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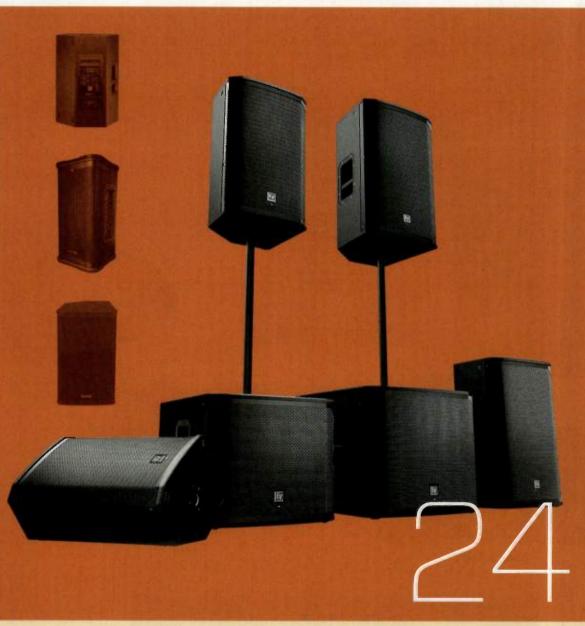
CONTENTS

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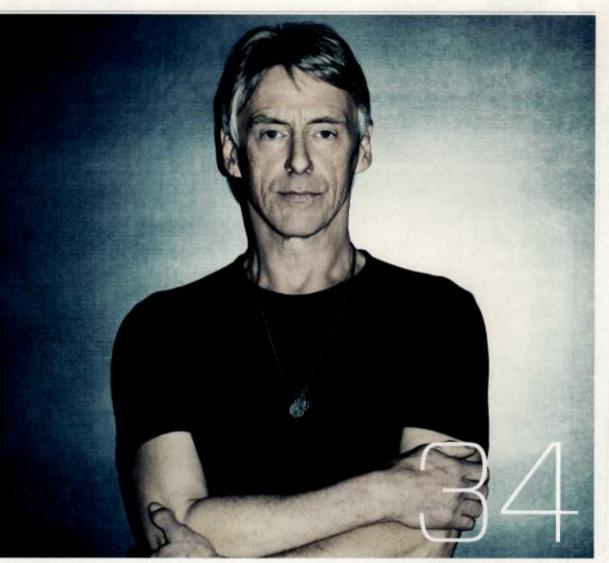


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New Thunderbolt 2 audio interfaces



The British ensemble talk about balancing EDM, songwriting, live performance, and producing their latest release, Why Make Sense?



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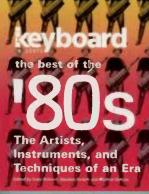






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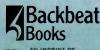
KEYBOARD PRESENTS: THE BEST OF THE '80s THE ARTISTS, INSTRUMENTS,

0

AND TECHNIQUES OF AN ERA edited by Ernie Rideout, Stephen Fortner, and Michael Gallant BACKBEAT BOOKS

No single decade revitalized the keyboard as a focal point as much as the 1980s. Now, the editors of Keyboard magazine have culled that era's most significant articles and combined them with a wealth of insight to create this landmark book. Features 20 interviews with noted players and producers like Jimmy Jam & Terry Lewis, Duran Duran's Nick Rhodes, Depeche Mode's Vince Clarke, Peter Gabriel, and The Human League, as well as such visionary pioneers as Herbie Hancock, Chick Corea, and Frank Zappa.

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PRODUCER PORTFOLIO

5 NEW PRODUCTS ALREADY ADDED IN 2015...



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Insight Less Is More

SUMMER'S HERE, which means your gig calendar is probably filling up.

COMMUNITY

These days, maintaining a middle-class performing-musician existence means being versatile—not just playing more shows, but playing more kinds of shows. And having a portable sound system that can keep up is crucial.

Now is a great time for gigging musicians to invest in a personal P.A.: The newest systems are powerful, portable, affordable, and versatile. The same system you use for your band's gig at a club or coffeehouse can also be put to use in a house of worship or dance studio. Subwoofers are lighter than ever, and nearly anyone can find an appropriate system that will fit easily into a car with room to spare.

Obviously, the more money you spend, the more features, power, channels, and conveniences you'll get. But keep it in perspective; you're not trying to fill an arena here. If you're considering buying a personal P.A. system, start with our guide. This month's cover story focuses on powered systems; although they are generally heavier than passive systems, they tend to be simpler to set up (and with a separate amp you're probably carrying the same amount of weight anyway). Many of these systems are modular and can expand with your needs.

Ready to start shopping? Our feature begins on page 24.



SARAH JONES EDITOR sjones@musicplayer.com

WEB HIGHLIGHTS

This month on emusician.com

Classic Synth Tones: Bonus Audio Clips

Plus... DIY Advisor: Keeping Contact Hot Chip Expanded Interview

...and lots more!





The Artiphon

gadget geek

After years of development, the Artiphon multi-instrument is finally funded (surpassing its \$75,000 Kickstarter goal by a million dollars) and moving into production. The Artiphon is designed to be "played" with the same gestures you would use on a stringed, woodwind, or keyboard instrument; it's scalable in complexity, and since it's a class-compliant USB MIDI and audio device, it has plug-and-play compatibility with hundreds of apps to let you play any sound you like (or use its companion app to design your own). Prices start at \$349; for more information, visit artiphon.com.

app tip Taika Systems Photophore Synth BY MARKKUS ROVITO

Stack more oscillators than a flock of seagulls

RATHER THAN modeling analog circuits, Taika Systems claims to model animal swarming behavior in the Photophore Synth for iPad (iOS 7.0 or later, taikasystems.com). "Flocks" of sound generators move within a 3D space, staying in tune yet drift-



ing in and out to create warm, ever-changing detunings. You also have a well-appointed synthesis engine with 12 oscillator waveshapes, high- and lowpass filters, amp and filter envelopes, and more.

> Call up one of the 60+ presets and play notes from either the onboard keyboard or a connected MIDI controller. Tap or swipe on the green oscillator clusters to create disturbances in the tuning and harmonics of the sounds.

Tap the Flock tab to vary the behavior of the oscillator swarms' Speed, Turbulence, Attract, Align, and Repel.

B. Under the Voice tab, you spread the 100 available oscillators over your desired polyphony—i.e., 100 oscillators per note with one-note polyphony, 50 oscillators per note with two-note polyphony, and so on. Stacking more oscillators can lead to some extremely thick and evolving sounds, depending on the Flock settings.

To really exploit the Flock behaviors and oscillator stacks, create some threeoctave arpeggiator settings with some fast note values under the Arp tab and some high feedback and mix settings for the stereo Echo effect.

Tap the preset menu button and the +button to name and save your presets.

G Use the AudioBus app or Inter-App Audio to record Photophore's audio into a workstation app.

Swarm the iTunes App Store to get the Photophore Synth for \$7.99.



I'M A STUDENT INTERESTED IN A CAREER IN THE RECORDING INDUSTRY. ARE THERE ANY PROFESSIONAL OR-GANIZATIONS I SHOULD JOIN? WHAT ARE THE BENEFITS OF BEING A MEMBER OF THESE GROUPS?

RUTH WILLIAMS BOULDER, CO VIA EMAIL



The AES student chapter at the Conservatory of Recording Arts and Sciences in Gilbert, AZ.

Two words: professional development. One the main benefits of joining a professional organization is the ability to network with industry leaders before you finish your degree or certificate program. Many students don't realize that men and women working in the business are interested in sharing their knowledge with the next generation of professionals, and two national organizations provide such opportunities: The Audio Engineering Society (AES) and the Recording Academy, which have chapters around the country, and offer educational programs where students can meet and interact with professionals in every aspect of the music biz-from musicians and engineers to promoters, managers, and attorneys.

For a one-time \$50 fee, you can join GrammyU (grammypro. com/grammy-u), the Recording Academy's student program. As a member, you get access to events and special programs that include visits to recording studios and sound checks at major concert venues, as well as workshops on topics such as songwriting and music business. Student membership with AES (aes. org) costs a little as \$39 per year, and it gives you access to listening events, research papers, and a variety of workshops.

Another resource worth checking out is Women's Audio Mission (WAM; womensaudiomission.org). Located in the Bay Area, WAM is a nonprofit organization that offers educational opportunities in their own prolevel studio for women and girls across a variety of age groups. However, you don't have to be a Bay Area resident (or a woman) to use this resource: Check out WAM's Sound Channel, an online audio-training course where students can work at their own pace. Full access costs as little as \$25 a month.

It is also worth nothing that, once you become a professional and earn income from an music industry-related job, you may get a tax writeoff for the membership fees when you join AES and the Recording Academy at the professional level. **THE EDITORS**



IN THE STUDIO

>>> **Jesse Malin** with Brian Thorn

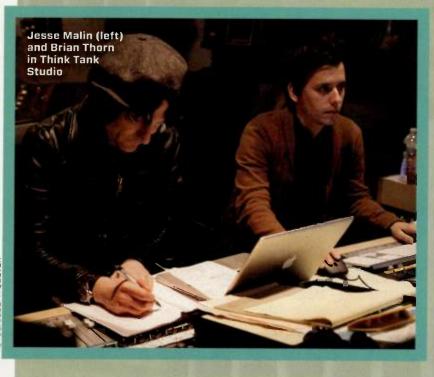
JESSE MALIN describes the sound of "Addicted," the first single off his album *New York Before the War*, as "The Ramones meet Paul Simon." It might not be the easiest thing to imagine, but trust him—the song is tough, tuneful, raw, yet elegant. The entire album is a beautiful capsule of Malin's joyous approach to hard-core rock 'n' roll.

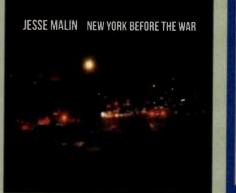
The album was made in a few different New Yorkarea studios, with several special guests (Peter Buck,

Alejandro Escovedo, Craig Finn, Wayne Kramer), and a stellar band including bass player Catherine Popper (Jack White, Ryan Adams), drummer Randy Schrager (Scissor Sisters) and guitarist/co-producer Derek Cruz (St. Marks). Handling the lion's share of the recording and mixing was engineer Brian Thorn.

"Jesse was looking at recording in The Magic Shop, and that's where I came from." Thorn says. "He wanted to record to tape, live in the room, and he wanted to walk out with a pretty complete picture after the first four-day session. We then spent months working on it, but that was the approach we started with!"

Thorn captured basics to a Studer A827 machine, though things got off to a slightly rocky start. "Something was off," Thorn says. "It wasn't sounding like what I was hearing on the floor, and I kept checking my gear to see what wasn't working." Ultimately, Thorn realized they were using defective tape. "Always check the reel." Thorn says. "It's something you might not think is the weak spot, but it can happen."







During basics, Thorn says his drum-miking scheme was "typical," but he used varying amounts of compression on the Neumann U67 room mics. "I might use more on a song that was a little more clean, and less on a track that was more bashy. That was definitely part of the drum sound," he says.

Another essential ingredient to Malin's band sound is Popper's bass playing. "Cat used the Magic Shop's house Ampeg B15 amp." Thorn says. "We'd use a combination of miking the amp and a Music Valve tube DI. Sometimes I'd take that DI and mult it to another channel on the Neve console, and blow up the preamp a little bit so I'd have a distortion channel as an option. Her tone is incredible, though, and I think Jesse requested to turn up her bass on every mix I did: 'Can we hear more Cat?'"

Malin's guitar mainly went through a Fender Combo amp, but Thorn changed up the miking scheme there to vary the sound a bit (Shure 57, Royer 121, RCA BK5). However, Cruz used a few different amplifiers: a vintage blackface Fender Bassman, and a Bogner Shiva Combo.

> "We'd bring in a little old Airline amp or a '60s Silvertone as well," Thorn says. "Sometimes I'd take the guitar mics for each player and add some LA3A to both. I might have used a little LA2A on the bass DI as well, but I 'm not one to go crazy with compression."

> The studio also has a great collection of vintage outboard equipment, but Thorn stuck with the inboard pre's. "Their Neve is actually two custom, vintage desks put together—a 32-channel and a 24-channel version of the same make," Thorn says. "You sit in the middle of it, and it goes around you like a 'U.' When I have that Neve in front of me, I don't feel like I have to reach for anything else."

> Other stages of the project happened in different facilities. Malin continued writing throughout the process, and some later songs were tracked in Mission Sound (Brooklyn). Most of the guitar overdubs and lead vocals were cut in Think Tank Studios in Hoboken, New Jersey. "The idea was to capture a lot of guitars, but whenever Jesse says he's ready to do some vocals, we're always ready to go," Thorn explains. The engineer had a Shure SM7 and a Neumann U47 set up through a couple of outboard Neve 1073 preamps, but most of the keeper vocals came from the SM7.

> "There were long hours in Jersey when we didn't want to miss the last train back to New York, but we'd keep going on vocals, because Jesse was really delivering."



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TARGET MARKET DJs, producers, and musicians, particularly those who perform live

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ANALYSIS A standalone synthesizer with large controls and a classic sound.

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TARGET MARKET Live performers, venues, houses of worship

ANALYSIS A state-of-the-art system that includes a variety of handheld, instrument, lavalier, and headset mics to fit a variety of needs.

sennheiser-d1.com

6 ELECTRO-HARMONIX HOLY GRAIL NEO Reverb pedal \$163.37

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TARGET MARKET Guitarists

ANALYSIS Classic Electro-Harmonix reverb sounds in a pedalboardfriendly format.

ehx.com

7 FLYING GREEN DOOR HAAS MIXER Rack extension for Propellerhead Reason \$25

HIGHLIGHTS Four-input mixer and binaural processor that offers three simultaneous effects: Haas/ Precedence effect, stereo width, and flanging • mono or stereo output • control voltage input to control the directionality of the sound sources; perfect for adding modulation

TARGET MARKET Composers, producers, and musicians who use Reason

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flyinggreendoor.com

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HIGHLIGHTS Cardioid condenser USB mic with 16-bit/48kHz resolution • 1/8" headphone monitoring jack and TrakMix feature • 40Hz to 18kHz frequency response • on/off switch • level control • lowcut switch • includes USB cable and stand • metal construction • Mac/Win compatible

TARGET MARKET Home recordists, podcasters, sound for video

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Top to bottom: Apollo 8, Apollo 8P, and Apollo 16.



UNIVERSAL AUDIO

Apollo 8, Apollo 8P, and Apollo 16 THUNDERBOLT CONNECTORS AND INCREASED AUDIO QUALITY ARE THE NEW BLACK

BY GINO ROBAIR

With high-quality converters and onboard DSP that you can use in real time to track and mix, Universal Audio's line of Apollo interfaces have become favorites in both professional and personal studios.

This year, the company raised the bar by unveiling three Thunderbolt-only, Mac-only models—the Apollo 8 (\$1,999 with UAD-2 Duo; \$2,499 with UAD-2 Quad) and Apollo 16 (\$2,999 with UAD-2 Quad) with 8 Unison mic preamps providing similar I/O as the previous units, and a completely new product, the Apollo 8P (\$2,999 with UAD-2 Quad). Easily identifiable by their all-black exterior, these products include a number of important enhancements such as new A/D and D/A converters that provide increased resolution, with a 3dB improvement in signal-to-noise.

They also take advantage of the greater throughput that Thunderbolt connectivity provides. For example, you can cascade as many as four Apollo interfaces and six UAD devices together while retaining the system's exceptionally low latency (2 ms or less). The new Console 2.0 software not only provides intuitive control, but also it helps you easily configure and manage the various interfaces and processors in your system to meet specific I/O requirements. If you own an Apollo Twin, add it into the setup and use its large volume knob as your main studio controller.

Answering the needs of many Apollo users, the Apollo 8P is a 16x20 interface equipped with eight mic preamps, all of which are Unison-enabled. (UA's software-controlled Unison technology is used to change the physical characteristics of the preamps, such as impedance and gain staging, to re-create the behavior of classic hardware products by API, Neve, and UA's own 610.)

Other important features on the Apollo 8P, as

well as the 18x24 I/O Apollo 8, are front-panel buttons for monitoring-related functions-Dim, Mono reduction, and Alt Speakers. Guitarists will be excited to learn that the high-impedance instrument inputs on each unit are Unison-enabled. That allows them to provide the proper sound and impedance characteristics when paired with UA's new stompbox emulations in the Distortion Essentials Plug-in Bundle (\$249)-Raw (based on the classic Rat pedal), Bermuda (based on the Big Muff Pi), and a model of the original (and highly coveted) Ibanez Tube Screamer. (Owners of the Apollo Twin will be happy to know that the high-Z inputs on their interface are also Unison-enabled. allowing them to reap the benefits of these excellent stompbox models.)

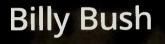
The new Apollo 16 includes the same 16x16 analog I/O on DB25 connectors as the previous unit, but with the improved sound quality from the new converters and new monitoring functionality via the updated Console app. All of the Thunderbolt systems come with the Realtime Analog Classic Plug-in bundle that includes the 610-B Tube Preamp & EQ, Pultec EQs, Softube Amp Room, and legacy LA-2A, 1176, and Fairchild compressors. The UAD-2 system supports AU, VST, RTAS, and 64-bit AAX hosts.

Mac and Windows users with FireWire-based systems are also covered: The Apollo FireWire (\$1,999 with UAD-2 Quad) provides four Unisonenabled mic preamps that can also use the API, Neve, and UA emulations as well as all other UAD-2 plug-ins.

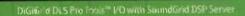
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With 24-bit/96kHz resolution, the DSMO2 Character Module puts an important coloration tool from the Pro 2 and Prophet 12 into the Eurorack format.

DAVE SMITH

DSM02 Character Module BECAUSE SOMETIMES YOUR PATCHES NEED A LITTLE ATTITUDE

BY GINO ROBAIR

H ot on the heels of its outstanding DSM01 Curtis Filter Module (see our review in the January issue and at emusician.com), Dave Smith Instruments has released the DSM02 Character Module (\$259), a 14HP Eurorack processor based on the digital effects section in the Prophet 12 and Pro 2 synthesizers.

The DSM02 has a pair of inputs and outputs that share five effects—Hack (bit reduction), Decimate (sample-rate reduction), Girth ("low-frequency harmonic enhancement"), Air ("high-frequency harmonic enhancement"), and Drive (ranging from gentle overdrive to full-on saturation). Each effect has its own level control and CV input (0-10V). The dual inputs give you the option of processing a stereo signal or separate mono sources.

In addition to the Eurorack 12V power, the DSM02 requires 5V power, which it can source from your cabinet's power supply or from the module itself by setting a jumper on the circuit board; no need to add a 5V adapter to your system.

The results you get from the various effects (especially Hack and Decimate) depend on the input signal, particularly its spectral content. I found these differences to be useful when I had two completely different signals going into the module; in one case, adding a little Hack would impart obvious changes to one input, but not the other, and vice versa.

Girth and Air beef up the low end and add presence on top, respectively. They work so well it's hard not to crank them both up for that smile-curve effect. And adding Drive to a sequence can really fatten it nicely.

But while it's fun to push these effects to the extreme, CV modulation can be used to wring new sounds from a patch. Setting my oscillator to its highest frequency range, I used a looping envelope to slowly sweep the Decimate CV input, with its knob set to about 9:30. The result was a string of discrete pitches rising and falling in time with my EG's attack and decay settings. Turning up Hack a tiny bit imparted a timbre reminiscent of ring modulation. Adding a slowing

looping envelope into Hack's CV input resulted in an interesting string of tones. Turning up the other effects in both cases emphasized various partials.

Sometimes, as I slowly added an effect or fed it a CV, unusual counter rhythms would pop out. The trick is to make small adjustments and listen for unexpected results.

Things got interesting when I used the sequential outputs of my Doepfer A-143-1 Complex Envelope Generator/LFO. After getting the rising and falling waves of pitches by sending an EG into Decimate's CV jack, I patched the subsequent EG output to control Hack. Because it was slightly offset in time from the first EG, a furry counter-rhythm resulted.

You can also use the CV inputs to impart rhythmic variety to sustained tones. Running a square-wave drone through the DSM02 and using the A-143-1 again, I patched separate EGs into the Girth and Air CV inputs to create a repeating rhythm by alternating low- and high-frequency spectral changes. Later, I sent a pulse-wave LFO into the Drive's CV input to rhythmically add harmonic content to sine and triangle-wave drones.

While not as immediately flashy as some effects modules, the DSM02 Character Module provides subtle-to-extreme processing that can bring out characteristics you didn't know existed in a source signal. But the real excitement is in exploiting the CV capabilities, especially with signals sequenced across the inputs-yum!



ADVANCED FEATURES... AMAZING PRICE



5-Piece Electronic Drum Set

The new Simmons **SD500KIT** is truly taking electronic drums to an entirely new level of value! This full-size 5-piece electronic drum kit explodes with features, including all the professional benefits of larger kits – 4 drum pads, 3 cymbal pads, hi-hat controller and a radical, integrated kick pad & pedal – plus 352 exceptional drum sounds across 35 drum kits (25 preset/10 user). And its V.A.R. (Variable Attack Response) technology means better nuanced playability than any other kit in its price range.

Test-drive the Simmons **SD500KIT** today and feel what you've been missing.

Available exclusively at

New pads and cymbals feature stunning design and response.

> Module provides over 350 sounds and 35 kits.

Breakthrough combination of radial integrated kick pad and pedal.

Personal Active Self-powered loudspeaker systems for nearly any occasion BY THE EDITORS

The world of powered P.A.s is vast, with systems designed for almost every situation you can think of, from highly portable units for a solo performer or lecturer to large systems designed for touring groups and various sized venues. Some product lines are modular, where individual loudspeakers provide enough inputs for a soloist or small group, but with expandability to accommodate more complex situations. Keep that in mind because, even if you are shopping for something for your own musical performances, often the system will get drafted into use at a school or your house of worship, as well as in non-musical events. Make the right purchase and you'll get a lifetime of use from your system.

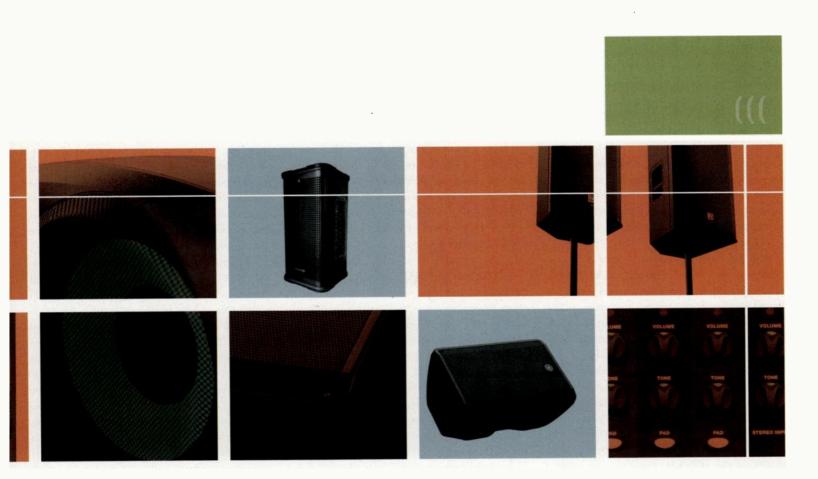






In this roundup, we focus on active (also called powered) loudspeakers. Some products, particularly the all-in-on systems, provide everything you need so you can carry as little gear with you as possible to a gig. Such setups accept multiple input types, so you can leave the external mixer at home. Additionally, many of the loudspeakers can double as floor monitors, with angled cases that aim the sound upward when set horizontally on the ground.

Although most of the companies featured here also offer passive models, powered floor monitors, and/or systems that combine a powered mixer with passive cabinets, these products are beyond the scope of this roundup. Acoustic guitar amps, which have both an instrument input (typically, for an acoustic guitar) and a mic input, are also not included here.





DETERMINE YOUR NEEDS

With so many products available, it can be hard to pick the right one. Start by determining your input requirements. Singer/songwriters who play live can often get by with a single powered loudspeaker if it has the right connections, whereas a DJ or band may want a pair of cabinets and perhaps a subwoofer or two, depending on the venue sizes they play.

Common features include combo jacks that accept XLR mic input as well as 1/4" line or instrument feeds, basic EQ controls to tune the speaker's frequency response, and perhaps onboard DSP. Many have an output or thru jack for connecting multiple speakers together.

Manufactures often offer several speaker lines utilizing the same drivers and cabinet. While this allows companies to hit the price targets consumers tend to prefer, to the buyer it means that each model will have a different frequency range that is, to some degree, dependent on the size of the low-frequency driver. Often, an entire line will have the same wattage rating and I/O features, but with different cabinet and speaker configurations aimed at specific price points. Once you figure out your input requirements and potential audience or venue size, it becomes easier to choose the model that suits your needs and budget. And as with all transducers, price does not necessarily indicate audio quality, so we recommend that you test the systems on your wish list whenever possible.

Unless otherwise noted, street prices are quoted throughout the article.

BOSE

The systems by Bose are a great example of all-inone, plug-and-play setups. The L1 systems feature vertical arrays of speakers that provide 180 degrees of horizontal dispersion, allowing you to reach a wider part of the room while allowing the other musicians to hear the amplified sound without adding monitors. The P.A.s break down into easily transportable pieces-the power stand (which has the connection points), the cylindrical loudspeaker array (two parts), and the bass module. You can use two L1 systems in a stereo setup by adding an external mixer and feeding the left and right channels to individual L1 inputs. Each system has a port for connecting the T1 ToneMatch module (\$499), which provides a mixer with three mic combo-jack inputs, a pair of 1/4" inputs, and effects. In some cases, the T1 ToneMatch unit is included, or it can be added to the system later.

The 2-channel L1 Compact system (\$999), designed for more intimate settings, can be set up to full height (with six speakers in the array) or in a collapsed position for tabletop use. It includes an XLR mic input for channel 1 (with treble and bass controls) and several input choices for channel 2—a pair of RCA jacks, a stereo 3.5mm input, and a 1/4" jack that accepts TS (instrument-level) and TRS (linelevel) signals. Each channel has individual input level controls and provides a single ToneMatch preset, one for the mic and one for an acoustic guitar input.

Bose designed the L1 Model 1S system with B1 bass (\$1,799.95 MSRP) to handle audiences of up to 300 people, utilizing a tower with an array of 12 drivers. This system has one audio input with a trim control. To increase the input count, add a T1 ToneMatch module or get it as part of a package in the L1 Model 1S system with B1 bass and To-

neMatch Audio System (\$2,298.95 MSRP). Two B1 bass modules can be interconnected and stacked for increased low end, or you could purchase the L1 Model 1S system with the larger B2 bass module (\$1,999.95 MSRP).

The L1 Model II system with B2 bass (\$2,699) has 24 speakers in its line array and one input in the base module. It is designed for audiences up to 500 people and situations that have strong lowfrequency content, such as groups using an electric or acoustic bass or kick drum, as well as DJ setups. The system is available with the ToneMatch module for \$3,198.

ELECTRO-VOICE

With a long track record in the pro-sound business, EV of-

fers high-powered systems at a variety of price points. Three of its most recent lines include the ZLX Series, the EKX Series, and ETX Series.

The ZLX line comprises 1,000W, 2-way loudspeakers with Class D amplification in a lightweight enclosure. The ZLX-12P (\$399) and ZLX-15P (\$499) have 12" and 15" LF drivers, respectively. The I/O includes two mic/line combo inputs, a 3.5mm stereo aux input, and an XLR output. These speakers have built-in DSP, controlled with a single knob, that lets you set high and low EQ, subwoofer crossover, and other parameters. Choose one of the factory presets (Live, Music, Speech, Club) to fine-tune the speakers to your performance situation and placement (pole-mounted, floor monitor, hanging). This system is designed to work with the 700W ELX-118P (\$799) powered subwoofer.

The speakers in the EKX line provide 1,500W of Class D power in wood cabinets and include two mic/line combo inputs, a stereo pair of RCA jacks, and an XLR output jack. They also include EV's QuickSmart DSP that, with its 1-knob interface, offers four factory presets (Live, Music, Speech, Club) and five user-editable presets, plus 3-band EQ, metering, and more. The powered models include the EKX-12P (\$799) with 12" woofer and EKX-15P (\$899) with 15" woofer.

The EKX-12SP (\$899) and EKX-18SP (\$999) are subs with 12" and 15" woofers, respectively. These 1,300W Class D systems include QuickSmart DSP control as well as Cardioid Control Technology, which focuses the output forward towards the audience.

For larger venues and audiences, the ETX Series powered loudspeakers provide 2,000W and include six models with woofers that match the model number in diameter inches—ETX-10P (\$1,099), ETX-12P (\$1,199), ETX-15P (\$1,299), ETX-35P (\$1,499) 3-way loudspeaker, ETX-15SP (\$1,399) sub and ETX-18SP (\$1,499) sub. This modular approach lets you tailor the ETX system to the exact requirements of your room or touring situation. The speakers include DSP control with presets, EQ, limiting, and other functions.

FENDER AUDIO

Fender's self-contained P.A. systems feature molded-plastic speakers that attach to the main amplifier/mixer. This makes the system surprisingly lightweight and, with the built-in handle, very portable considering the number of features it offers. For example, each speaker has a built-in storage compartment for cables and accessories. The Passport line has three models—Passport Conference, Passport Event, and Passport Venue—that step you up from small to large audiences while adding greater input connectivity.

The smallest in the line is the Passport Conference (\$399), a Class D, 175W system based around a 5-channel powered mixer and two speakers, each with a pair of 5.25" woofers. Channels 1 through 3 provide XLR and 1/4" inputs with individual tone and volume controls, as well as a 20dB pad for each channel. Channel 4/5 is for stereo input and offers a 3.5mm line-input jack, separate 1/4" left and right inputs, and shared volume and tone controls. The mixer also provides a master volume control and a 3.5mm stereo headphone/line-out jack with its own volume knob. The system comes with a pair of speaker cables, a handheld dynamic mic with accessories, and an XLR cable. It's a basic system designed to get you up and running right away, while providing enough inputs for additional band members and stereo playback.

Passport Event (\$699) presents a significant

step up in features and is designed for larger ensembles playing house concerts, coffee houses, and small clubs. This 375W, Class D system has four XLR mic input channels and one instrument/line-level 1/4" input, each with individual controls for volume (with 20dB pad), bass, treble, and reverb send. Channel 6/7 has the same controls but offers a pair of 1/4" jacks, a stereo line input on a 3.5mm jack, and the ability to receive stereo audio wirelessly from your mobile device over Bluetooth.

In addition to the 3.5mm headphone jack and level control, the Passport Event's mixer has mono and sub outputs on 1/4" jacks. The master volume knob has an accompanying meter showing output level. A dynamic mic and cables are part of the package.



Fender Passport Conference

Make them Dance



Hive is a fusion of two ideas: fast and simple. Quickly dive into building your tracks with Hive's streamlined workflow. Tweak and edit to get your sound just right (or wrong in the right way). To keep the music flowing Hive is easy on your CPU and still delivers the top quality sound you expect from u-he.

Underneath the "fast and simple" idea Hive is a powerful and flexible synth that lets you dive deep when you want to. With drag and drop modulation assignment, built-in effects, up to 16x unison per oscillator, an arpeggiator and step sequencer, and three different audio engines Hive is ready for whatever genre you can throw at it. A lightweight synth delivering heavyweight sound.

Download the Hive demo and hear for yourself:

www.u-he.com



While you're at it, check out the award winning Zebra2, Diva, Bazille, Satin and Presswerk. Same developer, same website, same fun factor.

The top of the Fender Audio portable P.A. line is the Passport Venue (\$999 street), a 10-channel, 600W system that is designed to handle larger venues and is adaptable for bands or DJs (especially when you pair it with the PS-512 powered subwoofer). Here you get four phantom-powered XLR inputs (with pads), a pair of switchable 1/4" line- and instrument-level inputs, and two stereo channels (two 1/4" and one stereo 3.5mm input), all with separate controls for volume, bass, treble, and reverb send. The main volume, metering, and output selection are the same as on the Passport Event.

However, the Passport Venue has a couple of distinguishing features. It has controls for the digital reverb effect-Time and Tone-and two algorithms to choose from. Next, there is a master output Tone knob. But the most interesting feature is a USB port that can be used for file playback or for recording the main stereo output; that's very handy!

Fender also offers a line-array P.A. called the Expo System (\$899), an exceptionally portable system made up of two pieces. The speaker array provides a 120-degree dispersion pattern using eight 3" drivers and a 1" compression driver. The sub has two 6.5" low-frequency drivers, with controls for main and sub outputs. The input selection includes a pair of combo connectors (XLR and 1/4" TRS) and a pair of RCA jacks, as well as XLR outputs for expanding the system. Padded protective bags for each of the two sections are available.

FISHMAN

The SA220 Solo Performance System provides, you guessed it, 220W from a single-stand, Class D bi-amplified line array. On the front panel of this 2-channel, 25lb system you will find the instrument and mic inputs (with phantom power and separate 10dB pads) with a separate 3-band EQ on each channel. Phase switches on each channel, in conjunction with individual anti-feedback notchfilter knobs, help control feedback issues. The digital reverb has four settings and each channel has a reverb level control. The mute switch next to the master volume control cuts the main inputs but allows you to hear music sent to the rear-panel stereo aux input (which has a front-panel level control) from a mobile device. The array has six 4" drivers and a 1" soft-dome tweeter.

On the rear panel of this unique system you'll find an effects loop for each channel, with 1/4" jacks, a pre-EQ DI output on XLR jacks for each channel in case you want to send your signal to an external P.A. system, and a post-effects Mix DI XLR output. In order to connect two SA220 systems together, monitor I/O is included on XLR jacks. Other handy features include a tuner output for channel 1, a footswitch input to mute either channel, and a Tweeter Level control (-6dB to 0dB range).

The SA220 ships with a speaker stand and a pad-

ded bag with wheels, making this a complete system that is ready to rock and roll for solo artists and duos.

HK AUDIO

The Lucas Nano 300 (\$699) matches a pair of 3.5" satellite speakers with an 8" sub to create a 2.1 speaker system offering 230W of Class D power. The satellites latch onto the sub for easy schlepping.

The sub includes a 3-channel mixer. Input 1 has a switchable mic/line combo jack and a contour/filter knob that boosts the high and low frequencies while cutting mids. Input 2 has a pair of combo jacks that accept instrument- or line-level signals and a contour control. Input 3 is for stereo line-level signals, with a 3.5mm stereo input, a pair of RCA inputs, and a contour knob.

The system can be used in mono by stacking both satellites on the adjustable pole (sold separately in the \$129 Lucas Nano Add-On package) that fits into the subwoofer, or in stereo by setting the second satellite on a separate stand. The link function lets you connect an additional Lukas Nano 300 system. The pair of balanced 1/4" outputs is configurable as a stereo-mix recording output or as a Thru for channel 2.

HK Audio's Elements is a modular line-array system that allows you to mix and match parts to create a powerful and clean portable P.A. sys-



tem to meet various needs. HK's proprietary E-Connect technology puts the audio and electrical connections that go between the speakers and the Class D amps within the poles. Here, the Passive speaker arrays are stacked onto these poles, which are set into the power amp or powered sub. (For more details, see our review in the October 2011 issue at emusician.com.)

HARBINGER

The VaRi Series is Harbinger's 2-way, 600W, Class D powered-P.A. line featuring the V2112 (\$229) 12" and the V2115 (\$249) 15". These budget-priced loudspeakers have a 3-channel mixer with a mic/line input using XLR and TRS 1/4" jacks, a line-level input with XLR and two RCA jacks, a stereo aux input on 3.5mm jack, 2-band EQ, and a master level control. A +4 XLR output and clip indicator complete the scene. The VaRi speakers can be pole mounted or set on the floor for use as monitor wedges.

JBL

The company's all-in-one 160W personal P.A. is the EON206P (\$449), a 6-channel suitcase-style system in which the speaker pair attaches to the amplifier for enhanced portability. The system provides a generous number of inputs including two mic/line channels (with combo jacks, 2-band EQ, gain, and reverb), two channels with 1/4" and RCA jacks (with gain), and a stereo input on a 3.5mm jack. Additional monitor outputs with a separate volume control let you send the stereo mix to another destination. 'Each 2-way speaker has a 6.5" woofer, and everything is housed in rugged, lightweight plastic.

Other products in the highly affordable 1,000W EON600 line, which utilizes the company's latest waveguide technology, include the EON610 (\$399), EON612 (\$449), and EON615 (\$499) featuring 10", 12", and 15" LF drivers, respectively. These 2-way, active bass-reflex speakers include two combo mic/ line inputs, master volume, a Thru connector, and four selectable modes that tune the speaker response to common applications-Main, Monitor, Sub, and Speech. New to the system is Bluetooth connectivity via iOS and Android apps that give you control over master volume, preset functionality, and DSP, such as parametric EQ and high and low shelving.

The next step up is the 1,500W PRX series, featuring seven powered speakers-PRX710 (\$749), PRX712 (\$849), PRX715 (\$949), PRX725 (\$1,299) dual-15" 2-way, PRX735 (\$1,299) 3-way, and two subs PRX715XLF (\$1,149) and PRX718XLF (\$1,399), with 15" and 18" speakers, respectively. The 2-channel mixer on the main speakers includes a pair of mic/line combo inputs with level control and ground lift, as well as two RCA inputs. A Thru jack and EQ switch (Main/Monitor) complete the feature set.

RSX ACTIVE

SAMSON

Samson RSX Active Series Loudspeakers and Stage Monitors.

The new RSX 2-Way Active Loudspeakers deliver 1,600 watts of Class D power with Samson's R.A.M.P. (Reactive Alignment, Maximum Protection) DSP technology for enhanced performance and reliability. The RSX112A and RSX115A feature solid, 9-layer plywood cabinet construction, high-grade transducers and dispersion-efficient waveguides. Samson's RSX Active Series Loudspeakers bring the unrivaled Samson value to serious live sound professionals.

And if you're looking for monitoring, the RSX Active Series includes two dedicated stage monitor options.



Moving up to 2,000W, the SRX800 Series adds configurable DSP and HiOnet Network capabilities for a completely pro-level system. In addition to the SRX812P (\$1.299), SRX815P (\$1.399). SRX835P (\$1,599), the series includes the SRX-818SP (\$1,599) and SRX828SP (\$1,999) subwoofers. The main speakers have two combo input channels, each with a direct output XLR jack. There's also a Mix output (XLR) and Ethernet port for networking. You navigate the LCD screen with a single encoder and button to select presets and various controls. The DSP includes two seconds of delay, parametric EQs, signal generators, and 50 user presets.

MACKIE

With a solid live-sound legacy, Mackie has a range of powered P.A. systems to cover a wide variety of budgets. One of the needs the company most recently addressed is a stereo system that is light and portable enough to use anywhere, even outdoors away from a power source. The FreePlay (\$399) is a 300W stereo system with a 4-channel mixer that can be powered by AC or battery (lithium-ion or 8 D cells). The rear panel has a pair of mic/line/instrument-level inputs on combo jacks and a 3.5mm aux input for stereo audio playback. You can also stream stereo audio to the channel wirelessly over Bluetooth.

Mackie offers the FreePlay Connect app, allowing you to set the overall mix and EQ settings (flat, DJ, Solo, Voice), as well as control the P.A.'s onboard effects processor (two reverbs, two delays) from your iOS device. The system includes the Feedback Destroyer, so you can maximize your volume without repercussions.

FreePlay provides one-knob control over several parameters. Select the input channel you want to work on using the dedicate buttons and use the knob to set its input level and effects send, or set the main output level by pressing the Main button. The rear panel includes a 1/4" TRS monitor output that provides a mono-summed signal for use with an external powered speaker or subwoofer.

Additional personal P.A. options are Mackie's DLM8 (\$699) and DLM12 (\$849), with full-range 8" and 12" drivers, respectively, and the DLM12S

(\$999) subwoofer, all of which pro-



Mackie DLM8

vide 2,000W of power. The DLM8 and DLM12 use Mackie's TruSource coaxial system and DSP processing, similar to what you'll find in the company's HD series, where the 1.75" tweeter is set in the center of low-frequency driver. This results in a significant reduction in weight and size for Class D loudspeakers with this much power. The 2-channel systems have combo jacks (mic, line, instrument) and RCA inputs, Feedback Destroyer circuitry, and a digital mixer offering 3-band EO and 16 channel effects (including reverb, delay, and chorus).

In Mackie's SRM line, the SRM150 (\$249) is a personal-size P.A. that offers two mic/line combo inputs with individual level controls and phantom power, a stereo channel with RCA jacks, 3-band EQ, and an instrument input switch for channel one. The back panel includes line input and thru jacks. With its 5.25" speaker and Class D amp, the SRM150 is rated at 150W.

The SRM line also includes an affordable range of larger powered loudspeakers, each with a 2-channel mixer (mic/line on combo jacks plus stereo RCA inputs with individual gain controls), a switchable Channel 1/mix Thru XLR jack, a Feedback Destroyer switch, and a mode selector (Solo, DJ, Monitor, PA). The models include the SRM350 (\$399) with 10" driver, SRM450 (\$499) with 12" driver, SRM550 (\$599) with 12" driver, SRM650 (\$699) with 15" driver, and the SRM750 (\$1,199) with two 15" drivers. The subwoofers in the line include the SRM1801 (\$799) 18" subwoofer for the SRM350 and SRM450, as well as the SRM1850 (\$899) 18" sub and SRM2850 (\$1,599) dual 18" subwoofer. All of the subs have stereo XLR inputs and highpass and full-range outs.

Thump is a recent addition to Mackie's line of powered loudspeakers, providing a lightweight and affordable option for musicians and DJs. With Class D amplification rated at 1000W, Thump12 (\$299) has a 12" driver and Thump15 (\$349), a 15" driver. The speakers have a mic/line input with level control, 3-band EQ (with sweepable mid), and protective limiting. The Thru XLR jack provides parallel output to connect additional loudspeakers. Thump18S (\$599) is the 18" compatible, active subwoofer, with two XLR inputs, pairs of XLR full-range and highpass outputs, a phase button, level control, and a pole cup.

For maximum coverage and highest audio definition from a Mackie loudspeaker, check out the six models in the modular HD series-HD1221 (\$799) with 12" driver, HD1521 (\$999) with 15" driver, HD1531 (\$1,249) 3-way system with 15" driver, the HDA (\$1,799) 2-way 12" horizontal array, the HD1501 (\$899) 1,200W 15" sub and HD1801 (\$999) 1,600W sub. Utilizing EAW-designed transducers and birch cabinets, these systems can be polemounted, stacked or rigged up to match the type of venue or performance situation they're used in. The speakers have internal DSP that is used

for acoustic-correction processing, and all but the subs and HDA have onboard 3-band EO with a sweepable mid control. The HDA has a loop output and 3-setting voicing switch. The HD's system works well for touring bands or installed use.

LINE 6

With its StageSource active loudspeakers, Line 6 jumped into the P.A. world whole-hog with a uniquely designed system that harnesses the company's unique DSP technology. Currently available are the L3t (\$999) and L3M (\$899), 1,400W tri-amplified loudspeakers with two 10" lowfrequency drivers, and the L2t (\$849) and L2m (\$749), which push 800W each and have single 10" low-frequency drivers. These loudspeakers can be used on their own or networked using the company's L6 Link system, discussed below.

On the side of the StageSource L2t and L3t is a 2-channel digital mixer featuring 3-band EQ (with sweepable mid), a vocal doubler/modulation processor and digital reverb on each channel, as well as feedback suppression overall. Using combo inputs, the mixer accepts mic, line, and instrument input, with individual gain controls and pad buttons. It also offers Variax modeling, which you can use when you plug in an acoustic guitar with a piezo pickup. The knob controls the amount of modeled guitar-body resonance-sweet!

The rear panel on all of the StageSource loudspeakers includes a mic/line combo input, a stereo aux input on RCA jacks, Loop Thru and Mix outputs, and a feedback suppression button. However, several other things make the StageSource system unique. The Speaker Mode selector, which revoices the loudspeaker depending on how it's being used, includes Reference/P.A., Playback, Floor monitor, Keyboards, Acoustic guitar, and Electric guitar settings. However, the loudspeakers have a built-in accelerometer and pole-mount sensors that automatically read the cabinet's orientation.



Line 6 StageSource

MAKE YOUR PERFORMANCE AN EVENT

The Fender Passport Event portable audio system, packed with versatile controls and connectivity, is perfect for amplifying your voice, instrument and background music anytime and anywhere.

- Full-range speakers and 375 watts of sonic power for small clubs, parties, coffeehouses and more
- Versatile features and friendly front-panel controls for easy set-up and use
- Conveniently self-contained with go-anywhere suitcase-style portability
- Includes a microphone and all the cables needed
- Bluetooth[®] connectivity for streaming wireless audio from mobile devices

Maximize the sonic punch of any performance with the Fender Passport Event portable sound system or one of the other available Passport models.



indes

PASSPORT VENUE 600 Watts, 10 Channels, USB Flash Drive Playback and Recording. Cables Included.

PASSPORT EVENT 375 Watts with Bluetooth Audio. Microphone and Cables Included. PASSPORT CONFERENCE 175 Watts. Microphone and Cables Included.



fender.com/passport

FENDER PASSPORT MORE POWER. MORE CONNECTIVITY. MORE USES THAN EVER!



The StageSource speakers also have L6 Link input and output/thru connectors. L6 Link is Line 6's proprietary digital protocol that allows their products to talk to each other. For example, you can connect another StageSource speaker and it'll recognize that it's there and automatically configure the two as a stereo system. Connect the StageSource L3s (\$1,199) 1,200W powered sub, which has two 12" drivers, and it recognizes the connection and resets the crossover point. Of course, you can also network in the StageScape M20d digital mixer to control it all. Consequently, by daisy-chaining the speakers using XLR cables connected to the L6 ports, the intelligent networking lets you to scale StageSource from a one-speaker setup for a solo performer to a system that will handle an entire band.



MUSYSIC

Among this company's many live-sound products are two systems that provide all-in-one functionality aimed at performers and DJs in small venues. The MU-P15BL (\$199) is a 500W bi-amped loudspeaker with a 15" LF driver built into an ABS enclosure. In addition to a pair of mic and line inputs, 2-band EQ, and RCA jacks, the system provides stereo playback via Bluetooth, SD card, or USB stick. Transport controls include Play, Pause, Stop, Repeat, and Track Skip. It even includes an FM radio.

The MU-15PAb (\$249) is a 400W system with 15" driver that includes two VHF wireless handheld mics with rechargeable batteries. It also offers Bluetooth, USB, and SD playback capabilities, as well as an FM radio. This model has an XLR mic input, a 1/4" instrument input, RCA line inputs, and a 5-band graphic EQ. The system is housed in an ABS enclosure with clips to hold the mics.

PEAVEY

Providing solid performance at reasonable prices for decades, Peavey has wide range of P.A. products. For example, the 400W PV115D (\$299) and 800W PV215D (\$499) house one and two 15" drivers, respectively. Using Class D amplification, these products offer a single mic/ line input with level control, a Contour button, and 1/4" Link output. Pair either of these with the PV118D (\$499) active subwoofer with 18" speaker to increase your low-end capabilities.

The PVX line is aggressively priced, with molded plastic enclosures and significant power, rated at 400W of continuous power. The line includes the PVXp10 (\$329), the PVXp12 (\$349), the PVXp15 (\$399), and the PVXp Sub (\$599) with a 15" woofer. The mains have a single combo input with level control, contour button, and XLR and 1/4" TRS Thru ports. Pole-mount them or use them as floor monitors. Either way, they're designed to hold up to abuse.

PRESONUS

The StudioLive AI Series builds on the company's CoActual driver technology (coaxial 8" midrange and 1.75" compression drivers with DSP tuning) and adds networking, DSP customization, and remote control capabilities. The three full-range, 2,000W models include the triamped StudioLive 312AI (\$1,249) with 12" woofer, the triamped StudioLive 315AI (\$1,449) with 15" woofer, and the quad-amped StudioLive 328AI (\$1,349) with two 8" woofers. The StudioLive 18sAI (\$1,499) is the 18" subwoofer providing 1,000W.

The StudioLive P.A. range loudspeakers are WiFi- and Ethernet-enabled: Multiple speakers can be networked over either protocol. The company's iPad app can then be used to control the entire system, including adjusting the DSP in each unit, such as the graphic and parametric EQs or time delay.

The speakers have an XLR mic input, a 1/4" TRS line input, an XLR mix output, and a lowcut set at 100 Hz. The DSP modes include Normal, LBR source, Floor-monitor, and a User mode. Each speaker has a USB port, an Ethernet Control port, and Network switches. The pole mount on the 312AI and 328AI includes a 10-degree downward tilt.

QSC

Considering their weight and size, QSC's 1,000W K Series loudspeak-



ers pack a lot of punch, but with plenty of clarity. The K8 (\$649), K10 (\$699), and K12 (\$799) utilize Class D power amps and have 8", 10", and 12" lowfrequency drivers, respectively. Each speaker has two input channels: Channel A accepts mic and line input (via a combo jack), channel B line-level input only (with combo jack), channel B line-level input only (with combo jack and RCA pair). Each channel has separate XLR outputs, and a Mix output XLR jack is also included. High-frequency and low-frequency switches let you fine tune the response, as well as add the KSub 12" subwoofer (\$1,079), which has a polarity switch and Normal and Deep modes.

The company's KW Series puts K Series technology in lightweight birch cabinets. These 1,000W models include the KW122 (\$1,099) with 12" driver, the KW152 (\$1,199) with 15" driver, and the KW153 (\$1,439) 3-way system with 15" woofer and 6.5" mid-frequency driver. The KW181 (\$1,399) is a 1,000W sub with an 18" speaker.

SAMSON

Samson has plenty of P.A. products to choose from, starting with the Expedition Express (\$199), a budget priced all-in-one system with a 3-channel mixer and a 6" woofer. In addition to a mic/line combo input, you get a 1/4" line in and a stereo channel with a 3.5mm input and Bluetooth connectivity. A 2-band EQ is also present. The system can be run for 8 hours on its rechargeable batter or powered via AC. Mic, cable, and AC adapter are included.

The Expedition XP106w (\$299) comes with a wireless mic and has a 4-channel mixer that is Bluetooth-enabled and offers mic, line, and instrument inputs. The 100W system has a 6" driver and can run from the rechargeable battery. Included is the Samson Stage XPD1 USB Digital Wireless mic system.

The Live! 612 (\$349 street) is a 300W, 2-way speaker with a 12" LF driver. The rear panel offers two mic/line inputs, 2-band EQ, and an extension output with a Mix/Thru switch.

Samson's Expedition XP112A (\$219) and XP115A (\$269) are 500W loudspeakers with 12" and 15"

drivers, respectively. Each unit has a mix/line combo input with level control, a Contour button, and a link output for chaining speakers. They're designed for pole mounting or use as floor wedges.

The 1,600W, Class D RSX series includes the RSX

Samson RSX112



112A (\$529) with 12" driver and RSX115A (\$599) with 15" driver featuring a 2-channel mixer in each with mic/line combo jacks, a Mix output, and three DSP settings-Flat, Loudness, and Speech. Powerful and rugged, these can also be used as floor monitors.

YAMAHA

The highly affordable MSR100 (\$399 MSRP) is an active 2 way, 100W loudspeaker with three inputs: a switchable mic/line XLR input and two 1/4" inputs, all with individual input-level knobs. It also features a 2-band EQ, a master level control, and a 1/4" Link output for connecting additional loudspeakers.

The loudspeakers in the DBR Series are designed to be rugged yet lightweight and portable. The loudspeakers feature Class D amplifiers and provide two inputs-channel 1 is switchable for mic and line input, and channel 2 accepts line-level only-with individual level controls and combo connectors (and a pair of RCA jacks on input 2). The XLR output can pass channel 1 through or a mix of both channels. In addition to a highpass filter that provides two cutoff frequencies, these loudspeakers have a Contour switch that sets high- and low-end EO curves to match the usage: one for mains/pole mounting and the other when the speaker is used as a floor monitor.

DBR Series loudspeakers are available in three

sizes-the DBR10 (\$529 MSRP) with a 10" driver and 700W, the DBR12, (\$659 MSRP) with a 12" driver and the DBR15 (\$899 MSRP) with a 15" driver, the latter two offering 1,000W each.

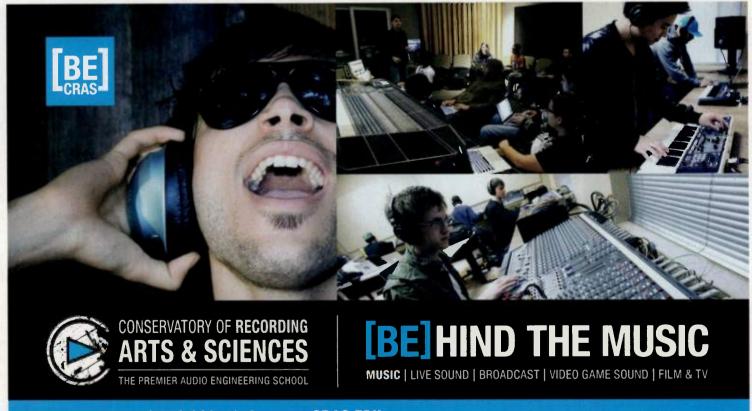
The 2-way loudspeakers in the DXR Series, on the other hand, are rated to have 1,100W of power. Each model has a 3-channel mixer, as well as an angled pole-mount socket that can aim the cabinet slightly downward. The model numbers reflect the size of the low-frequency drivers-DXR8 (\$829 MSRP), DXR10 (\$899 MSRP), DXR12 (\$1,049 MSRP), and DXR15 (\$1,199 MSRP).

The DXR loudspeakers have a switchable mic/ line input with a combo jack and Thru con-

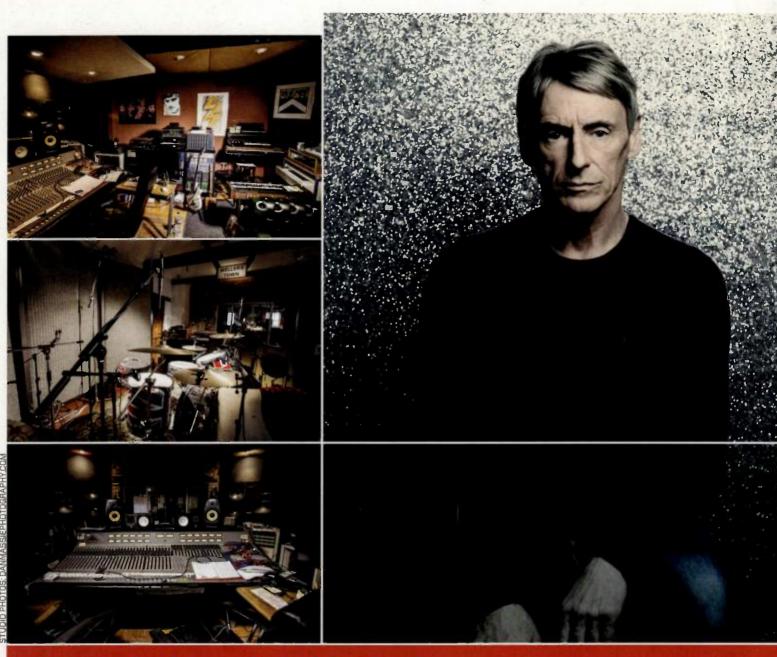
nector, 1/4" line inputs on channel 2, and RCA inputs for channel 3. In addition to the highpass filter and Contour control, you get a Link output for connecting other DXR speakers with a button that determines if the link is mono or stereo. The DXS12 (\$1,049) is the active 12" subwoofer designed for this line.

Yamaha's next step up in performance and price is the high-definition line, the DSR Series, which is designed for pro-level touring or install. Again, the model number reflects the size of the LF driver in inches-DSR112 (\$1,349 MSRP), DSR115 (\$1,499 MSRP), DSR215 (\$1,799 MSRP) with two 15" drivers, and the DSR118W (\$1,499 MSRP) powered sub. Each speaker cabinet offers a single channel with XLR and 1/4" jacks, a line/ mic switch with level control, a Thru jack (XLR), switchable HPF, and D-Contour, a multiband dynamic processor. The DSR112 is angled so that it can be used as a floor monitor.





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PAUL WELLER

RECORDS SATURNS PATTERN

FROM THE early guitar-punk of the mighty Jam to the elegant Style Council to his long and fruitful (and experimental) solo career, Paul Weller has been shaking up his own sound for more than four decades.

Weller's latest album, *Saturns Pattern*, reveals many of his artistic moods and influences. There are moments of distorted rock 'n' roll, '60s psychedelia,

and synthy futro, plus CSNY-type harmonies, Randy Newman-ish piano pop, and even a bit of Delta blues.

Sequence, songs, and sonics were all carefully realized in Weller's rural personal studio, Black Barn Recording (near Woking in Surrey, UK). Black Barn-truly a barn-is fitted with an MTA console, Pro Tools HDX, and

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Exploring musical moods in the Black Barn

Weller's impressive instrument collection.

"We've got a piano, which is really beautiful," Weller says. "It's a Yamaha grand that I've had for about 25 years, and it has a very nice low end to it. We also always use the Mellotron, Minimoogs—mainly the piano and a lot of vintage keyboards."

When Weller says "we," he mainly means himself and engineer/producer Jan "Stan" Kybert, who's been working on various projects with this artist since 2002. (Other credits include Oasis, The Verve, and The Prodigy.) In the case of *Saturns Pattern*, Kybert co-engineered the recordings with Black Barn's house engineer Charles Rees, co-produced the album with Weller,



Digging Deeper: Emerging Audio Trinnov By Sarah Jones

Engineer/producer Jan "Stan" Kybert relies on the Emerging Audio Trinnov Optimizer "virtual acoustic treatment" processor to make sure that his mixes will always translate accurately. But what's inside this mystery machine?

Trinnov's Optimizer is a multichannel loudspeaker processor that is designed to improve the accuracy of a listening environment using real-time DSP-specifically. by performing detailed multipoint analysis of your sound reproduction system (aka, your speakers and your room), identifying early reflections, and generating complex digital filters, target curves, and EQs that can be applied automatically or can be manually adjusted

and then instantly recalculated. Trinnov Optimizer is placed in the monitoring signal path. before the amplifier, and in a nutshell, works by generating impulses, measuring them with a 3D microphone, and analyzing and processing the results.

Included software lets you control up to 64 channels, assigning them to any combination of speakers. crossover filters, and subwoofers. You can also create custom EQ curves for each speaker, and for each listening position. Everything is controllable via any computer or tablet on your network, or over the internet. Emerging makes three different Trinnov systems. Pricing starts at around \$5,000, with the Optimizer costing around \$10,000; learn more at emerginguk.com.

Studio Essentials... PowerTools

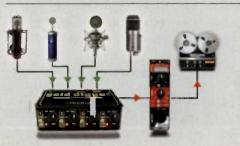


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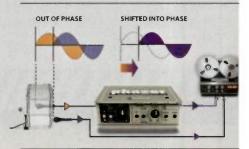
is a fantastic workflow improver." Patti Smith, Cheap Trick.



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easy to use - the results are nothing short of dramatic." ~ Jay Baumgardner POD, Papa Roach.



mixed it, and co-wrote five of the tracks as well.

"Paul rehearses at Black Barn. He does demos there, and he's recorded his last four albums there," Kybert says. "I recorded the previous album, Sonic Kicks, in Black Barn but mixed it in Dean St. Studios, but this is the first album that we've done there together from start to finish: from the creation of demos to the finished product."

In fact, one piece of music on the album dates back even further than the official album demos. The hard-edged opening track, "White Sky," with its distorted vocal and EDM-ish groove germinated a few years before Saturns Pattern started. In 2011, Weller was in his studio with the techno production duo Amorphous Androgynous, who had gotten involved in remixing some unreleased tracks that Weller had cut with Noel Gallagher. During the process, Weller and Amorphous Androgynous cut some original music of their own.

"I did about eight tracks with them, and I'd sort of forgotten about them, to be honest, but then I played ["White Sky"] for Stan and he loved it," Weller recalls. "So, he cleaned it up, and we added to it."

"They had left us a backing track with loads of Hammond and backwards guitars," Kybert says. "I tightened that up in Pro Tools and put on some drum samples just to lock it in. "It's quite groove-y, so the beat was a big part of it. Then Paul did some backing vocals, we added more guitars, and then Ben [Gordelier] came in and did the final drums, and we removed the samples. When you think about it, we gave it a backwards production; the drums were the last things we did."

"White Sky" is actually somewhat illustrative of the nonlinear way that Weller and Kybert collaborate. "I store things up most of the time, but I rarely sort of sit down and finish a song totally," Weller says. "I'll just have a flavor of something and put it aside until I'm ready to make an album. I always have two or three notepads I've written in the past year, and I'll just dip in and out of them. Some stuff might be rubbish; something might just have a great couplet and I just improvise on that. I have lots of little bits, and when we get in the studio, I see what works and what doesn't."

So, not surprisingly, only one of the songs on Saturns Pattern ("These City Streets") was recorded as a full band track. The rest were assembled over the course of ten months of exploring and building on Weller's fragmented ideas.

"The key is having a very good place to start from," Kybert says. "It was a lot of going away and coming back, and getting sounds. We would work hard to get a great bass sound, a place to start with the drums, and then let the track dictate what we would do with the rest of the sound. We tend to put the drums in

the same spot in the room-in the largest part of the room, with the highest part of the ceiling-but on some tracks we used four mics on the drums; on others, we'd use twelve. Some tracks are big and open, but 'Going My Way,' for example, is more tight.

"One unique thing we did, on the song 'In the Car,' most of the drums were recorded with one mic in the room individually. I had Ben overdub a tom pattern on one section, and on a different section he played the rides, and then there's a snare section. It's a different way of using drums. There are only so many sounds you can get in one studio with the same gear, but I think we got them all."

Few sonic elements of the album remained stationary throughout. The sound of Weller's Yamaha grand, for example-which is featured prominently on several tracks-was molded to suit. "That piano records really well. It's great for a classic piano sound, but it effects up quite well, too, to get a jangly, almost upright sound with the right EQ and compression," Kybert says. "I think we mainly miked it with a pair of [Neumann] KM84s, but if we wanted something different we'd put one [Shure] Beta 58 on it and use that as an effect."

Kybert says that the variety of Weller's guitar sounds on the album are mainly generated by different pedals. "He uses a couple of Vox Drive pedals that we liked, and a thing called a [Vox] Double

for Studio Professionals

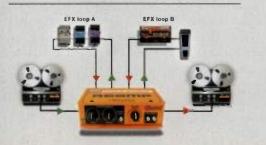


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Deca delay. He was using a blue Hoffner a lot, and he's got a really good Telecaster and an old SG that he plays live. Paul's also got his faithful amps. One is a Marshall that he's been using for like 30 years, and that still sounds great."

Kybert miked Weller's amps with a tried-andtrue Shure SM57, with the occasional addition of a Sennheiser MD421. "Also we had a Sontronics Sigma ribbon mic. That mic is really great, and then we would go through Noel Gallagher's Neve 1073 pre/EQs, which he leant us."

As for Weller's voice, Kybert explains: "Charles and I went through a couple of different mics. We had a deal with Sontronics at the time, and 90 percent of the vocals are done through a Saturn mic, funnily enough; it's pure coincidence. That also went through Noel Gallagher's 1073s, and a lot of times it would go straight into Pro Tools and I'd compress it afterwards."

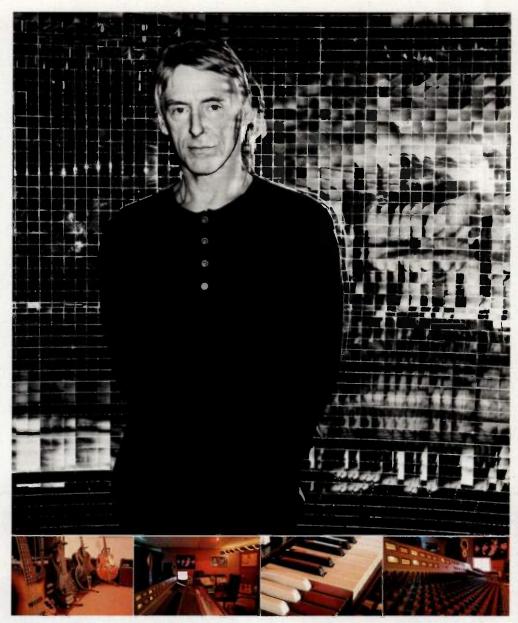
Among the many other adjustments made during the mixing process at Black Barn, Kybert also added spectacular distortion to the vocal on "White Sky." "That was with the Sansamp stock plug-in, in Pro Tools," he says. "I love that!"

Other processing that's essential to the Saturns Pattern sounds: Weller's EMT 140 plate reverb, which Kybert says he used on almost everything. The engineer's favorites also included plug-ins from Slate Digital, iZotope, and Fab Filter. "Slate Digital's Virtual Mix Rack allows you to chain EQ and compression, which is great. Fab Filter is so precise, and it's 24-band. Some of my EQs have gone to a place they've never gone before, because it allows me to add and subtract what I want in a different way, and it's got a really good frequency display. They're so easy to use, they sound great, and you have confidence in what you're doing."

That issue of "confidence" actually had to be resolved for Kybert to be able to mix *Saturns Pattern* in Weller's studio. Kybert felt strongly that, with a studio as well-equipped as Black Barn, Weller should be able to record and mix in his own studio. However, acoustical anomalies cast doubt on the quality of the finished product.

"When we were mixing tracks for Paul's second greatest hits compilation [*More Modern Classics*, Harvest, 2014] it was apparent that there was some sort of midrange problem," Kybert recalls. "The EQ adjustments that I was making, I wasn't hearing in the studio. If you took the mixes out of the room, they didn't sound right at all. The room was acoustically treated and I thought it was pretty stable in there. The idea of people coming in and putting more treatment in the room wasn't too appealing to me, because that's always hit and miss.

"That's when I discovered the Trinnov box [multichannel room-correction/loudspeaker optimization system]," he continues. "It comes out of the board but before the amps, and it's virtual



acoustic treatment made perfect. The guys at [manufacturer] Emerging are in the UK, so they came down and fitted it for us. It displays on a screen and shows you where the bumps are, and shows you the phase correlation between the speakers.

"The first listen with the box can be too extreme for people because it flattens the room completely, but the first time they played it, it just made perfect sense to me. I always try to push things, and on some of the bolder moments on the record that's reflected in the stereo image; some of those things were only possible because I knew I could hear what was going on."

At a suggested starting retail price of more than £3,500 (about \$5,200), Trinnov is not an option for many pro studio owners, much less most recording musicians. And the system Kybert uses is priced around \$10,000. "It's definitely not cheap, but I would argue all day that it's not expensive either," Kybert says. "You have that unit for life. If

you move studios, you can take it anywhere and neutralize that room, and there's the time you save by the confidence in what you're doing.

"Suddenly, with that one magic piece of gear, everything gets better," Kybert continues. "All your plug-ins become better because you can hear more detail in everything. Slight changes become more apparent. When we get the drum sound together now, it's quicker because what you're hearing is what you're hearing."

"I'm lucky to have my own studio that's really a home away from home," Weller says. "It's got such a nice vibe and it's very conducive to working. Now that we have the sound really together, we can just leave things be, so they're always ready to go. So when I start to get an idea, I can get a great sound straightaway as well."

Barbara Schultz is the manufaing editor of *Electronic* Musician and *Keyboard*.

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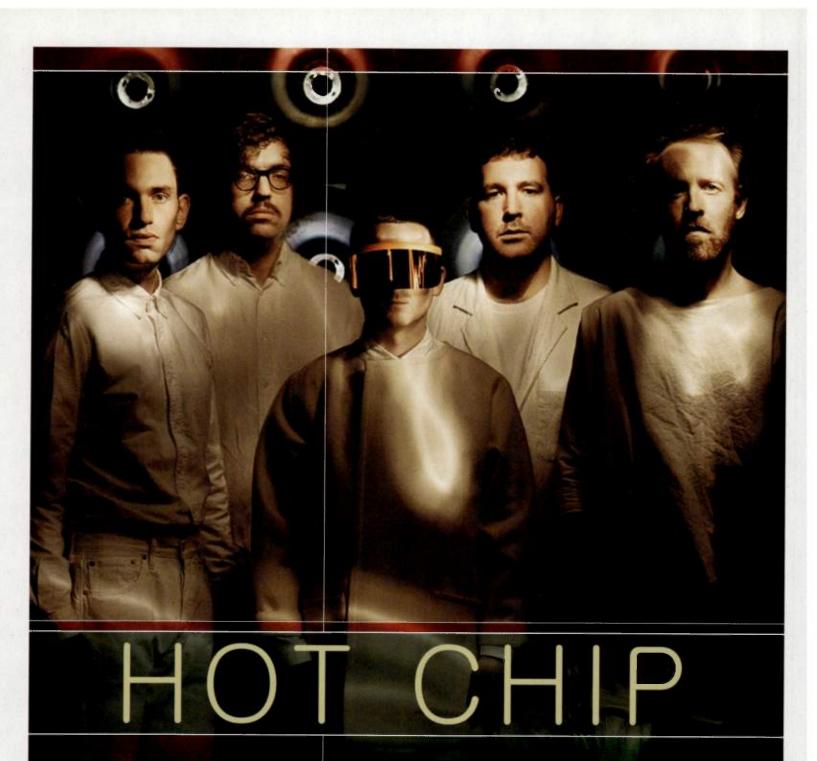
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On their sixth album, *Why Make Sense?* the British electronic band strengthen their legacy of song-driven dance music through a process of step-bystep creation and recording, deconstruction, and rebuilding into a powerhouse live band.

BY MARKKUS ROVITO

For more than a decade, London's Hot Chip has helped define one of the rarest of musical acts: the song-focused live band that cranks out and performs electronic dance hits.

Their 2004 debut attracted the attention of DFA Records, co-founded by James Murphy, the head of America's like-minded dance band LCD Soundsystem. With U.S. record deal in tow, Hot Chip released their second and third albums which broke through to U.S. alternative radio with the tracks "Over and Over" and "Ready for the Floor," and the band shored up a sizable fan base grinding on the festival circuit. Their hits laid a foundation of expectation for Hot Chip devotees: well-structured, quirky, bouncy, melodic pop songs with funkier rhythms than you'd probably expect from such pale British kids.



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The band's next two albums, One Life Stand (2010) and In Our Heads (2012), proved that their formidable endeavor, which could mix and match ecstatic joy, heart-wrenching sentiment, mellow grooves, and dancefloor bangers, was built to last. Backed by hits like "Flutes," "Night and Day," and "Don't Deny Your Heart," In Our Heads fared the best yet for Hot Chip, hitting Number One on both the U.K. and U.S. dance album charts.

After extensive touring and side projects, Hot Chip returned with *Why Make Sense?* on the Domino label. It opens with the lead single "Huarache Lights," a tour de force of mid-tempo pulsing synthesizers, rising energy, head-nodding swing, and vocoded soul. Of the many other standouts, "Started Right" injects '70s funk into the album with clavinet grooves and *Soul Train*-evoking strings, and the multilayered synth parts of "Easy to Get" dance around each other with well-practiced choreography.

That's when you notice that throughout all the styles, feels and tempos, Hot Chip expertly balances changes in energy, dynamics, and texture. It's something that comes from not just being in a band, rather than a solo or duo electronic act, but being in a talented band for 15 years, that is firing on all cylinders. That cohesiveness shows through in the music, from song to song and compounded over the course of *Why Make Sense*?



JOE'S SYNTH SHACK



One half of Hot Chip's principal songwriting force. Joe Goddard also remixes and DJs prolifically, both on his own and as half of the genre-defying, critically acclaimed dance music duo The 2 Bears. He revealed to us some of his favorite software synths.

"I use Arturia's [Mini V] Minimoog plug-in often to write parts." he said. "which I then send out to old hardware synths like my ARP 2600, Yamaha CS-80, or Oberheim OB-Xa. I write lots on Arturia's Moog Modular V plug-in, particularly the patches made by Hideki Matsutake from Yellow Magic Orchestra. The main synth in 'Ready for the Floor' was one of those sounds. I also use Spectrasonics Omnisphere sometimes for unusual, atmospheric patches." I spoke to Alexis Taylor, Hot Chip's crystalvoiced lead singer and co-songwriter about the band's process of creating, recording, and then performing.

Casual Hot Chip fans may not realize how prolific you and your bandmates are with solo work, remixing and other group projects, like About Group, [Alexis Taylor], The 2 Bears [Joe Goddard], and New Build [Al Doyle and Felix Martin]. How is it, balancing those other pursuits with Hot Chip?

We tend to put a Hot Chip record out and then tour for like two years, and after that, we all feel like we need a break from Hot Chip for a bit. In that down time, we are afforded time to work on the other records we'd like to make, and then it naturally comes round to a time when we'd like to make a Hot Chip record again. So we quite like it in that respect. We found a pattern in a way of working that allows us to do other things if we want to do them. And it feeds back into the Hot Chip process; it allows us to not put everything through one particular lens.

Speaking of making music in different ways, what was different about your recording process for *Why Make Sense?*

We went away to a residential studio and stayed and recorded there. That means that you're away from other distractions. You're out in the countryside in this case, and you're recording into the nighttime, and you're all sleeping in the same place and eating all your meals together, but really just focusing on making the record. Also, the space we recorded in was large enough to track everyone simultaneously. It had a huge control room, so you could record like eight synthesizers all in the same room. And we have two drummers, really: Rob and Sarah. They could both be in different rooms if we wanted to track two sets of drums simultaneously.

You could go off and write in a different room, as I did, and whilst people are working on one track, others could go into another room and demo or rehearse another track. Some of the words were written quite quickly in the studio and left as they were, rather than being revised later. Actually, we liked them as the finished thing. I let go of the idea that the words need to make sense to me, because some of them don't, really.

Was one of those lyrics on "Love Is the Future" when you're singing about getting the guitar track right?

That's a good point, but actually no, that's one of the few lyrics that was always the lyric! I don't usually revise many of the lyrics, but on this album, I wrote some words which I didn't necessarily feel I totally understood. It reminds me a little electro-barmonix

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bit of the earlier days of Hot Chip, like *Coming on Strong* [2004] and *The Warning* [2006]—lots of sessions recording more tracks than you end up putting on the album, and spilling ideas out all the time and not necessarily knowing which things are going to be the finished.

Is it normal for you to do a lot of the writing while you're also recording?

We get asked about the writing every time we make an album, and there isn't really one method we stick to. Some songs Joe writes on his own; some I write on my own. Some songs, Joe writes the music and I write the words. Sometimes Al writes a bit of the words alongside me and Joe. But every time it usually involves some improvising in the recording studio, and the things we're improvising are usually the chords that make the basis of the song, and then we do the vocals after that. So quite often we're writing in a studio, but maybe that's Joe's studio in London before we take it to the rest of the band.

The last couple of records, there was a bit more solo songwriting, but most of it was more collaborative this time. We just try to have a free and easy approach to it, but the basis of the songs always come from Joe and myself as a starting point.

Hot Chip seems to live in two worlds—the electronic dance world and the world of live, song-driven bands. How do you balance those tendencies in the studio?

Almost every time, the drums, and often the bass lines, are programmed by Joe before there is any live playing. I'm making it simpler than it is, but there's a second stage with me playing more keyboards on top of what he's begun and doing some vocals. After that there's often live band tracking on top: drums, live bass guitar, live guitar, live percussion, and more keyboards. We don't just set up in a studio and have seven people play everything from scratch, but we do tend to overdub multiple players simultaneously that way. The band hinges on this combination of MIDI programmed, computer-written, soft-synth based music combining with outboard equipment and physical keyboards—often ancient keyboards from the '70s onward—mixed with ancient drum machines, and traditional rock band instrumentation. It's kind of the MIDI programmed stuff meeting with the electronic synthesizers meeting with the traditional instruments. Then maybe we get a marimba player, a violin player or a steel pan player. It's a quite a lot of live music, but we go layer by layer.

What's the process of going from that writing

and recording stage to performing songs live? For this record, we've listened to the recordings and said, "how about Rob plays the vocoder part on this keyboard," which isn't the keyboard we had at the studio, because we don't have access to everything we used. We figure out something that can do that job: "How about Sarah plays this bit of the drums," which on the record were just programs. "How about Alexis plays a Wurlitzer and sings?" We just figure it out by listening, and then practicing, and then we think, "how about somebody else just plays this music they've come up with that wasn't on the record, because that works better live?" You go through the process of learning all of the elements on the record, and then abandoning some of that to make it groove better live.

We have a set of instruments we tend to use live, but they're not the exact thing we used on the record. We already have so much stuff that we're kind of turning into Genesis or Toto. You have to be careful not to do that.

I've seen the Akai MPC in your performance rig. Are you using that to sample elements from the album you don't want to re-create? We borrowed that from the band Fridge, who were in school with us-one of them is Kieran Hebden, who writes music as Four Tet. The MPC was Felix's instrument at the beginning; he would make

HOT CHIP SELECTED LIVE GEAR

Apple iPad

Dave Smith & Roger Linn Tempest analog drum mac	chine
Dave Smith Instruments Tetra analog synth module	
Dave Smith Instruments Prophet-12 Keyboard hybrid	d digital/analog synth
Moog Voyager Electric Blue Edition analog monopho	onic synth
Moog Little Phatty analog monophonic synth	Contrast of the local division of the local
Roland Juno~60 analog polyphonic synth	
Roland SH-101 vintage monophonic bass synth	
Roland SPD-S sampling drum pad	
Roland SPD-X sampling drum pad	
Wurlitzer electric piano	
	Dave Smith Instruments Te

new versions of the beats [that were] different from what Joe programmed for the records. He would run sequences on it, but also trigger sounds from the pads, beating out the rhythms. We were inspired to do that by watching early Anti-Pop Consortium gigs where all they seemed to have was an MPC and three vocal mics. Then gradually the Elektron Machinedrum took over from the MPC. Then Felix started using Ableton [Live], and I starting using the MPC on the last tour to trigger samples. On "Look at Where We Are" on the last record, we used the MPC in the studio to take vccals or keyboard parts or drums and chop them up, rearrange how they sound, and trigger them from the pads. For the last BBC show, Felix triggered samples from the Tempest.

Have you tried the iPad version, the iMPC?

I got the iMPC app just to see what it was like, and then while we were recording this album, I used it to try out little ideas, not because I thought it would sound better, but just because it was a shorthand way to do a little demo and play it back. I sampled something that in the end we didn't get clearance for, so it didn't go on the album.

You mentioned using Ableton Live and soft synths; what are some of your favorite music programs?

Ableton is for the live show. The records are recorded in Cubase and Pro Tools. Joe always uses Cubase, and Pro Tools we use in a studio as a multitracking, high-end device rather than for writing MIDI. Joe's got more knowledge of soft synths, but I know he uses a plug-in version of a Jupiter or a CS-80, and then he replaces it after with the real vintage keyboards. I record using Logic, but I barely use any soft synths. But I did use the [GForce] M-Tron Pro Mellotron samples on my last [solo] record.

Do the performances morph and change much during the two or so years of touring for an album?

Yeah. We did rehearsals for a BBC 6 Festival, and I can already tell that we'll change something from "Boy from School." We played it different from how we played it before, but I think we need to change it again. Things change over the touring cycle, and hopefully you bring in songs you haven't played yet, haven't played in years or covers. We try to make it interesting for ourselves and the fans. It doesn't tend to stay the same, which I'm pleased about. Also, it's not like every day for two years straight. We have other things to do, like I have to take my daughter to school and be part of the family. It's not like two years of joining the army.

Read an extended interview at musician.com.

WRH

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"Often I'll get something from Tonny [Grace, keyboardist] that sounds like John Carpenter and something from Vinny (Veff, outarist] that sounds like Link Wray or The Cramps, and I have to imagine how to build a song using those ideas together, without it sounding nuts," says Dave MacLean, the drummer/percussionist/ co-producer in British electronic group Django Django. "But it's funny to realize—there is a history of putting mad things together. Georgio Moroder's production for Blondie touched on that. He had surf twang on top of synth bass lines."

MacLean's observation opens a window into Django Django's influences, which also include '90s hip hop, acid house, and the Beach Boys. And somehow, these disparate elements coexist within the synthdriven, psychedelic world of MacLean's productions.

Django Django's latest, *Born Under Saturn*, began in Angelic Studios, an upscale residential facility in the English countryside close to Oxford. The group and their co-producer/engineer, Neil Comber, spent two months there, taking full advantage of the studio's large live room and rich complement of high-quality equipment and instruments.

"It's a beautiful studio, with an SSL G Series desk and lots of channels of Neve [mic pre's/EQ] for recording," Comber observes. "They also have loads of old, wonderful analog synths—I think actually all the synths on this album are analog. There's a really nice Memory Moog, a Solina, a Jupiter; and Tommy owns a Juno 60, which is also a big part of Django Django's sound."

"That Juno is the backbone of everything," MacLean agrees. "Tommy does all the arpeggiated, John Carpenter-sounding stuff on that."

Comber describes the band's tracking method as an "ever-changing process" that often started with 20-minute jams that could be dissected and reimagined later. "Then Dave would do a take of drums by himself," Comber says. "We'd play around with just the drums awhile, and then do another run-through with the drums going through effects boxes—lots of springs and old delay units. Then we'd put down some bass and guitars, and then add synthesizers.

inside the Born Under Saturn recording sessions in the English countryside

"But then we'd get to the end and decide to try to flip the drum beat, so we'd go back to the beginning and do the drums differently," Comber continues. "Or we'd change all the guitars. Maybe Tommy would put on a synth part that everybody loved, but it didn't fit with the guitar, so we'd change the guitar arrangement to fit that synth."

Comber's MO in the studio is that the creative flow is paramount, so he put up dozens of microphones, to capture all possibilities without ever having to stop a take. "Every piece of equipment was plugged in all the time," Comber says. "We were using all 72 channels of the desk. Want to bring up a new guitar sound? Just bring up the drum room mic and use that for the guitar room mic. We try to keep things moving."

Comber's drum-miking scheme included an AKG D112 on kick, Shure SM57 on snare top and bottom, and Sennheiser MD41s on toms, top and bottom. "That's so you get lots of ring out of the bottom of the toms, because they're a very tom-heavy band," he says. "They use more toms than cymbals. We also had a Neumann SM69 room mic—a nice old valve stereo mic—that was a big part of the room sound. There is a balcony in the live room, and we had two U47s up there to get another really big room sound."





Comber's methods might seem ideal to capture massive drum hits, but MacLean uses his sounds judiciously, creating airy percussive elements—more rhythm, less rock.

"I want to keep it dynamic sounding, but the records I am influenced by percussion-wise are dub records and early rock 'n' roll where there's not so much a wall of cymbals or drum kit—there's more space with shakers and groove," MacLean explains. "In dance music you need that space in the mix."

"On guitars, we had sounds from a few different amps," Comber says. "The studio has a nice Vox AC30 and a Fender Twin with a lovely spring reverb. There was also a small Ampeg with a spring reverb. And Vinny's got a Fender Deluxe, which is his go-to amp and got used a lot, because the sound was familiar from the first album. Micwise, we usually used a 57 and a Neumann U87 through the SSL, and I'd blend the mics to tape so there was just one track of guitar.

"We'd work with ambience as well, because some of the sounds are quite surfy; we'd put the amp in the middle of the big room and set up a close mic and an ambient mic at the far end." Bass and synths were also miked up and/or DI'd, and the group spent a good amount of time manipulating those sounds. "We used that little Ampeg amp with the reverb quite a lot for recording synths," Comber says. "And then we might build effects with the studio's Eventide H3000, for example."

The band came away from their recording retreat with solid tracks, but they still had a lot of work to do back in London. "We were getting a bit behind, so we booked Urchin studios, which is down the road from Django Django's rehearsal studio space. Mainly, it would be me and Jim and Vinny [at Urchin], so we did a lot of vocals and guitar overdubs there. It was fixing and adding things rather than whole takes.

"While we were working in Urchin, Dave would usually be with Tommy in the Django Django studio, doing keyboards and editing and drum programming. We did a bit of drum recording there as well, but we had tried to do the drum recording in the big room because both Urchin and the band studio are quite small. Then we'd send the new parts across to each other so we had fresh ideas to bounce off all the time."

Most of the vocals were recorded during this

phase, in a fairly elaborate process of processing and layering: "We did a lot of the vocals through a Tonelux U47, which is a copy of the Neumann U47," Comber says. "It's a large-diaphragm mic, so the vocals sound big. Then we'd process everything; most of the vocals are made up of at least four layers: a dry vocal, one through a guitar pedal, one through a spring reverb, and one through a weird flanger pedal or something else interesting sounding."

The resulting psychedelic harmonies have a retro '60s feel. And blended with the band's wonderfully strange brew of vintage and processed sounds, the voices become almost spooky. "There's a song on the album called 'Shot Down,' which started off as a big monophonic synth line with almost a hip-hop drum groove," MacLean says. "Then Jim played some blues rock-y guitar over the top—a bit Rolling Stones—and that kicked it up another level. Then the harmonies came in and they were a bit Beach Boys... It's almost like that game where one person whispers something and everyone passes it on; each person's personality gets added, and you end up with this bizarre combination."



MAJOR LAZER PEACE IS THE MISSION MAD DECENT

Major Lazer-the culture mashup currently led by producers Diplo, Walshy Fire, and Jillionaire-drops a third full-length, featuring nine tracks and nearly twodozen international collaborators. Banging with bass as deep and dense as that Rolodex, plus pinched synths, dramatic builds, rapid fills, and dub resonance, the dancehall-EDM project also breezes through tropical house BPMs and screweddown moombahton. From pop to poppin', Peace Is the Mission looks to pacify old and new fans alike.

TONY WARE



MARTIN GORE MG MUTE

Depeche Mode's Martin Gore continues the minimalist electronics of his VCMG project with former bandmate Vince Clarke on MG, an ambitious 16-track instrumental album. MG's intention is to be filmic, and it is, particularly on opener "Pinking" and true-toits-title "Stealth." At times, it sounds like a soundtrack to a hopeless and dark dystopian nightmare, such as on the stark and uncomfortable "Exalt." But at other times. Gore taps into sculpted Berghain-style unyielding techno, exemplified on the percussive "Brink." LILY MOAYERI



JERRY LAWSON JUST A MORTAL MAN RED BEET

This is the debut solo album by 71-year-old Jerry Lawson, a 40year member of the great vocal group The Persuasions. Produced by Nashville-based singer/songwriter Eric Brace, Lawson's album has a just a bit of twang, but truly focuses on the singer's majestic tenor and the soul sound that this longtime artist has perfected. Lawson leads with Paul Simon's "Peace Like a River," but also covers a few wonderful songs by Brace and others; this material and singer are gems to be treasured. BARBARA SCHULTZ



TWIN DANGER **TWIN DANGER** DECCA

Founded by vocalist Vanessa Bley (daughter of influential jazz pianist Paul Bley) and tenor saxophonist Stuart Matthewman (who played that terrific sax solo on Sade's "Smooth Operator" and guitar on many of the R&B diva's songs), Twin Danger's glistening late-night jazz hints at Twin Peaks' eeriness and film noirish isolation. As acoustic bassist Larry Grenadier maneuvers the low end, Bley sings like a sad torch singer lost somewhere on Sunset Boulevard, Twin Danger's songs are strong, their performance hypnotizes; consider your heart broken. **KEN MICALLEF**



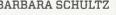
TYONDAL BRAXTON HIVE1 NONESUCH

An eight-track collage adapted from a live installation at New York's Guggenheim Museum, HIVE1 sits between playing mind games with a maniacal AI and being bathed in cosmic rays; no matter how the pod bay doors opened, shields are down, mutations are triggered, and the computer array is fluctuating deliriously. The ensemble piece cycles from diffuse to lockedin grooves, oscillating between propulsive squelches and seismic reentry. Orbit is decaying and what's left is fiery atmosphere. TONY WARE



KERMIT RUFFINS & THE BARBECUE SWINGERS #IMSONEW ORLEANS

BASIN STREET Ruffins and his funkmeets-trad jazz band play with such an relaxed, live jamming style, and the musicianship is so fine, that the listener almost expects to hear applause after the bandleader or his stellar piano/keys player Yoshitaka "Z2" Tsuji takes a solo. This album-and Ruffins' style in general-comes from such a winning combination of virtuosity and pure joy that chestnuts like "Tipitina" and "I Can't Give You Anything but Love" shine with new light. BARBARA SCHULTZ



TODD RUNDGREN/ EMIL NIKOLAISEN/ **HANS-PETER** LINDSTRØM RUNDDANS

SMALL TOWN SUPERSOUND Norwegian producer Lindstrøm, Serena-Maneesh's Emil Nikolaisen, and pop pioneer Todd Rundgren converge for 39 minutes of sprawling electronic experimentalism that recalls not only Rundgren's Utopia and A Wizard a True Star periods but also The Orb and Oneohtrix Point Never. Runddar.s pulsates via swelling synths, sparse instrumentation, and Rundgren's reverberated vocals. Opening tracks are devoted to frothy synth arpeggios, followed by beat-driven song forays, resounding keyboards, and crunching drums. KEN MICALLEF

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37-note mini keyboard —

Fig. 1. The Roland JD-Xi's simplified interface makes it easy to build songs using the 4-track sequencer with the instrument's analog synth, digital synths, and drum library.



ROLAND

JD-Xi A HYBRID SYNTH THAT IS AS POWERFUL AS IT IS EASY TO USE

It used to be that compact keyboards came with compact sounds and modest features. But this is 2015, and Roland's latest offering is the JD-Xi, a diminutive keyboard that packs an impressive array of features and great sounds into a small and surprisingly affordable package. Boasting 129 voices—one analog voice and 128 digital voices the JD-Xi assembles four synths within a portable instrument along with a 4-track pattern sequencer, an arpeggiator, a vocoder, and USB connectivity.

dedicated, resonant analog filter to fatten up your sound as needed. The drum synth holds 33

octaves below and use the

Envelope generator

a variety of solid-sounding electronic and acoustic setups that cover a lot of ground. Roland included timbres from its vintage drum machines, such

BY REEK N. HAVOK

Reek Havok is a sound designer, drummer, producer, and tech for hire. His credits include everyone from Mötley Crüe to Yes. STRENGTHS Direct control of features. High polyphony count. Great sounds. Excellent value.

LIMITATIONS Limited editing capabilities. No manual provided. No master volume for drum synth.

Roland JD-Xi \$499 street rolandus.com FOUR OF A PERFECT PAIR

Data wheel

The JD Xi is part of Roland's new line of Interactive Analog/Digital Crossover Synths, which combine analog and digital engines—in this case, two digital PCM-based synthesizers, a drum synth, and a monophonic analog synth. The overall idea is to provide enough features within the instrument to sequence an entire song, perhaps using the analog synth for bass or lead parts, a digital synth for chordal parts, and so forth. Yet, the JD-Xi was designed to be a powerful performance instrument with an interface that is simple and easy to use.

The digital sound engine includes Roland's SuperNatural technology to add modeling to the PCM sound set. With the help of four resonant filter types—highpass, lowpass, bandpass, and peaking—the results are rich and varied, providing instruments that represent some of the best timbres of the '80s and '90s.

The analog synth provides beefy basses and sharp leads using a single oscillator with selectable sine, square, or triangle waves and pulse-width modulation. Add the sub-oscillator one or two as the TR-808, 909, 707, 606 and 626 and even the CompuRhythm CR-78. Unfortunately, there is no way to adjust the entire drum track on the fly. Instead, you have to select sounds one at a time and adjust their volume. An overall level control for the drum synth would be a welcome addition.

Each of the four parts-Digital Synth 1 and 2, Drums, and Analog Synth-have dedicated Mute buttons. The large data wheel selects the instrument bank (Leads, Bass, Brass, Strings/Pad Vocoder/Auto Pitch, Keyboard, FX/Other, and Sequences), and individual patches are choser with the Tone buttons. The Amp/Env knob adjusts the volume on the part you have currently selected.

Each part can be assigned to its own track in the pattern sequencer so you can create complex looping patterns quickly and modify them on the fly.

The JD-Xi includes a gooseneck microphone that plugs directly into the top of the keyboard for use with the built-in vocoder. In addition to the wide assortment of vocoder-based presets, the keyboard has an audio input with switchable gain

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analog warmth for a digital world



Fig. 2. In addition to standard MIDI I/O, the JD-Xi includes a USB port that carries audio and MIDI data. The audio input jack can be used with the onboard vocoder and handles line- and instrument-level signals.

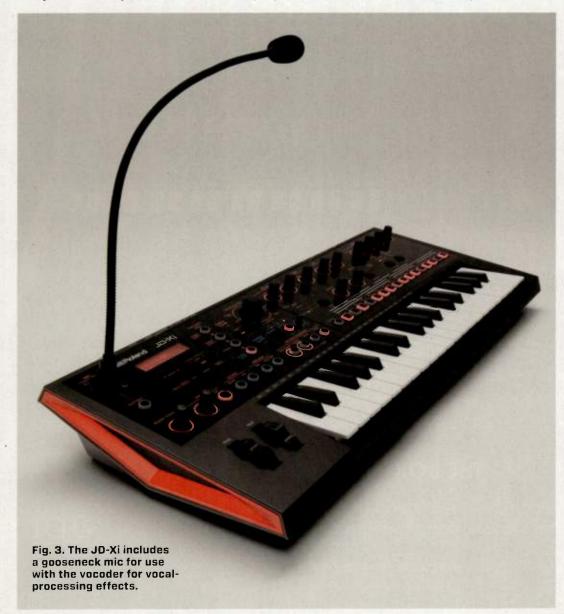
that can accommodate any external source you want to use with that effect—line- or instrumentlevel (e.g., electric guitar). And be sure to check out the Auto Note feature, a vocal pitch-tracking function that generates synthesized voices when you sing into the mic, but without requiring you to play the pitches on the keyboard.

ALL HANDS ON DECK

The JD-Xi has a remarkably simple interface that puts the main parameter controls directly

under your fingertips. For example, a single knob controls the envelope generator: In the 12 o'clock position, you get a staccato, on/off response, whereas a fully counterclockwise setting yields a sharp attack with a long decay, and setting the knob fully clockwise provides a slow attack and long decay. Although this doesn't give you full ADSR functionality, the single control makes it easy to adjust the volume contour to taste.

The LFO, on the other hand, offers several parameters. Individual knobs control speed and



depth; there are six wave shapes to choose from, and you can route the LFO to modulate pitch, filter, or amplitude.

The effects engine provides four simultaneous effects, shared between all four synths: Effect 1 (distortion, fuzz, compression, and bit crusher), Effect 2 (flanger, phaser, ring modulation, and a slicer), delay, and reverb, in that order. Each effect has its own send/level control, but a single button toggles the effects off in order from 1 to 4. That means you cannot combine, say, Effect 1 with

> reverb, or Effect 2 with delay. Fortunately, the two most useful effects—delay and reverb—are the last in line, so you can use those together.

> The JD-Xi synth lacks deep editing capabilities. Instead, Roland relies on the depth of its presets, and there are plenty of good ones to choose from. With eight banks of 64 presets, 512 ready-to-roll sounds are at your disposal, each with its own unique settings and sequences. Pulling up a new sequence recalls all four parts with it, making it easy to audition sounds. Additional sounds are downloadable for free from Roland's Axial tone-library page (axial.roland.com).

CROSSOVER POINT

Overall, the JD-Xi is fun to play and it's packed with inspiring sounds and sequences. (So much so that I had to tear myself away from the instrument to finish this review.) In the studio, the JD-Xi provides a welcome substitute for plugin instruments, with its big polyphony count, voice expandability, and ability to handle audio and MIDI over USB. As a stage instrument, it is quick on its feet and versatile enough for most types of modern synth-based music.

Although the JD-Xi's small footprint and portability worked well for me, its mini keys might be a problem for some players. But if you're adding JD-Xi to an existing keyboard rig, I don't think you'll have a hard time finding a spot for this synth, both physically and sonically. The Roland JD-Xi is a real winner.

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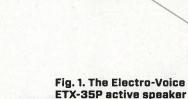
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ELECTRO-VOICE

ETX-35P A THREE-WAY POWERED LOUDSPEAKER FOR NEARLY EVERY OCCASION

BY STEVE LA CERRA

Steve La Cerra is an independent audio engineer based in N.Y. In addition to being an *Electronic Musician* contributor, he mixes front-of-house for Blue Öyster Cult and teaches audio at Mercy College Dobbs Ferry campus.

FVIFW

STRENGTHS Easy to use even in complex systems. Excellent sound quality. Extensive onboard

DSP.

LIMITATIONS Heavy. Control panel is difficult to access when cabinet is placed on the floor.

Electro-Voice ETX-35P \$2,698; \$1,499 street electrovoice.com Dectro-Voice's powered ETX-35P is the sole threeway model in the company's ETX series. Featuring a 15" low-frequency driver, a 6.5" midrange driver, and a 1.25" titanium compression driver, the ETX-35P is powered with 2,000 watts of Class D amplification. Its roadworthy

cabinet is built with 18mm, 13-ply birch; all told, the cabinet weighs in at a hefty 85 lbs. Suitable for use in a variety of live sound applications, the ETX-35P is rated to generate SPLs up to 136 dB, and as we'll soon see, there is beauty inside this beast.

Ey

One look at the exterior cabinet and it's clear that the ETX-35P means business. The EVCoat finish echoes that of pro-grade touring boxes, while the handles and pole cups are made from aluminum. Hidden behind the heavy perforated grille are the drivers, configured using EV's patented Signal Synchronized Transducers (SST) waveguide design. SST's benefits include enhanced transducer time-alignment (minimizing the need for DSP correction of driver latency), and smooth coverage transition between drivers. Also hidden to the naked eye is the onboard DSP, which we'll get to in a moment.

The ETX-35P's rear control panel provides two XLR/TRS combo inputs with individual gain control covering a range from mic to line level. In a pinch you could use the ETX-35P without a mixer for a two-input coffee-house gig, though phantom power is not available from these jacks. An XLR jack carries the "mix" output, letting you daisychain multiple ETX-35Ps or feed a subwoofer. At the top of the control panel are an LCD and a single encoder for navigating the DSP, which includes EQ Function and Location curves, 3-band parametric EQ, and Delay for time-alignment to a set of mains up to 1,125 feet (343 meters). The encoder defaults to controlling Master Volume on start-up. The Subwoofer menu provides generic highpass settings as well as curves optimized for EV's companion ETX-15SP or ETX -18SP powered subwoofers. Other options include front-panel light on/off/limit, LCD auto dimming, and a menu lock to keep out curious cats. The ETX-35P is protected from thermal failure as well as excessive input.

It was a pleasant surprise to find that two ETX-35Ps fit into my car (with the seats folded down) along with mic stands, cables, and a Mackie DL32R mixer (reviewed in the April 2015 issue). I was able to manage the boxes by myself but I'd recommend two people move an ETX-35P.

First up was a church gig with choir and acoustic piano. Setup was easy; the onboard

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amplification and DSP eliminate the need to carry power amps, speaker cables, or processing racks. The ETX-35Ps were set on the floor at either side of the altar, pointing toward the congregation. EV suggests setting the Location menu to Tripod for floor-standing operation, and using the parametric EQ for fine tuning. I found that a 3 to 4dB cut in the vicinity of 200 Hz helped minimize the effect of reflections from the floor which otherwise made the lower mids sound thick and boxy. I had a bit of difficulty accessing the control panel when the cabinets were set on the floor, but not when they were mounted on tripods. Given the speakers' weight, I'd suggest you verify that your stands are up to the task of supporting the ETX-35Ps.

I really liked the way the ETX-35Ps reinforced the piano and choir: The musicians sounded louder but did not sound like they were being amplified —thus the P.A. was transparent to the congregation. If I pushed the ETX-35Ps louder, I certainly could make it sound like the music was being amplified, but that wasn't the point.

On a club gig for a local rock band, we placed the ETX-35Ps on either end of the stage floor and used the parametric EQ in a manner similar to that of the church gig. When I cranked up the boxes,

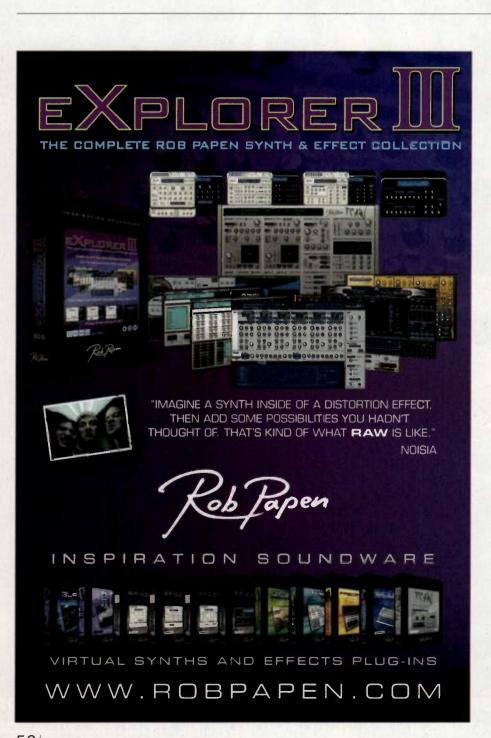


Fig. 2. The rear panel includes the DSP Control Monitor, a pair of input combo jacks with level controls, and the Mixed Output jack.

vocals were crisp and clear, drums were tight and punchy, and there was plenty of impact from kick and bass. When I revved the boxes up to SPLs near 104 dB (C-weighted, measured from 20 feet away) the ETX-35Ps didn't seem to mind (though I was ready to run for the hills). Since I had the Front Light menu set to Limit I could see the LEDs blink occasionally to indicate that limiting was taking place, though it did not become audible until the LEDs were lighting steadily; at that point, we did actually loosen a bit of plaster from the ceiling.

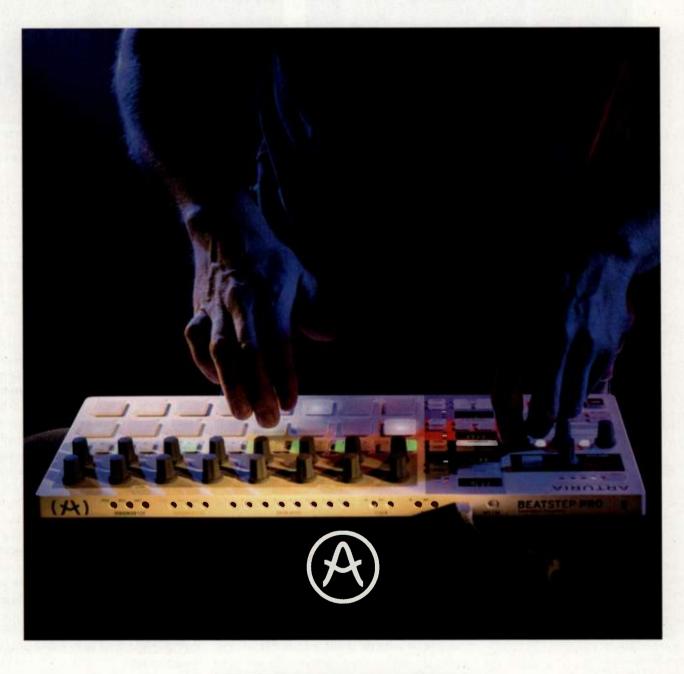
STAND AND DELIVER

The ETX-35P is a serious live-sound loudspeaker, a pair of which would serve many bands or DJs through all but the largest clubs or dance venues. And, if you need to increase the low-frequency and/or SPL capabilities, the onboard processing makes it a breeze to expand the system using EV's subwoofers.

The design successfully walks the line between ease-of-use and advanced operation, and the cabinets are built like tanks. Given the integrated M10 suspension hardware, an array of ETX-35Ps per side would make a great P.A. system for theaters or larger clubs.

WR







On stage or in the studio BeatStep Pro is designed to perform. Whether you work with MIDI, USB, CV/gate or DIN sync gear, BeatStep Pro is all about no limits and total creative control.



Fig. 1. Drum Leveler applies upward and downward compression or expansion to drum tracks to adjust levels of discrete kit pieces within a specified range. Here, kick drum and toms are boosted and snare drum leveled on a stereo track for room mics—without affecting the cymbals.



Fig. 2. Drum Leveler applies upward compression to weak hi-hat strikes. The sidechain's bandstop filter removes just enough energy from bleed to keep it out of (above or below) the processing range set by dual thresholds.

SOUND RADIX

Drum Leveler THIS INNOVATIVE AND POWERFUL DYNAMICS PLUG-IN IS A MUST-HAVE

BY MICHAEL COOPER

Michael Cooper is a recording, mix, mastering and post-production engineer and a contributing editor for *Mix* magazine. You can reach him at michaelcooper@ bendbroadband.com and hear some of his mixes at www.soundcloud.com/ michael-cooper-recording. STRENGTHS Unique problemsolver. Excellent sound quality. Thoughtfully designed GUI. Comprehensive and powerful control set. Provides mid-side mode and internal sidechain filters. Inexpensive.

LIMITATIONS No undo or redo.

Sound Radix Drum Leveler: \$149 Soundradix.com Drum Leveler applies combined upward and downward compression or expansion to drum hits, adjusting them to your desired level. It does this by processing only those beats with amplitudes that fall between two adjustable threshold settings.

If the above paragraph didn't quicken your pulse, it should have. Drum Leveler is way more powerful than your average compressor or expander. Imagine, for example, boosting the level of slightly weak snare hits without affecting loud hits, grace notes, or mic bleed. Slammin' drum tracks, here we come!

The cross-platform Drum Leveler affords mono, dual-mono, stereo, and mid-side operation, and has both 32- and 64-bit frameworks. At the center of the GUI, the Main Display plots scrolling signal-levels against time on an x-y axis; the vertical or y-axis shows levels (Figure 1). Input-signal levels are gray; post-processing gain boosts appear as orange peaks, and attenuated levels are light blue. You can zoom the x-axis in and out, changing the scrolling speed. In dual-channel configurations, the display can be made to show the left, right, mid, or side channel, or the sum of left and right, or mid and side channels. The plug-in's controls adjust parameters for whichever channel or channels are being displayed.

Set high and low thresholds by dragging respective blue-colored nodes vertically in the Main display; processing is initiated in the range between the thresholds. Drag a third node (gold) to set the *target level*. In Compression mode, beats within the processing range that peak below the target level will be boosted (effecting upward compression); those that peak above the target level will be attenuated (downward compression). In Expansion mode, beats within processing range that peak below the target level will be attenuated (downward expansion), and those that peak above the target level will be boosted (upward expansion).

You can compress the level of all beats within the processing

range so they become exactly equal to the target level, but that's not always appropriate. Use Drum Leveler's rotary Compression control to adjust the extent that levels will be changed. (Positive values produce dynamics compression, and negative values produce expansion.) For example, a value of +50 percent (compression) will adjust a drum hit's level only halfway toward the target level. A value of -100 percent (expansion) will double the number of decibels a hit differs in level from the target level; if, say, the hit were 6 dB below the target level, it would be attenuated to be 12 dB below. A concentric ring around the Compression control serves as a circular meter, lighting up orange to indicate the amount of gain boost and light blue to show the degree of gain reduction applied.

You can set an absolute limit, in decibels, to the Compression control's action using the Gain Range control.

The Min. Retrigger control sets the minimum time between drum hits required for Drum Leveler to process the following hit. A Hold control adjusts how long gain change is applied before the dynamics processing begins to release. The Recovery control's setting determines how long it will take for the processed hit's level to revert back to its unprocessed amplitude after the hold time has expired.

Drum Leveler also includes two steep internal sidechain filters: bandpass and bandstop. The bandpass filter passes only frequencies between the low and high cut-offs you set. The bandstop filter does the opposite, cutting everything in its range and passing all frequencies above and below it. You can solo the sidechain signal to hear either filter's effect.

Input and output faders and associated quasi-bar graph meters are provided for left, right, mid, and side channels, depending on the plug-in's configuration. The meters show bars in various widths and colors to represent the different portions of the frequency spectrum; for example, bass frequencies are shown as wide, red bars (Figure 2). You can link a pair of input or output faders and they will maintain any preexisting offset. Any channel can be independently muted. A and B workspaces and facilities for factory and custom presets are provided, but undo and redo functions are not included in Version 1.0.3.

When setting up Drum Leveler on a track with heavy bleed, I found it easiest to start with the plugin bypassed while I listened to the soloed track play back; bypassing Drum Leveler displayed the scrolling, unprocessed levels in gray and helped me judge which signal peaks were being produced by the miked and variously bleeding kit pieces. (Props to Sound Radix for keeping the Main Display functioning as usual with processing bypassed.) Alternatively, the gray-colored signal peaks represent levels in the sidechain when processing is enabled and the sidechain activated, filtered, and soloed; it let me visually compare my threshold settings to what the plug-in's detector was hearing and acting on.

My first challenge was on a stereo track for drumroom mics that was heavily processed with a Slate Digital VMR module, the FG-116. Like the UREI 1176 FET compressor it emulates, the FG-116 tends to hype hi-hat and overhead cymbals when using high ratios to explode a drum room. I wanted to boost the track's understated kick drum and toms while leveling the occasional overstated snare hit andthis is critical-do so without hyping the cymbals further. I switched Drum Leveler to Mid-Side mode and selected the mid channel for processing (Figure 1), as that's what had the most signal. I set the Compression control to 100 percent-to completely level the traps-and set my low threshold just below the amplitude of the weakest kick and tom hits; with my target level set higher than the low threshold, the weak kick and tom hits were boosted. Next, I applied a bandpass filter between 20 and 1,438 Hz in the sidechain to attenuate all cymbals to a level below my low threshold setting, so they wouldn't be boosted. Setting the high threshold above the target level and the loudest snare hits downwardly compressed those hits, leveling them. The kick and toms were boosted, the snare hits became uniformly loud, and the cymbals' levels were virtually unchanged-all with beautifully preserved transients. A final tweak: I lowered the Recovery time to 85 ms to make the room pump hardcore. Fantastic!

Next, I used upward compression to smooth level fluctuations on a hi-hat track and discretely boost the hat's overall level (Figure 2). To prevent downward compression, I adjusted the target level and high threshold to the same setting. At first, it was hard to prevent bleed from also triggering the processing. I could filter out all the traps' shell resonances using a sidechain filter, but there was no way to winnow out their stick hits, which produced high frequencies in the same range as the hi-hat. The solution was to preserve midrange energy in the sidechain so that rack tom and snare hits would remain louder than my high-threshold setting, while removing enough deep bass to attenuate the quieter kick-drum and floor-tom bleed below my low-threshold setting. A bandstop filter between 20 and 252 Hz did the trick. I also set the Min. Retrigger time long enough that only hi-hat hits falling on quarter-note beats (not eighthnote and shorter beats) would be processed.

Drum Leveler solves problems no other plugin can: It tames fluctuating levels or adds punch to discrete kit pieces in drum subgroups and stems without audibly affecting bleed. And the processing is very transparent—unless you purposely go for a radical effect. At a price of only \$149, this is a product every mix engineer should own.



For more information, contact us: info@isoacoustics.com or call us at 905.294.4672

Fig. 1. The Les Paul 8 Reference Monitors provide highquality sound and a look reminiscent of their namesake guitars.

GIBSON

Les Paul 8 Reference Monitor HIGH-QUALITY STUDIO MONITORING IN A SUNBURST PACKAGE

BY MIKE LEVINE

Mike Levine is an editor, writer, and multi-instrumentalist who lives in the New York area.

STRENGTHS Balanced sound across the frequency spectrum. Unique look. Detented bass and treble controls. Protective soft covers included.

LIMITATIONS Expensive. Unconventional aesthetics.

\$999 each, street www2.gibson.com The Les Paul brand is iconic and enduring, and now Gibson has extended it into the recording market with the Les Paul Reference Monitors. Available with 4", 6", or 8" woofers, these powered monitors feature flame-maple front panels reminiscent of the tops of Les Paul guitars (see Figure 1). In this review, we'll focus on the flagship Les Paul 8 Reference Monitors (\$999 each), and see if their sound and performance live up to their snazzy look and lofty price.

LUXURY PACKING

If I had any doubt that Gibson was marketing these as premium-quality monitors, opening up the boxes would have dispelled it. Arriving in goldcolored boxes branded with the Gibson logo, the speaker cabinets were wrapped in black cloth covers with drawstring tops. I was initially puzzled as to their purpose, but Gibson informed me that they're designed to protect the front-panel paint job during shipping or when moving the speakers from one room to another. The company also touted them as dust covers, although if you put them over the top of the speakers (the only way possible if the speakers are set up), the Gibson logo appears upside down. That aside, Gibson has clearly put some effort into packaging the monitors in a way that keeps your investment well protected, which is a good thing.

I received the Tobacco Burst model with a painted flame-maple front panel, black around the edges and a light-orange flame maple in the middle. Also available are Cherry Burst, which looks like your prototypical sunburst Les Paul finish, with red around the edges and yellow inside; and Cherry, a rich cherry red. The front panel has a nitrocellulose finish. The woofers are protected by metal mesh grilles, with Les Paul's signature printed on them. There's even a small sticker on the back of each monitor with a holographic image of Les Paul himself with multiple Gibson logos behind him.

Front-firing ports

1" titanium tweeter

Non-woven carbon woofer

Once you get used to seeing monitors with guitar-like front panels—which is a bit jar-

ring initially—they're actually quite nice looking. That opinion isn't shared by all, however. *Rolling Stone* put them on their worst-products list from the CES show, stating that they were "destined for cautionary design school lectures."

By leveraging the Les Paul brand, Gibson has made an interesting marketing decision. It appears that the company is not only going for the recording professional and the musician's homestudios, but also hoping to appeal to high-end music listeners, who can afford to add these monitors to their audio systems or home theater setups.

A LOOK AROUND

If you recall, Gibson acquired studio-monitor manufacturer KRK back in 2011. My initial assumption when I first heard about the Les Paul monitors was that they would include at least some KRK technology. But according to Gibson, that's not the case. "These are not KRK products, nor are they built on existing KRK platforms," says a company spokesperson. "However, expertise in their design and manufacture is from the KRK team of Gibson Pro Audio in Chatsworth, Calif."

The monitors are bi-amplified, and this particular pair equipped with 8" non-woven carbon-fi-

WR



Fig. 2. In addition to versatile connectivity, the rear panels offer EQ and volume controls and a Standby button.

ber woofers and 1" carbon-coated titanium tweeters. Each cabinet has two ports on the front panel near the bottom. Front-facing ports are particularly useful in small rooms such as home studios, because it allows you to place the speakers closer to walls than you can with rear-ported speakers.

The connectivity options on the monitors are plentiful. Inputs include XLR or 1/4" TRS balanced/unbalanced (via combo jacks), and unbalanced RCA jacks. The back panel also offers knobs for Volume, Bass, and Treble. The latter two are detented, with the choice of flat, and plus or minus 1, 2, or 4 dB. I wish the volume controls were detented, as well, because it would be easier to balance left and right that way.

For studio applications, it's always useful to have EQ controls to counteract the acoustic quirks of your studio. Those who buy the monitors for home audio and home theater applications will find the Bass and Treble controls useful for dialing in a more "hyped" frequency response.

A Standby button is included on the back, which lowers the power consumption of the monitors when engaged. Gibson says that feature was added because of their commitment to green technology. And according to the manufacturer, a Standby mode is also a European Union requirement for all electronic gear. Unfortunately, no documentation came with the pair of monitors I received for review (and I couldn't find any online).

Rounding out the back panel are power switches and inputs for the included IEC power cables. A Gibson logo on the front panel lights up when the monitors are on and slowly blinks when they are in Standby mode. Each monitor puts out 247W of combined power, with a crossover frequency of

The Other Les Paul Monitors

The other models in the line include the mid-sized Les Paul & Reference Monitors (\$799 each/street) and the desktop-sized Les Paul 4 Reference Monitors (\$599 each/street). Both offer the same three finish choices as the 8" model.

The 4" and 6" monitors are also bi-amplified systems with 1" tweeters. The big difference between the 4" and the 6" models, other than the size of the woofers



and cabinets, is in the power amp specs and bass response.

Interestingly, the frequency response, power output, and Max Peak SPL are virtually the same between the 8" and 6" models. Without having tested the 6" model, I cannot compare the two, but on paper, the 6" appears to offer the best combination of price, power, and frequency response.

Below is a comparison of selected factory-stated specs for all three monitor models.

	8"	6"	4"
System Power (total)	247 W	247 W	103 W
Frequency Response	37 Hz - 47 kHz	37 Hz - 47 kHz	55 Hz - 47 kHz
Max Peak SPL per pair (limiter engaged)	118 dB	117 dB	109 dB
Dimensions	18.58" x 12.05" x 13.78"	14.02" x 9.06" x 11.81"	10.16" x 6.54" x 9.49"
Weight	30.5 lbs.	18.5 lbs.	10.5 lbs.
Price	\$999 (each)	\$799 (each)	\$599 (each)

2.7 kHz and a stated frequency response of 37 Hz to 47 kHz (no tolerances given).

ALL FIRED UP

I placed the speakers on monitor stands, decoupled with Primacoustic Recoil Stabilizers. From the first time I used them, I was very impressed with their sound. They're clean, loud, and offer reproduction that's extremely well balanced, frequencywise. In addition to tight bass and crisp highs, the midrange is well-represented, so you don't get that hole-in-the-middle sound that plagues some monitors, especially those with large woofers. Because my studio tends to eat bass, I was glad to have the bass EQ knob to compensate.

I was also impressed with their transient response. For instance, drum recordings sounded extremely realistic through them, as did acoustic guitars.

I used the monitors for a variety of mixing projects, and for long stretches of time without much ear fatigue. The mixes I did on them translated well to other systems.

LES IS MORE

While the concept of a Les Paul studio monitor might be considered gimmicky by some, that notion shouldn't detract from the product's sound quality, which is excellent. The 8" monitors provide a good representation of the frequency spectrum, have a smooth and non-fatiguing sound, and are suitable for mixing and even home mastering. They're well-designed with excellent connectivity and features.

My biggest concern is the price, which, especially for the 8" model, places them out of reach of many home-recording musicians. However, to achieve high-end performance, Gibson says it had to put quality components—power amp, drivers, and cabinet—into these monitors, which is reflected in their premium cost. And they succeeded in their aim because the Les Paul 8 reference monitors really sound great. AUDIO-TECHNICA ATH-M70x CLOSED-BACK STUDIO HEADPHONES

BY GINO ROBAIR

\$299 street audio-technica.com AUDIO-TECHNICA has been gradually rolling out a new generation of its monitoring headphones, and the top of the line in the closed-back series is the ATH-M70x. With 45mm drivers and copper-clad, aluminumwire voice coils, the new headphones have a stated frequency range of 5 Hz to 40 kHz (no tolerances given). The extra range was easy for me to hear, but not in a hyped way, compared to the response of my older ATH-M50 headphones. For example, while auditioning digitally remastered recordings, I could better hear the original tape hiss with the ATH-M70x and more easily distinguish between the instruments in the lower and mid frequencies.

The ATH-M70x have a detachable cable and are packaged in a zippered clamshell case with a tough plastic outer shell. The ear cups twist 90 degrees, allowing the headphones to lay flat in the case. Three cables are included--9.8' coiled and straight, both of which have a 3.5mm end and a 1/4" adapter, and a 3.9' straight cable with a nonthreaded 3.5mm end. I appreciated having the shorter cable for casual listening. The cables lock into to the left ear cup, bayonet style. A zippered pouch for accessories is included.

The ATH-70x feel substantial and well-made but are remarkably lightweight, and fit snugly and comfortably on my head. I was able to wear them for hours at a time without fatigue, due in part to the balanced frequency response. They also proved to be louder than all of the other non-A-T closed-backed headphones in my studio.

The ATH-70x are by no means budget headphones, but you'll appreciate why they cost more once you use them. For critical listening, editing, and checking mixes, they provide a balanced sound that is revealing—exactly what you want from pro-level headphones.



MIDI, CV, and USB

THIS LITTLE POWERHOUSE IS NOW A FULL MEMBER OF YOUR STUDIO

BY GINO ROBAIR

\$34.95-\$39.95

littlebits.cc

ALTHOUGH THE littleBits Synth Kit (\$159), developed with Korg, sounds great and is simple to use, until recently it was a closed system. Three new modules—MIDI (\$39.95), USB I/O (\$34.95), and Control Voltage (\$34.95)—allow you now to connect the synth with external hardware and software instruments. The kit also opens up the world of inexpensive littleBits input modules (e.g., pressure, bend, and light sensors) for you to use as external instrument controllers.

The MIDI module has a 3.5mm MIDI input and a USB MIDI port. A female DIN-to-3.5mm cable is included. The USB port can send or receive MIDI messages, and a switch determines the direction. Only MIDI Channel 1 and Note On/Off messages are supported. The module has three

magnetic littleBits connections—power input, trigger out, and control voltage out.

The USB module (cable included) can pass audio or CVs. It has one port and a switch to set it to send or receive. Use it as an interface to record your littleBits synth or to control the instrument from your computer. A module, but not the rest of your littleBits synth. A driver for Windows OS is available online.

The CV module has 3.5mm I/O and a scaling switch—V/octave or Hz per volt. Use CV In to control a littleBits oscillator, EG, filter, or the sequencer speed in step mode. I have only one Power module, so I used a Split module to power two CV modules. You can also mult a voltage going into the CV module by using its Output as a Thru.

At \$139.95, the Synth Pro kit is a bargain, providing two CV modules, MIDI and USB I/O, two mounting boards, and cables. Every musician who owns littleBits will find these modules indispensible.

JS MIDI

J27 U

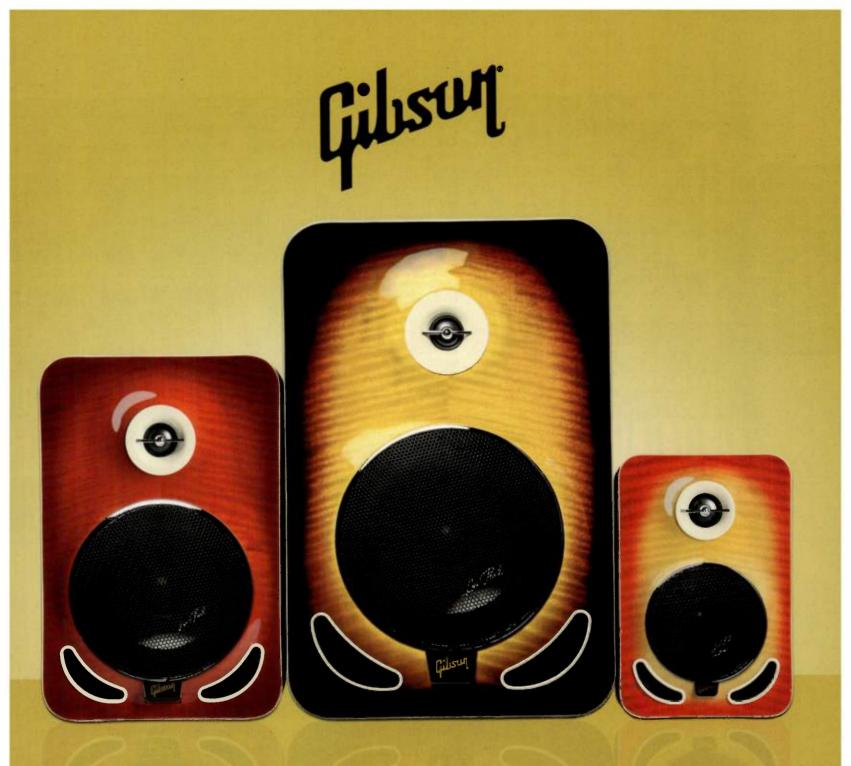
usb i/

1 trigger

HIDI I

USB connection will power the MIDI or USB

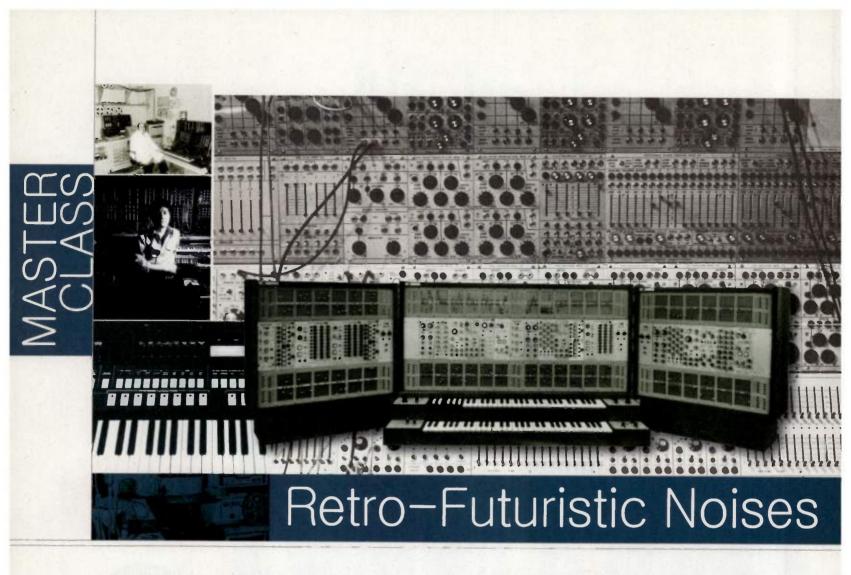
WRH



Gibson Les Paul Reference Monitor

"Detailed and accurate...full yet controlled. Punchy on the bottom end and exceptionally silky smooth up top." — **Pro Audio Review**

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Re-create eight classic synth sounds using these simple techniques

BY BRIAN KEHEW

From its inception, the synthesizer has been a forward-looking instrument; it was a tool specifically designed to generate new and unheard sounds. When the synthesizer was new, many people tried to copy the complex sounds of existing instruments, often seeking the comfortable sounds of the acoustic instruments they already knew. Today, however, people also want synths that emulate... *synths*, as evidenced by modern "vintage" presets.



When Roger Manning Jr. and I made three albums as the Moog Cookbook in the mid-1990s, analog synths were dead and inexpensive. We wanted to honor and bring back the original retro-synth sounds that no one (at the time) was using. Many of those sounds were pure and simple, the results of musicians' first synthesizer experiments. Luckily, the sounds gravitated toward the playable and the musical, so many of the older sounds are still noteworthy (sorry) today. Most of them have a sort of cartoon "funny" factor to them and conjure up disco and silly pop images, but they have character, and almost anyone can generate these sounds with an analog synth, new or old, hard or soft. Re-create some popular classics with our step-by-step instructions.

"POPCORN"

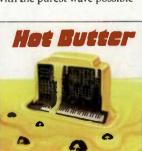
This may be one of the most-dated synth sounds, as it was only popular for a short time, on one big instrumental hit. In 1972, the group Hot Butter arranged and recorded Gershon Kingsley's great "Popcorn" and launched a Moog hit onto the charts. The sound used for the melody is onomatopeic—it creates a "popping" popcorn kernel sound Playing and holding one note is all it takes—a random pitch played with a single key; it's almost the stereotypical demo of a Sampleand-Hold effect. Your audience will be transported back to the world of Commodore 64s, Apple II, and the TRS80.

as a percussive motif. This abbreviated minimal sound didn't work for progressive rock, or even the '80s synthpop crowd, so it remains an icon of Expressionist synth programming circa '72.

To create it, start with the purest wave possible-

a square wave or sine wave; the hollow, round tone is what you're af-

Once you hear it, just try to get it out of your head: the "Popcorn" sound.



ter. Use a single oscillator—no need for stacking or multiple-tone fatness here. Don't filter it; clean and bright is better. Run the oscillator through an amplifier section (most synths already do this) as controlled by an ADSR.

Can you believe we're almost done? The trick of this patch is to set Attack, Sustain, and Release to zero; the only parameter you adjust is the Decay time setting. As you play, shorten the Decay until it reaches the minimum point where you still hear the pitch of the note. Too short and it becomes just a click or glitch; too long and it doesn't "pop."

With the decay just right, you get a fiercely percussive note that has no staying power; it's gone as soon as it happens. It's perfect for...popcorn.

THE DEE DAH PATCH

My college synthesis professor used to test everyone on patch-design with a version of this sound, and it is he who gave it the catchy name.

Start with a basic oscillator-it doesn't matter which waveform or pitch, as long as you're in a musical/audio range. (I use the term "audio" here in reference to hearing range, to differentiate from the audible "clicking" an oscillator makes at frequency rates below that of human hearing.) Modulate the pitch/frequency of that oscillator with an LFO, set to square wave. I usually start with a slow range (maybe one oscillation per second), pushing the resulting note "high...low...high...low," over and over. Tune the amount of modulation to an exact octave. Depending on your synth, this modulation may push the root note down as the upper tone rises (biased above and below your original note). If so, you'll need to transpose or retune the original pitch so your desired note is on the bottom, alternating with a note an exact octave above it.

Now for the finishing touch: We want the LFO running pretty quickly, so that the low-to-high oscillation is barely perceptible. Speed up the LFO to about 8 to 12 Hz, which will create a buzz of two almost-simultaneous pitches. It's very melodic, and you can add some filtering or other changes to the waveforms. The Dee Dah patch is instant goofy space-rock. As a side benefit, it's a sound that will cut through any mix, guaranteed!

THE "ECHO IN SPACE" ARPEGGIO

This trick is partly in the sound, and partly in the performance. Start with a simple, pure oscillator sound use a sine or square wave. The Envelope should be brief, with a shorter release; you want it tight and and snappier on both the attack and release.

On the output of the synth (or internal effects), add a delay line with some feedback. Set the delay to approximately 300 ms or use a specific rhythmic value (such as an eighth note) if your delay system works with note rhythmic values. Add some feedback/regeneration on the delay until you hear about 6 or 8 repeats of the sound as it fades.

Play a quick arpeggio up a chord; the chord acts like a "strum" effect, which can add a strong emphasis point on a chord change or sectional change in a song. And the delays add that classic spacey vibe. Single notes can also add a little spice to an arrangement.

SAMPLE-AND-HOLD FILTER PATCH

This is one of my favorites. You'll hear it now and then in a Tomita track or something from Perrey and Kingsley. However, the synthesizer needs a few key elements to make this work, and not all instruments have these features. First of all, you need a Sample-and-Hold circuit, fed by a noise source or random input. The Sample-and-Hold needs to trigger with a Key-On command, sampling a new level whenever a key is pressed.

If you have these options, configure them so any key press triggers a new random value from the Sample-and-Hold circuit. Assign the Sample-and-Hold output to a lowpass filter, and adjust so that it only changes the filter setting in a middle range, not too high or low to be clearly audible. With a little resonance added to the filter, each note will have a random timbre—some bright, some dark. It's very musical and entertaining to hear. It's a shame that some instruments don't offer per-note control of the Sample/Hold circuit; you can approximate this sound with a repeating clocked Sample/Hold, but it gets very regimented and won't follow the melody and rhythm that you're playing.

1960S COMPUTER SOUND

This sound is about as basic as it gets, but the effect is strong; just play it and watch people's reactions. Invariably, people think, "this is what computers sounded like in the 1970s." Not really, but computers were portrayed this way in film and TV, using this simple patch to simulate calculation in action.

Take any sound, preferably something rather steady and uniform, such as a simple oscillator or two in unison. No vibrato, no waveform motion; the more pure and simple the tone, the better the outcome. Remember, "computers" tend to be stiff and cold, not vibrant and warm.

Control the pitch with wide-ranging Sampleand-Hold randomness; this can be spread across several octaves. Set the Sample-and-Hold timing to about 125 ms (8 times/sec). Playing and holding one note is all it takes: a random pitch played with a single key; it's almost the stereotypical demo of a Sample-and-Hold effect. Your audience will be transported back to the world of Commodore 64s, Apple II, and the TRS80.

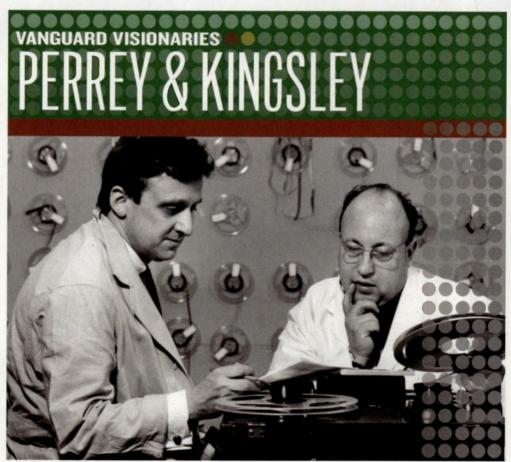
THE "SAD" SOUND

I read a record review once that said that synthesizer sounds are inherently sad. It's not necessarily true, but it's an interesting idea; composers can lean that way with this simple program.

You'll need a synthesizer that allows an envelope generator to control pitch. If you have that, the rest should be easy. Start with a dark, almost dull sound. Any waveform will do, but make sure brightness is filtered out. Route the envelope into the frequency/pitch of the oscillators, and set the Attack time fairly short, but not immediate. You'll need a small "glide up" to each note you hit. Sad, indeed.

THE WHISTLER

This next one is another classic from the turnof-the-'70s synth boom. The sharp emphasis of a resonant lowpass filter makes this possible.



Perrey and Kingsley helped make the Sample-and-Hold patch famous.





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Analog robots: The author, along with Roger Manning, Jr., recorded three albums as the Moog Cookbook. At left, the Minimoog Voyager.

Feed a noise source into the lowpass filter. Increase the feedback/resonance of the filter until it oscillates, then back it off just a little, just before it howls on its own.

An unfiltered noise spectrum is quite wide, covering many octaves. Such a spectrum doesn't sound very musical when filled with noise, but the resonant filter cuts out frequencies beyond a selected cutoff point and emphasizes a narrow group of frequencies right at that cutoff. This configuration gives us a fairly good whistle effect, as we'll hear not only our desired "note," but also a few rough pitches—sounding as noise—surrounding that note.

THE TALKING SOUND

This patch opens the door to a whole new world of synthesis tricks. It does require a function that not all synths offer: You must be able to modulate the lowpass filter with an audio-rate wave. Many classic synths (Minimoog, ARP 2600, etc) allow this configuration, but many do not; the fastest some synths can move the filter is with a fairly slow (5 times/second) LFO. Many newer software and hardware synths often offer this setup, or feature an LFO that can be run in the audible range.

Start with a basic patch, from one to three oscillators playing in unison. Any waveform and pitch will do, but try starting with bass ranges to make this trick more obvious while you learn to control it. Feed the sound of these oscillators through the lowpass filter, and add some feedback/resonance to the filter until it gets a significant "wow" sound when you move it by hand.

The next step is key: Modulate the filter cutoff point up and down with an audio waveform. On synths such as the Minimoog Voyager, ARP 2600/ Odyssey, Pro One, or Prophet 12, you can use any oscillator that follows the keyboard in pitch.

Ideally, you want the modulating oscillator(s) to be two or three octaves above the pitch of the note you are playing. Adjust the modulation and the filter settings across their ranges: When you reach the ideal state, the filter will respond with a very clear vocal effect; you should hear a talking sound as the filter is slowly moved up and down (by hand or via an ADSR). In essence, you've created some fairly complex vocal formants as the filter moves up and down very fast. This process emphasizes certain parts of the spectrum, and it will sound as if the synth was being processed through a talkbox or vocoder.

Modulation in the audible range is a simple step that opens up a huge world of complex synthesis; you can use FM to create new spectra of sound from simple oscillators, get bizarre and luscious effects from normal filters, and pull spacey ring-mod effects from VCA stages. Once you realize the variations that these techniques impart, your synthesizer becomes a complex beast.



Classic synths like the ARP 2600 let you modulate the lowpass filter with an audio-rate wave, the first step in generating a talking sound.

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HOW-TO



Fig. 1. A mult of a kick drum track (the mult's red waveform is the bottom one shown here) is advanced in time 2 ms with respect to the original track (shown immediately above the mult). The mult is then bused to the external sidechain input of the FabFilter Pro-C compressor inserted on the original track, effectively arming Pro-C with lookahead detection.

DIY Lookahead Detection

Jury-rig your compressor with this powerful feature

BY MICHAEL COOPER

Michael Cooper is a recording, mix, mastering and post-production engineer, and a contributing editor for *Mix* magazine. You can reach Michael at michael cooper@bendbroadband. com and hear some of his mixes at soundcloud.com/ michael-cooper-recording. Dookahead detection can be used for many applications, including shaping drum sounds. A compressor plug-in with this capability makes its detector perceive a signal before it actually occurs. That makes it possible for maximum gain reduction to occur before the leading edge of a drum hit, for example, so that the transient peak is fully attenuated. One counterintuitive application is to give abbreviated kick hits powerful sustain. I'll show you how in this article.

"Great," you say, "but my compressor doesn't offer lookahead detection." No problem: You can make any compressor act as if it does, as long as it has an external sidechain input. Use the following technique, and give your compressor something to look forward to.

COPY AND NUDGE

Make a duplicate copy (AKA mult) of your kick drum track, and nudge the mult forward in time around 2 milliseconds with respect to the original kick drum track (see Figure 1). Instantiate your compressor plug-in on the original track, and route the mult to its external sidechain input. Specifically, route the mult solely to a bus, so that it is removed from your mix bus and won't be heard, and select the same bus as the compressor's external sidechain input. With this setup, the kick drum's compressor will react to each of the mult's kick drum hits 2 ms before the corresponding hits occur on the original track. Voila, lookahead detection!

The FabFilter Pro-C plug-in is a breeze to set up using lookahead detection in this manner, because an x-y display in its GUI lets you easily judge the perfect nudge amount for the mult. In the display, a gain-reduction trace is superimposed over the waveform being processed. Check out the bottom-left corner of Pro-C's GUI in Figure 1. In between the compressor's knee display and its LED-style meters, a pink gain-reduction trace is superimposed over a gray waveform for the original kick drum track. Note how the trace plunges to its lowest value immediately before the leading edge of the kick's waveform and then rebounds after the beater slap has expired (see Figure 2).

What the GUI doesn't clearly show (because the knee display takes up too much of its real estate) is how the kick drum's release envelope has been boosted and extended to create powerful sustain. To create this effect, crank Pro-C's ratio control to ∞ :1, select a hard-knee response and lower the threshold to produce very deep compression. Use the fastest attack time possible, and set the release time so that gain reduction reverses just as the kick's attack expires, thereby restoring level for the shell's sustain. Boost Pro-C's Output control to boost the level of the shell's sustain further. (This will also ostensibly boost the level of the kick's attack, but since you squashed that to oblivion, the gain boost will have negligible effect

Even the slowest compressor can be transformed into the fastest racehorse imaginable, as long as it's outfitted with an external sidechain input. on that portion of the signal.)

At this point, the kick drum should sound sick, and not in the slang sense of the word; I mean truly terrible! It will have virtually no punch. We're going to fix that, using parallel compression. Raise Pro-C's Dry Mix control to add some of the kick drum's unprocessed signal to the plug-in's output. With the right Dry Mix setting, you should be able to achieve the perfect blend between sharp and punchy attack (unprocessed signal) and loud, long sustain (processed signal).

If your compressor doesn't offer parallel compression, you can print the 100-percent-processed signal to a new track and then use track faders to mix that with the original, unprocessed track to create the blend you want. Just be sure to zoom down to the sample level on your DAW's waveform display and check that the two tracks are perfectly time-aligned.

BEYOND DRUM SOUNDS

Lookahead detection can be used for myriad other applications. Does your compressor react too slowly to sibilance to effectively de-ess a vocal track? Simply mult the track, then nudge the mult forward in time and filter it to isolate and dramatically hype its high frequencies. Bus the searing mult to the external sidechain input for your compressor placed on the original vocal track. Dial in



Fig. 2. Pro-C screen detail: Note that the pink gain-reduction trace is superimposed over a gray waveform for the original kick drum track, between the compressor's knee display and its LED-style meters. The trace plunges immediately before the leading edge of the kick waveform and then rebounds.

a high ratio, hard knee and fast attack and release times, and you're done. Parallel compression is not needed for this particular application.

The great thing is that even the slowest compressor can be transformed into the fastest racehorse imaginable, as long as it's outfitted with an external sidechain input. Jury-rig your compressor with lookahead detection, and make it look to the future.





Fig.1. In NanoStudio, you can chop up audio files, edit and effect them, and spread them across the pads for sequencing.

Remix a Track on an iPad for \$50 in Apps

A beat box, a synth, and a DAW join forces to make your downtime productive

BY MARKKUS ROVITO

Markkus Rovito is a contributor to DJTechTools. com, and is a drummer, electronic musician, and DJ. ife doesn't always cooperate with our studio addiction. As much as we'd all like to shun the outside world for long days at our music rig, we're often pulled away to other endeavors. But if your schedule includes a few hours a week where you're on the go but can still mess with an iPad, you could be working on that music instead of trifling with games or social media. Because iPad music making is a more limited experience than what you're used to with a desktop DAW environment, I find that it can be a more fruitful pursuit on an iPad than making your own music from scratch, because remixing uses some amount of material that has already been painstakingly mixed and produced. So grab some stems from a friend, Indaba, or a collaboration site like Blend.io, and get ready to go to work.

NO 4-02

NO 5-02

NO 4-04

You'll need to be on iOS 7 or later to take advantage of the Inter-App Audio (IAA) feature, and you'll also need the free AudioCopy app.

GROOVE MACHINE

Let's begin with a groove-box type app where you can chop up and sequence samples. Blip Interactive NanoStudio (\$12.99) has a multitrack sequencer, mixer, effects, and a 4x4 pad sampler, TRG-16 for importing, editing, and playing samples. It even has the polyphonic subtractive synth Eden, which lets you use samples as oscillators. NanoStudio could even be a one-stop shop for remixing, if you're willing to limit your possibilities a bit.

Bring in your stems or samples to be remixed from the NanoSync free desktop software for Mac or Windows. This drops audio material into the NanoStudio file browser over a Wi-Fi network. Ir. the app, open an instance of TRG-16, go to the Edit page, select a pad and touch Load to bring up the file browser and assign one of your imported samples to the pad. Touch Sample Edit to edit the waveform's start and end points, and apply fades and/or up to four of five available effects. Back on the pad page,

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Fig. 2. Auria's ChannelStrip plug-in Inserts hold the key to recording Inter-App Audio into an Auria track.

you can copy and paste one pad to another and then transpose and pitch the sample to quickly set each of the 16 pads with different tones and variations (see Figure 1).

Repeat that process with up to six TRG-16s (or 16 with an in-app purchase), filling at least one of them with either one of the included drum kits, or your own percussion samples to make a beat. Then record your pad parts and use NanoStudio's excellent piano roll note editing to get them right.

When your tracks are done, repeat this process to bounce each track to an audio file. Solo the track in the track header, go to the Manage tab,



and touch Mixdown. Render the full track or just the loop length if you prefer. Now touch Email File to open the file browser, select the file you just bounced to the Mixdowns folder, and touch Copy to save it to the clipboard.

DAW

WaveMachine Auria LE (\$24.99) is a sophisticated multitrack audio editor and recorder with 24 playback tracks, support for 24/96 audio, auFig. 3. The gorgeous Sunrizer synth is seen here connected to Aurio through the Inter-App Audio transport bar.

tomation and way more, especially if you upgrade it to the full version. It has a full-blown console view and an arrangement view, where you will select Add Track from the Menu tab, and

then press A Paste. This brings up an AudioCopy window, where you select AudioPaste to place your bounced track from NanoStudio into Auria. Repeat this procedure for all of your bounced NanoStudio tracks. If you have other remix stems that you didn't give the NanoStudio treatment, you could import them from DropBox, selecting Import Audio from the Menu.

You'll use Auria to finalize your tracks, editing, mixing, and processing them with the included PSP



ChannelStrip plug-in, an excellent finishing plug-in including EQ, compression, expansion, and insert effects that you add to from the Plug-in Store. But first let's record some synthesizer tracks into Auria.

SYNTH

NanoStudio's Eden synth is quite good, but for the next level in sound and features, check out a dedicated synth like BeepStreet Sunrizer (\$9.99). This virtual analog synth does a great job imitating the classic Roland JP-8080 digital analog module, so it has a comprehensive knack for lush pads, biting leads and wobbly basses. It also has a full effects section, configurable arpeggiator, two filters with tons of filter types and lot of modulation options.

To record it, start a blank track in Auria and touch FX in the track header to bring up the PSP ChannelStrip. There, touch a field under Inserts to bring up a box that shows the available plug-ins and your compatible IAA apps (see Figure 2). Tap Sunrizer in the menu, and the Sunrizer app will open with an IAA transport bar added (see Figure 3). On that bar, tap Record followed by Play. You'll hear Auria's audio, and it will record your Sunrizer performance. Press pause in the IAA bar to stop recording, and the Auria icon to return to Auria.

Record all the synth tracks you want, and then finish editing and mixing all the audio you have in

Roll Your Own Setup with Tabletop

There are so many iPad music apps and workflow possibilities, and this article only pinpoints one possible combo. If you'd like to keep everything in one contained space, while still being able to add different apps and use IAA, check out Retronyms Tabletop, a free modular music producing environment that includes some basic instruments, effects, mixers and sequencers to get you started. From there you can purchase additional high-end Tabletop-ready apps to build your studio. To mimic the ideas laid out here, we recommend getting iMPC Pro (\$19.99) for your Groove Machine and Arturia iProphet (\$9.99) for the synth (see Figure 4). A fast and powerful sampler with sequencing,



Fig. 4. Tabletop presents an alternate remixing workflow for the iPad: a modular environment of connected devices, both free and for purchase.

effects, and tons of editing, iMPC Pro does a lot more now for 20 bucks than a \$2,000 MPC did 10 years ago. And iProphet beautifully re-creates the classic Sequential Circuits Prophet-VS wavetable vector synth, with all the features of the '80s standout plus modern amenities.

Auria. Create mixer subgroups, to which you can apply the finishing PSP MasterStrip plug-in, with its own EQ, compression, and limiting functions. When you're ready, choose Mixdown from the Menu to create your final mix. Auria lets you bounce to stems or a single stereo file. You can also save it to your DropBox or publish directly to SoundCloud, closing the loop on this all-iPad remix.

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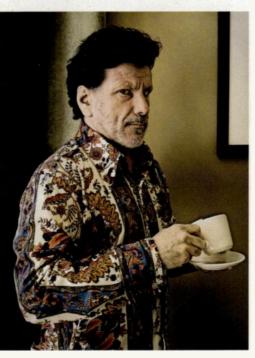
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The Revenue Is in the Details

Save that session info. Your future earnings depend on it.

BY GINO ROBAIR

It is often said that it's the little things that count. But sometimes what we *think* are little things end up being big things down the road. In music production, those things are the session details.



There was a time when recordings were done in a professional environment, and the masters were kept well-organized. Nowadays, the majority of pro and amateur recording is done to a digital storage device, where we know the files exist so we can always locate them easily: We can sort out the details later, right? But while the digital files may have a date stamp, that won't help you remember who played what or who engineered the session.

Considering that music is now consumed digitally without much information attached, are recording credits even important anymore? An entire generation has grown up experiencing music from digital files that tell them nothing about the history of the project. But many believe that this lack of information has contributed to the devaluation of music. To help rectify the situation, the Recording Academy's Give Fans the Credit initiative has been pushing digital music services to include such details.

Yet the problem has stretched across the entire music-creation cycle. And the laissez-faire attitude toward documentation isn't just an issue in casual sessions done in the personal studio. I've recently come home from fairly involved sessions at major studios (in two countries) without a list of details about each project.

Up until a couple of decades ago, it was the job of someone behind the glass, usually an assistant engineer, to keep track of who did what and to put the information in an easily accessible place. For example, I recently pulled out a 2" reel from 1990 (a project intended for a major indie label), and there it was: a handwritten list of all the musicians and what they played, as well as the name of the producer and the engineers involved.

Now, 25 years later, the world is interconnected to a much greater degree, so you would think session details would be routinely gathered in situ and put somewhere online where everyone can easily access them. Not so. When discussing this problem with a colleague, she noted that an engineer at a well-known studio admitted that he doesn't assist in the collection of session info for clients.

So who is in charge of organizing the information that will eventually make up the metadata of a distributed recording and help fulfill contractual obligations and serve as a resource for revenue streams? You are.

MAILBOX MONEY

Remember that terrestrial radio, satellite radio, and Web-based delivery services track such details as the songwriters, publisher, master-recording owner, lead artist, and performers on a given recording; obvious stuff, right? You would be surprised at how often one or more of these details is missing.

Recently a bill was introduced that would create a statutory right for SoundExchange to collect and distribute digital performance royalties to music producers, when a featured artist has sent a letter of direction to the rights organization. SoundExchange has already been voluntarily paying monies owed based on agreements between artists and producers. However, the Allocation for Music Producers Act (H.R. 1457; known as the AMP Act) introduced by Congressmen Joe Crowley (D-N.Y.) and Tom Rooney (R-Fla.), is designed to solidify the practice. This is just one step toward creating a business climate that fairly compensates everyone involved in music creation.

But performance royalties are not the only reason to keep track of credits. Liner notes, while historically and culturally important, are in increasing demand by consumers. High-resolution digital distributors such as HDtracks say that their customers want more information about the releases they purchase—the kind of stuff that many of us remember poring over when we bought a new LP or CD from our favorite artist.

The good news is that the industry recognizes the importance of this data collection and is working to standardize categories (e.g., songwriter, engineers, producer, etc.). Software developers, for their part, are planning to build areas in their DAWs where this information can be directly added: Avid has already begun the process in Pro Tools 12. But for data collection to work best, the information must be standardized across all platforms and easily shared through a universal protocol such as xml.

In the meantime, the task falls to you. Create a form that is easily accessed by everyone involved (using Google Docs, for example), in case details need to be amended. In addition to the obvious stuff—artist/band, track and album titles, composer and lyricist, performers, publisher, label—add fields for these items: Producer; Engineer (at each stage: recording, mixing, mastering); Location (studio or venue, city, state, country, etc.); Recording Format, and Mix Format (analog tape info, digital format and resolution); PRO info (BMI, ASCAP, SESAC); and Other (arrangers, management, and whomever else is involved).

Sure, there's a lot of data to keep track of. But if you—the person who cares the most about your work—do not save it, who will? As revenue issues get sorted out in the years to come, you'll be glad you did.

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