4-way multiple) to your synth's pitch CV input.

5. Take an old drum machine like a TR-606 and hook up one of the trigger outputs from the toms (H or L) to the gate input of your synth.

6. Create a Tom pattern (whatever tom is triggering the gate). Play the pattern on the drum machine. Hold a note down on the synth.

7. Turn the LFO knob slightly to the right increasing its speed very slow...you'll hear a filtered syncopated melodic rhythm triggered by the tom hits from the drum machine, and the more LFO juice you give it, the higher the pitch goes, and the more open the filter sounds.

It's a massive sound for only hooking up a few cables and creating a simple drum pattern! It sounds thick and delicious.

A dedicated reader and synth enthusiast,
Chris Catalina
soundcloud.com/catalinamusic

“

IF NEIL YOUNG WERE 25 TODAY, HE'D BE GIVING HIS MUSIC AWAY FOR FREE.

Bob Lefsetz on Young's announcement that he would be removing his music from all streaming services, on Variety.com, July 31, 2015

FIVE QUESTIONS WITH Chris Cornell

Inside the *Higher Truth* recording sessions

BY KEN MICALLEF

CHRIS CORNELL'S fifth solo release, *Higher Truth*, is a stripped-down, reflective, intimately joyous record enlivened by the Soundgarden frontman's dynamic vocals and performances on guitar, bass, mandolin, and percussion. Produced and mixed by Brendan O'Brien, who also contributed guitars, keyboards, bass, drums, and hurdy-gurdy, *Higher Truth* flows with acoustic instrumentation and yearning melodies.

Cornell took a break from recording his own vocals (which has been his practice ever since Soundgarden's "Black Hole Sun") to talk about the project.

Your latest album is essentially a duet between you and producer/mixer Brendan O'Brien. Why did you follow that approach?

I wanted to expand on the songs a little bit from the demos but I didn't want to do it a lot. I wanted one other person's take on it. That's risky because it has to be someone who understands the direction of the music. On a gut level, I really believed Brendan knew what the album should sound like. I knew he was a great musician, and I liked working with him as an engineer and a producer in terms of him recording my vocal on Audioslave's *Revelations* album. I usually record vocals alone, and I usually don't have a great time doing it. Most producers and engineers have no idea what I am capable of. And they don't know what they are hearing. They just hear a voice coming out of the speakers and they settle for that. I can choose a microphone and dial up a sound that works for my voice in ten seconds. Some engineers can also do that; most engineers can't find it if you give them a week. I am picky in how I want to hear things. It just has to be right or I don't have any fun and I don't want to do it.

I felt like on an album as stripped down as this one is, it's super important that the performances are good. They're live tracks so it had to be recorded right the first time, and there needed to be a guy in the room who when he said "you sang it right," I believed him, and when he said "you didn't sing it right," I believed him. I knew Brendan was that guy. And he has a vast knowledge of sounds that could compliment the atmosphere of songs without stepping on them. And he's a great bass player.

What was the recording process?

I'd run down a couple song takes on acoustic gui-

tar. Then Brendan would play bass over that, and I would sing to those two instruments. I needed to sing to those to pitch right. His bass was a placeholder, but after a few songs I discovered that he has a really great feel as a bass player. He has a Paul McCartney approach to the bass, which works well with my songs because as a songwriter and arranger, The Beatles are by far my biggest influence. We went for a Beatles [production] approach on *Higher Truth*. It's a little epic but not overdone. It's hard to address that subject without sounding like an asshole or getting into some New Age, preachy thing. Something was annoying me and I wanted to use that song to write that away.

Did you get better vocal performances on *Higher Truth* by having Brendan O'Brien there?

Yes, the record is actually better than my demos. Usually, my demos sound more energetic and more inspired. That's because I haven't become self-conscious about performing the songs yet. They'd become stiff when I recorded them for the album, and there'd be things that I couldn't recreate. But it works with Brendan because he is a sing-it-three-times-and-that's-it kind of guy.

It all started when I did 11 takes of "Black Hole Sun." The producer, Michael Beinhorn, did a comp, which took him two days. He was really excited for me to hear it. I was bummed out, crestfallen; I hated it. It sounded so stiff and awful. To his credit, Michael said, "maybe you should re-

cord your vocals yourself." That was the first time I did it [alone in the studio]; I sang it three times. I did that for the rest of the album, and *Down On the Upside*. The first two Audioslave albums as well, and most of *Euphoria Morning*. I did all of *King Animal* at home. I wanted to work with Brendan so I wouldn't be doing it all myself. It's great to do it alone when you want to try different things and you don't want to waste anyone's time.

Tell me about some key pieces of gear that you used on the record.

I think Brendan used a Neumann 251 for half of the record, then a vintage U67, which I use a lot. And a Shure SM57 on one song.

The Neve 1071 works well with me. For mixing, Brendan used some type of compressor that is his secret for focusing the vocals. We used a DBX compressor to tape; it was pretty straightforward.

You have an amazing ability to probe the human psyche in all its joy and pain like nobody else. Is that nurture or nature?

When I am writing a song, I have to feel that or no one is going to hear the song. What scares me is that if I record it and I am excited about it, whether it's happy, sad, or a longing, whatever that is, I don't know if the guys in the band will feel it or if the listener will feel it. I don't think there is a way to know until you play it. There's no litmus test to know you nailed it.



JEFF LIPSKY



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vsl.co.at

3
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Mic preamp and converter
\$699 street

HIGHLIGHTS Eight digitally controlled XMAX Class A mic preamps • individually switchable phantom power • rear-panel I/O • mic/line inputs on XLR jacks • mic and line inputs, direct and DAC outputs on DB25 connectors • 24-bit, 96kHz resolution • eight channels of ADAT optical I/O • Word Clock and MIDI I/O • uses Burr-Brown A/D/A converters

TARGET MARKET Pro and home studios, education, houses of worship

ANALYSIS Designed for standalone use or integration with other PreSonus products, such as the Studio 192 audio interface.

presonus.com

4
STEINBERG
NUENDO 7
Digital audio workstation
\$1,800 street

HIGHLIGHTS Audiokinetic Wwise game-design middleware integration • VCA faders • ReConform edit-to-picture alignment • video-text overlay for ADR • Render Export • Render in Place • multiband expander • multiband envelope shaper • includes VST Bass Amp, Quadrafuzz v2, Padshop, HALion Sonic SE 2, and many plug-in updates • redesigned track list and inspector • can import session data

TARGET MARKET Recording engineers, musicians, game audio developers

ANALYSIS The new features in this professional-level DAW include workflow enhancements for game audio and other multimedia projects.

steinberg.net

All prices are MSRP except as noted



5 BOSS DD-500

Stereo digital delay
\$299 street

HIGHLIGHTS 12 types of delay, including emulations of vintage models such as the Roland SDE-2000 and SDE-3000, and Boss DD-2 • independent phrase looper • 4-band semi-parametric EQ • modulation and ducking • pitch shift • filtering • expression pedal input • standard MIDI I/O • USB port for backup and computer control • large LCD • runs on AA batteries or AC

TARGET MARKET Instrumentalists

ANALYSIS A powerful and pedalboard-friendly delay that is easy to use but offers deep programmability.

bossus.com

6 ZOOM F8

Multitrack digital recorder
\$999

HIGHLIGHTS Records 8 channels plus stereo mix track • 8 mic/line inputs on combo jacks with individual level controls and switchable phantom power (+24V and +48V) per channel • 16- and 24-bit, 192kHz resolution BWF files • MP3 file recording • onboard mixer • timecode generator and jam sync • standard drop and non-drop-frame rates • level meters • 2.4" backlit color LCD • weighs 2.1 lbs without batteries

TARGET MARKET Filmmakers, sound designers, live recording and studio engineers

ANALYSIS Plenty of recording capabilities in a surprisingly compact device.

zoom-na.com

7 SOLOMON MICS LOFREQ

Microphone for kick drum or bass amp
\$179 street

HIGHLIGHTS 6.5" dynamic driver • bi-directional polar pattern • frequency response rated at 25 Hz to 3 kHz • XLR output jack • in-line pad • 7" diameter • 3.5" thick • 4.1 lbs. • available in black or white Tolex-wrapped fiberboard shell with aluminum grille • includes 1-year warranty

TARGET MARKET Recording and live sound engineers, musicians

ANALYSIS Designed to capture and enhance the low frequencies on bass drum or bass cabinets in the studio or onstage.

solomonmics.com

8 AKAI MPD218, MPD226, AND MPD232

Pad controllers
\$199, \$299, \$399

HIGHLIGHTS 16 velocity- and pressure-sensitive Thick Fat MPC pads • iOS compatibility • the MPD218 is USB-powered and offers note repeat, full-level triggering, 16 presets, and 18 assignable controls in 3 banks • the MPD226 adds 4 faders, MPC swing, MIDI I/O, and transport controls • the MPD232 includes a 64-channel, 32-step sequencer; 8 Q-link faders, knobs, and buttons; 30 presets; and 72 assignable controls in 3 banks

TARGET MARKET Musicians, beat producers

ANALYSIS Portable yet powerful MPC-style controllers with updated pads.

akaipro.com

PITTSBURGH
MODULAR

With its built-in preamp and buffered output, the Patch Box is a great way for guitarists to add Eurorack synth modules to their rig.

Patch Box

AN EASY WAY TO PROCESS GUITAR USING A MODULAR SYNTH

BY GINO ROBAIR

Guitarists who want to incorporate synth modules into their rig have a new option: The Pittsburgh Modular Patch Box is, essentially, a 42HP Eurorack frame in a stompbox format, but with a high-headroom input preamp, a buffered output, and true bypass switching.

On its own, the Patch Box enclosure (\$349) provides power for up to 6 skiff-friendly modules. The first of the company's planned system configurations is the Patch Box FX1 (\$1,239), which includes 18 Nazca Audio braided patch cables, the Analog Replicator BBD delay, the resonant state-variable Filter, the LFO2, and the Crush "signal decimator"—a useful setup for processing guitar. I also used the enclosure with other modules from Pittsburgh Modular as well as Dwarfcraft's Hax, BDSM, and Great Destroyer.

The steel enclosure feels very sturdy, with rubber feet to keep it from sliding around the floor. Inside is a bus board that offers $\pm 12V$ and $+5V$, which is powered from the included external supply. The module-packed review unit weighed 5.7lbs, and the system comes with a one-year warranty.

The enclosure has a single 1/4" input and output, and two expression pedal jacks. You can use the input preamp's Drive knob to add distortion to the guitar's signal before it hits the modules, but without overdriving them. In addition to the three footswitches—Bypass, Switch 1, and Switch 2—the enclosure has a row of mini-jack patch points: Two signals split from the main guitar input, one from each expression pedal, three jacks for Switch 1 and for Switch 2, a mult, and the output jack.

The switched jacks allow you to have additional signal paths that can be punched in and out with the corresponding footswitches. However, you can use

each switch to select between two destinations: For example, if you plug your source signal into the middle of the three Switch 1 jacks, that signal is normalized through the left jack when Switch 1 is off (the light is out).

Hit Switch 1 and the source signal is now present at the right jack (and the left jack is disabled). I used this to send an expression pedal to the delay's Mix CV when Switch 1 was off, then send it to the Filter's Frequency CV when Switch 1 was on.

The only patching issue was when I sent the LFO's square or pulse wave to a Switch input: Even with it switched out of the circuit, I could still hear it clicking at the output.

The online manual provides several patch examples, though an experienced modular user can get up and running without it. Before opening the manual, I easily created my first patch—an autowah using the filter and the Detect module's envelope, followed by the delay.

If you're the type of person who will stick with one killer patch and tweak it with expression pedals, using the Patch Box from the floor works great (as long as you're careful not to get your feet caught in the cables). But if you want hands-on control of your effects, à la Nels Cline, you'll want the Patch Box on a stand or table nearby while manipulating the expression pedals with your feet. But no matter where you place it, you can easily integrate the Patch Box with your other guitar pedals, not to mention any other modular synth gear you have.

With its guitar-friendly features, the Patch Box enclosure makes for a very useful and affordable Eurorack case, whether you are new to modular synthesizers or an old pro. ■

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YC

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GP

Get a van-full of iconic 70s stage keyboards and vintage effects in a portable retro-style package without sacrificing sound, playability or polyphony.



DX

DX

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CS

CS

Not just another monophonic analog clone, the 8-note polyphonic reface CS' five unique oscillator modules create a variety of sounds from analog to digital.



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YAMAHA

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YamahaSynth.com

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The Musician's Guide to Affordable Headphones



BY THE EDITORS

Closed-back headphone designs are used for a variety of reasons, many of which have to do with the sound isolation provided, whether for the benefit of the listener or for others within close proximity. For example, this style of headphone is perfect for minimizing bleed from a click or backing track into nearby microphones when recording; drummers use these to better hear a guide track over the surrounding instruments when recording with a band, while sound engineers and DJs use these onstage to attenuate the surrounding noise while they work.



Closed-back models for studio and stage applications

Of course, in a studio environment, a quality pair of headphones makes a nice complement to a set of close-field monitors when you are looking for different perspectives during a mix, not to mention when you are checking a master or editing source material.

Because of the many potential uses for headphones, this roundup includes several types of products—designs meant for critical listening, recording, mixing, DJing, and more casual purposes. However, we are sticking to an affordable price range of \$99–\$299 MSRP (with street prices appropriately noted).

FIT AND FINISH

Choosing the right pair of headphones involves more than simply checking the specs and getting the lowest price. The real-world sound quality of each model will differ, just as any transducer does, so it is important to get some listening time with the products you are most interested in.

Moreover, feel and fit are important, especially if you anticipate wearing the headphones for many hours at a time. Some products fit tighter than others or offer greater adjustability, for example—criteria that can help you decide on one pair over another.

In addition, features such as removable cables and replaceable ear pads are great to have but often add to the overall cost of the product. Consequently, it is worth considering how and where you will use your headphones when you go shopping: If you plan to use them on the road and they are likely to be damaged, it is worth considering models that have easily replaceable parts (even if it costs you a little more up front).



AKG K553 Pro



AKG K271 MKII

AKG

AKG's K553 Pro (\$299) pro-level headphones are intended for critical listening situations such as mixing and mastering. Featuring 50mm (nearly 2") drivers, the K553s are designed to provide the dimensionality of an open-back set of cans, but with the sound isolation offered by a closed-back pair.

The company lists the K553's frequency response as 20 Hz to 20 kHz (± 3 dB), while promising "a strong, yet accurate and distinguished bass response as needed for monitoring and mastering contemporary music." This model has a sensitivity rating of 114 dB SPL.

The ear cups on the K553 Pro turn sideways, allowing them to lay flat for storage. Although this model has a fixed cable, the leatherette-covered foam ear pads are replaceable.

The K271 MKII (\$299) has been around for a long time and remains popular. Designed with tracking and live mixing in mind, the headphones

feature ear cups that provide a comfortable seal to minimize audio bleed that could get into mics, as well as external sounds that could hamper mixing. A handy function mutes the audio when the headphones are removed from your head.

This model has an easily replaceable cable thanks to its mini-XLR connector, and it comes with velvet and leatherette ear pads, as well as a 16' coiled cable and a 10' straight cable, each with a 3.5" plug. The threaded 1/4" adapter screws on securely.

Intended for use by live-sound engineers, as well as bass players, drummers, and other instrumentalists, AKG's K171 MKII (\$179) boasts high noise isolation, while offering a slight boost in the bass and treble frequency range for a better listening experience. This model also features an interchangeable cable that uses a mini-XLR connector and comes with velvet and leatherette ear pads, a 16' coiled cable, a 10' straight cable, and a 1/4" adapter.

AUDIO-TECHNICA

The new generation of ATH-M Series headphones from Audio-Technica was designed primarily for pro-studio use, with accessories and performance specs that help them stand out from the pack. Comfortable and lightweight, every model includes bayonet-style detachable cables with a 3.5mm end, a 1/4" adapter, a protective case or pouch, and a two-year limited end-user warranty.



ATH M50x



ATH M40x

The ATH-M50x (\$239; \$169 street) has oblong ear cups that are slightly offset to fit easily around the ears. With its 45mm neodymium driver and copper-clad aluminum-wire voice coil, this model boasts a frequency response of 15 Hz to 28 kHz and a sensitivity rating of 99 dB. Designed for mixing or tracking, the

ear cups swivel 90 degrees allowing singers and DJs to cover only one ear when working.

The headband and ear pads are durable and comfortable, and the product weighs 10 ounces without the cable. Three cables are included in order to support any studio situation—a 3.9' coiled cable, a 3.9' straight cable, and a 9.8' straight cable. This model is also available in a limited-edition, dark green color as the ATH-M50xDG (\$259; \$198 street).

The more affordable and lighter weight (8.5oz.) ATH-M40x (\$139; \$99 street) was designed for tracking duties and DJ use, and it also features an

offset, oblong-shaped ear cup that swivels for single-ear use. However, this model incorporates 40mm neodymium drivers and copper-clad aluminum-wire voice coils, providing a stated frequency range of 15 Hz to 24 kHz. The sensitivity is rated at 98 dB.

It is worth noting that Audio-Technica's top-of-the-line model, intended for critical listening, is the ATH-M70x (\$419; \$299 street), which offers a similarly sized driver and voice coil setup as the ATH-M50x, but with a stated frequency range of 5 Hz to 40 kHz and sensitivity rating of 97 dB. As we mentioned in our June review (available at emusician.com), the ATH-M70x has a clear and balanced sound across the frequency spectrum, but without the smiley-curve EQ that boosts the extreme ends.

In addition to the three detachable cables, the ATH-M70x comes with a tough, zippered clam-shell case. The headphones lay flat in the case because the ear cups twist 90 degrees, like the other models in this series.

FOSTEX

Intended for use by DJs, broadcast engineers, and for electronic news gathering (ENG) situations, the Fostex T40RPMk3 (\$199.99) utilizes the company's proprietary Regular Phase "Orthodynamic" driver technology to improve the quality of audio playback over its previous models. The specs give the frequency response as 15 Hz to 35 kHz, with a 91 dB sensitivity rating.

Fostex also re-engineered the headband, ear pads, and overall housing of the parts to make this T40RP more robust than the earlier models. Of the three new T Series headphones, the T40RPMk3 is the only one with a closed back and is touted on the box as having "Focused Bass." The other two products in the T-series with Regular Phase "Orthodynamic" drivers are the T20RPMk3 (\$199.99), an open-back set offer-



Fostex T40RPMk 3

ing "Deep Bass," and the semi-open-back T50RPMk3 (\$199.99), featuring "Flat and Clear" sound.

All three models have a max input level of 3,000mW and come with a pair of detachable cables—a 9.8' cable with a 1/4" plug and a 3.9' cable with a 3.5mm plug for use with portable devices.

KOSS

Unlike other headphones in this roundup, the Koss models have a distinctive D-shaped profile intended to provide a better seal around your ear, which, in turn, increases sound isolation. The Pro4S (\$149.99) is designed for studio work and features SLX40 drivers that provide a frequency response of 10 Hz to 25 kHz and have a 99 dB SPL sensitivity rating.



Koss SP540

The coiled 4.5' detachable cable can be plugged into either of the aluminum ear cups: The jack on the opposite ear cup then becomes an audio output, allowing you to daisy chain the output elsewhere. The ear cups are covered in leather-wrapped memory foam, whereas the headband uses mesh-wrapped foam. Moreover, the leather pads on the ear cups are incrementally thicker at the back and bottom to balance the pressure of the headphones around the entire ear.

The Koss SP540 (\$149.99) utilizes the D-shaped design, but with PLX40 elements that are "tuned for personal listening" with a frequency response of 10 Hz to 25 kHz and a sensitivity rating of 99 dB SPL. Also designed for casual listening, the SP330 (\$129.99) is Koss' on-ear model and features a PLX30 driver, providing a frequency range of 20 Hz to 25 kHz and a 101 dB SPL sensitivity rating. Both of the SP Series headphones have re-



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inforced metal hinges and a single opening for the straight, 4.5' detachable cable.

Koss also makes headphones with beat production and DJs in mind. The limited-edition ProDJ100w (white) and ProDJ100s (silver) (\$99.99 each) provide a boosted bass response and feature spun-metal ear cups that swivel 180 degrees, allowing you to use one or both while you work. For that reason, this model includes an onboard switch that lets you change the audio output from stereo to mono. The ProDJ100 features oxygen-free copper voice coils and has an attached 8' coiled cable with a 3.5mm connector and a 1/4" adapter.

The ProDJ200 (\$129.99) has the same bass boost, swivel feature, and stereo/mono playback capabilities as the ProDJ100. However, this model offers a removable cable and includes, in addition to the 8' coiled cord, a 4' iOS-friendly straight cord with a 3-button Koss Touch Control remote and in-line microphone—perfect for use with smartphones and touch pads.

All of these Koss headphones fold flat, include a carrying case, and come with a limited lifetime warranty.

PHONON

Another product that has just hit the market is the Phonon 4000 (\$249), a stylish-looking "hi-fi" design that is meant for use by DJs as well as people who want quality headphones for casual listening. According to the manufacturer, the 4000 has 40mm drivers that are tuned by a "mastering engineer." The factory specs provide a frequency range of 20 Hz to 22 kHz during playback.



Phonon 4000

The Phonon 4000 has a fixed 4.9' cable with a 3.5mm end suitable for use with mobile audio players; a 1/4" adapter is included. Together, the entire setup weighs approximately 0.5 lbs. The ear cups fold flat for easy storage in the included pouch.

The Phonon 4000 is designed by Japanese visual artist Tadaomi Shibuya and is available in

matte black and silver hairline versions. Phonon also offers the SMB-02 (\$349), a pair of tuned headphones designed for critical-listening work.

SAMSON

The SR950 (\$99.99) studio reference headphone features 50mm neodymium drivers in an acoustically tuned chamber. A dispersion plate sits behind the plush velour-padded ear cups. The stated frequency response is 10 Hz to 25 kHz, and the included chart shows a flat midrange with slight rise of about 5 dB at 10 kHz and another from 100 Hz to down below 20 Hz.



Samson SR950

The SR950 design includes a self-adjusting headband. The headphones have an 8.25' straight cable with a 3.5mm plug at the end. A threaded 1/4" adapter is provided.

SENNHEISER

With the HD380 Pro (\$199), Sennheiser offers a pair of studio-quality headphones intended for use



Sennheiser HD380 Pro



Sennheiser HD280

in mixing or recording situations. They have a stated frequency response of 8 Hz to 27 kHz and are designed to handle 110 dB SPL.

The HD380 Pro comes with a two-year warranty, replaceable ear pads, and a replaceable 3.2' coiled cable with a straight 3.5mm plug, as well as a threaded 1/4" adapter. The headphones fold flat to fit into the included carrying case.

Designed for monitoring use, the HD280 Pro (\$99) can handle 102dB SPL and has a frequency range of 8 Hz to 25 kHz. It comes with the same warranty and cable configuration as the HD380, but without the case.

Made with the DJ in mind, the HD 25-1 II (\$249) provides a maximum output of 120 dB SPL—very useful when working in a loud environment! The frequency response is rated at 16 Hz to 22 kHz. This set includes a 4.9' detachable cable with a right-angled connector and a 1/4" adapter. A carrying bag and a pair of soft ear pads are also included.

SHURE

With a long history of designing pro-quality transducers, Shure offers lines of headphones designed for studio work as well as DJing. The SRH840 (\$250; \$199 street), intended for mixing and monitor-



Shure SRH750 DJ

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grid
performance
instrument

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Shure SRH550 DJ

ing, features a collapsible design, 9.8' bayonet-style removable (oxygen-free copper) cable, and offset ear cups for maximum sound isolation and fit. The 40mm neodymium drivers offer 102 dB sensitivity and have a rated frequency response of 5 Hz to 25 kHz. The package includes a threaded 1/4" adapter, a storage pouch, and a set of replacement ear pads.

Developed with studio and home recording in mind, the SRH440 (\$125; \$99 street) has a detachable 9.8' coiled cable with 1/4" adapter, replacement ear pads, and carrying bag. With a 10 Hz to 22 kHz frequency range and sensitivity rating

of 105 dB, this affordable pair offers output and sonics that work well for many situations—from tracking, overdubbing and practicing to casual listening on mobile devices.

Whether spinning vinyl or playing digital files, the SRH750DJ (\$188; \$149 street) was created with high-output DJ mixers in mind. The design includes 50mm neodymium drivers that provide 106 dB of sensitivity and a frequency response of 5 Hz to 30 kHz.

This model is collapsible and allows the round ear cups to swivel 90 degrees, so you can move one out of the way or easily store the pair flat in the included pouch. Lightweight at 8oz., the SRH750DJ also includes a detachable 9.8' coiled cable, a 1/4" adapter, and replacement pads.



Sony MDR7510

A more affordable and lighter weight (0.5lbs.) option, the SRH550DJ (\$125; \$99 street) is designed for use with mixers as well as portable devices. Built with 50mm neodymium drivers, the headphones offer a frequency response of 5 Hz to 22 kHz, and provide a sensitivity rating of 109 dB. However, the straight 6.5' cable on this model is attached, but the package includes a pouch, extra ear pads, and 1/4" adapter.

SONY

The MDR-7510 (\$149.99) has 50mm neodymium drivers and can handle 2,000mW input. The stated frequency response is 5 Hz to 40 kHz, with a sensitivity rating of 108 dB. This model features rectangular ear cups for increased isolation over the ears, yet it remains surprisingly lightweight at just over 9 ounces. The headphones have an at-



Yamaha MT120

tached 9.8' coiled cable with a 3.5mm plug. A 1/4" adapter and a carrying pouch are included.

At 8.1oz, the MDR-7506 (\$130), by comparison, is even lighter and slightly more compact than the MDR-7510. It features 40mm neodymium drivers in ear cups that are less rectangular than the 7510. In addition, the MDR-7506 provides a stated playback frequency response of 10 Hz to 20 kHz as well as a sensitivity rating of 106 dB. It comes with a 9.8' coiled cable, 3.5mm and 1/4" plugs, and a storage pouch.

YAMAHA

The Yamaha HPH-MT120 (\$299) headphones utilize a copper-clad, aluminum-wire voice-coil design and feature rectangular ear cups that fully cover the ears, with ergonomics intended to provide a comfortable fit during long periods of use. Each ear cup can be rotated away from the ear, allowing you to cover only one ear—great for singers when tracking, as well as DJs.

The HPH-MT120 has 40mm drivers that can provide 96 dB SPL, and a listed playback frequency response of 20 Hz to 22 kHz. An attached 9.8' cable has a 3.5mm plug and a 1/4" adapter.

The lower-cost HPH-MT100 (\$99) has rounded ear cups that are designed for comfort during tracking and overdubbing or mobile listening. The ear pieces can turn 90 degrees, giving you a great deal of positioning capability on your head, as well as allowing them to flatten for storage.

The HPH-MT100 sports 40mm drivers, but has an SPL rating of 103 dB—recording drummers, take note! The stated frequency range is 20 Hz to 20 kHz. This model comes with an attached 6.5' straight cable (with a 3.5mm angled end and a 1/4" adapter) and is available in two colors—all black or all white. ■

MANUFACTURER WEBSITES

AKG	akg.com
Audio-Technica	audio-technica.com
Fostex	fostexinternational.com
Koss	koss.com
Phonon	phononstore.com
Samson	samsontech.com
Sennheiser	en-us.sennheiser.com
Shure	shure.com
Sony	pro.sony.com
Yamaha	usa.yamaha.com

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STUDIO PHOTOS: GAVIN ELDEN

To record *Paper Gods*, their 14th album, the perennial pop kings brought out the big guns, enlisting super-producers MARK RONSON, NILE RODGERS, JOSH BLAIR, and MR. HUDSON, and collaborating with guest artists ranging from JOHN FRUSCIANTE to JANELLE MONAE.

BY LILY MOAYERI

In their nearly four decades of existence, **DURAN DURAN** has been largely immune to media commentary—positive or negative—because the band has always had the support of its fans and the admiration of fellow musicians, from pop to dance to hip hop to rock. During its early heyday in the '80s, Duran Duran was so image-centric, showcased in eye-popping music videos shot in exotic locations, that the band fit better in boy band territory than as a group of credible musicians, which is what they were, and are. Both then and now, Duran Duran carves its own musical space, taking note of the present musical climate, but creating something unique within it.

"We came off the 'reinvention' 1960s and 1970s," says Nick Rhodes, the group's synthesizer mastermind. "It made our generation feel we could do whatever we liked, as long as it was original. Our contemporaries on the charts, everyone, sounded entirely different. We all had our own identity and our mandate about what it was we were about. For the lifetime of the band, we're still surprisingly ambitious. Our flexibility has been our greatest strength."

For *Paper Gods*, their 14th studio album, the group brought back producer Mark Ronson (who steered the album before this one, *All You Need Is Now*), with the idea of creating the imaginary follow-up to their seminal 1982 album, *Rio*. They also brought in Ben "Mr. Hudson" McIl Dowie (Kanye West, Jay-Z), who initially came in to help out with lyrics and ended up staying the better part of a year, fully involved with the production. Present throughout the entire two-and-a-half-year process was engineer/co-producer Josh Blair, who previously worked with the group and Ronson on *All You Need Is Now*. *Paper Gods* features guest appearanc-

es by John Frusciante, Janelle Monae, Kiesza, Lindsay Lohan, Jonas Bjerre, and Nile Rodgers, who also stepped in with Ronson for production duties.

The majority of *Paper Gods* was recorded at Studio 2, the band's two-room studio in Battersea Park Studios in southwest London. Studio 2's larger control room comfortably fits all band members and houses mountains of amps, guitars, basses, pianos, keyboards, and outboard equipment. Tracking is done in Pro Tools HDX 11 for ease of pulling up ideas quickly, as the band tends to come up with fresh ones on the spot. The studio, previously used for film, features a 5.1 Dynaudio M4 System, which the band has to continually refrain from overusing, plus smaller secondary monitors. A second, smaller room houses an electric drum kit, an acoustic drum kit, amps, and an acoustic piano; this is where live instrumentation is captured. Rhodes' parts, however, are recorded in the control room, a habit he has had for years.

"I'm very particular about frequencies," says Rhodes. "With synthesizers, you want to hear everything super clear. I like to know precisely where I am. Doing that on headphones or small monitors



Nile Rodgers, Mark Ronson, and Nick Rhodes.



Ronson and John Taylor.



doesn't work for me. I like to dial in my sound listening to everything else; I like to hear where things fit and sit. It comes from my days with Alex Sadkin who produced *Seven And The Ragged Tiger*.

One thing that always stuck with me was: Just because it's stereo, it's left and right, don't think of sound ever as being flat and on one plane; think of it as a cube," Rhodes explains. "Any sound that you have, that you create, you can place it further backward or forward or left or right within that cube. It's a very simple way to look at things, but it opened up my mind to the three-dimensional aspects of what you do with delays and echoes and frequencies and panning left and right."

The members of Duran Duran don't come into a studio session with fully fleshed out songs, neither do they jam in the traditional sense of the word. They come in with basic ideas and build off those, and Blair is ready to capture sounds as they happen, particularly with Simon LeBon's vocals.

"[LeBon] gets really excited; he likes to vibe with everyone and have his vocal on the speakers in the room," says Blair. "When you write the first time, there's that connection you have with the lyric. You're never going to get that back. You're not reinterpreting or rereading. You've got the exact feeling and the emotional train of thought you were on when you wrote it, and you sing it absolutely perfect."

Blair set LeBon up with a handheld Neumann KMS 105 microphone. "Normally you would stick a Shure SM57 or 58 in front of him and half the time you can't use that, because it doesn't marry with a Neumann U87," he says. "If there's a sound he's delivered perfectly in the demo vocal, you get him to sing into the KMS 105 and it's a lot easier to make those two sounds marry. We had a 58 on the last album and I was really depressed at times because I thought the performance was so much better but the sound wasn't as good, so we always had to go with the new version. I think we lost a couple of great vocal moments in that. We also have a Telefunken ELA M 251, which is the workhorse of the studio. Most of the time it's going through an SPL mic pre into a Pultec EQP-1A3 and then into a Summit Audio TLA-100A compressor. On the output side, it's always going into a Universal Audio 1176."

Mr. Hudson comes with his own vocal chain, which includes a BAE 1073, which he also uses for instruments when he's going for present and bright sounds.

"DI guitars can be so horrible," he says. "You have to really bully guitars on the way in. I'll commit to loads of gain and compression on a guitar. I still use the RME Babyface Pro 24-channel 192. I like the fact that the monitor out is XLR. It just feels like the slightly grown-up version of Apogee Electronics Duet. I'm not looking for things that necessarily color my sound; sometimes you just want equipment that doesn't get in the way of the process."

Fruiciante recorded his guitar himself, in his home studio. He and Blair sent his "Northern Lights" solo track through an EMS Synthi analog synth; through experimentation, they were able to send external audio signals into the keyboard but use all the filters on the keyboard, which also houses a reverb tank. The Synthi filter responded to guitar levels, which allowed them to tweak it to the right spot, then put it through a ping-pong delay on the output. This "opposite" trick resulted in a swelling, space-y effect coming from all over.

"When the thing was oscillating, at times it felt like the guitar was feeding back, which it couldn't because it was already recorded," says Blair. "The resonance on the oscillator was teetering on the edge of soft oscillating. So depending on how loud Fruiciante played, it was leading off into self-oscillation and coming back again."

Blair also experimented with feeding instruments' headphone outputs back into their external inputs to create huge bass sounds, using a Voyager on "Last Night in the City" and a Jupiter-8 on "Kill Me With Silence."

Blair works around the Rhodes electric piano's stereo output—which in practice is mono—by recording things twice to create true stereo. "Those keyboards do some weird upper and lower splitting of the sound that's not really stereo," says Blair. "A lot of the times, especially with the Jupiter-8, I'll record that twice. Because it's an analog oscillator, it's never the same. Even if you've got the exact same notes playing, it's still slightly different enough that if you pan hard left and hard right, it's stereo. For all the parts we played throughout the entire song; we didn't just record the verse and then paste in all the verses."

The majority of the drum parts—the fingerprints for the songs—were written on the Roland TD30 electronic kit, which worked as a great writing tool for the band. Toms were sent through the Eventide H3000d/SE for a flange effect. The acoustic drums are from a cut-down kit with kick, snare, hi-hat, and crash. For the sessions with Ronson in his studio, three kits were used: a Ludwig five-piece, the cut-down, and the electric, all recorded to a Studer 24-track (to capture some natural compression)—which Blair took straight to Pro Tools as a precaution.

"As much as I love tape sound, I always want to keep a version that doesn't have the tape compression on it, just in case it didn't work. Sometimes we went back and forth; I use the tape machine as a color palette choice," says Blair. "Soundtoys Decapitator for me is one of the greatest things there is because I

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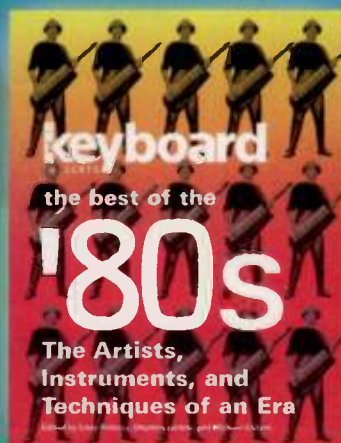
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love distortion," he adds. "I also have external boxes. I have a custom-made one that is like a Soundtoys Altec mic pre, but it's wired in a way that I can use it as a mic pre or as just a custom dry distortion unit and put everything through that, just to make it different, because no one else has that box. As far as plug-in distortion goes, the little green Altec 1567A plug-in—that's the little mini-distortion factory."

Neither Blair nor Rhodes are sold on reverb plug-ins, even though they have Universal Audio's Lexicon 224, the 4A, the M16, and tons of others; they are happy with their Lexicon 224X vintage digital reverb, which Rhodes refers to as "expensive, designer reverb." He adds, "We use frequency analyzing and literally sieve out huge chunks of the sound. I've always loved Neve desks, and I think the digital Neve is very good."

"Just because it's stereo, it's left and right, don't think of sound ever as being flat and on one plane; think of it as a cube."

—NICK RHODES

"I miss tape," Rhodes continues. "I love seeing tape going around. I love listening to it, and at the end of it, having to rewind it, because it was a process. In reality, I think digital recording is so much more convenient, and the quality of Pro Tools is pretty astounding. And I love the editing capabilities, all the things I was trying to do with samples very early on when I got a Fairlight in 1982. That was the first digital sampler I ever had, and it was a monster machine and a nightmare to control, but it was also beautiful. Now I can sample things in my telephone if I want, and I can take it to the studio and say, 'Put that in the track.' It's pretty remarkable. But there is something about glorious old-school that you can't replace."

"I also miss razor blades," he adds. "When we produced our first album and I learned how to cut tape, to go backward and forward between the two reels, find the bit that you wanted and literally cut



the tape on the block, that was so exciting. It felt dangerous—and it was. The first few times I did it, it wasn't without error."

Duran Duran are open to trying anything in the studio. For drums, they experimented with numerous microphone set-ups but realized that with only three components, all they needed was a Telefunken ELA M 251 overhead and a Sennheiser MD 421-II on the kick.

"But we spent ages on the little bass drum to get it absolutely the right tension for the right sound," says Blair. "We changed six or seven drum heads to get the right dampening and the right note. This tiny kick drum has this massive, chest-pounding sound because we spent so long getting that particular thing right. You can just put a sample over it, but, everyone else has those samples, and no one has that kick drum or that person. It gives you a lot more uniqueness to the sounds when you create them yourself—not to say we don't use samples as well."

Mr. Hudson had the idea to put a fine chain, like the one attached to a plug-hole stopper—which he and drummer Roger Taylor picked up at the hardware store—and dangle that on a cymbal. He and Blair positioned two mics on the cymbal, with a Universal Audio LA-2A at the ready.

"I'm a real bully with EQ, so everything is turned all the way to the right or all the way to the left, just squashed as much as possible," says Mr. Hudson. "I'm trying to get all the sizzle ride cymbal out of that cymbal. And then I do it again in the box. We ended up with the most incredible cymbal sound ever. I got much more excited about that than programming a ride cymbal pattern on my laptop."

As much as Mr. Hudson enjoys out-of-the-box sounds, a lot of his in-the-box wizardry comes into play on *Paper Gods*—including drum

loops he made on the DM1 app on his phone on the train on his way to the Duran Duran recording sessions. If he wanted to put sub-bass under John Taylor's bass line, he could play that into an RME Babyface interface into Logic, then out of Logic into Pro Tools. Or he would program some hi-hats to the pattern that Roger Taylor is playing on the drums. Using Logic's EXS24 for drums, Hudson has a set number of drum sounds he draws from, treating them differently, pitching them up and down. His main focus is always on the bottom end, which he also carried into the mixing stage with the master of low end, engineer Mark "Spike" Stent.

"I had an ear on making sure the sonics could sit next to other stuff in 2015," says Mr. Hudson. "I was always thinking, 'Can we throw a sub-note under here, or let's try some big fat 808s, let's make sure the drums are not afraid to compress and distort.' People are making music using mastering plug-ins on the mix bus. I've started doing it, making beats with a multiband compressor just sitting there. A lot of sounds people were making back in the day were being compressed and edited. It was happening in the amplifier; It was happening on the way into a compressor and a limiter. If someone's playing the drums as hard as they can, there's going to be less variation of sound. When we're making beats and compressing things, we're mimicking that feeling of loud, energetic playing in a room. When a band is playing and they're all going hell for leather, you get compression anyway. Music's squashed these days and you've got to be able to stand shoulder-to-shoulder with those records. That was something I was always thinking: If I play a Kendrick Lamar record and I play this, is the bottom end going to sound phat?" ■

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CHVRCHES'

Every Open Eye

On their sophomore album, the Scottish alt-rockers build technology-imposed, synth-centric arrangements around natural vocals.

BY KEN MICALLEF

The future members of CHVRCHES achieved regional recognition playing in such Scottish indie rock bands as The Twilight Sad, Aereogramme, and Boyfriend/Girlfriend, but it wasn't until they combined clever song craft with Lauren Mayberry's edgy/angelic vocals and genre-crossing electronic production that the trio hit heavenly paydirt.



CHVRCHES (left to right): Martin Doherty, Lauren Mayberry, and Iain Cook.

"Forming CHVRCHES required a big reset," recalls Iain Cook (synthesizers, guitar, bass, vocals). "Even though we'd played in alt-rock or post-punk-type bands, this felt like a reset aesthetically. We felt a freedom to come out with whatever happened."

"You spend so much time making music with all these restrictions that when you get to do something that at its core, is made without rules, it's a total relief," says Martin Doherty (synthesizers, samplers, vocals). "That was one of our goals, to make music with no restrictions. It felt like we'd taken the lid off."

CHVRCHES' debut album, *The Bones of What You Believe* (2013), scored chart Gold with the single "The Mother We Share," which also appeared on numerous soundtracks. Prior to the release of their latest, *Every Open Eye*, CHVRCHES released a single, "Leave a Trace," which quickly scaled the charts. The song is a perfect union of electronic production, heartfelt vocals, and manicured songwriting, recalling artists like Laurie Anderson, Gary Numan, and Pet Shop Boys.

"I worship The Cure, Radiohead, and Depeche Mode," Doherty says, shedding more light on the genesis of CHVRCHES' sound.

"Fleetwood Mac, Prince, Michael Jackson, Kate Bush are my heroes," says Cook, "and modern music as well, from Glasgow's deep dance and the UK electronic scene, which

continues to lead the way, even though they also take song elements from Germany."

Self-produced and recorded in the band's Glasgow home studio, and mixed by Mark "Spike" Stent, CHVRCHES' *Every Open Eye* (Glassnote) is broader in scope and larger in sound than its predecessor. From the anthemic ecstasy of "Make Them Gold" to the requiem-like closer "Afterglow," Lauren Mayberry's triumphant little-girl-lost vocal meshes with Cook and Doherty's pounding electronic landscape to create exhilarating, spine-tingling music that's sure to have fans stomping in stadiums and singing their praises the world over.

Every Open Eye has extremely dense arrangements. Could you describe how you developed all of those sonic layers, as opposed to the ways you may have worked in the past?

Doherty: The restrictions were more technology-imposed and space-imposed this time. We were making music in what was basically a glorified bedroom setup. Everything was in the box. On *The Bones of What You Believe*, we used three hardware synths.

Cook: On *Every Open Eye*, there are about 20 hardware synths. But our focus was on classic songwriting, almost traditional songwriting. That the songs are dressed up in an electronic outfit is kind of



secondary to the fact that these are *songs*. They would work with piano and guitar.

Doherty: A number of mechanisms in the songs are borrowed from rock or guitar music; that's our background. The British press really likes to brand us as synth pop, and I love that music, but I think we belong more in the indie world—an indie band using non-traditional guitar band instruments.

I think the album actually alludes to many different genres.

Cook: Sadly, we subscribe to the “new sound, new song” technique to get inspired to write a new song. We need a new synth or a new sound or a loop to become inspired. If I pick up the guitar and write a song I will be using all the same jumping-off points melodically. But if you write on a computer or on a synthesizer, the synthesizer has infinite sounds and rhythmic hooks and timbre hooks. They take your creativity and your brain to another place when you're writing from the ground up.

Doherty: One of the things that inspires us in terms of songwriting is the interplay between the drums and the vocals. You can take a really strong rhythm and lay a vocal on it and harmonize it in different ways, but ultimately the hook is still there.

Cook: I'd as soon write songs to a drum beat alone than any form of chords. We didn't write any songs just to a beat, but on “Leave A Trace,” 80 percent of the verse is delivered on a single note. But it's only pushing against a kick and a snare. It's almost writing without harmony in mind.

Your music consistently places a naturally recorded voice against synths and programmed drums.

Cook: Having that purity at the very center of everything allows us to push things in a very non-human direction.

Doherty: When recording or processing vocals, we don't Melodyne things like mad; we need that human element. It's always been about the



marriage of the natural and the synthetic. Even as far as processing her vocals, Spike Stent did all of that in post. We sent him natural vocals.

We used the Synchro Arts Revoice Pro plug-in on a particular section in “Empty Threat” on each layer of voice, then built a bunch of doubles into that, then used the single master track to align it all. Ordinarily, we’re not as crazy about that stuff. A lot of doubles on *Every Open Eye* are tight like that, and in this instance you’ve got the impact of four or five super stereo tracks. Revoice Pro is really interesting because without spending an entire afternoon physically aligning each [consonant], you can use that single master track to align five vocal takes in much less time.

Cook: On “Empty Threat,” we blurred those lines a little bit. We sampled Lauren’s vocal then used [Native Instruments] Kontakt to play it as another instrument. Or even just mapping it within software—the cruder, the better. We’re very much coming from the Laurie Anderson school of sampling, rather than the Ableton modern era of heavily processed, perfectly cut-up samples.

Lauren was in a hard rock band before joining CHVRCHES. How did she adjust to working in the electronic environment?

Doherty: [Laughs] Well, that’s been—not an uphill battle, but an ongoing process of growth. She’s used to being backed up by drummers who are smashing the drums. She’s 25. Her high school band sounds like At the Drive In. Lauren doesn’t get involved in the tech stuff, but we are a great partnership. She plays keyboards and samplers live.

What hardware synths did you play on *Every Open Eye*?

Doherty: The synths that glued the record together are the Juno-106, the Roland Jupiter 8, and the Oberheim OBX-8. When we were younger, we

coveted software synths: the Arturia V Collection, the Jupiter 8, ARP 2600. We always used those for demos, and they’re all across *The Bones of What You Believe* as well.

What accounts for the very liquid and enveloping synth sounds on *Every Open Eye*?

Doherty: The Roland Jupiter 8 and the Moog Voyager are our go-to bass synths. But the most important analog aspect is the Dave Smith Instruments Prophet 08, Prophet 12, and Prophet 02. The 02 and 12 are all over *Every Open Eye*. The 08 was all over the first record. We didn’t mic a single synth on the whole record, though. We used the API pre’s and EQs to color the sound. And we’ve got the BAE 1073 clones as well. We want to capture things as honestly as possible, and then in the box do weird shit with it rather than mess around with cabinets. It’s more about processing after it’s in the box, where we’re most comfortable.

What software was used for processing?

Cook: We made the first record with three synths and plug-ins, multitracking mostly the Voyager, Juno-106, and Prophet 08. This time we cherry-picked sounds to play to our strengths. There’s more of a breadth of sound. Instead of using a bunch of synths and hammering one, we made the most of one sound and captured it as well as we could, then EQ’d and processed it so it really sat on its own in the mix.

Eighty percent of the first album is SoundToys Decapitator. We’ve since bought a Thermionic Culture Vulture, instead of processing distortion inside the box. And were both using Steinberg Cubase. I was on Logic Audio until 5.5. I was pirating the software. Pro Tools was slow and lacked features. Using Steinberg Cubase is a PC-user hangover. Logic doesn’t feel professional when you open the soft-

ware. It feels like Garageband. You can peel away all the bells and whistles until it looks like the Logic you remember. I enjoyed the mixing interface in Logic. Then you pull up one of its reverbs and it looks like 1998! It hasn’t been updated in ten years. When you pull up Logic on a retina display, you can put a finger between the pixels.

What is in Lauren’s vocal-recording chain?

Cook: A Blue Bottle mic with the C6 capsule. That went into a BAE 1073 MPF clone, and then into a TubeTech CL1B compressor, into the UA Apollo interface. We did a blind test with five or six different mics, and the Blue Bottle captured a kind of aggression in her voice. She has a pure, soft-sounding voice and the Blue Bottle gave it a harder edge; it gave her voice punch without oversaturating it like some tube mics can.

What was used to process sounds in the mix?

Cook: Most of the post was done with Universal Audio; it’s expensive but a lot of the emulations are great. The UAD Roland RE-201 Space Echo Tape Delay is featured on both of our records. We also used Waves H-Delay for reverb. We’ve really been enjoying the d16 Group Devastor plug, too, and the d16 Decimort, which is the bit crusher. Devastor is a distortion plug, the d16 version of SoundToys Decapitator. And [we used] d16’s Syntorus, the chorus. d16 Group is a small developer, but really good-quality. We learned about them from Rich Costey, who used them all across *The Bones of What You Believe*.

How did you create the repeating synth hook in “Never Ending Circles”?

Cook: That was an accident. I literally fell on the keyboard. After five minutes of playing with it, I thought, “This is really annoying and also quite exciting.” It was the first thing we did on the record

and the last thing we had to fix on the record. Spike told us to take all our tracks off iCloud in case they got hacked. I put it all on a VLC player on my phone, and that opening hook was completely missing. It was completely phase-cancelled. So Spike flipped one of the sides and EQ'd it so it jumped out more.

Can you describe how you created the vocal echo in that song?

Cook: That's a cut-up Roland using SoundToys' Little AlterBoy plug-in: individual tracks with all the pitch gradients tuned out of them in Melodyne. The form shifted using Little AlterBoy. The bass is a Juno-106 married to a distorted bass guitar. It was put through a bus that's pumping with the kick drum.

What's your drum software of choice?

Doherty: We use Native Instruments Maschine hardware to run drums and vocal or keyboard samples. The rhythms are borne of drum samples. There are a couple of Kate Bush moments with these big toms, where one cell corresponds to a huge stereo tom. We work from a big drum sample library. We'll drag the sample into Cubase and build an entire kit. We lay them out on the arrange page. We don't use loop-based or rhythm sequences. All our drums are built in a linear fashion, from the start to the end of the song. That way it's easier

to build in intricacies and variations, and it has the visual stimulus as well. Or we might use sample sets—cleared sample sets, of course!

Cook: The Alesis HR 16 is all over *Every Open Eye*, as well as Linn Drum, Roland 808, 909, the Roland TR8 Rhythm Performer, and the Dave Smith Instruments/Roger Linn analog collaboration, Tempest.

There are some very strong vocal and melodic hooks to be found in these dense arrangements.

Cook: Within minutes of having Lauren in the studio, we knew this was something special. There was a real spark in the room that none of us had ever felt before. There was something very cool in the songwriting early on, and the genuine relief of not having to answer to anyone. But it wasn't a global project until Lauren was onboard. When we juxtaposed her vocal with the synths and drum patterns, we realized, "Oh my God! That's a beautiful combination."

What was the biggest challenge on *Every Open Eye*?

Doherty: "Afterglow"!

Cook: We had a two-month fallout over the song because we couldn't decide on the produc-

tion. One version [we tried] sounds like Erasure meets Underworld. We eventually went back and listened to the original demo. Then we muted everything and time-stretched Lauren's vocal. We took 10 bpm off the tempo. We did a wide pass with the Juno-106—just one synth and a vocal.

We also used subtle bits of parallel color from various hardware and summed it back into the box. We learned that from Spike Stent; his go-to compressor is the UA 1176 AE with a [Empirical Labs] Distressor and Retro Instruments 176 compressor; he used those with Lauren, too. He was slamming those really hard to get the color from each unit. The Distressor was knocking off like 12 dB, and we wondered "What the f—k are you doing?" But that wasn't at total output. We knew when it was right.

What's the biggest difference between performing for indie rock and dance music audiences?

Cook: When you play cerebral post-rock music, people come along and they're into it on an intellectual level. But we wanted to make music that actually moved people, and not just on an emotional level. I'd never experienced that before: people dancing to our music.

Doherty: It's called the "entertainment industry" for a reason. ■

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Felix Da Housecat

Studio sessions for the Chicago DJ/producer's soulful new full-length, *Narrative of Thee Blast Illusion*, were all about crafting moody minimalism and capturing inspiration in the moment.

BY
TONY WARE

Felix Da Housecat is anything but a homebody. The producer and DJ, born Felix Stallings Jr., booked thousands of air miles to assemble his latest album, *Narrative of Thee Blast Illusion*.

Sessions for Felix's first full-length since 2011's *Son of Analogue* took place in London, New York, Atlanta, Vienna and Ibiza, give or take a hotel room, travel lounge, or car ride to KFC. Distilling Chicago house, synth-pop, and '80s R&B, Felix put together 11 standalone songs tied together by a command of melody.

Migrating between genres and scenes is nothing new for Felix. Born in Illinois, first embraced in England, made famous for a sound reminiscent of Germany and Detroit, inspired by Italo-disco and Minneapolis pop, Felix has been restless since he emerged from the second wave of Chicago house by collaborating with DJ Pierre to produce the acid-edged 1987 house track "Fantasy Girl" at age 16.





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Felix in the studio with Lee "Scratch" Perry, who appears on "The Natural."



Throughout the '90s Felix established himself in the U.K. and Europe, signing first to William Orbit's label Guerilla and producing as Thee Maddkatt Courtship and the more tech-house-oriented Aphrohead, as well as his main alias. Felix culminated his introduction to the Brooklyn-meets-Berlin electroclash scene with the 2002 Eurotrash classic *Kittenz and Thee Glitz*, an album of pure, uncut new New Wave that sounded simultaneously contemporary and like Prince in *Dirty Mind* mode. *Kittenz and Thee Glitz* led to *Devin Dazzle & the Neon Fever*, an excess-steeped, live musician-fueled embodiment of partying.

In the years since, and across several albums, Felix recaptured a funk-soul swing that was flattened on the more Continental club-informed, highly stylized electronic pop. For *Narrative of Thee Blast Illusion* Felix opted to ignore productions that might feed the modern industry (one facet of "the il-

lusion"), and instead concentrated on nostalgic, mood-driven vignettes. The key to that aesthetic for Felix is to keep as much of "the distortion, the trickery, the warmth, the magic" out of the box as he can.

KEEPING IT FRESH

Because he believes that the initial pass can often be the best, Felix carries key gear when he travels; a RadioShack microphone, Korg Kaoss Pad, Digi-Tech Vocalist and Apogee Quartet, plus an Access Virus TI Polar that Dallas Austin might still be looking for, are just some of the tools in his road case.

"For me, it's all about getting it in that moment ... just hit Record and let me roll," he explains. "First, I'm all about getting the music, and then I worry about the sound. For each part I work an hour, walk away, mix on it for an hour, walk away, layer on it an hour, walk away, add or tweak some more, walk away. I'll do that for beats, vocals, basslines."

He adds that he rarely uses MIDI, "unless it's a really complex part and I need to do some sequencing, but then I'll still overlay stuff live. It's about keeping it fresh, so I don't let creativity get drained by engineering. I've got great guys that fly the ship, because I'm not that 16-year-old so hyped to do it all anymore. I never want to lose the feel. That's also

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~ **Butch Walker**
Engineer/Producer - Avril Lavigne, Fall Out Boy, Pink, Sevendust, Hot Hot Heat, Simple Plan, The Donnas.

"I love the way the control and tracking rooms sound now... and so does everyone that records here!" ~ Butch Walker

why I'll use the Virus, or the [Roland] Juno-106—the bass you can get out of that is incredible, and the strings. Those just flow, which is what I look for in a keyboard. Sometimes I'll be in a session and be making songs like when I was younger, getting the arrangement down in 30 minutes."

Working off a "Felix Master Kit" of vintage drum samples (Acetone Rhythm Ace, Boss DR-Rhythm 110, Casio, E-mu, LinnDrum, Oberheim, Roland TR-707/808/909, you name it), the production crew would establish patterns, but never a strict grid. Don't think *Narrative of Thee Blast Illusion* came together in one week of first takes, however. The album still involved three years, four engineers, and copious amounts of serendipity.

MUSICAL GENESIS

Narrative of Thee Blast Illusion began, like most Felix projects, late one night. In 2012 he performed a party in Cleveland for the No Shame label, and the hotel afterparty turned into a conversation about releasing an album. A few weeks later, Felix sat down at the Virus, Stewart fired up Ableton Live, and they started sketching.

Narrative of Thee Blast Illusion is a minimal recording at heart, created with a group of mix contributors that included Travis Boyette in Atlanta, Dave Parkinson in London, and Devon James

"First, I'm all about getting the music, and then I worry about the sound. For each part I work an hour, walk away, mix on it for an hour, walk away, layer on it an hour, walk away, add or tweak some more, walk away."

—FELIX DA HOUSECAT

Stewart in New York.

"Whereas a lot of guys are stacking 10 synths to get stuff, these instruments are simple and there aren't as many tracks, so you need the distortion to get the richness, the width, and dimension back," says Boyette from his Atlanta studio. "Felix doesn't want it to be busy. There isn't a single note on the album that isn't intentional and justified."

"We're really careful with gain stage ... we start mixing the moment you hit Record for the first time so we won't get in trouble down the road," he explains. "I think a mistake a lot of amateurs make is they start too stinking loud and at the end there's nowhere to go, so we start soft and later add gain on it. Things that are both right and wrong stick out when you mix soft."

"There are plenty of noise patterns on the tunes," says Parkinson, taking a break from a session in London. "But eventually we decided to leave in natural hiss as part of the effect, because the longer you carve them out, the more it sounds a bit strange. I've mixed a lot of dance records with frequency conflict, but Felix wasn't scared to leave lots of room to play with, so we could have dynamics breathe and push the right things to get warmth."

Felix tends to favor processing on the front end. "I'll record live through the Kaoss Pad, pan it, and

performance, amazing results!



"I put up Primacoustic Broadway Panels on the walls and MaxTraps in the corners. The difference was amazing... the room went from unruly to tight and controlled!"

~ Daniel Adair Drummer - Nickelback.



"We've got a mixture of bass traps, diffusion and clouds and the result was phenomenal. It ended up costing less than 25% of the custom solution and it turned out very cool."

~ Keb' Mo' - Grammy winner, roots-legend.



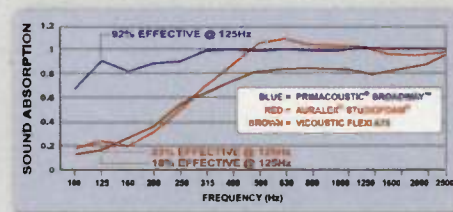
"Not only does my room sound amazing, it's also really beautiful!!!"

~ John Rzeznik - Goo Goo Dolls.

"Not only does my room sound amazing, it's also really beautiful!!!"

~ John Rzeznik

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do another take," he says. "For vocals, I'll also do a lot of layers singing through this DigiTech box I got in the '90s, and the TC Helicon VoiceLive, panning and stacking them with female vocals, like Prince would do as [one of his late-'80s studio alter egos] Camille, and then after I go through all my presets I'll chop 'em up, edit 'em, then lay the straight vocal in the center. You gotta understand how to do it right or you'll end up sounding like a cheesy robot, and it can be tedious and take days, but I'd always rather do this than use echoes or delays off the computer. I do use Melodyne, but not to tune my voice; just for more positioning effects."

Stewart—not just one of Felix's engineers, but also his tour manager—confirms that many ideas were initially drafted with just the Virus, Kaoss Pad, Apogee, and a laptop. Vocals could be tracked with the cheap 1/4-inch jack RadioShack mic, or a Blue Bottle, or Neumann, depending on circumstances. And the constant moving around and patching gear back together resulted in some unforeseen dividends.

"At one point Felix wanted to do some recording on 'Looking 4 A Reason,' and because I was in a hurry to get everything plugged back in, I accidentally routed a kick drum to the Kaoss Pad instead of the bassline or vocal or whatever was supposed to go through it at the time, and that caused the 'bouncy mattress' effect you can hear that we kept in," Stewart explains. "And on the track 'Devon's Box' we were using a couple different vocal processors with the Apogee Quartet, which only has

four physical inputs. So I would plug stuff in and out depending on what part we were recording, and at some point while I had everything unhooked, Felix was getting impatient.

"We had the beat looping in the background already, so he started singing 'Devon, hook up the box!' And I was like, 'that's hot, record that.' We ended up reworking the song a bunch in different cities, finding a way to slow it down without losing the feel, and nudging tracks a few milliseconds behind each other to get more dimensions. Sometimes we worked with a really minimal set-up, but we were always open to whatever we could get out of it."

Ableton Live, Logic, Pro Tools, and Cubase—as well as Focusrite Red, Black Lion Audio, Allen & Heath, Antelope Audio, API, and Radial Engineering outboard gear, among other modules—were employed for various sessions. "The audio nerds would say you have a problem with so many different algorithms and you'll lose detail going through all these different converters, but the platform wasn't as important as the end product," says Boyette. "Felix sees engineers as instruments to put on the album, so tracks get passed around to get two or three different perspectives going."

TRACK MASTERS

"When I'm in the studio with an engineer that's quiet I'll pick on you, and if you're talking I'll be quiet, because I don't want things to get too comfortable and you don't want to work," says Felix.

Take the lead single, "Is Everything OK?" Austrian producer/mix engineer Christoph Trücher, Trücher had flown to Atlanta and was staying with Felix, working in his basement project studio. It was 12 a.m. and the two were discussing the soundtrack to the Ryan Gosling film *Drive*, specifically the Kavinsky song "Nightcall," which people felt ripped Felix's style of '80s recalls.

"I was a huge [John] Carpenter and [Giorgio] Moroder fan; they were like cult heroes to me, and you can hear that in my tracks from way before *Drive*," says Felix. "I thought if people are ripping me, I'll jack them back and show them how it should have been done. I played the bass line, had the beat, and then I thought I heard my mother-in-law upstairs crying, so that was where we got the idea for the song. I went to check on her, then I went to bed, and at like 4 a.m. Chris messages me to come hear something, and there it was. The whole demo took one night, because the guys I work with understand it's all about waiting to get each song when it's ready so the album doesn't just sound like one big compilation."

As quickly as the framework would come once an idea hit, however, the mixing could be another matter altogether. "Me and Felix did something like 30 different mixes of 'The Natural' [a

submerged, deliberately lo-fi vibe featuring Lee "Scratch" Perry] while we were in Ibiza, sleeping, eating, and showering in the studio and leaving mostly just for his gigs," recalls Stewart.

FINISHING TOUCHES

Final mixdown and mastering duties fell primarily to Parkinson and Boyette. Knowing Felix was going for a balance of hair and air, compression and EQ were used far more for coloration than heavy-handed control, and mixing involved a lot of subtraction.

Parkinson turned primarily to Waves PuigTec EQP-1A and SSL plug-ins for balance, doing energy sweeps with a few key elements to create space. Parkinson used the Waves Maserati ACG—an acoustic guitar multi-effect—to brighten synths as needed (though he warns the Exciter function should be approached with respect). And he applied the A.O.M. Invisible Limiter on the drums, bass, synth, and vocal buses.

"It's fantastic, the best limiter I've ever used," says Parkinson. "It's very transparent and gives you more volume and takes away the harshness. It's 20 to 30 percent more than you get off any other limiter. Do your slight limiting, your minus-two-or-three threshold and compressor to minus 20 on the early stages to stop things from spiking and taking the headroom. If you get the mix right on individual channels, mastering isn't that much of a problem."

Boyette says that he's always amazed by the effortlessness of the session files he gets from Parkinson. "He doesn't do anything that makes the meter do anything significant in order to translate emotional content; his mixes are so clean, yet so effective," he says. "Testimony to Felix, *Devon*, Chris and Dave, I'd say it's 95-percent done by the time I get it, and there's not much force needed to get it mastered."

With plenty of dynamic range intact, Boyette often set out to streamline arrangements and reinforce saturation. His go-to gear includes FabFilter and Stillwell Audio plug-ins, as well as Native Instrument effects hosted in Guitar Rig 5. Slate Digital VCC, UAD 1176LN, and Fairchild 670 emulations are also some of his favorite glue when bus-ing stems together.

Antelope Audio and Black Lion clocks (plus a Black Lion summing mixer) assured low-end resolution and kicks hold together. Running everything through TL Audio M1-F Tube Console shelving EQs added presence.

"We're good with being on the lower side of volume, because Felix wants an album that stands up in any listening situation, not a club record," says Boyette. "In the end it's about what makes a perfect song, not a perfectly polished-to-death recording." ■



BFFs: Felix and the Juno-106

Felix's Roland Juno-106 represents the threads of fate that tie this latest project to his beginnings. "The first piece of gear I had was a drum machine, I think it was a Roland, and I let this guy borrow it and he never brought it back," he recalls. "So one day he comes over with a Juno-106, and I didn't even know what it was, but I told him I'd hold on to it until he found my drum machine. He never did, so the Juno was sitting there until one day I plugged it up, and ever since it's been the brains of my music. It just fell in my lap; I didn't even know what impact it would have in my life."



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Warp

Electronic architexturalist Richard D. James' archives have flown open following Aphex Twin's 2014 reboot, and these eight tracks pick up from his mid-2000s *Analord* and *Tuss* releases. More analog acid synth workouts than painstakingly finalized edits, these pleasingly dark, boxed-in sequences feature what sound like MC-4 16th-note pulses; pitch-shifting RZ-1, TR-606, TR-707, and TR-909 drums; TB-303 bass contortions; detuning chords/pads; low hums; and occasional prepared-piano fragments.

TONY WARE



GHOST MELIORA

LOMA VISTA

Now directed by "Papa Emeritus III" leading the "Nameless Ghoul," Ghost's comic metal stomp has never sounded so unified, streamlined, and pop friendly. Can U.S. radio acceptance be near for such carbuncle-bursting profundities as the Slayer-worthy "Mummy Dust," the Zappa-meets-BTO pump-and-grind of "From the Pinnacle to the Pit," and the acoustic guitar sweetness of "He Is"? Opeth meets ABBA, anyone?

KEN MICALLEF



KEVIN GORDON LONG GONE TIME

CROWVILLE MEDIA

Kevin Gordon's *Long Gone Time* is a great new collection of original story songs that touch on the personal and the political, in acoustic and electric settings. On acoustic tunes such as "Walking the Levee," Gordon uses spare, reverberant layers of guitar tones and percussive string sounds to realize brooding moods and atmospheres. Electric numbers like "GTO" feature swampy, distorted everything. Similar to singer/songwriters like Ray Wylie Hubbard of James McMurtry, Gordon commands listeners' attention, and deserves it.

BARBARA SCHULTZ



GARDENS & VILLA MUSIC FOR DOGS

SECRETLY
CANADIAN

Gardens & Villa move away from human and toward robot with each album. A protracted adjustment to this shift on the group's third album, *Music For Dogs*, reveals this change is not for the good. *Music For Dogs* plays like an upside-down bell curve, with a high start and finish: Palpitating and Devo-like on "Maximize Results," pretty and fun on "Fixations," David Bowie channeled on "Happy Times," "Jubilee" is a deadpan, yet catchy; then forgettable in the dipped middle.

LILY MOAYERI



WINDHAND GRIEF'S INFERNAL FLOWER

RELAPSE

Richmond, V.A.-based doom metal quintet Windhand starts its third full-length with the sound of fire crackling, following with an all-consuming blaze that willfully scorches everything—from lower octaves to the listener's oxygen. Saturating dirges with germanium crunch, Windhand retains high-output sustain without slurring note articulation, balancing dank riffs and helical Palm Desert rock. Despite blistering elements, producer Jack Endino assures singer Dorthia Cottrell's psyche-folk wail is shadow-cast but never blackened.

TONY WARE



LINDI ORTEGA FADED GLORYVILLE

LAST GANG

Lindi Ortega sings with as much wavering fragility as power. So, her blend of country ballads and soulful rock 'n' roll shakes you up in more ways than one. Highlights on her latest, *Faded Gloryville*, include the hilarious rocker "Run Down Neighborhood" ("You can have some of my weed if I can smoke your cigarette/I might be running low but I ain't out just yet") and the tender acoustic finale "Half Moon," where Ortega's croons and whispers sung into the night sky will break the hardest heart.

BARBARA SCHULTZ



BIG TALK STRAIGHT IN NO KISSIN'

LITTLE OIL

Killers drummer Ronnie Vannucci believes that rock and roll is still the stuff of legends, and he puts his mouth into his mission, fronting Big Talk on guitar and vocals while his sturdy quintet goes all tumescent on *Straight In No Kissin'.* Vannucci's vocals recall Jeff Lynne, and Big Talk's music is equally true to classic rock expectation. "What Happened to Delisa," for instance, offers pulsating Farfisa, pogo rhythms, and sweet vocal harmonies—the best New Wave single never released.

KEN MICALLEF



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Harbinger...Message Received!

Studio One 3 Professional is a major upgrade that adds a number of exciting new features, including the Arranger track, Scratch Pads, Multi Instruments, Note FX, the Mai Tai synth, and the Presence XT Sampler.



PRESONUS

Studio One 3 Professional

USER-FRIENDLY
DAW KEEPS
GETTING BETTER

BY MARTY CUTLER

Former *EM* editor Marty Cutler is a contributing artist to the Bob Moog Foundation Encore Soundbank.

STRENGTHS

Scratch Pad is flexible, easy to use. Mai Tai with Character section. Multi-instrument. Studio One Remote for iPad.

LIMITATIONS

Some editing functions need definable selection criteria. Reference Manual requires launch of Studio One program. Presence XT lacks full editing and mapping features. Presence XT Import of other sampler formats is inconsistent.

Studio One 3 Professional: \$399.95
Studio One 3 Artist: \$99.95
Studio One 3 Prime: Free
presonus.com

Now in its third iteration, PreSonus Studio One started with the promise of a user-friendly DAW that would avoid feature bloat while providing a streamlined workflow from song creation to mixdown and mastering. The recent update to version 3 is a major one, replete with—among other things—powerful new synths and some refreshing ways to combine them.

I put PreSonus Studio One 3 Professional through its paces on an Apple Mac Pro 2 x 2.8GHz Quad-Core Intel Xeon with 14 GB RAM under Mac OS X 10 Yosemite 10.10.3.

having to hit an Undo button or alter your original arrangement. Better yet, you can treat Scratch Pads as takes, with alternate versions that you can save with the project.

COCKTAILS FOR TWO

Studio One 3 Professional adds some terrific new virtual instruments with novel ways to use them. Following Mojito, the monophonic analog-modeling synth from version 2.0, new on the Studio One 3 menu is Mai Tai, a well-appointed dual-oscillator, polyphonic synthesizer (see Figure 2). Each oscillator offers a choice of sine, triangle, sawtooth, and pulse wave (with variable pulse width). When enabled for either or both oscillators, the Random Phase (RP) button modulates the starting point for an oscillator's cycle, generating subtle shifts in timbre.

SCRATCH 'N RIFF

One of the outstanding features of Studio One is the program's smoothly implemented drag-and-drop capabilities. The efficiency of setting up a track by dragging a software instrument or effect plug-in into the timeline is undeniable. Moreover, the ability to take any section of MIDI or audio and drag it back to the browser to create a loop is an innovative idea.

Studio One 3 Professional goes a step further by letting you rearrange song sections in a unique and elegant way. When you open Scratch Pad from the View menu, you are presented with a grid side-by-side with another major new feature, the Arranger track. You can select any region over as many tracks as you need and drag them into the Scratch-Pad window (see Figure 1). Once there, you can arrange them in any way you like and even subdivide the events into smaller regions. Clicking on either window activates it for playback, so shuttling back and forth to compare results couldn't be easier or more intuitive.

Everything copied into the Scratch Pad retains its assignments, from patches and effects to buses. The most liberating aspect of the feature is the ability to rearrange a song at will without once



Fig. 1. Studio One 3 Professional's unique Scratch Pad lets you drag-and-drop anything from a snippet of a file to multiple tracks in order to rearrange your work. You can save multiple Scratch Pads in a single song file without using Undo.

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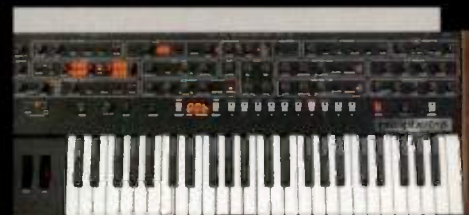
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Fig. 2. The new Mai Tai synth includes the Character section, which lets you introduce unusual timbral qualities. The Envelope section allows you to adjust the curves of the envelopes manually.

For the most part, the two oscillators are identical, except that oscillator one's Spread parameter adds phantom oscillators, each one slightly detuned. On percussive sounds, this created a nice, cloudy inharmonic attack. On softer patches the effect ranges from sweet, natural chorusing to hive-like buzzing effects. Oscillator two provides classic oscillator sync for nasal, sweeping tones.

The filter choices include highpass, lowpass, and bandpass ladder-style filters with 2-pole (12dB/octave) slopes; a 4-pole (24dB/octave) ladder-style lowpass; and a 4-pole (24dB/octave) Zero-Delay feedback filter, the function of which is minimally described in the documentation as closely modeling "the tone and modulation behavior of analog filters." According to PreSonus, the instrument's lowpass filters are patterned after classic Moog and Oberheim synths: With a touch of the filter's Soft button and a slight lowering of the cutoff frequency, I was able to convert a somewhat brash sawtooth-heavy patch into a silky Oberheim-sounding pad.

In addition to controls for cutoff, resonance, and drive, the filter section includes the Punch parameter, which is great for adding a percussive front edge to synth bass patches. With colorful names such as Ardency, Talky, and Fuzzmonica, Mai Tai's Character section enhances the filter to shape timbral changes—from subtle and delicate or brash and powerful—with a simple turn of a knob. The three categories are Analog Color, which models and morphs between a couple of analog-circuit models; Formant, which can add a vocal quality to the tones; and Harmonic, which adds spectra to the waveform. Depending on which of the three types you've chosen, the Sound knob can sweep and morph through the available circuits, formants, or range of harmonics. Simply dial in the amount of character you need to take your patches well beyond the typical analog-synth sonorities.

The three envelope generators are worthy of mention: Two have an extra knob to adjust the delay time before the ADSR parameters begin. Just click on the handles to adjust the curves for the attack,



Fig. 3. Presence XT is a major update to the Presence sample player from version 2 of Studio One. The new instrument lets you shift the sample start time and adjust the sample's root for interesting effects.

decay, and release segments. Rounding out Mai Tai are two LFOs, a pair of eight-slot modulation matrices, and a pair of multi-effects slots, which include reverb, modulation effects, delays, and gates.

BENIGN PRESENCE

Presence was a sample-playback synth in previous versions of Studio One, but it been promoted to Presence XT: In addition to getting beefed up with a synthesis section derived from Mai Tai, it offers sampler-specific operations such as control over sample start time, compatibility with third-party software samplers, and the ability to import several sampler formats (see Figure 3). The instrument includes two ADSR envelopes, one for amplitude and one for the filter, and the same choice of filter types as Mai Tai, albeit without the Character section.

Presence XT's sound library is largely excellent, although you don't get access to the individual oscillators; you can do little more than tweak the top-level parameters, and there is no ready facility to import and compile your own sample maps.

Importing presets from Native Instruments Kontakt and Apple Logic EXS instruments was hit or miss and sometimes involved a secondary search for missing samples. Older Kontakt files generally fared better. The manual touts the simplicity of dragging files from the desktop, but I found it preferable to load from the Studio One 3 Professional browser, where the info pane at the bottom warns you when selected presets are incompatible.

The issues are understandable, as both the Native Instruments and Apple sampler-file formats have changed. Presumably, future updates will bring fewer compatibility issues. PreSonus anticipates the release of Presence Editor, a separate and optional application that will provide access to mapping and scripting routines (and hopefully some workarounds to the above-mentioned issues).

ASSEMBLED MULTITUDES

Another welcome addition in Studio One 3 Profes-



Fig. 4. Anatomy of a Multi: I have combined three Instruments by dragging a Splitter to isolate the Camel Audio Alchemy patch and a Note FX Input Filter to limit its Velocity to the upper 15 percent range.

sional is the Multi instrument. As with a hardware synthesizer's Combi or Multi section, you can drag instruments from any AU, VST, and PreSonus instrument to create your own splits and layers, along with effects chains and Note FX (which I will describe shortly) to create your own composite instruments. Drag-and-drop capabilities are in full bloom here. Simply drop an instrument onto a track, then add another to the same track; a pop-up will ask you if you wish to combine or replace the other instrument, and the graphic will change to reflect the Multi's programming interface with individual instrument ranges depicted as color-coded bars above a virtual keyboard. Drag the bar at the end of either range to create splits, or simply limit the playable range of one of the presets. Ranges, inserts, sends, and transposition settings are displayed in a discrete inspector for the Multi.

You can drag-and-drop Studio One 3 Professional's new Extended FX chain presets from the browser into the Multi's insert section, and here again, you can combine third-party effects into the chain. FX Chains are similar in organization to Multis in that you can use splitters and routers to create a nest of serial and parallel chains. This provides a way to create complex processing setups for audio tracks as well as Multis.

Note FX is an elegant adjunct to the Multi, allowing you to create Velocity limits to layered sounds for Velocity switching. I quickly assembled a choir from Presence, an organ from Native Instruments B4II and an arpeggiator patch from Camel Audio Alchemy using the Multi's splitter to route Velocity limits via Note FX's sophisticated Input Filter to the Alchemy patch. Consequently, when I hit the keys harder, the arpeggiator kicks in (see Figure 4). Note FX also has its own arpeggiator, a Chorder (with which you can assign MIDI chords to individual keys), and a repeater, which triggers MIDI patterns polyphonically.

REMOTELY USEFUL

While I was working on this review, PreSonus released version 3.0.1 of Studio One. The upgrade process could not have been simpler and quicker,

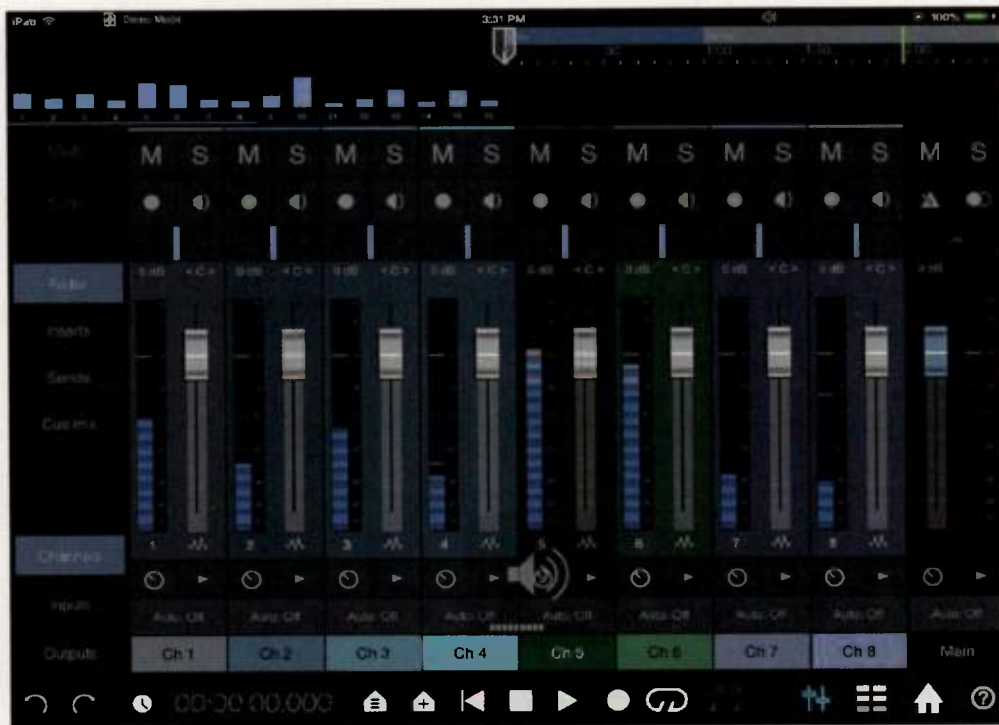


Fig. 5. Studio One Remote adds touchscreen control capabilities to the DAW via the iPad.

engage record and playback; and bounce and nudge events. This is easily the most comprehensive iPad app I have seen for any DAW, and it brought events and control right where I can touch them, proving indispensable for my workflow.

ONE TO 3

There are many more improvements and new features in Studio One 3 Professional than I have space to cover in this review fully, including the Rotor and Bitcrusher Audio Effects, a user-definable Smart Tool palette, automation curves, and the ability to use macro controls, not to mention the terrific sound of the software's audio engine.

Users of multitouch computers will appreciate having access to consoles, faders, and the browser. Studio One 3 Professional's implementation of drag-and-drop extends well beyond simple convenience into a brilliant application of workflow. For all of this, its code is still sleek, and Studio One 3 Professional launches more quickly than any of my other digital audio workstations.

I look forward to every revision of Studio One: It's a kick-ass DAW that keeps getting better. ■

involving a disk-image download and Studio One's characteristic drag-and-drop replacement of the entire shooting match.

That update was quickly followed by the release of the Studio One Remote app for iPad (see Figure

5). The app connected easily and quickly to my Mac, and the graphics are gorgeous and easy to read. With a single touch, you can view and edit channels, inserts, and sends; add inserts and buses; edit faders; open the Channel Editor; add automation;

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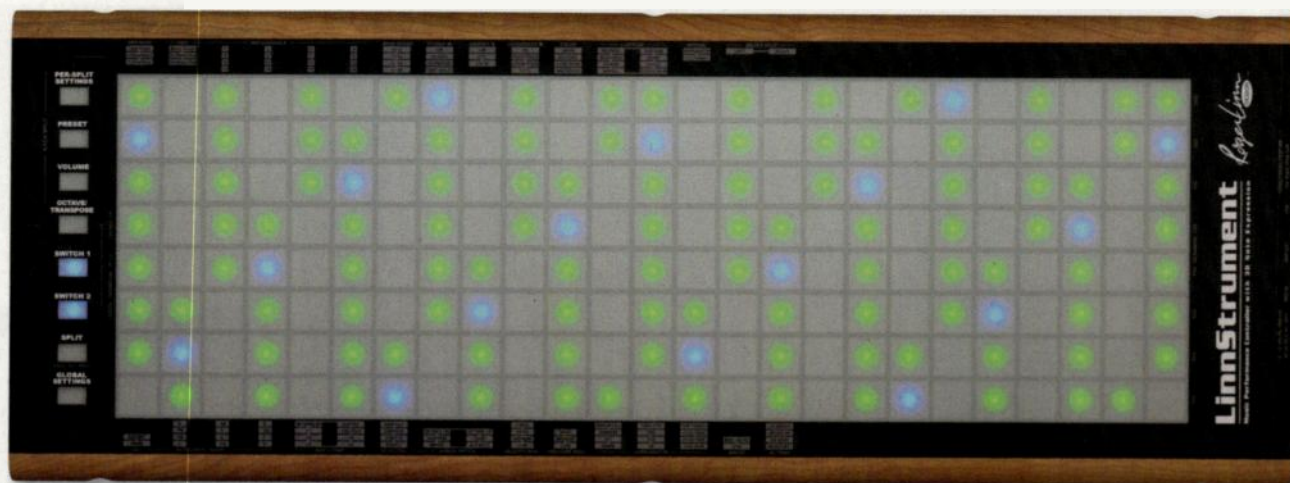


Fig. 1. Roger Linn's latest invention is the LinnStrument, a MIDI controller that delivers more opportunities for playing expressively than keyboards do.

LinnStrument

AN UNUSUAL MIDI CONTROLLER THAT MAKES PLAYING SYNTHESIZERS MORE EXPRESSIVE

BY GEARY YELTON

Freelance writer, synthesist, and former *Electronic Musician* senior editor Geary Yelton just returned from a five-week tour of U.S. national parks.

STRENGTHS

Easy to learn. Lightweight, durable, and well designed. Open-source software. Customizable. Can be powered by newer iPads or iPhones. Allows multitimbral playing.

LIMITATIONS

Shallow y-axis control. Web-based user's manual. Computer software could make editing easier.

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Roger Linn has been busy for the past few years designing the LinnStrument, an instrument controller that could outlive all of his other inventions. The LinnStrument is one of a group of devices called PMCs, short for *polyphonic multidimensional controllers*, an exclusive club whose membership includes the Haken Continuum Fingerboard, Roli Seaboard, Madrona Soundplane, and Eigenlabs Eigenharp.

The idea behind the LinnStrument and other PMCs is to give synthesists the same level of expressivity enjoyed by acoustic instrumentalists. A typical synthesizer keyboard is essentially a series of momentary switches that

respond to how fast (velocity) and how hard (aftertouch) you press them. The LinnStrument responds to much more subtle finger movements by sensing three dimensions—left-to-right (x-axis), forward-and-back (y-axis), and downward pressure (z-axis)—independently for each finger. Like a keyboard, it also responds to velocity.

Because it is strictly a MIDI controller, the LinnStrument makes no sound on its own. It connects to MIDI hardware or a software instrument running on your computer. That said, it is class-compliant, meaning that you won't need to install a driver on your computer to use it. Once I replaced a driver that conflicted with it, my Mac's Audio MIDI Setup recognized the LinnStrument immediately and I could use it to play any instrument in Logic Pro and other hosts.

PICK ME UP AND PLAY ME

Slightly less than two feet long and about an inch thick, the LinnStrument is a sturdy but lightweight metal box with two rounded cherry wood sides and a silicone rubber touch surface (see Figure 1). The translucent touch surface is an 8x25 grid

of slightly raised 0.75" squares, each triggering a single note. Connections for USB, MIDI In and Out, a dual footswitch, and an optional power supply (it is usually USB powered) are located at one end. It comes with four strap pins you can screw into both ends to add a guitar strap, and I enjoyed playing it like a guitar. Eight backlit buttons on the left side access functions such as recalling presets, shifting octaves, and editing parameters.

Each trigger pad is backlit by an LED that lets you choose from six colors for all the notes in a selected key, with "accent" notes and every note you play illuminated in two other colors. The accent note is normally the root in a major scale (C major is the default), but you can change it for playing in natural modes. Instead of an LCD display, the LinnStrument displays alphanumeric data in the arrangement of backlit pads. For example, pressing the Preset button arranges the LEDs in the shape of the preset number.

Adjacent pads in a row are tuned chromatically, like keys on a keyboard. Pads in a column are tuned in fourths by default, so that the pad above another plays a fourth higher, like on a bass guitar. As you're learning to play, in fact, it helps to think of each row as a string, which gives guitarists a leg up. If you're a violin or ukulele player, though, you can change the default to a fifth or whatever interval you'd prefer.

It's also helpful to think of fingering patterns as shapes. On the LinnStrument, you normally play

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PROPELLERHEAD

Fig. 1. New features in Reason 8.3 include the availability of the Browser in the detached Rack window, a device tab for setting the MIDI focus for the Rack and the RV7000MkII Reverb with convolution mode.



Reason 8.3, Figure 2.0 and Take 2.1

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BECOMES AN
ECOSYSTEM

BY MARKKUS ROVITO

Markkus Rovito
drums, DJs,
and contributes
frequently to *DJ
Tech Tools*.

STRENGTHS

Beautiful Convolution mode. Helpful interface. **Figure and Take** are free tools for creativity on the go. Propellerhead network works as cloud backup for audio, a sharing site for colleagues, and a collaboration site for everyone.

LIMITATIONS

RV7000 MkII ReFill patches don't install into the shortcut "browse patch" location. **Figure**, **Take** and Reason exports to Propellerhead open in Reason as a single audio file rather than instrument parts in separate tracks.

Reason 8.3: \$399 street (\$129 upgrade)
Figure and Take: free
propellerheads.se

Our February review of Reason 8 closed with a prediction that the next step for Reason would be to integrate it with Propellerhead's iOS apps, **Figure** and **Take**. Of course, it wasn't surprising to see that, with the Reason 8.2 update, the developer launched the Propellerhead cloud-collaboration network, where users of the touchscreen beat-box **Figure** and the vocal-workstation **Take** can post their musical musings for collaboration with others.

Not stopping there, Propellerhead most recently dropped the Reason 8.3 update, which continued its recent direction of making workflow and interface improvements. Here, the big news is that a classic gets a refresh—the RV7000 MkII Reverb now has a convolution mode that's a little cooler than simply providing more detailed and more CPU-intensive reverb settings.

EVER MORE REASONABLE

A few notable interface improvements make Reason 8.3 well worth the download. In fact, with Reason 8.2,

Propellerhead added an auto update feature, so it will check for free available updates when you open it.

There's good news for people who spend a lot of their Reason time working in the Rack. When you select a device, a blue tab to the upper left appears; by clicking it, you put the MIDI focus on that device, so you can play it from your key-

board without having to go into the Sequencer. Also, if you work in the Rack from a separate detached window, you can now toggle-open the Browser from that Rack window using the F3 shortcut key or by double-clicking its title bar (see Figure 1).

Another keyboard shortcut lets you quickly zoom in and out on material in the Sequencer

for editing. Say you just recorded a MIDI part and need to clean it up a bit. Select what you want, hit Z to zoom in, make your edits, and hit Z to zoom back out. Simple and sweet.

CONVOLVE WITH ME

For the unfamiliar, convolution reverb is kind of like the physical modeling synth of the reverb world. It uses recorded samples of a space and object, analyzes how that space reflects the soundwaves of the object, and then applies those reflections and behaviors to your track. It does require more processing oomph than a straight digital reverb setting, but the results are well worth that small investment.

For Reason 8.3's RV7000 MkII Reverb, you have the option of downloading a free 437MB ReFill of patches, Combinator patches, and impulse response WAVs—over 300 files in all. But even if you don't download the ReFill, you can use RV7000 MkII's convolution mode with any WAV file to get very interesting results. And you can also quickly record an impulse response WAV of your own spaces straight from a "start sampling" button on the reverb device, and then edit and save the WAV (see Figure 2).

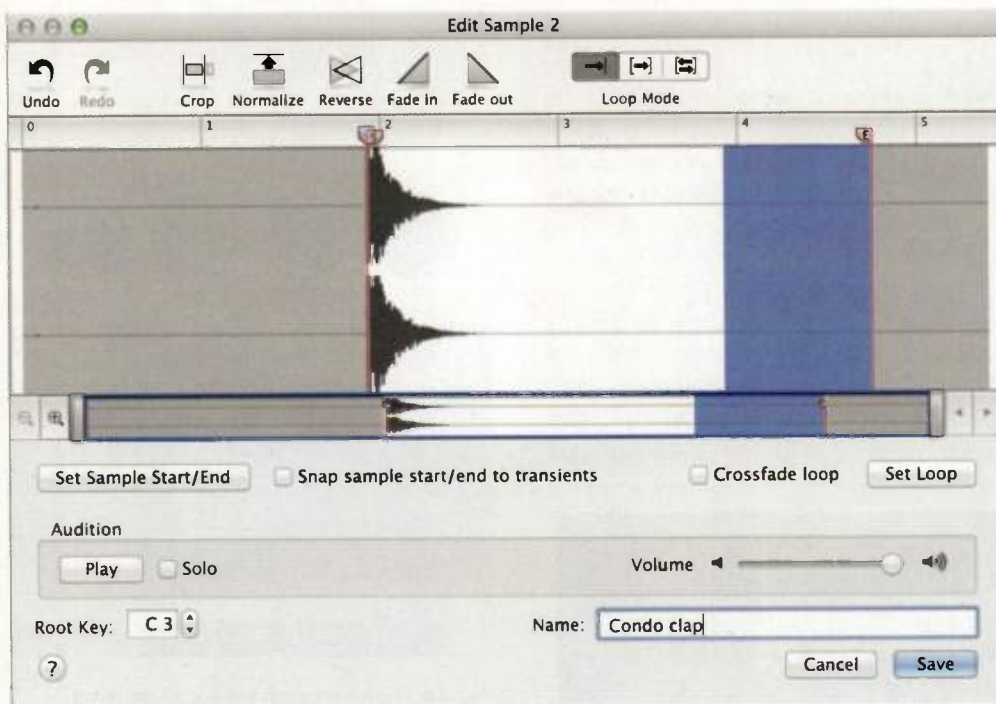


Fig. 2. You can record and edit your space's impulse-response WAV file in seconds from the RV7000MkII.

When you consider the ability to load any WAV file into the RV7000 MkII convolution mode and then edit the waveform's size, length, gain, etc. (see Figure 3), the device becomes at least twice as interesting as a sound design tool. Even if you stick to the ReFill presets, you'll notice the difference in depth and realism in the RV7000 MkII's convolution patches.

CLOUD-CONNECTED APPS

Ostensibly to encourage people to use its Discover service, Propellerhead made its Figure app free, and its Take iOS app has been free since its launch. So there's no question that they're worth checking out, but what can you really do with them?

Figure is essentially a scratch pad for musical ideas with a unique interface that leverages the touchscreen quite well. It has three tracks—drum, bass, and lead—with a dozen or more high-quality

and genre-current sounds for each one. The drum kits have four parts and up to 12 sounds per kit.

To begin playback, merely touch the screen. Then, you can alter the rhythm using the rotating disc for each sound (see Figure 4). Your x/y position on the screen may alter the sound source, pitch, modulation, or other parameters. For each song you choose the tempo, shuffle, and pump settings, as well as the key and tonality.

For the bass and lead parts, you can only play notes in key, and you choose the scale steps and range between each note bar on the screen, so that you can have as few as four notes and as many as 21 notes representing a three-octave range. For any of the parts, you can press the screen and let the chosen rhythm take over, or you can play the note bars with your fingers, and the app always keeps you in rhythm.

You can record loops of up to eight bars, with overdubbing and an erase mode available. On the

Tweaks page, you can record an automation move on the x/y pad for 2 or 3 characteristics per sound. With this system, you can record a fast loop with very little thought just by touching the bars and letting the preset rhythms take over. You also have the freedom to be rather meticulous about what you create by playing your own rhythms and writing melodies.

When you're finished, you can set cover art from your image gallery, drop the beat to the Propellerhead cloud, and export the loop to SoundCloud, iTunes for transferring it to your computer, and the Audiocopy app for using the loop in other iOS apps. Finally, once you drop it to the cloud, you can choose to open the beat in Take or Reason and use it as your music bed for your vocals.

Take is a three-track vocal workstation that's meant to be several steps above a standard voice recorder for capturing your lyrical and melodic inspiration whenever it strikes (see Figure 5). It has a few dozen canned beats included to keep time for you, with a selectable tempo. (There are more beats, song starters, and community-made music available in Discover.)

Take even has a Voice Tune feature to correct your vocal tuning once you've chosen a key. For each vocal track, you can mix the levels, adjust the amount of Voice Tune and choose from 17 mix settings based on different musical genres for adding EQ, reverb, delay or other effects. Each mix setting has an amount slider and a slider for morphing between two preset settings.

You drop your Take creations to Propellerhead in the same way as Figure, and in Reason, there is also a Drop to Propellerhead item in the File menu for sharing loops or songs. When dropping to Propellerhead, you always have the option to make your music Listed (open to the public) or Unlisted



Fig. 3. The RV7000MkII Reverb has a ReFill with hundreds of great presets. You can also drag in your own WAV files when you're looking for unusual results.

Tip: Save Figure Beats as Individual Tracks

If you really love what you've done in Figure and want to share it or continue to work on it in Reason, with a little extra effort you can send it out as individual tracks.

Once you're finished with the Figure beat, go to the System tab and tap the pencil edit button. Next, type a new name to save a copy of it as a new file. (For example, rename "Beat" as "Beat_drum.") Then, go back to the Pattern tab and erase the bass and lead tracks, leaving the drum beat on its own. Drop "Beat_drum" to Propellerhead or save it to your iTunes and now repeat the process.

Go back to "Beat," save copies as both "Beat_bass" and "Beat_lead" and erase the requisite tracks from both of those before exporting them as audio. Now you'll have three audio files you can import into a DAW for further work. This workaround isn't as ideal as making a Figure beat fully openable in Reason, but it will help you take better advantage of the impressive creative potential of Figure.



Fig. 4a. Figure's touch bars and rotating rhythm wheels let you get creative with your playing without going out of rhythm or key.



Fig. 4b. Your X/Y position alters pitch, modulation, or other parameters.

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(only available in your account, and sharable via direct links). In the Discover section of the Propellerhead website, you can find thousands of other people's Reason, Figure and Take creations that are being shared. From there you can send the clips directly to Reason or Take as audio files. If a piece was made in Figure, you can download and open it directly in Figure as the original session, where you can remix it to your liking and then open it in Take.

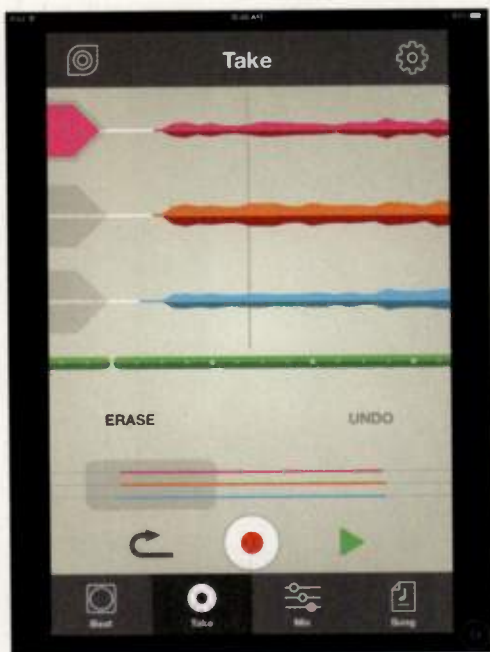


Fig. 5a. Take gives you three tracks of vocal or instrument recording, as well as a beat track for Figure or preset beats.

To me, the big area for improvement in Discover right now is to make projects created in Reason sharable as Reason files, so that they open as the full



Fig. 5b. In Take's mixer, you have the ability to add vocal correction and effects.

Reason session rather than as just a single audio file in a new track. Of course, that could be a problem if one user doesn't have the same Rack Extensions

as the creator, but that seems painless enough to workaround with replacement tracks. Also, if you could send Figure beats to Reason that opened as separate tracks for the bass, lead and drum track as a Kong instrument with separate MIDI parts for each drum sound, that would be a huge step up for usability. Right now, if you find a great beat or melody on Discover that is mixed a little wonky, there is not much you can do to fix it shy of contacting the creator and asking for individual tracks.

THE WAY FORWARD

The version 8.3 upgrade is a no brainer for current Reason users. And with its apps, Propellerhead is clearly looking for ways to capitalize on the explosion of mobile devices and cloud computing as it continues to move Reason forward. It's an exciting way to go because there are so many possibilities still unfulfilled.

But if Propellerhead wants to really make Discover more appealing than something like Blend.io, where users can share full Reason project files for cloud-based collaboration, it should have the ability to share Reason sessions and Figure exports that open as multitrack Reason sessions. For now, however, Discover—in tandem with Figure and Take—is a fun and free service with a potentially long and interesting future ahead of it. ■

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Fig. 1. H-Reverb's graphic display gives you excellent visual feedback on the status of the reverb signal.



WAVES

H-Reverb

THIS PLUG-IN HELPS YOU GET CREATIVE

BY MIKE LEVINE

Mike Levine is a producer, engineer, and multi-instrumentalist who lives in the New York City area.

STRENGTHS

Ten different early-reflection settings. Pre-delay can sync to host tempo. Input and Output Echoes. Fully featured dynamics section. Envelope, LFO, and Modulation sections. Drive and Analog settings. Test button.

LIMITATIONS

No input-level control. Some buttons can be confusing as to on/off status.

\$349
waves.com

Hybrid Reverb (aka H-Reverb) is the latest addition to Waves' impressive Hybrid line, joining Hybrid Delay, Hybrid EQ, and Hybrid Compressor. H-Reverb gets its "Hybrid" moniker by combining convolution and algorithmic reverbs, and its integration of DSP processes that you don't typically find in a reverb, such as compression and modulation, among other things. The result is a plug-in with more creative potential than a conventional reverb. If you're not the tinkering type, you don't ever have to go "under the hood," and you can use its many presets and basic adjustments—but you'd be missing out on the fun.

PLUG-IN POWER

H Reverb is compatible with both stereo and 5.0 or 5.1 surround systems. You can open either a "regular" or "long" instance of it. The former gives you up to six seconds of reverb time, whereas the latter offers 12. Waves did this to save CPU in situations where you don't need more than six seconds, which is more than enough for most music-production scenarios. The Long version uses up about 30 percent more CPU. Even the short version of H-Reverb is fairly CPU-intensive, but in my testing, it didn't seem much different in its requirements from other quality reverb plug-ins that I compared it to.

When you open H-Reverb, its GUI is dominated by a large and colorful display (see Figure 1) that indicates time on the horizontal axis and amplitude on the vertical. It shows you the reverb tail in orange, early reflections in white (which are only visible in detail if you zoom in using H-Reverb's own Zoom control), and any Input and Output echoes you've dialed into the patch, which I'll get into

more later. The display reflects changes you make to time and amplitude-based parameters; it can also be edited graphically by dragging control points.

Six knobs are visible: three each on each side of the Reverb Time numerical display, which is reminiscent of an old-school digital clock. The knobs provide an early clue that this plug-in is anything but typical. In addition to Dry/Wet, Output (there is no input level, however), Size, and Pre-Delay, you'll find the ER/

Tail Balance knob, which is hugely helpful, because it lets you control the relative levels of early reflections and reverb tail that are in the signal. The Build Up Time knob governs the time it takes the reverb to get to its peak. The effect of the Build-Up parameter is somewhat similar to pre-delay, except that instead of delaying the start of the reverb, it controls the degree to which it ramps up—sort of like the attack parameter in a volume envelope.

I was very pleased to see that H-Reverb included a Sync button for its Pre-Delay function, letting you sync it to the tempo by rhythmic values. It surprises me that more reverbs don't provide this, as pre-delay is a parameter that can sound really good when synched to a song's tempo.

Another cool feature is ER Select, a pull-down menu that lets you choose from 10 different early reflection algorithms, which have a pretty big impact on the reverb sound. Also quite useful is the Test button, which shoots a short burst of noise into the reverb, allowing you to preview the sound even before you have any signal coming into the

plug-in. This could be really helpful in live sound situations, and for working on settings outside of the studio.

On the far right is a Reverse button, which reverses the direction of the reverb. My only complaint with it was, when you click on it, the button gets highlighted, and stays highlighted until you press another button. This gives the impression that the reverse feature is on when it isn't. The same issue exists with most buttons in the GUI.

EXPAND YOUR HORIZONS

Just below the Output knob on the right is the Expand button. When you press it, it opens up a huge new layer of parameters that control much of H-Reverb's impressive array of processing options (see Figure 2). These give you the ability to tailor the sound and behavior in a way you just can't do on most reverb plug-ins.

The Decay Envelope of the reverb is controlled with three knobs—X-Time, X-Gain, and Density. These let you manipulate the reverb as it decays, and changes are reflected in real time in the main display.

Input Echoes let you add up to six taps to a copy of the input signal and feed it into the reverb, providing added rhythmic interest. You can choose different Input Echo types, including 6Tap 8th FB, 2Tap St 8, and five others. The echo volume is dialed in using either the Discrete or Dif-fused knob, or both.

You can also add Output Echoes, which are four repeats of the reverberated signal. Parameters include Amount, Size (which lets you change the timing of and between the echoes), and Tone. Between the Pre-Delay and the Input and Output Echoes, you can create a lot of rhythmic effects inside the reverb, either subtle or not so subtle.

The Dynamics section adds compression to the reverberated signal, using one of three different settings. The first two, Duck and Comp, react to the dynamic content of the dry signal coming into H-Reverb's input. The difference between them is that Duck reduces the wet signal when the dry signal is present, whereas Comp compresses the wet signal in its entirety. Duck allows the dry signal to punch through more, because the reverb is reduced only when input audio is present. Compression can be used to add pumping and breathing to the compressed signal. Both are controlled with Threshold and Recovery (release) controls.

The third Dynamics option is DeEss, which works on the dry signal. The developer says it can be used to create an overall bright reverb, but eliminating the sibilant spray from vocals—another useful tool for dynamically shaping the tone of the reverb signal.

TONING IT DOWN

The center part of the expanded view contains the EQ section, which offers four bands, two fully parametric and two semi-parametric. On either end are low- and high-shelving filters, and in the middle are two bandpass filters. Each can be turned on an off individually. Their gain and frequency settings are adjustable numerically, or by dragging control points, just like in most Waves EQs.

The EQ section also contains the ER Filter, which lets you adjust the virtual space in terms of its reflective surfaces. In other words, you can set the room to be more or less absorptive or reflective, which is pretty cool.

TIMING IS EVERYTHING

The Time Filter section offers Damping, Envelope and LFO features. Damping is a fairly conventional reverb parameter that lets you control the speed (based on the Reverb Time setting) at which the high- and low-frequency ranges of the reverberated signal decay.

Envelope and LFO, the two Resonant Filter modes, can be used to add filter sweeps to the reverb signal, and to really change its tone and character. They share three common parameters: Filter Type, Q, and Mix. In the Envelope editing window, you edit the Attack and Release times graphically by dragging sliders.

The Modulation section makes it possible to dial in amplitude and frequency modulation, which also impacts the reverb signal, although their effect is usually pretty subtle.

The final section, Global, features the Drive effect, which provides a clipping-like distortion to the reverb. You can also set the plug-in to Analog mode, imbuing the overall sound with nonlinear characteristics, like in an analog console simulation. I was quite impressed with the sound of both of these features. The Digital switch lets you turn on 12- and 8-bit simulations, as well.

All the parameters in H-Reverb can be automated, so you can create some pretty wild-sounding effects.

H-Reverb comes with a nice selection of presets, including “celebrity” patches from audio luminaries such as Ross Hogarth, Tony Maserati, and many others. These presets are useful for quickly dialing in good settings, or as jumping off points for creating your own patches.

H-REVERB, H-SOUND

Sonically, I found H-Reverb to be in the same ballpark as some of my favorite software reverbs by other developers. Its tails sounded warm and decayed smoothly. I used it on drums, vocals, acoustic guitars, electric guitars, keyboards—you name it—and was always able to dial in a good sound.

What really differentiates H-Reverb from its competitors is the rich selection of processing tools. If you're into doing more with reverb than just slapping a preset on a vocal, snare drum, or other track, H-Reverb gives you the tools to get really creative. ■



Fig. 2. Pressing the Expand button reveals the full GUI, featuring controls for a slew of creative processing options.

Tip: Dial in a Tempo-Synched and Processed Reverb

Here are some settings to try when exploring H-Reverb's creative capabilities. The results will be different, depending on the instrument or other element to which you're applying it. As long as the part has a rhythmic element of some sort, this should work very well.

Start by pressing the Sync button under the Pre-Delay knob, and then set the Pre-Delay itself to one of the longer rhythmic values. Use the Dry/Wet level knob to control the level of the effect. You can add further rhythmic interest by turning on the Output Echoes and experimenting with the settings until the results sound locked in.

Next, add in some unnatural filtering effects: turn up the Q in the Envelope/LFO section; slide the Attack and Release Envelope sliders until they're both very short; and turn the Q-control in that section to 10. Experiment with different LFO values, and try hitting the Flip button.

Finally, to change the sound of the reverberated signal, boost some highs in the EQ and turn up the Global Drive control.

**IMPACT
SOUNDWORKS**

Shreddage Drums

BY MIKE LEVINE

\$119
impactsoundworks.com

SHREDDAGE DRUMS is a library that focuses on rock and metal sounds, and runs on either the full version of Kontakt 5 or the free Kontakt 5 player: Load a 16- or 24-bit version of the library and choose between samples with or without mic bleed using the standard Kontakt browser. Before installing the library, be sure to grab the Impact Soundworks Downloader app to facilitate the download and unpacking of the RAR archive.

The interface lets you audition the sounds by clicking on them. A pull-down menu yields 27 presets that offer a wide range of instruments. The drums, recorded from three different kits, are big and present, and they feature everything from the tight kicks of contemporary metal to the fat snares and punchy toms of heavier rock styles.

The default mapping is GM, but the Mapping window lets you change the MIDI note of any drum or cymbal. You can also assign any sound from the library to any MIDI note, making it easy to build custom kits, which can then be saved. As a bonus, Impact

Soundworks partnered up with Groove Monkee (groovemonkee.com) to include a collection of MIDI drum grooves in four categories—Power Rock, Progressive, Metal, and Hard Rock.

Individual kit elements can be mixed from the Drum Tweak Area, where clicking on a drum or cymbal reveals controls for Volume, Pan, Tune, Attack, Release, and Decay. The separate Mixer section lets you control levels, panning, mute, solo and effects for Kick, Toms, Snare, Hi-Hat, as well as Overheads and Room mics. The mixer's effects are quite impressive and include Reverb, EQ, Transient Designer, Tape Saturation, and Compressor. The reverbs are particularly excellent.

Overall, Shreddage Drums offers excellent sonics and smart features at a good price. ■



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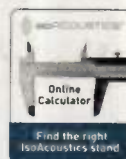
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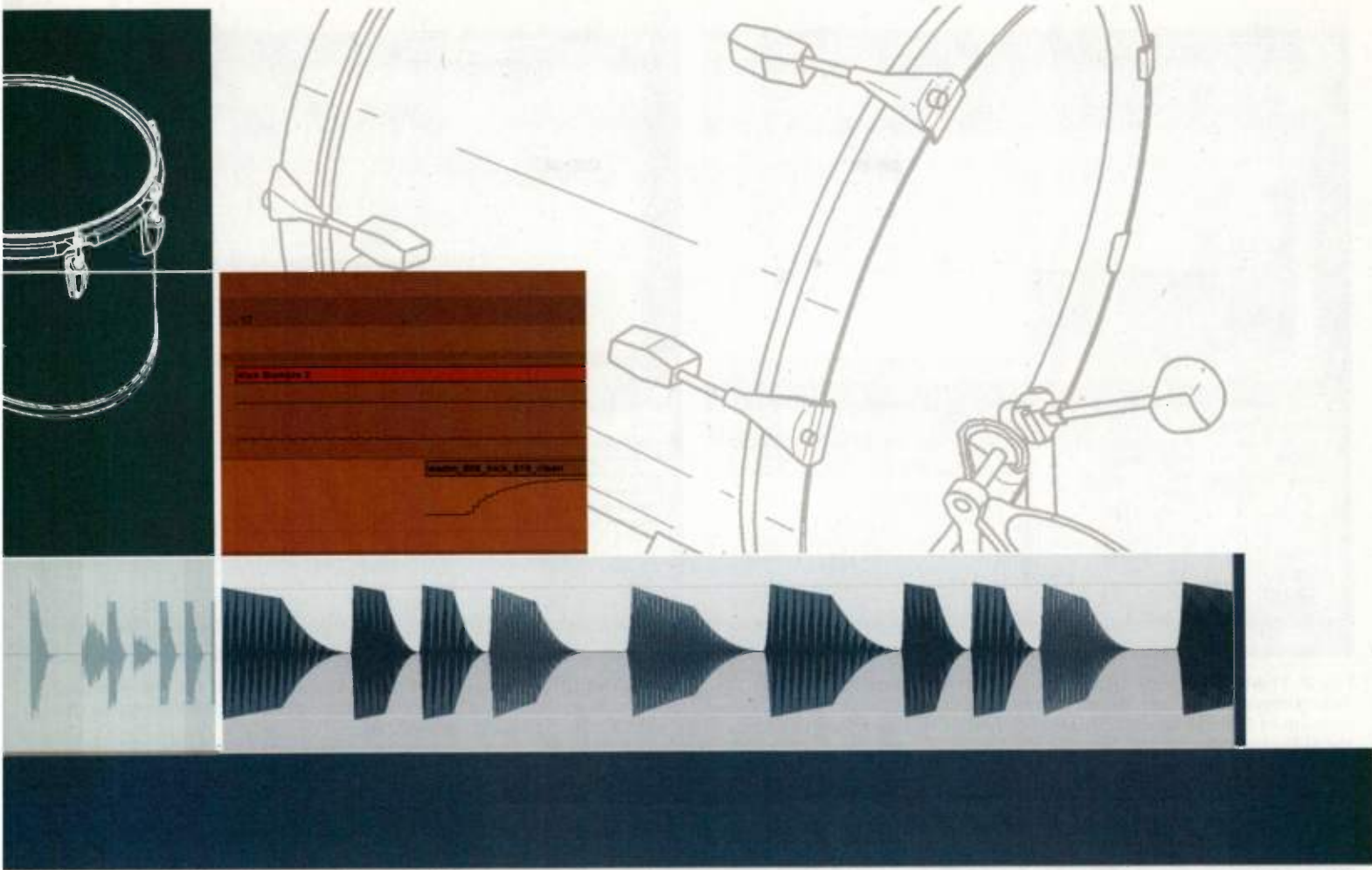
Layering Drum Samples

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BY MARKKUS ROVITO

Markkus Rovito is a drummer, electronic musician, DJ, and contributor to DJTechTools.com

Big-time music producers don't just stack chips; they stack sounds—most often drum sounds. Doing so helps them create huge beats with unique tones. Of course there's nothing about the practice that requires you to have expensive equipment or esoteric knowledge. But it is, however, a practice. There are methods to drum layering, but much of doing it successfully depends on your own ear, experimentation and repetition. Fortunately, you can try these techniques in just about any DAW with stock plug-ins and tools. Now, let's pile it on.



KICK DRUMS

We'll start out by layering two distinct kick drums together and gradually making them sound as if they came from the same drum. First, choose a kick sample with a sharp, fast attack and a mid-range tone on one track. We'll call it Thud. Next, pick a low, boomy kick with a longer, subby release. A classic TR-808 sample should do, or a sample from any number of analog or modeling drum machines, like a Jomox Xbase 999 or Elektron Machinedrum. We'll call this sample Boom.

When you line them up and play them both together, the result may just sound like two drums playing at once, when you want it to sound like a cohesive kick from a single source. Low-end from the Thud sample may be conflicting with the low-end from the Boom sample, and vice versa: the mid-range from the Boom may conflicting with the mid-range from the Thud.

Put your favorite multiband EQ on the Thud track and audition the sample. If the EQ works like Ableton Live's EQ Eight, it will show you the frequencies of the sample as it plays. Put a low-cut filter on the lowest EQ band and then solo the Thud sample as you dial in the low-cut to somewhere around 100-140Hz. Now play both together again to hear the difference. If the Thud kick sounds a little too crispy at all in the high-

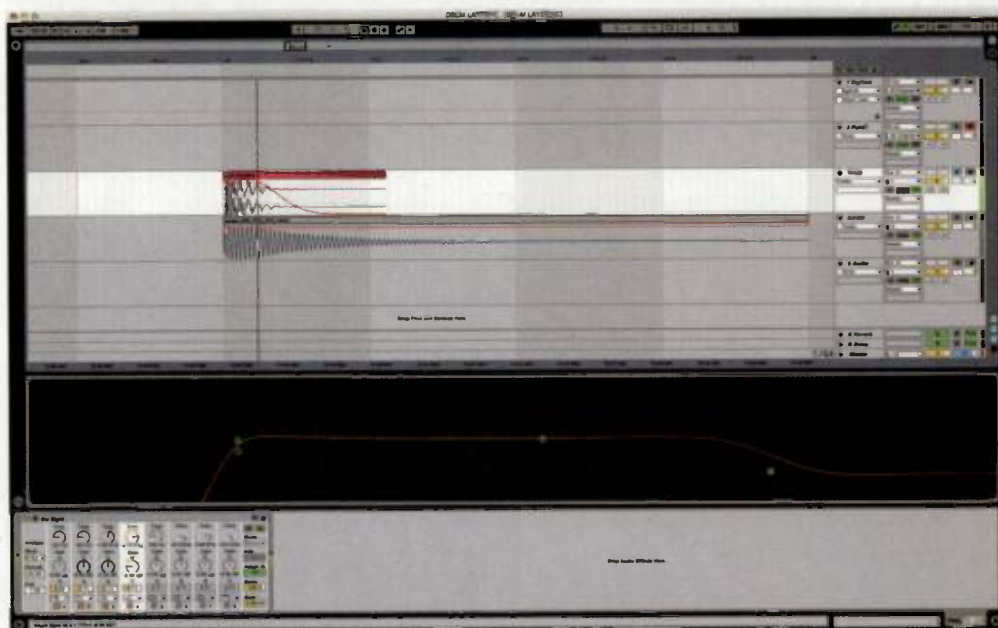


Fig. 1. The top kick drum layer, the mid-range Thud kick, has multi-band EQ on it with a low-cut filter rolling off the low end around 120Hz, and a high-shelf filter attenuating high frequencies above 5kHz.

end, put a high-shelf filter on the highest EQ band and taper off Thud's high frequencies to your taste. At that point, consider adding some make-up gain on the EQ so that it comes out at around the same level as

before. Now put a manual fade on the Thud kick to shorten the tail and make it punchier (Fig. 1).

Now solo the Boom kick track and open the Boom's sample editing window. There, try tun-



Fig. 2. The bottom kick drum layer, the low-end Boom kick, has been transposed down 4 semitones to temper its mid-range, and a manual fade out has been applied to keep the kick's length shorter for sidechaining.

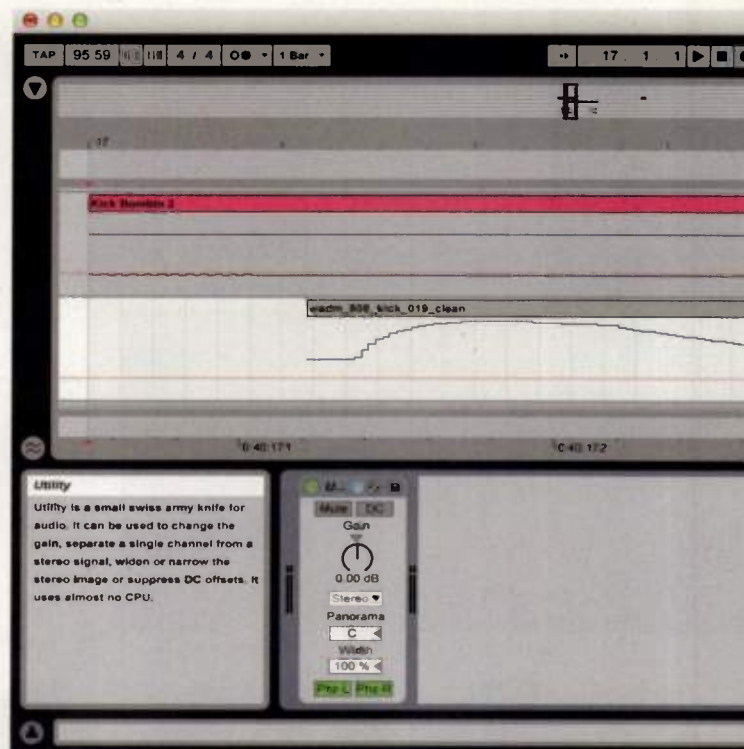


Fig. 3. The Utility plug-in is flipping the polarity of the Boom kick, and the Boom kick has been nudged less than a millisecond to the right to offset phase cancellation.

QuickTips: Beef Up Your Tracks With These Simple Tricks

- **KICKS THAT PUNCH** Use sidechain compression to make space in your music for the layered kick, and also trim any long release tails off the kick samples so the sidechain doesn't stay open for too long.
- **GET THE CLAP** Layer kick drums and different types of cymbals with clap samples. This will help them cut through a mix with high frequencies and to help make your sounds unique. Try some of the mixing tips above on the claps or do your own experimentation on them. Also try tempering the final bounced down sound with a lowpass filter.
- **DOPE DUPES** Try quick layering by duplicating the original sample twice. Pitch up one dupe a certain amount and pitch down the other dupe a certain amount. Mind the phase advice from above to avoid problems.
- **SUB-SSTITUTIONS** Layer a kick drum with a simple low-pitched sine wave for some sub-bass and try it also with some distortion or overdrive added for extra harmonics. Stack several sine wave oscillators for greater heft. Sub variations instead of a sine wave include a square wave with a lowpass filter on it or sub-bass presets on an FM synth.
- **CLEAN OUT THE BASSMENT** Layered kicks can get pretty fat, so create an EQ bus effect and route every thing to it except your kick and bass tracks. Roll off all frequencies below 100 Hz on the bus EQ.
- **ONE LOVE** You don't always have to layer multiple drum sounds. If you find or make single samples you absolutely love and that work in your music, you're not being lazy by sticking to one sample per sound. Go with it.

ing it down by a few semitones to work off some of its mid-range. When you're happy with that, put another manual fade out on the Boom kick to shorten its tail as well (Fig. 2).

Whenever you layer two drum sounds, especially kick drums, there's a chance you will get partial phase cancellation, which will make some characteristics of the sounds inaudible and/or make the mix blurry or unclear. To check for that, do a polarity flip of one of the drum sounds. DAWs often have stock plug-ins that let you flip the audio's polarity, which they often call inverting the phase. For example, in Apple Logic, it's the Gain plug-in. In Live, it's the Utility plug-in. Some EQ plug-ins also let you flip the polarity, and there are third-party plug-ins like Waves InPhase LT

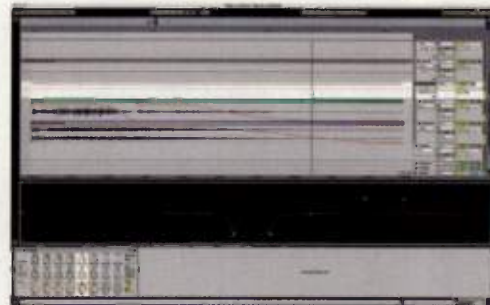


Fig. 4. The custom-recorded noise layer has been split, with the first clip boosted in volume to simulate a snare attack. Both snare layers have been grouped with a multi-band EQ on the group track. The EQ has four bell filters with high Q values for cutting or boosting specific frequency ranges.



Fig. 5. The Rob Papen Punch-BD dedicated bass drum layering instrument gives you almost every conceivable synthesis and sampling option for creating and playing high-end layered kick drum sounds.

(\$75) that offer the function. Flip the polarity of one of the samples, and if you notice an obvious difference in the sounds, that's a positive sign. If you don't notice much or any difference, you may have phase problems. In that case, zoom way in on the tracks in the timeline and nudge one of them back by about a half a millisecond and see if that changes the sound (Fig. 3).

Now if your DAW supports it, group the two tracks and add a saturation plug-in on the group track. It's a not-so-secret weapon for adding a little bit of warmth and coloration to mixed signals, and it should help finalize the melding of these two kicks into one. You could overdrive the saturator and drift into distortion territory if that's what you want. But usually you'll just kiss the samples with some added punch; either way, watch levels to make sure they don't clip.

By now you should be ready to print or bounce the audio to a new kick drum sample. When you do, we recommend you also normalize it, especially if you are making samples for a collection that you will share or sell. Nearly everything else out there will be normalized for maximum volume, so yours should be too if you want people to notice it.

Now if you want to go nuts and try layering three, four or even more kicks together, have a blast, but note that the more layers you add, the more diligent you'll have to be carve out some frequency space for each layer with EQs and filters and be extra careful about phase cancellation.

Fig. 6. The BigKick plug-in provides a shortcut to this feature's two-layer kick drum creation, with one layer handling the attack and the other layer focused on the deep, round low-end of the kick.



SNARES AND OTHER PERCUSSION

This process for layering snares and by extension, other drum sounds is fairly similar to layering kicks, although with some different design elements. So why not try something a little more creative and make one of your "snares" a found sound you record yourself?

Pick a snare sample you love for you base layer, and then for a second layer, record some kind of sustained noisy sound, such as ripping a piece of paper, tearing a rag, scratching the length of your arm, or your own voice mimicking the crowd noise of a stadium audience. Trim that recorded audio to a good snare length and then split the first 0.1 or 0.2 tenths of a second to a new clip and, depending on the audio level, boost it a significant amount—maybe 8-12 dB—to create an

attack. Then create a fadeout at the end of both of those clips to smooth out the sound. It can also work well to smooth out the sound of your noisy recorded sample with either a subtle, no-tail reverb or a chorus effect to give the makeshift snare layer some coloration.

If the two stacked snare samples sound harsh at all, again group the two tracks and put a multiband EQ on the group track. Put a bell filter on EQ bands at around 600 Hz and/or 1k and adjust them down with a fairly high Q value to get pointy-shaped curves. While in the multi-band EQ, you can use two more EQ bands to boost commonly boosted frequencies in snares: 3.8 kHz and 6.5 kHz for some pop and top-end shine. For those EQ curves, also use bell filters with fairly high Q values (Fig. 4).

Before printing/bouncing the layered snare down to an audio file, try finding a setting with a compressor/limiter plug-in that gives it an extra final punch.

SHORTCUT PLUG-INS

As satisfying as a job well done can be, a job well done by someone else sometimes really kicks ass. Layering your own samples from scratch can be well worth your time and lead you to some sounds that will be yours alone. Of course, we don't always have the kind of time it takes to sweat over laborious drum stacking. In those times when you want the great results of drum layering while letting the experts do the legwork for you, there are a couple of great plug-ins that have streamlined the workflow for the most popular type of drum layering—the kick—so that you have creative control yet arrive at professional results fast.

As part of the staggering Punch drum synthesizer (\$179), the amazing offshoot Punch-BD is also available separately for \$59, and it does one thing comprehensively: synthesis and sampling of up to six layers of bass drums from either the large list of synthesized drum presets, included drum samples, or any sample you bring from your own collection (Fig. 5). Several play modes let you play the six layers stacked, in a tuned stack that follows the MIDI input notes or in sequence. Besides hundreds of excellent drum presets and samples, there is a full synthesis engine onboard for shaping the sounds with parametric EQ, filters, LFO's a full effects engine and a mixer for the six drum parts. A clever Easy page lets you alter the synth characteristics of all six drum layers at once. It's hard to imagine ever getting bored with layering kicks in Punch-BD. If anything, you may get overwhelmed with the possibilities at first.

Another option, BigKick (\$65) from Plugin Boutique/Credland Audio counts immediacy and simplicity as strengths, as well as professional results. It doesn't have quite the insane flexibility of Punch-BD, but rather it focuses on two-layer kick drum combinations similar to our example at the top of this article: One layer handles the attack of the kick drum and the other layer handles the "body," or the rich low end of the kick (Fig. 6).

BigKick's top Sample section lets you import the hundreds of included kick attack samples or lets you import your own, with controls for high-pass filter, decay and gain. The Body tone generator section lets you dial in the amp envelope and pitch characteristics of the kick's low end. An Auto Play button plays a 4/4 kick along with your DAW's clock while you design the kick, and when you're finished, you just drag the sound onto a DAW track. It even promises that your layered kick drums will be absent of phase problems.

Whether you go with one of these very capable plug-ins, design layered drums for yourself, or both, you should feel empowered to solve one of the persistently nagging problems of electronic music making: sourcing drums that are both huge enough to carry slamming dancefloor tracks and also sound unique to your own productions. Happy layering. ■

No matter what DAW you're using, it's essential to organize your files when you're working on a large mixing project.



Keep It Together

Managing files on a multisong mixing project

BY MIKE LEVINE

Mike Levine is a multi-instrumentalist, producer, and music journalist from the New York area.

When you're mixing an album or EP, or any project containing multiple pieces of music, the process will go more smoothly if you stay organized from the beginning. There are so many files, versions, and details involved; to avoid potential confusion, you will need a system to keep track of your tracks.

GETTING STARTED

The first thing you should do is to create a master project folder on your recording drive where all the DAW files, audio files, and mixes from the project will reside (see Figure 1). This concept is just as valuable when you're in the tracking or songwriting phase.

In any case, you should place all your songs together in one folder. The last thing you'll want to do when you're in the middle of the project is to hunt around for the songs among numerous audio files scattered around your hard drive. If you also tracked the project, and the songs reside in different places on your drive, save a copy of each into its own folder within the master project folder. It's crucial to copy the audio files along with it when you do this.

If you're mixing music that wasn't tracked in your studio, you'll be receiving a lot of audio files for each song. After you create a folder for each song in the master folder, copy the audio files for each song into the appropriate folder. You will want to keep all the assets for each song in the

same place, and it's good to have the files in the original state that you received them, as there could be a situation later on where you need to refer to them or re-import them.

THE NAME GAME

It's not a sexy subject, but file naming is critical for keeping track of your mixes and your progress during the project. Chances are that you're going to bounce multiple versions of the mix on any given song as you go along. Let's say you make some significant revisions and render a new mix. It's key that the mixed stereo file has the same name (or version number) as the DAW file from which you bounced it. Otherwise, if you or a client wants to go back to an older version, it will be tough to remember which DAW file it came from, except possibly by trying to match the time and date stamps, but that's not always possible.

When I'm about to bounce a mix, I make sure that I've saved the DAW file with a new version number that's one higher than the previous mix. I also give the mix the same name. So I'd have, for example,



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Fig. 1. Create a master project folder with folders inside for each song, so you'll be able to find different versions easily.

bring the vocals up a little," I will be able to find the right file easily and instantly.

In addition, I recommend using the incremental saving process, in which you Save As after every significant mix change, and add a descriptive word to the file name. For instance, "Song Title 3.1 vocals down." If you don't notate the changes you make along the way, it can become almost impossible to get back to a particular point if you realize later that the mix veered off the rails somewhere along the line.

gram, or a word processor, or a plain old text document) that's saved inside the master project folder. This will be where you'll keep your notes about the mixes. Alternatively, you could create a separate notes file within each song folder. I find it more convenient to have them all in one document.

This text file (or files) is also useful when you're listening back to mixes and want to take notes about tweaks you need to make. If you're working with a client, he or she will likely give you notes as well. Rather than writing all of these things down on scraps of paper or on different text files scattered around your computer, keep all notes together with the rest of the project.

DON'T TAKE CHANCES

It goes without saying that you should be backing up your project regularly. But I'm saying it anyway: If you're backing up to a local drive, consider creating an additional backup in the cloud using a service like Dropbox or Gobbler. With all the work that goes into a project, you don't want to take the chance of something going wrong, and with only a single backup, it can happen more easily than you think.

The suggestions in this story should help you keep your mix project organized and efficient. The rest is up to you. ■

"Song Name mix 4" as both the DAW file name and mixed file name. That way, if my client comes back to me and says, "I think I liked mix 3 better, but let's

NOTED

Another useful organizational tip: Create a text file of some sort (it could be from a note-taking pro-



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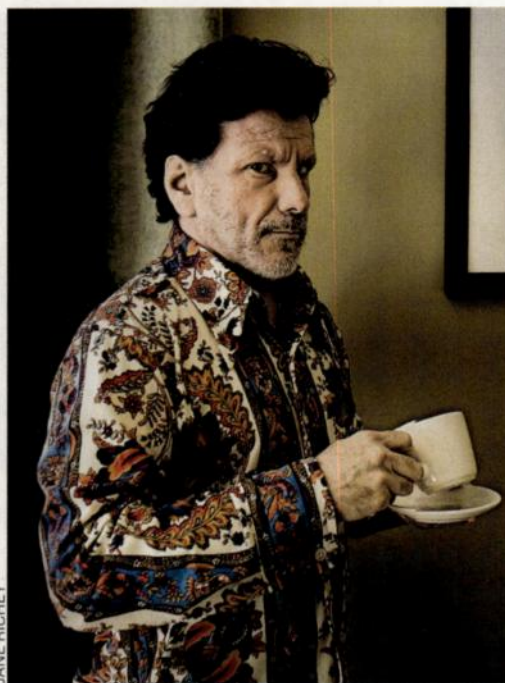
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Relieving GAS

Know when to hold 'em; know when to let go of 'em

BY GINO ROBAIR

Gear Acquisition Syndrome—It affects all of us at one time or another, whether we admit it or not: We see or hear something new online and, suddenly, out comes the credit card, followed by a moment of buyer's remorse after we confirm payment. But once that beauty arrives, everything is kittens and cream—until the next time.



I don't think GAS is necessarily a bad thing unless it goes unchecked. It can be a great way to balance out your rig or studio when necessary by forcing you to evaluate the items you already have versus what you think you need.

My recent experience with GAS was not an impulse buy (or so I keep telling myself), but rather a thoroughly researched upgrade to my performance setup. I'd been keeping an eye out for a particular configuration of hard-to-find synth modules that I had used on occasion, hoping an affordable system would ma-

terialize on one of the forums I frequent. Last month, to my surprise, one did.

It was somewhat expensive, but doable. But I soon realized that, in addition to the financial outlay (which I could delay for a month using my credit card), this acquisition was going to cost me something more valuable than money: I would have to part with gear that I no longer use.

"Easy," I told myself. "I can just sell a few things."

Easier said than done. Why? Because, like many musicians, I'm a pack rat. (Sounds better than "hoarder," doesn't it?) I hate getting rid of anything. Broken mic, blown speaker, shorting cable—no problem; we'll get it fixed... someday. That's in addition to the tangle of RCA and MIDI cables in that crate over there.

But it's worse than that, here. As a percussionist, I see everything as a potential sound source. In addition to all the "traditional" instruments I have, there are containers of various sizes for use as shakers, a box of light bulbs for smashing and sampling, leftover planks and pipes from a remodel that will sound great as a junkyard gamelan—and that's just in the garage.

Then there is the closet, or more accurately, the computer graveyard. Will anyone want my Mac SE/30 with the 40MB hard drive? Or does it make more sense to sample it hitting the pavement from a third-story window?

Tough decision.

Now that I have to "consolidate," I'm reminded of the old saw, "if you haven't used it for more than a year, get rid of it." The logical side of my brain would like to abide by such a rule, yet the creative side knows better: A time will come when, for example, that rare BBE Stinger pedal from the '80s will be just the thing to give a vintage keyboard the punch it needs. Of course, I didn't find the Stinger until I searched through the boxes that remain unpacked since our move several years ago. Inside them, I found other hidden gems and old friends that I was happy to meet again, but only a handful of items I could live without.

All the while, I know in the back of my mind that there are three vintage analog synths that I've been hanging onto for just such an occasion, all of which cost me a fraction of what their current value is to collectors. The real test is whether I am willing to part with them. But first, I have to fire them up to see what kind of shape they're in so I can provide an honest assessment to the potential buyer.

Synth number one is the Micromoog. It needs work, but I found a buyer who was happy to do the refurb. Sad to see it go, but it'll have a great new home and an active life elsewhere.

Synth number two is an Oberheim OB-8, a popular polysynth that I used on many soundtracks and records. It looks and sounds great, but it needs servicing if I'm going to entice a buyer. Fortunately, the repairs are minimal and I feel that the synth and I can amicably part ways despite all the good times we've shared.

Finally, there is the Sequential Circuits Pro One. Saying goodbye to it should be a no-brainer, since DSI now offers a Eurorack filter that sounds identical to the one in this instrument. And mimicking this classic little monosynth should be as easy as plugging in my MIDI controller and patching up the appropriate modules.

But as I fire it up, I'm reminded why the Pro One is such a classic: It sounds rich and full bodied, and it is really fun to play. I immediately fell in love with it again just listening to it arpeggiate chords while I messed with the envelopes and filter. Curse you, Dave Smith! The Pro One is now in the sales column marked "Last Resort."

Sure, these decisions were totally arbitrary, subjective, and highly personal—just like music making. But the good news for me is that I was able to sell enough gear to cover my recent acquisition, while not regretting the losses (at least so far).

GAS will come and go, but when it does, trust your gut. And whenever you can, use it as an excuse to pare down your collection. At the very least, it'll help justify your purchase. ■

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A portrait of Jack Joseph Puig, a man with long dark hair and a goatee, wearing a dark turtleneck and a blue blazer. He is looking directly at the camera with a slight smile. The background is dark and out of focus.

Jack Joseph Puig

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