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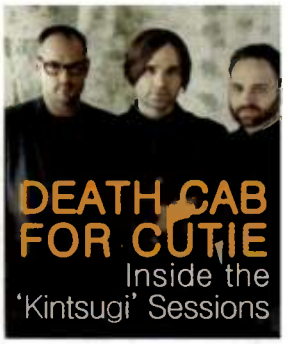

DEATH CAB FOR CUTIE
Inside the 'Kintsugi' Sessions

# MICROPHONES FOR MUSICIANS

Essential studio tools from budget to high end

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POWER TIPS
Build Better Submixes

MOD SQUAD
Verbos Electronics Touchplate Keyboard

RECORDING VOCAL TRACKS
Steal These Tricks From Top Engineers

NEWS

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IZOTOPE Iris 2

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conversation with renowned
roducer/engineer Dave Rideau

***ve, tell us about your studio…***
*ne River Studios is my personal
ixing room where I now mix 80% of
y projects. It is a fusion of digital and
nalog technology.*

***ho are some of the better known
ients you have worked with?***
*net Jackson, Usher, George Benson,
ing, Al Jarreau, TLC, Kirk Franklin and
rth, Wind, and Fire.*

***hat do you do there as opposed to a
mmercial studio?***
*OVE commercial studios... it is where I
ve spent most my career. But changes in
r business have forced producers to find
ays to get projects done for less without
crificing quality. Recording in big rooms
th the interaction of musicians then
iting and mixing in a well designed
me studio seems to give us the best
ng for buck.*

***hat acoustic problems did you have?***
*ad a decent sounding room before but
higher volumes certain gremlins raised
eir ugly heads, mostly evident in the
w-mids.*

***w did you configure the panels?***
*ave a wall directly to my left where there
no opposing wall to my right. I decided
go floor to ceiling with 3" thick panels to
ake this wall "disappear" as much as
ssible. Then I configured 12" x 48"
oadway 2" panels on the parallel walls
th space between them to control the
st order reflections. I then added a
<Trap corner bass trap.*

***d you do the set up yourself?***
*d. I like doing this sort of thing. I actually
t my first job in the industry as part of
e crew that built Westlake Recording
dios in Los Angeles.*

***hat improvements have you noticed?***
*e room sounds great! The sound-stage
more focused and I noticed a big
provement with a tighter low end. I
ely playback at louder levels but when
nts are over it happens. Now it sounds
ch less congested.*

***w does it translate to other rooms?***
*e main test I measure my mixes by is
w they translate to the mastering
oms I use. The ultimate compliment you
n receive from a mastering person is "I
n't have to touch my EQ". That happens
e often since I treated my room with
macoustic Broadway panels.*

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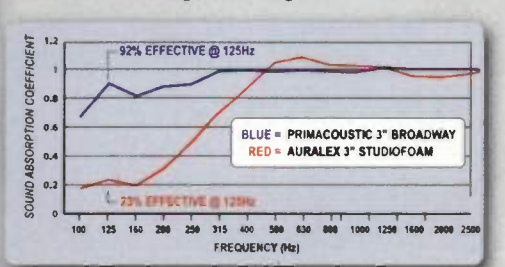


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On *Kintsugi*, their eighth album (and final project with cofounder Chris Walla), the Seattle indie-rockers collaborated with producer Rich Costey to blend analog and digital instruments and recording processes. We go inside the studio sessions.

**Steve Aoki (left) and Benasis**

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

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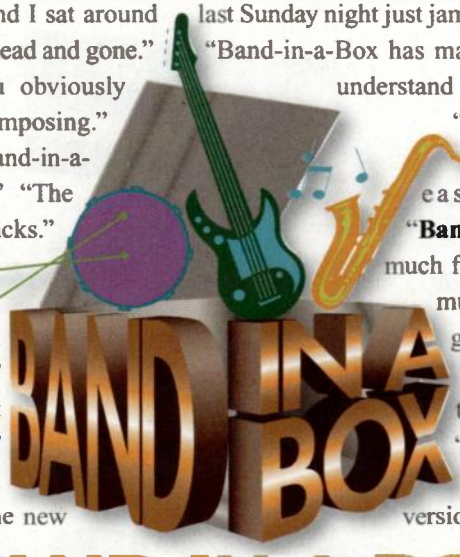


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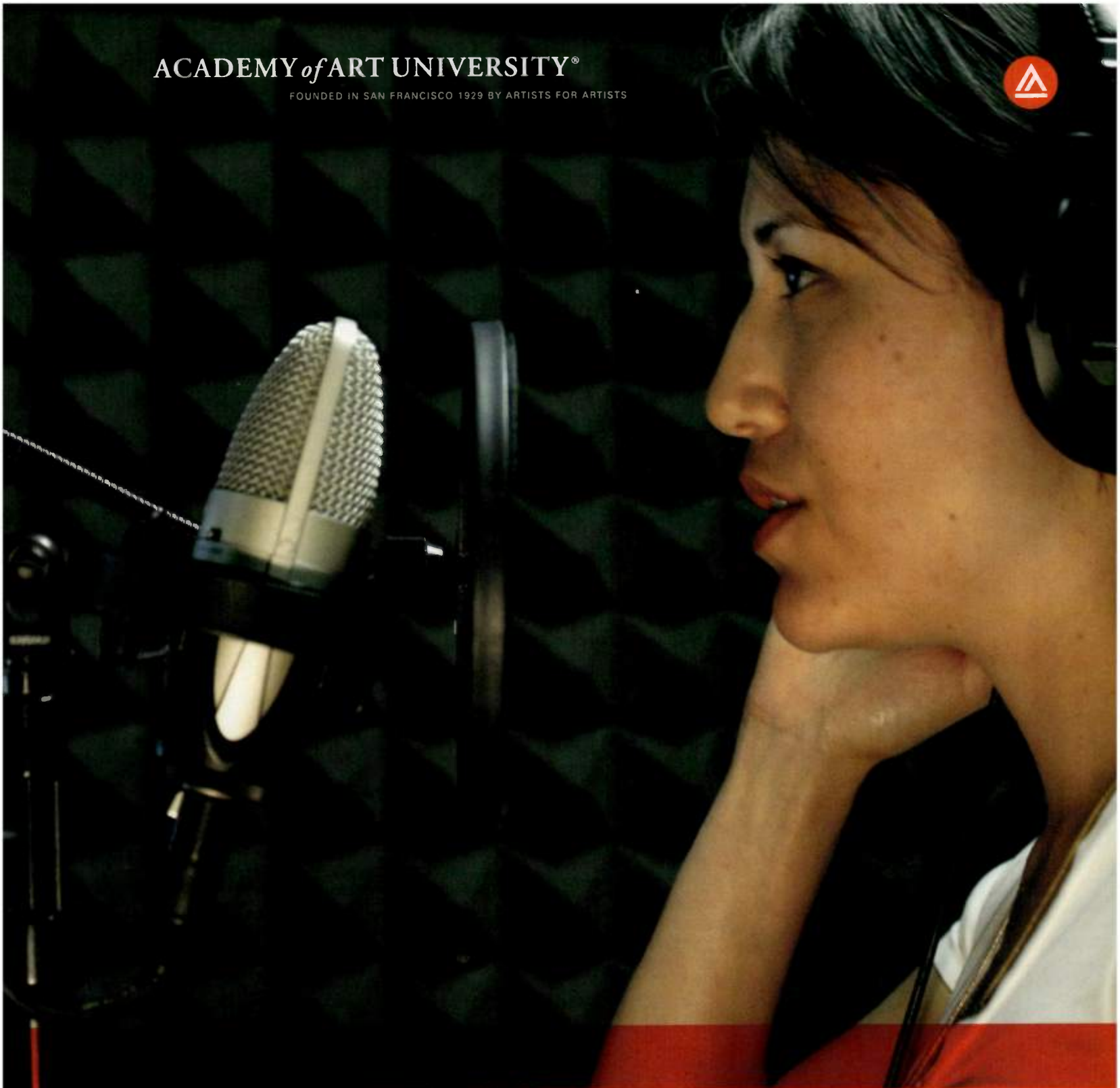


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# An Unbiased Opinion

IN THIS month's Master Class on recording vocals, producer/engineer Garth Richardson (Rage Against the Machine, Chili Peppers, Taylor Swift) says: "We are 'enginears,' not 'engieyes.' " It may sound silly at first, but he is making an important point: Too often, engineers respond to what they *see* in the studio, not what they *hear*.

When we work with technology, our creative process is defined by our interface—sometimes to a fault. How many times have you found yourself staring intently at your computer screen while listening back to your mix, watching waveforms scroll by while you're plotting your next move? And, be honest: Have you ever made an edit based on visual cues?

With microphones, their inherent subjectivity can invite emotional bias. Leslie Richter (Ben Folds, Patty Griffin, John Hiatt) also profiled in our Master Class feature, admits she'll occasionally track a singer with a high-end mic along with the mic that she prefers, because she's found some people will perform better simply because there's a "fancy" microphone in front of them.

We can all work to undo these biases by doing more blind gear auditions, or recording with the "wrong" mic. But the easiest—and most important—thing you can do is, next time you play back your mix, turn off your computer screen. Close your eyes and *listen*.

**SARAH JONES**
EDITOR
*sjones@musicplayer.com*

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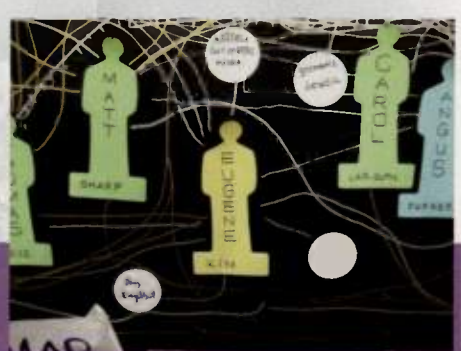
WEB HIGHLIGHTS

## This month on emusician.com

### New Video Tutorial Column!
### Power App

**Plus...**
Photo Gallery: John Regen Studio Sessions
**The DIY Advisor: Networking Strategies for Musicians**

*...and lots more!*



## gadget geek

## The Loknob
### A Cure for Lost Settings

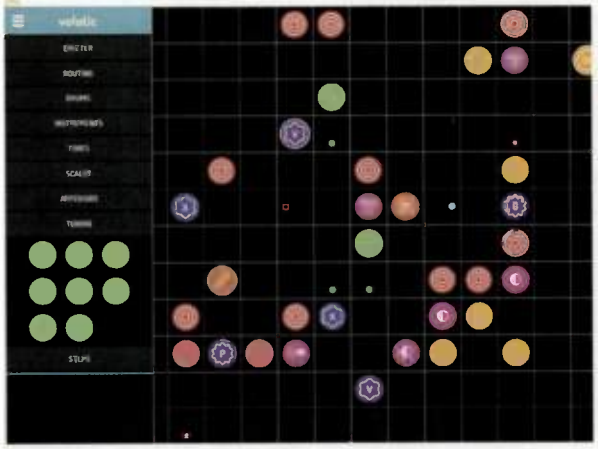
Stop taping up your gear! The Loknob upgrades the knobs on your stomp box or amp with a lockable aluminum knob that features a ring of teeth that aligns with a second ring of teeth that adheres to your chassis. Once installed (a task made simple with the included hex wrench), pull up on the knob to fine-tune your setting and push the knob in to lock. Knobs are available in ¾" and ½" versions, and are removable. Prices start at $13.99; loknob.com.

# app tip Scott Garner Volotic

BY MARKKUS ROVITO

## Treat 4-bar musical phrases like a relaxing puzzle game

INSPIRED BY tower-defense games, Scott Garner's Volotic for iPad (iOS 6.0 or later, scottmadethis.net) performs three-directional sequencing of instrument and drum sounds on a 16x20 grid using a variety of devices to create pitch and timing variety. Its soothing sounds and non-linear approach to composition make it feel more like a meditative problem-solving exercise.



**1.** Drag an Emitter from the drawer on the left into a blank grid. This shoots a dot across the grid once per beat.

**2.** Drag a Router in front of the dot to multiply the dots or vary their timing.

**3.** Drag one of the nine drums, nine instruments, or nine tones into the path of a dot to play the sound. Vary the sound's distance from the Emitter to change its timing. Tap the sound's icon to mute it.

**4.** Put a Scale or Arpeggio icon in front of a sound to create a pitch progression, or put a Tuning icon in front of it to determine its constant pitch.

**5.** Repeat the process to build out a full-sounding loop. Try sending multiple Emitters to the same sound device, using different Scales and Arpeggios to create a lot of variety.

**6.** Drag the grid around the screen to mute off-screen elements or tap different element to turn them off and create a mini-improvisation.

**7.** If you have iOS 8 and Mac OS X Yosemite, you can record Volotic's audio into QuickTime Player.

Volotic is free at the iTunes App Store; adding save functionality costs $0.99.

## ASK!

### I RECENTLY LEARNED THAT OMNIDIRECTIONAL MICROPHONES DON'T PRODUCE THE PROXIMITY EFFECT. WHAT IS A GOOD, CHEAP OMNI MIC THAT YOU WOULD RECOMMEND?

**WILLIAM MORNINGTON**
**OLYMPIA, WA**
**VIA EMAIL**

**Close-miking with an omni-pattern mic will not produce a proximity effect.**

Indeed, one common use for a microphone with an omnidirectional pattern is as a close-mic on an instrument or voice to avoid the type of low-end boost—called the *proximity effect*—that results from placing a directional mic near the subject. The closer you move a directional mic (cardioid, figure-8, etc.) toward the sound source, the more the low frequencies increase in level. Although the proximity effect isn't necessarily a bad thing—it can be used creatively—you can counteract it when you need to using an external EQ or the microphone's lowcut switch (if it has one). However, many engineers will simply replace the directional mic with an omni, which typically doesn't increase in the low-end when used at close range.

It might seem counterintuitive to use an omni mic when the instrument you're recording—say, an acoustic guitar—shares the studio with other instruments. But by placing the omni a little closer to the guitar than you did with the cardioid, you get a similar relationship between the direct sound and any ambience. You will also notice a greater sense of openness in the sound when close-miking with an omni.

In terms of "good" and "cheap," we always recommend you buy the best quality mic you can afford. There are many well-built, low-cost side-address condensers that include omni among the selectable polar patterns, as well as inexpensive pencil condensers that have interchangeable capsules. But don't base your final decision on price alone. Listen before you buy and find out as much as you can online about the long-term performance of a mic. Whichever one you choose, you want to get many productive years out of it.

**THE EDITORS**

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

# FIVE QUESTIONS WITH
# Michelle Moog-Koussa
## Preserving a legend's legacy through the Moog Foundation

BY SARAH JONES

THE MISSION of the Bob Moog Foundation is to "ignite creativity through the intersection of music, science and innovation" and to inspire people of all ages through the genius of Moog's work, through educational projects such as Dr. Bob's SoundSchool (DBSS), a 10-week curriculum teaching the science of sound through music; through the Archive Preservation Initiative, which protects and exhibits a vast collection of historic documents and materials found in the Bob Moog Foundation Archives; and through experiences like Dr. Bob's Workshop, which offers presentations about sound, inventions, and ideas, and Dr. Bob's Interactive Sonic Experience, which presents electronic instruments in an educational format. I sat down with executive director Michelle Moog-Koussa to learn more about the Foundation and its current projects.

**The Bob Moog Foundation is dedicated to preserving and promoting your father's legacy. What are some of the ways it does that?**

Bob thrived in the process of discovery, and took special delight in sharing what he knew with others. The Bob Moog Foundation celebrates the power of discovery that Bob harnessed in his work through our mission of igniting creativity at the intersection of science, music, and innovation. To fulfill that mission, we offer people of all ages science-based, hands-on experiences to enable their own sense of discovery, unleash their intellectual curiosity, and experience science and art with new eyes (and ears).

**You've launched an innovative science curriculum for elementary-school children, Dr. Bob's SoundSchool. Can you tell us more about that project?**

Dr. Bob's SoundSchool is a ten-week experiential curriculum that teaches second graders the science of sound. We use a variety of electronic and acoustic musical instruments, as well as custom educational materials developed by our esteemed educational team. The curriculum helps young children understand vibrations, waveforms, how sound travels, and how sound is heard. Recently, we expanded to almost 60 classrooms in three school districts, with long-range plans to expand beyond our region beginning in 2015.

**You've shared original schematics on your website. What are some of Bob's tech innovations that never made it to fruition?**

Bob really enjoyed the challenge of meeting the unique needs of his musician customers. As a result, some of the schematics in the archives are for widely released products, while others are for unique, one-off custom components or instruments. Some of the one-off schematics include: Segovia 1 and 2 amplifiers, Antennae Circuit for John Cage, Variable Period Ring Counter for Raymond Scott, Exponential Generator for Gustave Ciamaga, Moogtonium for Max Brand, decoders for Emmanuel Ghent, and Roger Powell's custom keyboard controller, to name a few.

**What would musicians be most surprised to learn about your father?**

There is an often preconceived notion that Dad spent all of his free time surrounded by technology and music, that our house was filled with instruments and the latest technological offerings. The truth was that, in the rare moments that he spent outside his workshop, he could more likely be found gardening, hiking, tending to the property on which we lived, and generally enjoying nature.

His appreciation for nature grew from his many years as a Boy Scout, one of the few extracurricular activities that he participated in outside of piano lessons and electronics. More often than not, we lived in a rural setting, being pulled away to one suburban setting or another only due to the demands of shifting corporate dynamics.

When Dad left Moog Music, Inc., then located in Buffalo, NY, in 1978, he and my mother bought nearly 100 acres of land at the end of a long gravel country road. Big Briar Cove was surrounded by mountains, with a gurgling stream running through it. Dad designed our 16-sided round house to be heated by wood, much of which he chopped himself from fallen trees on the property.

Nature provided two things for Dad: both solace and inspiration. Immersing himself in the quiet of the natural world afforded him an aural balance from his work pushing the boundaries of sonic reality. But the richness he found in everything that sprung from the earth inspired him, and he sought a parallel richness and variety in the sounds his instruments created. These sounds became sonic mirrors of the natural world. The result is the robust, organic Moog sound we all know and love.

**Bob continues to inspire so many musicians today. How can *Electronic Musician* readers get involved with the Foundation's work?**

Do something! People can become involved in the following ways:

- Make a financial contribution – Our work is fueled by donations from people all over the world. Be part of our inspiring the future through our innovative educational experiences. Donate at www.bobmoogfoundation.org/donate.
- Donate materials to our archive – We have become a repository of historic materials that trace the evolution of electronic music. We accept donations of schematics, hardware, photos, music, and documentation.
- Become a volunteer – Have a talent or skill that could help us further our mission? Fill out our online volunteer form at bobmoogfoundation.org/dosomething.
- If you're an Omnisphere™ user, purchase Spectrasonic's stellar Bob Moog Tribute Library, which features over 800 sounds from 45-plus artists from all over the world. One hundred percent of the purchase price is donated to the Bob Moog Foundation Foundation!
- Connect: Sign up for our eNewsletter (moogfoundation.org), and follow us on FB and Twitter.
- Support us on Amazon Smile. Designate the Bob Moog Foundation as your charity of choice at amazonsmile.com and Amazon will donate a portion of your purchases to us!

# IN THE STUDIO

BY BARBARA SCHULTZ

## >> Jon Regen with Mitchell Froom and David Boucher

"JON IS really coming into his own as a songwriter," says musician/producer Mitchell Froom. "That's when a producer gets happy—when you get to work at a really good time in an artist's life musically." Froom has helped loads of artists during great creative periods; Crowded House, Randy Newman, and Elvis Costello are examples. Recently, Froom and his go-to engineer, David Boucher, hosted sessions for musician/songwriter Jon Regen's new release, *Stop Time* (Motéma).

Regen's warmth and style on this album are most reminiscent of '70s Randy Newman plus New Orleans jazz, with the occasional cool synth atmosphere added by Froom. "We began a dialogue that involved a lot of preproduction before we went into the studio," Regen explains. "I cut demos to a click into the Apogee Symphony system in my apartment in New York City, and sent them to Mitchell, and he'd add chords, rhythm ideas."

**Production team selfie: Mitchell Froom (also above), Jon Regen, and David Boucher**

Froom's private studio, affectionately dubbed "House of Nuts" for Regen's album, houses the producer's vast collection of keyboards and synths, a Yamaha C6 grand piano, and extensive studio gear.

Basic tracking went down live with Regen singing and playing piano accompanied by drummer Pete Thomas and bass player Davey Faragher from Costello's band, The Imposters. "Before they came in, I made up rough arrangements with fake bass, drums, and organ, so they could hear the general feeling I was after," Froom says. "When they came in, it was just what I was hoping for—as if Jon had this incredible live band that really knew him."

All isolation rooms at House of Nuts have plate-glass doors, giving the musicians excellent sight lines. "If you look right down the strings of the piano from the player's position, you see right into the booth that holds the drum set," says Boucher, a recent Grammy winner for his engineering work on the *Frozen* soundtrack. "So they were just locked together, Jon and Pete."

Boucher recorded and mixed everything with Apogee's Symphony I/O system to Pro Tools HD. An essential element of the drum sound was the use of "more distant overheads—Shure 300 ribbons," Boucher says. "They make the drums sound like they are in a bigger room. The booth is quite small, but these mics take manipulation well, and you can design an imaginary room that works for the song."

Boucher captured Faragher's bass with a Tonecraft 363 tube DI. "It's modeled on the front end of an Ampeg B15 amp," Boucher says.

On the piano, a pair of KM254 microphones fed into one of Boucher's favorite flea market finds: "I use these German broadcast mic pre's called EAB 3E1m's; my tech found them at the Rose Bowl swap meet. They're full channel strips with dual parallel transformer-based outputs. They've got some mild EQ on them, and big old faders so you can get your gain settings just right."

Regen's vocal mic was a Neumann U47 with its own history: "I had always wanted to own one, but they're expensive," Regen says. "[Producer] John Porter had a U47 that he had used at Cello Recorders in L.A., and then in his studio in New Orleans. It had come out of John Lennon's studio in Tittenhurst Park [Berkshire, UK]. When John [Porter] sold some of his studio gear and moved back to England, he let me buy the John Lennon mic. I brought it out to L.A. and Mitchell liked the way it sounded; we ended up using it on every tune.

"The great thing about working with Mitchell is he's very opinionated, but in a kind way," Regen continues. "When I think about the incredible elegance and beauty of the recording's he's made, I feel so lucky to have had the opportunity to work with him. I'm extremely proud of this album, and Mitchell's involvement is a huge reason why."

# NEW GEAR

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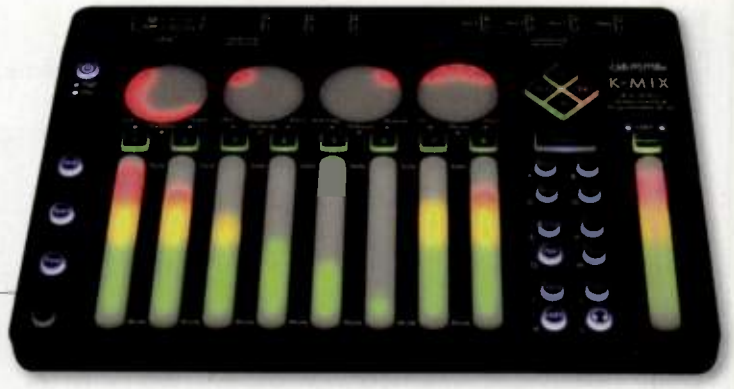


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**PSP AUDIOWARE**

## PSP L'OTARY

Rotating speaker-emulation plug-in

**$99**

HIGHLIGHTS Rotary speaker effect plug-in (AU, VST, AAX, RTAS) modeled after the Leslie 122 and 147 • high-frequency horn and low-frequency drum can be modulated independently • independent Inertia settings for acceleration and deceleration • independent high and low speed settings • EQ, amplifier, and ambience controls • Tremolo and Chorale effects • full-featured 14-day demo available • i5 or i7-class CPU recommended

TARGET MARKET Sound designers, musicians, keyboardists, composers

ANALYSIS An inexpensive yet flexible and feature-rich rotating-speaker plug-in for Mac and Windows.

**pspaudioware.com**

2

**VIR2 INSTRUMENTS**

## APOLLO: CINEMATIC GUITARS

Sample library for Kontakt 5

**$399.95**

HIGHLIGHTS Guitar sounds and strums assembled into five main categories: Swells, Custom Pads, Pads, Phrase Builder, and Instruments • includes finger slides, phrases, plucks, amp buzz, and other sounds, as well as alternate playing techniques, such as violin bow on strings • Instruments category includes acoustic guitar, acoustic bass, acoustic guitar harmonics, electric guitar, electric bass, mandolin, banjo, nylon-string guitar, and sitar

TARGET MARKET Composers, sound designers, musicians

ANALYSIS A library that provides the tools to create your own hybrid fretted-string virtual instrument.

**bigfishaudio.com**

3

**KEITH MCMILLEN INSTRUMENTS**

## K-MIX

Programmable mixer, DAW controller, and USB audio interface

**$599**

HIGHLIGHTS 8 balanced analog inputs (two accept high-Z input) • 2 mic preamps with phantom power and +60 dB of gain • 8 1/4" TRS analog outputs • stereo headphone output • 8 channel faders and 1 master fader that can send CC messages and display audio levels • 4 rotary buttons • onboard effects (reverb, EQ, dynamics) • USB support for audio (24-bit/96kHz), MIDI and KMI Expander

TARGET MARKET Musicians, composers, engineers, sound designers

ANALYSIS KMI's outstanding controller technology in a multi-use device that anyone can use.

**keithmcmillen.com**

4

**APOGEE ELECTRONICS**

## GROOVE

USB 2.0 digital-to-analog converter

**TBA**

HIGHLIGHTS Includes an ESS Sabre DAC • for use with headphones or powered monitors • supports resolutions up to 24-bit, 192kHz • asynchronous clocking • Quad Sum DAC technology that utilizes four DACs per channel to increase dynamic range and reduce distortion • USB bus powered • LEDs show levels and status • buttons for output level and muting • aluminum body • supports Mac and Windows OS • built in the U.S.A.

TARGET MARKET Musicians and engineers

ANALYSIS A small and portable high-resolution DAC for the studio or travel.

**apogeedigital.com**

**All prices are MSRP except as noted**

5

7

6

8

5

**WAVES**

## DBX 160 COMPRESSOR/LIMITER

Native and SoundGrid dynamics plug-in

**$150**

HIGHLIGHTS Model of the popular hard-knee, feed-forward VCA-based compressor/limiter • stereo capabilities (channels separate or linked) with independent level controls • MS mode • Mix control for blending original and processed signals • Noise control for incrementally adding the noise and hum of the original unit • highpass filter (90 Hz) on the sidechain • three metering choices

TARGET MARKET Professional mix engineers, musicians

ANALYSIS In addition to modeling the sound of the original hardware, Waves added several features suitable for modern production techniques.

waves.com

6

**ISOACOUSTICS**

## APERTA

Acoustic isolation stands

**$240 per pair**

HIGHLIGHTS Sculpted-aluminum isolation stands designed for use with medium-sized studio monitors weighing up to 35 lbs. • integrated tilt adjustment with guide markings • 6.1" x 7.5" dimensions • sold in pairs

TARGET MARKET Recording, mixing, and mastering studios

ANALYSIS In addition to decoupling your monitors from the surface or stand where they sit, the Aperta isolators can angle the speaker cabinets toward your mix position's sweet spot.

isoacoustics.com

7

**YAMAHA**

## DTX502 HYBRID PACKS

Electronic drum components for acoustic kits

**$660-$1,150**

HIGHLIGHTS Preconfigured systems designed to enhance an acoustic kit with electronic percussion • each setup provides a DTX502 sound module and two triggers • HP570 ($660) adds a TP70 single-zone pad • HP580 ($990) has a XP80 3-zone DTX-pad • HP587 ($1,150) includes TP70 and XP80 pads • The DTX502 Hybrid Pack ($2,600) is based around a 5-piece Stage Custom Birch acoustic kit • systems are expandable up to 12 pads

TARGET MARKET Drummers, studios, education, houses of worship

ANALYSIS An easy way to create a hybrid acoustic-electronic drum kit.

yamahadtx.com

8

**TIPTOP AUDIO**

## CIRCADIAN RHYTHMS

Hardware sequencer for Eurorack

**$625 street**

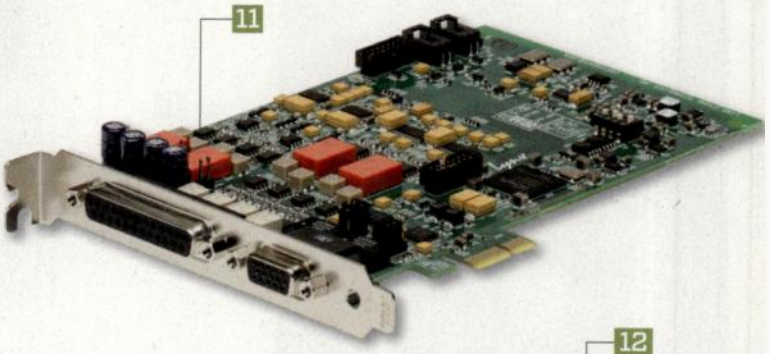
HIGHLIGHTS 8-track sequencer • 64 steps per track • 72-LED button grid that provides four horizontal and two vertical timeline views • internal clock • functions include manual triggering, swing amount, fill, loop, mute, copy and paste, group, and randomization • supports Tiptop's SyncBus technology for synchronization using connections behind the panel

TARGET MARKET Musicians and composers using Eurorack modular synthesizers

ANALYSIS A complex sequencer specifically designed for live performance and studio use.

tiptopaudio.com

9



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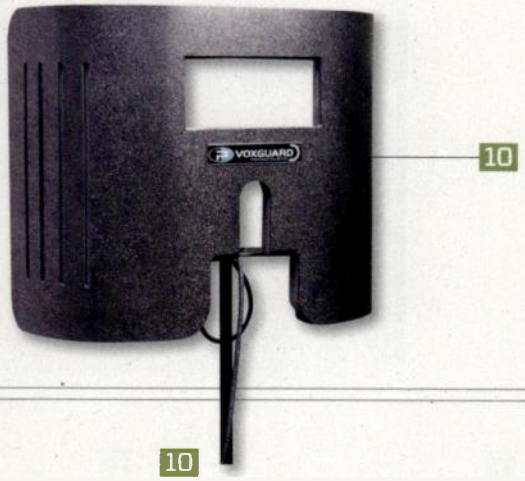


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**MOTU**

## ULTRALITE AVB

USB 2.0 audio/MIDI interface

**$649**

**HIGHLIGHTS** Portable 18-input, 18-output 24-bit/192kHz interface with AVB audio networking • wireless control • two mic inputs • 2 low-impedance guitar inputs • 8 analog outputs on 1/4" TRS jacks • 6 TRS inputs • optical I/O ports configurable as 8 channels of ADAT or stereo TOSLink • MIDI I/O • works as standalone mixer supporting 48 inputs and 12 stereo buses • onboard DSP with 32-bit floating-point effects

**TARGET MARKET** Musicians, recording engineers

**ANALYSIS** A significant upgrade in a package that is suitable for mobile or studio recording.

motu.com

10

**PRIMACOUSTIC**

## VOXGUARD VU

Portable absorber for vocal tracking

**$99.99 street**

**HIGHLIGHTS** Lightweight, nearfield absorber with 3" x 7" window for use when tracking vocals • outer shell is made from high-impact ABS plastic • integrated slotted ports mitigate bass build-up • includes mounting hardware and cable port that allow for easy mic positioning

**TARGET MARKET** Home and personal studios, musicians, voiceover artists

**ANALYSIS** An inexpensive and easy-to-set-up portable vocal booth. The small window is a great addition that improves communication between the vocal talent and the engineer.

primacoustic.com

11

**LYNX STUDIO TECHNOLOGY**

## E44

PCI Express audio interface card

**$1,095**

**HIGHLIGHTS** Four channels of analog I/O with fixed or adjustable, relay-controlled trim • four AES/EBU channels • resolution up to 24-bit/192kHz • new 16x8 software mixer • V2 DMA engine • automatic output muting on power-down • low-jitter SyncroLock sample clock generator • also available: the E22, with two channels of A/D/A and two channels of AES3 or S/PDIF

**TARGET MARKET** Recording and mastering engineers, broadcast

**ANALYSIS** Designed for demanding, high-resolution applications.

lynxstudio.com

12

**NFUZD AUDIO**

## NSPIRE SERIES ROCK FULL PACK

Electronic percussion system

**$1,699 street**

**HIGHLIGHTS** Soft, multizone trigger pads that fit directly onto the rims of acoustic drums • cymbal and hi-hat pads mount onto normal stands • kick trigger-pad attaches to any bass drum and includes a loop-through connection for wiring in a second kick pad • I/O module with USB port and mount • includes BFD Eco Nfuzd Edition software with 55 GB of 24-bit/44.1kHz WAV files.

**TARGET MARKET** Drummers, studios, houses of worship, educational facilities

**ANALYSIS** A revolutionary system for adding trigger pads to an acoustic kit.

nfuzd.com

**All prices are MSRP except as noted**

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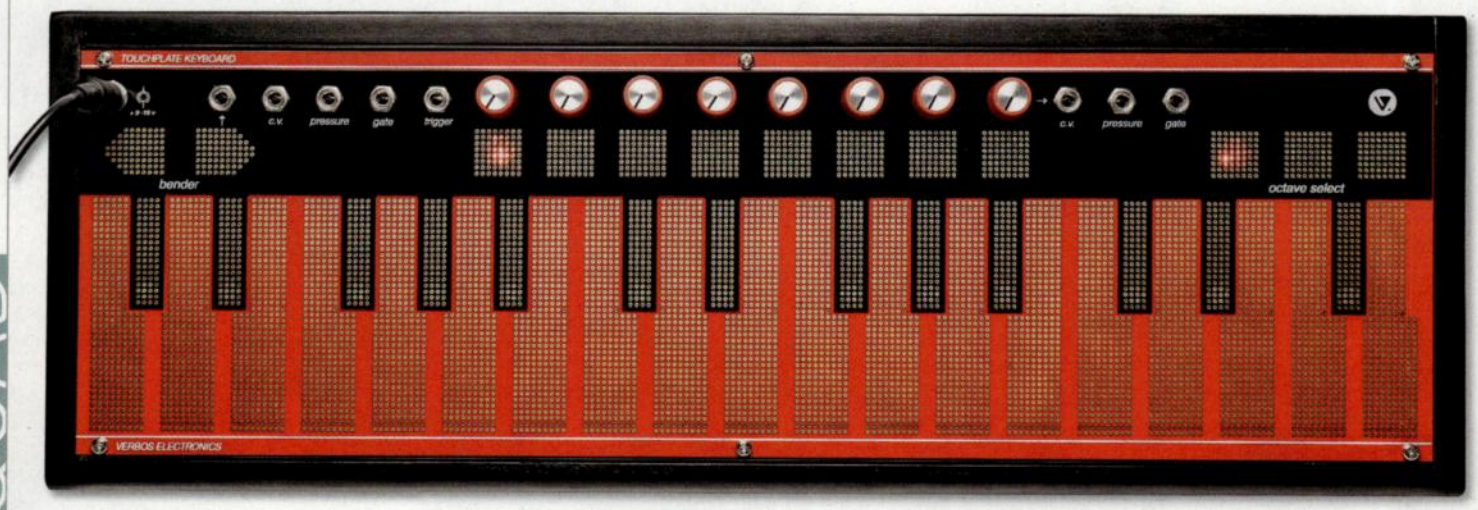


**The Verbos Electronics Touchplate Keyboard is a simple interface that gives you subtle, pressure-sensitive control over your modular system.**

**VERBOS ELECTRONICS**

# Touchplate Keyboard

## Old-school control in a convenient, modern format

**BY GINO ROBAIR**

Decades ago, capacitance-based controllers were popular among synth users because of the pressure sensitivity they provided. Typically, this was created by measuring the amount of skin that came into contact with the touchplates: The harder you pressed down, the more your finger spread across the surface and the greater the change of voltage at the pressure output—perfect for adding subtlety to a patch.

The Holy Grail of capacitance controllers were built by Buchla & Associates for its '60s- and '70s-era systems and were available in several configurations. However, the Model 218 and Model 221, as rare as hen's teeth these days, simulated a 12-note per octave keyboard, dispelling the myth that the company's founder didn't like the standard layout.

Verbos Electronics (verboselectronics.com) has granted the wishes of many modular users by introducing a standalone capacitance-based controller, the Touchplate Keyboard ($799). Though it is designed to fit into a Eurorack case, it can be used with any synth that supports 1V/octave control voltages. Touchplate Keyboard can be powered either by a standard Eurorack ±12V system or an external, positive-tip DC power supply that provides 9-15V.

Portability is a big plus: Together, the controller surface and circuit board are 0.75" thick. Consequently, the controller can be housed in a shallow skiff or other table-top case independent of your modular system. That's handy, because at 84HP (16.75"), the Touchplate Keyboard is fairly wide; it'll fill an entire row of a Doepfer A-100P case.

The control surface has four distinct areas with gold-plated contacts: a 32-note 2.5-octave keyboard with individual outputs for CV, pressure (+9V), gate (+5V), and trigger (+5V, 10 ms); three octave-select pads for the main keyboard; an independent pair of pressure-sensitive bender pads (±3V); and eight individually tunable pads that share a separate set of CV, pressure (+9V), and gate outputs.

A traditional approach to using the Touchplate Keyboard would be to treat it as a piano-style controller that triggers single notes, perhaps using the Bender to alter pitch and the tunable pads to incrementally open and close a filter. However, this surprisingly simple interface can be configured in more complex ways. For example, the upper row of pads could be used to control a monophonic bass instrument or select the transposition pitches for a sequencer (with the pressure output adding modulation), while the main keyboard controls another voice and its pressure output controlling a different type of modulation. Meanwhile, the CV output of the bender pads can be routed to additional parameters connected to either voice or both. As with the keyboard, only one of the tunable touch-pads can be active at a time.

Keyboardists who have never played a capacitance-based controller will have to adjust their technique, because the control surface is flat, with the accidentals raised just enough that you can feel where they are without looking. The upper row of contacts (where the Bender, Octave, and tunable pads sit) is also minutely elevated.

Overall, the controller responds quickly, but a light touch provides the most subtlety. And that is what the Touchplate Keyboard is all about: It's an easy-to-use interface that puts a wealth of control options under your fingertips. ■

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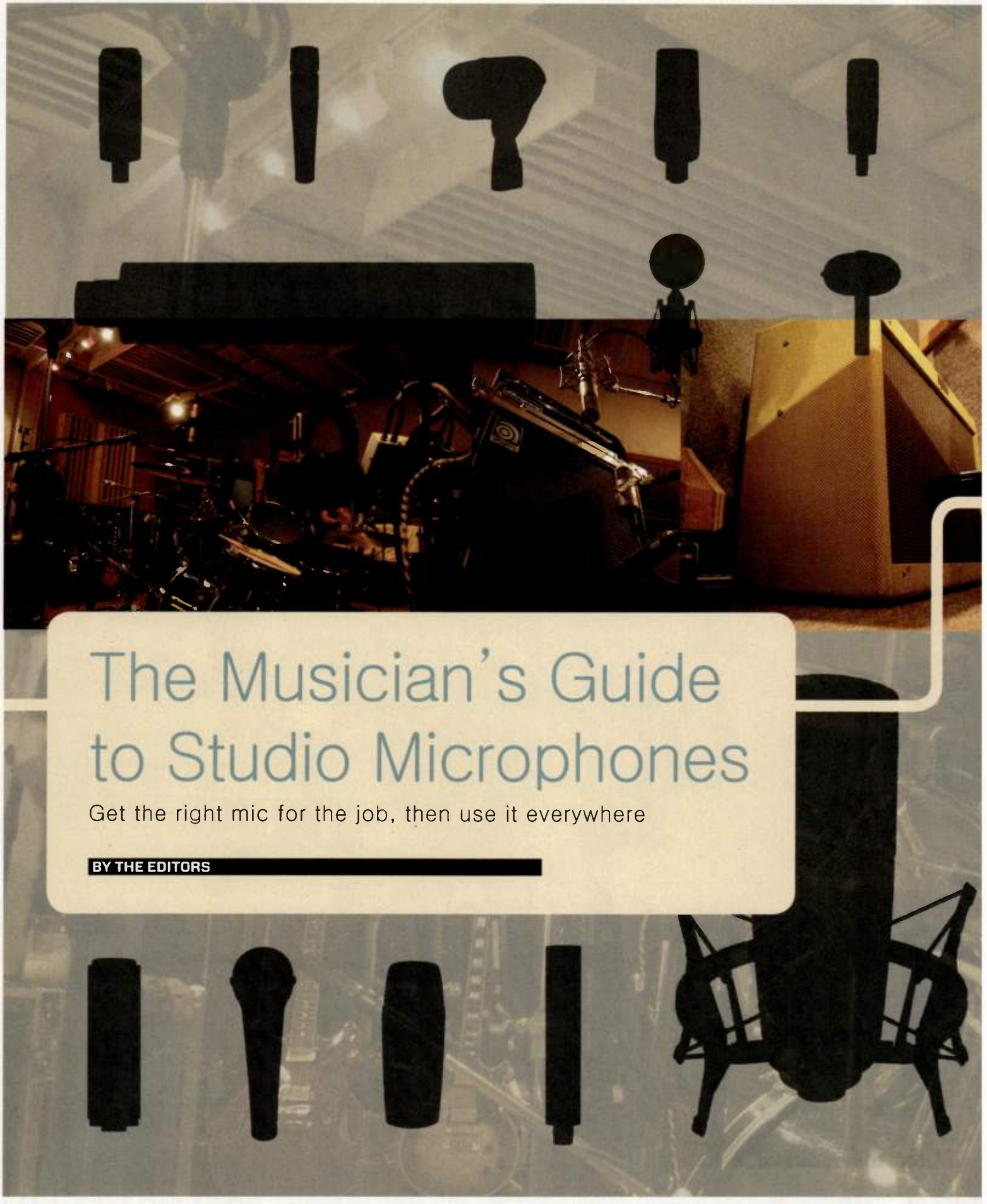
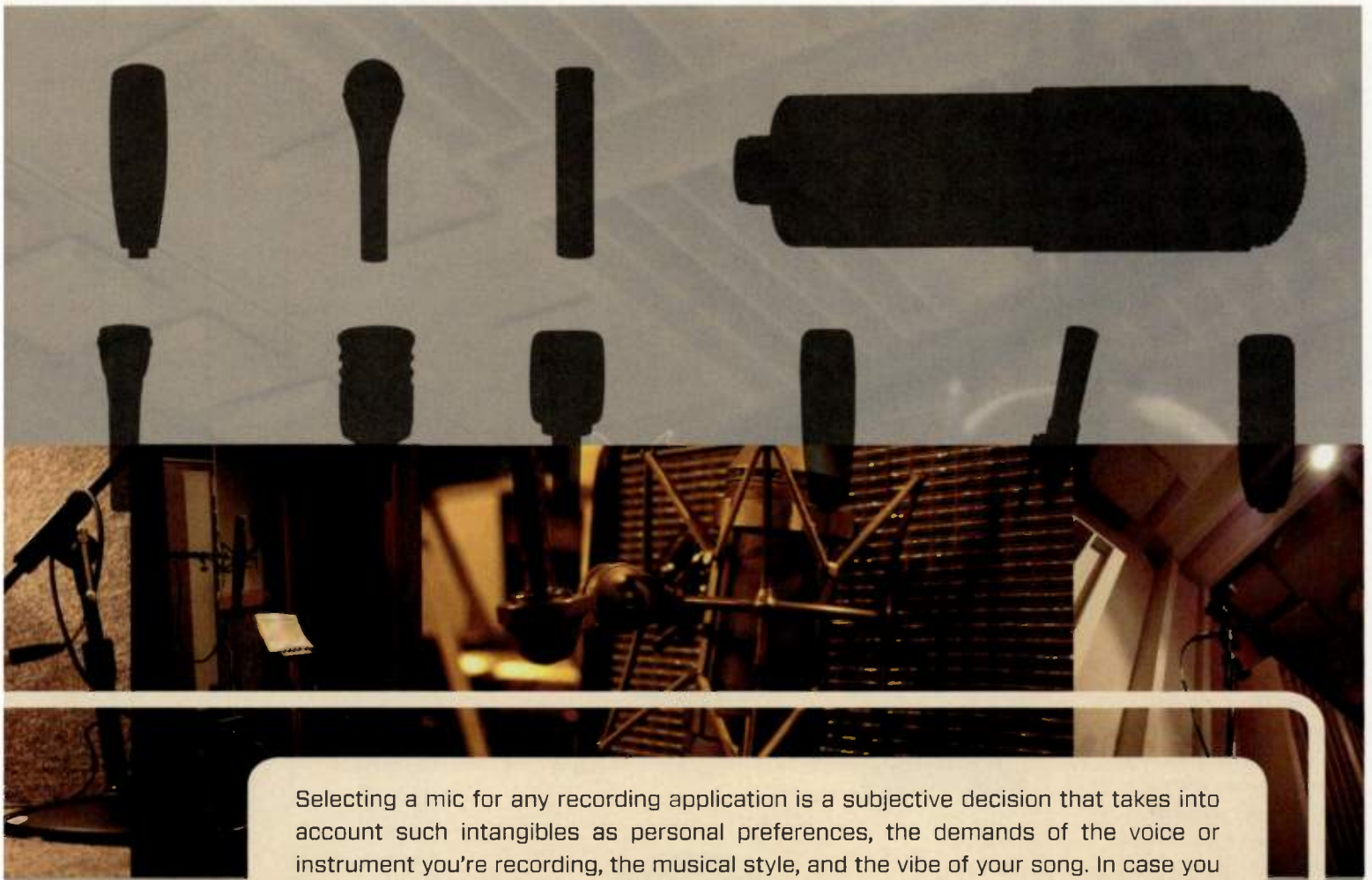


# The Musician's Guide to Studio Microphones

Get the right mic for the job, then use it everywhere

BY THE EDITORS



Selecting a mic for any recording application is a subjective decision that takes into account such intangibles as personal preferences, the demands of the voice or instrument you're recording, the musical style, and the vibe of your song. In case you were wondering why pro studios have so many different products in their mic closets, now you know: They need to be ready for whatever the music and client demands.

Home studio owners, on the other hand, need only think about their own musical needs, so their mic collection will be more personal and less extensive, though that doesn't mean it has to be overly specific: Mics that work well in one application often sound great on others. So, although the mics in this roundup are categorized by their intended purpose, most of them are equally suitable for covering other sound sources. The ability to do double or triple duty increases a mic's value if you're considering its cost-to-performance ratio.

Another thing to take into consideration when considering a mic is the environment in which you record. Some microphones capture more room tone than others, and if your space use doesn't sound that great, you'll want to consider transducers that offer more isolation. For example, using a figure-8 ribbon mic as a drum overhead in a room with a low ceiling covered in sound tiles won't give you the same results as using it in a space with a high, wood-framed ceiling.

In this article, we will examine practical mics for common home-studio applications. We'll focus on microphones that are currently in production. Unless otherwise noted, all price quotes are street price.

# THE WELL-TEMPERED MIC CLOSET

While a professional engineer will have access to a wide array of mics, the musician's mic selection is usually a bit more austere by comparison. But depending on what you plan to record (for example, a solo artist tracking acoustic guitar and voice, or perhaps a small rock band), there are some types of transducers that no studio should be without, simply because they can be used in just about any situation that comes up. (See "A Musician's Basic Mic Cabinet" on page 32.)

**The MK8 offers five polar patterns**

**Sennheiser MK8**

For example, a dynamic microphone and a multipattern large-diaphragm condenser are considered by many to be the minimum requirements for anyone doing songwriting demos. Better yet, the pair is suitable for use with nearly any low- to mid-priced audio interface. A wide variety of companies offer affordable, desktop-friendly interfaces for singer/songwriters who need only one or two mic preamps (and an instrument input or two). These companies include ART, Apogee, Arturia, Focusrite, M-Audio, Mackie, MOTU, Native Instruments, PreSonus, Roland, Steinberg, Tascam, Universal Audio, and Zoom—whew! With that much competition, you are likely to find a high-quality interface within your budget that matches your computer setup (USB, FireWire, Thunderbolt) and offers exactly the I/O and features that make sense for your recording needs.

With that in mind, let's look at a few common recording applications and the types of mics that are often used.

**ADK Custom Berlin-47T**

## VOCALS

Choosing a vocal mic is a surprisingly personal thing for a singer, and you'll know right away whether or not it suits your voice. The keeper is the one that enhances the best aspects rather than the unpleasant ones. Your singing technique and style of music are also determining factors.

### CONDENSERS

Large-diaphragm condensers (LDC) are frequently the mics of choice for vocalists. They are one of the most common transducers produced for the studio today, with models to fit nearly every budget. However, modern LDCs tend to have a presence boost that makes vocalized sibilants harsh and unpleasant. For this reason, it is highly recommended that you try out any mic you are considering to see how it matches your particular vocal timbre. (See the "Pro Tip: Auditioning Vocal Mics" on page 36.)

Some LDCs provide multiple polar patterns—typically cardioid, omnidirectional, and figure-8—and include switches for a pad (to lower the input level) and a highpass filter (to reduce the bass boost that results from the proximity effect). These are useful options for the vocalist as well as the engineer recording a vocalist. For example, the omni pattern is not only great for recording several singers positioned around a mic, but because the pattern doesn't exhibit the proximity effect, you can cheat the mic closer to a singer without boosting the voice's low end.

**Samson C03U**

**AKG Perception Series P420**

**Audio-Technica AT2050**

Budget-friendly multipattern LDCs include the Samson C03U ($99.99), the AKG Perception Series P420 ($179), and the Audio-Technica AT2050 ($229).

**sE Electronics sE2200a II**

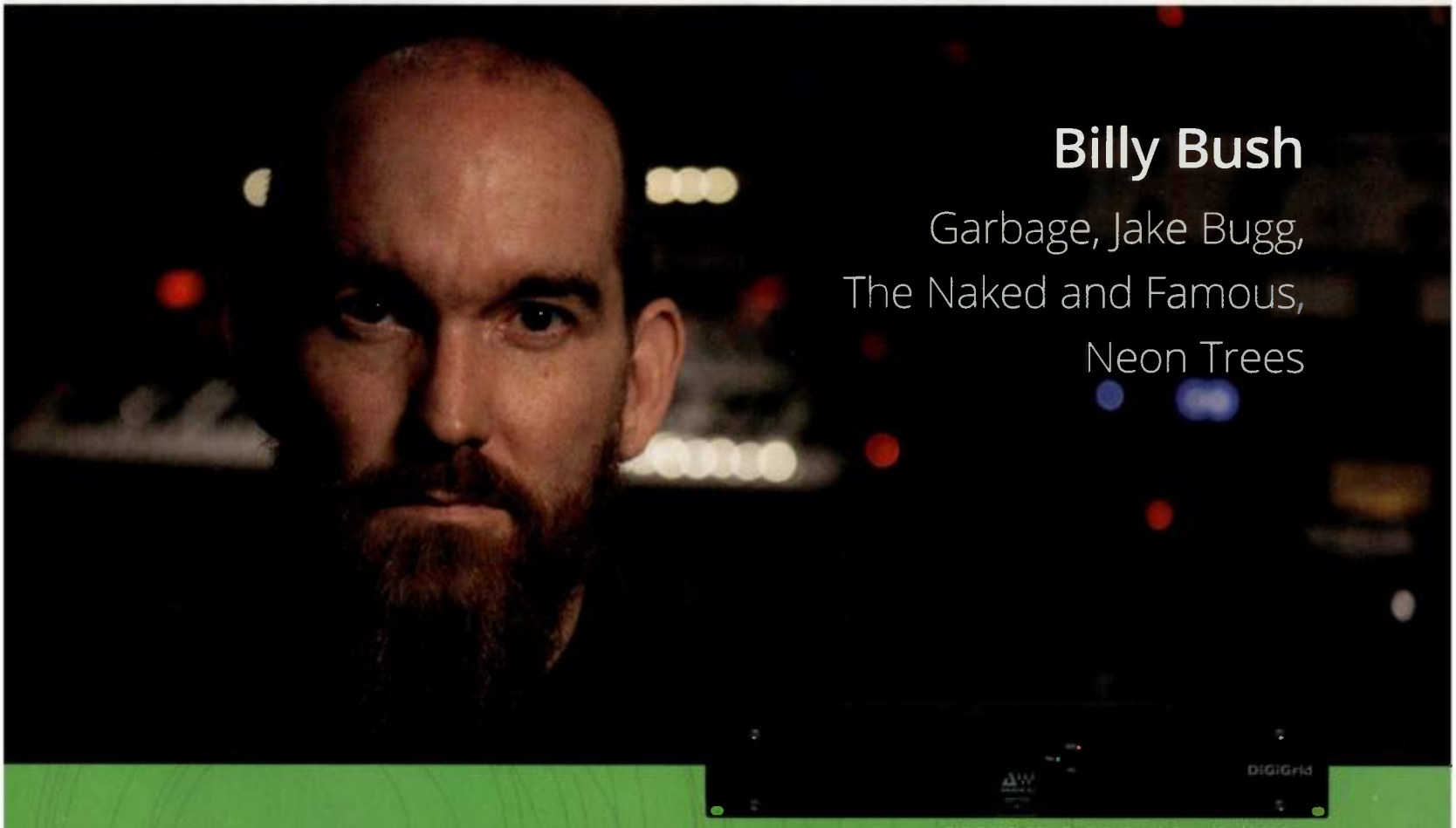
**Shure KSM44a**

**Audio-Technica AT4050**

Mid-priced models include the sE Electronics sE2200a II ($399), the Sennheiser MK8 ($699.95), the Audio-Technica AT4050 ($699) and AT-4047MP ($849), the Shure KSM44a ($999), the AKG C 414 XLII ($1,099, and featuring 9 polar patterns), and the ADK Custom Berlin-47T ($1,299), which includes a slow-saturation/soft-clip circuit and a British transformer in addition to its three polar patterns.

# With DiGiGrid DLS, I finally have the processing power I need!

**DiGiGrid Creative Audio Interfaces.**




DiGiGrid DLS Pro Tools™ I/O with SoundGrid DSP Server

DiGiGrid

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...get the **Freedom to Connect** and Real -Time Power for Plugins.

Network and integrate seamlessly with ANY DAW system on PC or MAC to process and offload Waves and third party SoundGrid plugins with LLM™ (real time low latency monitoring)."

By sticking with a fixed pattern, you can often get a higher-quality transducer for the same amount you'd spend for a feature-laden mic. A good example is the Blue Microphones Bluebird, which has a street price of $299.99, but sounds like a more expensive mic—smooth on male and female voices (not to mention any acoustic instrument you put in front of it). Other single-pattern LDC options for vocal recording in the same price range (some of which do have a pad and low-cut switch) include the Audix CX112B ($299), the Audio-Technica AT4040 ($299), the RØDE NT1-A ($229), the sE Electronics sE2200a II C ($299), and the Shure SM27 ($299).

Blue Microphones Bluebird

When price is a major consideration, budget single-pattern models worth investigating include the Sterling ST51 ($79.99), the Samson C01 ($79.99) and MTR101A ($119.99), the Blue Microphones Spark ($199.99), the AKG P220 ($134), the Audio-Technica AT2035 ($149), and the Shure PG27 ($149).

At the next price tier, you'll find the Blue Microphones Baby Bottle ($399.99), the Neumann TLM-102 ($699.95), the Shure KSM42/SG ($799), the Mojave Audio MA-301fet ($895), the Blue Dragonfly ($999), and the Sterling ST6050 FET Ocean Way Edition ($1,059.99).

Many singers prefer the creamier sound that tube microphones impart. Price-friendly versions include the MXL 9000 ($199.95), the Sterling ST66 ($399.99), the M-Audio Sputnik ($499), the RØDE NTK ($529) and K2 ($699), the AKG P820 ($699), and the sE Electronics Z5600a II ($999). Moving above a grand, you find the Audio-Technica AT4060 ($1,449), the cardioid Mojave Audio MA-200 ($1,095) and multipattern MA-300 ($1,295), and the cardioid Telefunken CU-29 Copperhead ($1,295).

AKG P220

## RIBBONS

Two recent active-ribbon mic releases that are designed with vocalists in mind are the AEA Nuvo N22 ($899), designed for close-miking (with more top-end than a passive ribbon and less low-end boost from the proximity effect), and the Cloud Microphones 44-A ($1,899), with switchable proximity-effect reduction; the Voice setting reduces low-frequency build-up when close miking. (We will examine other powered ribbon mics later in this article because they are well suited for other uses.)

Low-priced options for ribbon mics include several passive models—the MXL R144 ($99.99), the sE Electronics X1R ($199) and the Avantone Audio CR-14 ($259). Designed for the stage, though suitable for the studio, the Beyerdynamic TG V90r ($499) is a passive cardioid ribbon mic that is great for tracking live in the studio with other musicians because it provides the side and rear rejection you don't get from a figure-8 pattern. The hypercardioid pattern of the Beyerdynamic M160 ($699) provides even greater side rejection, while the mic itself has a distinctive pedigree—it was the model used to record Jimi Hendrix's voice and amp.

MXL Microphones R144

sE Electronics X1R

Avantone Audio CR-14

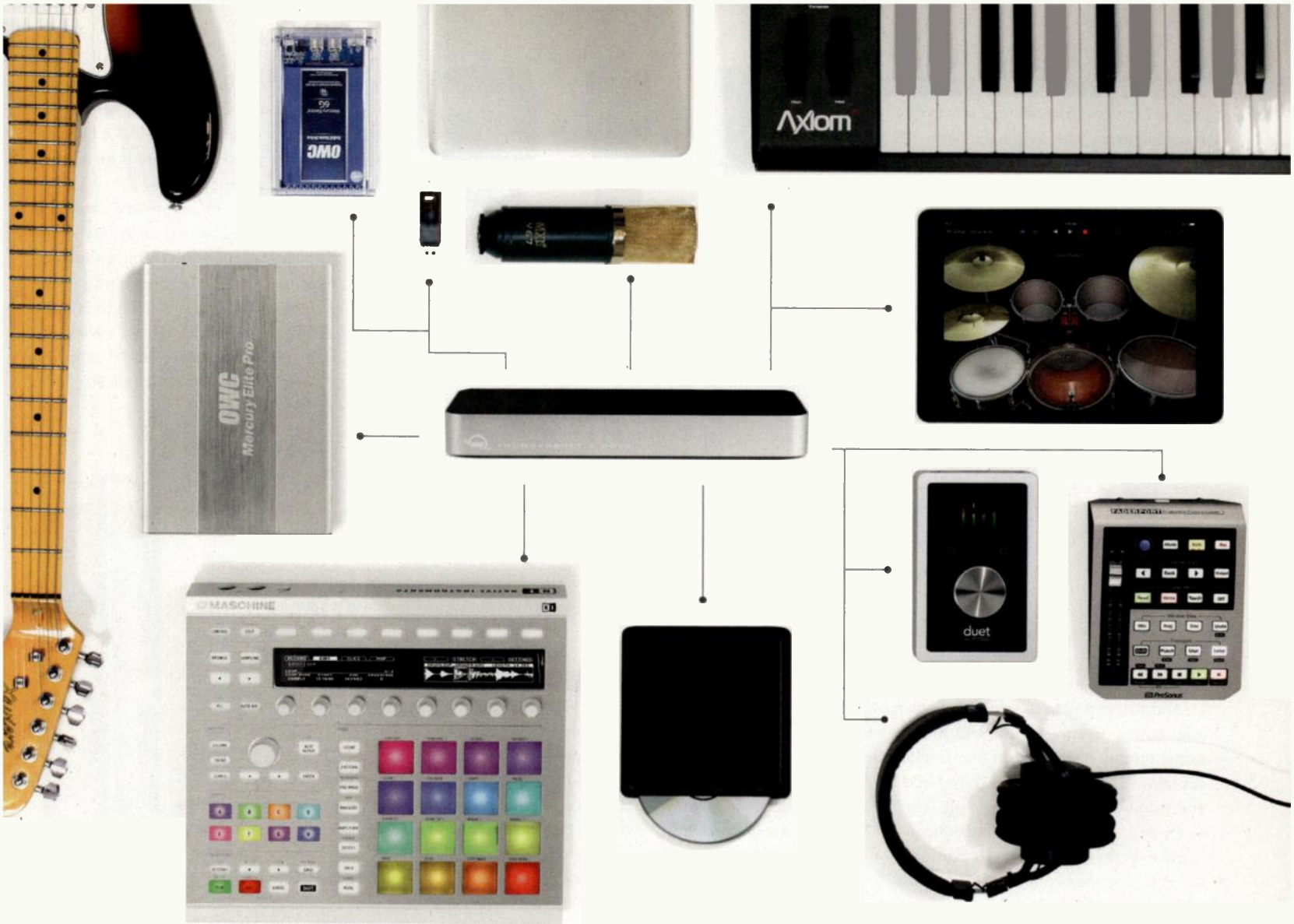
Cloud Microphones Cloudlifter CL-2

It's worth noting that active ribbon mics have a hotter output than passive ribbons, so they work well in conjunction with inexpensive audio interfaces. Passive ribbon mics, on the other hand, require preamps with a lot of gain (as well as the appropriate impedance): Many USB interfaces, for example, only offer 55 to 60 dB of gain—not an ideal situation for the passive ribbon. If you have one of these types of interfaces, you have some options.

One is to use an external preamp designed to power passive ribbon mics, such as the 2-channel AEA Ribbon Pre ($895) which is tailor-made for this application. A less expensive option is to use the Cloud Microphones Cloudlifter CL-1 ($149), a phantom-powered device that adds 25 dB of gain to your ribbon mic before it hits your audio interface's preamp. If you have more than one ribbon mic, Cloud makes a two-channel version—the Cloudlifter CL-2 ($249)—and the CL-Z ($299), with variable impedance, as well as the 4-channel CL-4 ($499). Best of all, these AEA and Cloud products will bring out the best in your dynamics mics, as well.

AEA Nuvo N22

Cloud Microphones 44-A

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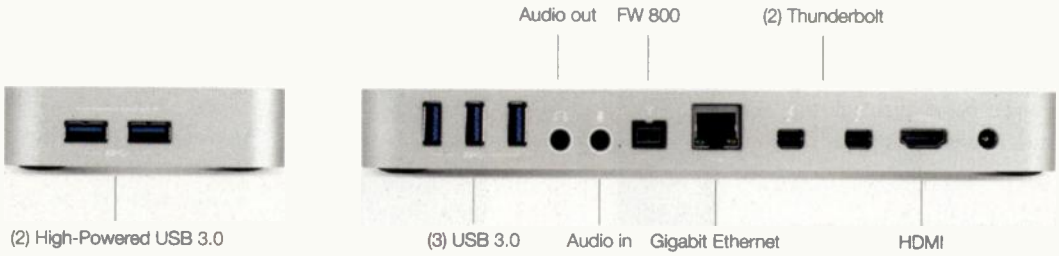


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### DYNAMICS

Aggressive vocal parts in rock or rap often benefit from a dynamic mic. While the Shure SM58 ($99) is found in nearly every mic closet (and on nearly every stage), it doesn't necessarily complement the tone of every vocalist. At that $99 price point you'll find several great-sounding options—the AKG D5, the Audio-Technica ATM510, the Audix OM2, the Blue enCore 100, the RØDE M1, and the Sennheiser e835 S. All of these are built for handheld use on stage, but are equally useful in the studio when a little attitude is needed on the vocal part.

Audix OM3

Shure Beta 58A

Electro-Voice N/D967

Add $20 to $60 to the price and you move into mics with a smoother sound and, in some cases, a hotter output. A sampling of these include the Audix OM3 ($129), the Electro-Voice N/D967 ($149), and the Shure Beta 58A ($159).

In pro studios, it's not uncommon for engineers to grab large-element dynamic mics for the voice, such as the Sennheiser 421 MD II ($379.95), which has a five-position lowcut switch, and the Shure SM7B ($349), which includes switches for bass rolloff and presence boost.

## ELECTRIC GUITAR AMP

For years, the rough-and-ready moving-coil dynamic mic has been *the* choice for recording electric guitar in the personal studio. But in the past 15 years, the ribbon mic has come into favor in home studios as low-cost products have become more available. One of the best things about having a 2-channel interface with a pair of mic inputs is that you can simultaneously record both transducer types—dynamic and ribbon—just like the pros do, and blend to the two tracks to suit the needs of the song.

### DYNAMICS

While the Shure SM57 ($99) has been a common go-to dynamic for recording an electric guitar amp, other models have become popular for their guitar-friendly sound and robust build quality. We've seen the Audix i5 ($99) gain popularly in this regard,

Shure SM57

Audix i5

Sennheiser e609

thanks to its particularly chunky tone. (And be sure to check out the Audix CabGrabber, a spring-loaded clamp that attaches to your amp and puts the mic right where it's needed.) Other dynamic-mic favorites are the side-address Sennheiser e609 ($109.95) with its supercardioid pattern, and the high-output, supercardioid Shure Beta 57A ($139).

Large-element dynamic mics are also highly prized for amps. Perennial favorites in this category are the ubiquitous Sennheiser MD 421 II and the Shure SM7B.

### RIBBONS

The ability to capture a more nuanced sound has made the ribbon mic very popular among guitarists and engineers. Cascade Microphones offers a variety of ribbon mics—in active and passive varieties—that sound great on guitar cabs as well as voice and other instruments. We've been particularly fond of the Fat Head ($195) and Fat Head II ($229) when it comes to budget-priced passive ribbon mics.

Royer Labs paved the way for the ribbon mic renaissance, and its passive R-101 ($895) is well suited for tracking electric guitar, not to mention drums and percussion. Another notable passive design can be found in the dual-voice Shure KSM313/NE ($1,295). Here, each side of the figure-8 pattern sounds different—one side darker sounding than the other. The result is a bit more timbral flexibility, whether you use it on a guitar amp, for vocals, or on percussion.

Guitarists with low- or mid-priced interfaces that don't have enough gain to drive a passive ribbon mic will get excellent results using a phantom-powered ribbon. The list of high-quality, yet still affordable, active ribbon mics includes the Audio-Technica AT-4081 ($699) and AT4080 ($999), the Blue Microphones Woodpecker ($999), the AEA A840 ($1,553), and the Royer R-122 ($1,750).

Royer R-101

Shure KSM313/NE

## ACOUSTIC GUITAR

Like the voice, an acoustic guitar has a wide dynamic range, but it has a varying impulse response depending on the way it's played (finger picking vs. flat picking). The majority of the LDCs and ribbon mics mentioned earlier are perfectly suited for capturing high-quality acoustic guitar tones. However, small-diaphragm condensers, with their fast transient response, are prized for recording plucked-string instruments.

Pencil condensers that are commonly used to track acoustic guitar include the Shure KSM137 ($299), the Audio-Technica AT4051 ($599), the Josephson C42 ($455), the AKG C 451 B ($499), the Mojave Audio MA-101fet ($595), the Neumann KM184 ($849.95), the Earthworks SR30 ($869), and the Audio-Technica AT5045 ($1,399), a side-address condenser that can handle high SPLs.

Affordable omnidirectional condensers worth exploring include the DPA 4090 ($569.95) and the Earthworks QTC30 ($799). The recordist on a tight budget will want to check out the Audix f9, the Shure PG81-XLR, and the Audio-Technica Pro 37, all of which street for $129.

Audio-Technica AT5045

sE Electronics

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**Oktava MK-012**

Mics that have interchangeable capsules are well suited to guitar and other home-studio applications, particularly when the choices include an omni capsule—perfect for close-miking an acoustic without getting the proximity effect. The RØDE NT55 ($369) is an affordable solution that provides both cardioid and omni capsules. The Oktava MK-012 is another favorite, and it can be purchased with one, two, or three capsules, as well as in a matched pair.

Many musicians and younger engineers are surprised to hear that dynamic mics are also used to record acoustic guitar, particularly in rock and country music settings, where the resulting sound (with slightly compressed dynamics and a midrange-y tone) fits easily into a busy mix. Consequently, many of the dynamic mics mentioned earlier, such as the Audix i5, and Shure SM57 and SM7B are well suited for aggressively strummed guitars.

**Shure SM7B**

## DRUMS

A drum kit is one of the toughest things to record, especially if you are limited to a 2-channel interface. Obviously, having only two inputs limits your options: You can record only two mics, or run several mics into a mixer and submix them to a stereo output that you send to your interface.

Nonetheless, the drums on many classic songs were cut using only two mics—a single overhead supplemented by a kick mic, a stereo pair over the set, or dedicated mics on the snare and bass drum (with the snare mic picking up a useful bit of hi-hat bleed, to boot). Let's start by looking at transducers for the main parts of the kit.

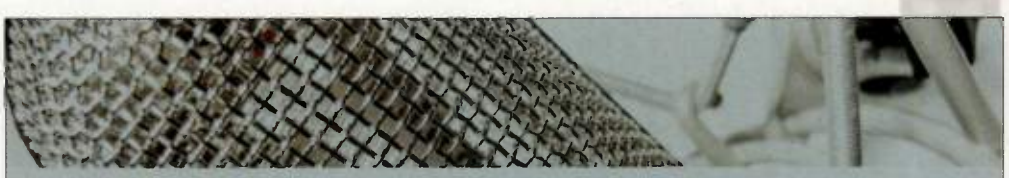
## SNARE

The Shure SM57 is one of the most commonly used dynamic mics on snare, providing a meaty sound that is well suited to rock music. An interesting option for SM57 fans is the Granelli Audio Labs G5790 ($149.99), which remounts an SM57 in an angled (90-degree) aluminum case—perfect for situations in which the space around the snare drum is at a premium.

Musicians and engineers looking for an alternative sound can find it in the similarly priced, yet beefy-sounding Audix i5, as well as the slightly more expensive Shure Beta 57A. With its hypercardioid pattern, the Beyerdynamic M 201 TG ($299) makes a great choice for snare mic, not only for its tone but for its increased side rejection. In addition, many of the small-diaphragm condensers mentioned above are suitable for use on the snare.

**Granelli Audio Labs G5790**

**Beyerdynamic M 201 TG**



## A Musician's Basic Mic Cabinet

Even the simplest home studio must have the tools to capture vocals, acoustic and electric guitars, drums and percussion, and standard bass instruments. Yet, only a handful of essential transducers are necessary to tackle these jobs.

1. A large-diaphragm condenser, particularly one that offers multiple patterns, a pad, and a lowcut switch. However, if you find an affordable LDC that sounds great on your voice but doesn't have all those features, nab it: You can always pick up a second mic with those bells and whistles when the need arises.

2. Two dynamic mics—one suitable for use on snare, hand percussion, and guitar amps; another designed to track low-end instruments, such as kick drum and bass-amp cabinets.

3. A matched pair of small diaphragm condensers for use as drum overheads, for capturing room sound, and for close miking—together or individually—guitar, piano, and other acoustic instruments. Mics that have interchangeable capsules offering different polar patterns are a plus.

4. A ribbon microphone that you can use for alternative color on amps, drum overheads, voice, and other instruments. Consider getting a powered ribbon mic if you're using a budget-priced interface. If you buy a passive transducer, supplement it with a suitable external preamp.

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# KICK

The sound of the bass drum can easily define a song, so it's important to pick a mic that captures the vibe you're after. That's right: Not all bass drum mics sound the same. In fact, many people are surprised at how different the various models actually sound from one another. Some compress the tone, others add low-end in different ways—hearing is believing. But price doesn't necessarily predict the winning kick tone for a song; sometimes a funky mic will give you a really funky sound.

Audix D6

Shure Beta 52A

AKG D112

Sennheiser e 602 II

Among the most popular dynamic mics for kick drum are the Audix D6 ($199), the Shure Beta 52A ($189), the AKG D112 ($149), and the Sennheiser e 602 II ($159). Low-cost mics, capable of capturing a great tone on the right drum, include the CAD D12 and the AKG P2 ($99 each).

At the upper end of scale is the AKG D12 VR ($499), a cardioid dynamic mic with a built-in C 414 transformer that works well as a passive mic. However, apply phantom power and you get three filter modes—a bass boost, a midrange cut, and a combination of the two—that allow you to tailor the sound.

Another pair of mics that have passive and active components include the Audio-Technica AT-M250DE ($299), a dual-element mic with hypercardioid dynamic and cardioid condenser components, as well as a bass rolloff switch; and the Lewitt DTP 640 REX ($329), a similar dual-element cardioid mic with a pad and a three-position switch for altering the frequency response.

# OVERHEADS

Good drummers don't just play the groove in the pocket, they continually create a balanced mix between the various instruments in the kit. By using one or two overhead mics, you capture these dynamics and the drummer's perspective as he or she orchestrates the tune.

You can capture this overhead perspective in mono or stereo, depending on the kind of drum sound you are after. Many early rock recordings were captured with a single mic above the drummer, often supplemented with one on the bass drum—a perfect combination for the 2-channel audio interface.

## RIBBON

A classic setup is to use a well-placed ribbon overhead. If you're dead set on re-creating the classic Beatles sound, a single Coles 4038 ($1,563) is your ribbon of choice (though it was replaced by the brighter and more directional cardioid-patterned AKG D19c dynamic mic and paired with an AKG D20 on the kick drum; both mics are no longer in production, though you can simulate that sound with modern dynamic mics).

Of course, the Coles 4038 is not the only ribbon mic suitable for overhead use. If you're on a very tight budget, the lower-priced ribbon mics mentioned earlier will work.

Coles 4038

Cascade Microphones Fat Head

For a stereo recording with ribbon mics, place two mics of the same make and model in an x/y configuration facing down, toward the drums. Here, the combined figure-8 patterns capture the kit from the front lobes, and pick up the sound reflected off the ceiling from the rear lobes. This is called the Blumlein technique; this is a great way to get real ambience when you're tracking in a room with a pleasing sonic character. The budget conscious should check out the Cascade Microphones Fat Head stereo pair ($399), which includes the stereo bar with shockmounts in a metal case. The Coles 4038 is also available as a matched stereo pair.

A more convenient way to get Blumlein stereo is to use a stereo ribbon mic, such as the AEA R88 ($1,795) and the Royer Labs SF-12 ($2,695). In both instances, only one stand is required (albeit a sturdy one) and positioning is made much easier because both transducers are already configured and phase-coherent.

## CONDENSER

Small-diaphragm condenser mics are typically used in pairs overhead, either in an x/y configuration or as a spaced pair depending on the type of stereo sound you're after. Inexpensive models available in pairs include the Samson C02 ($139/pair) and the RØDE M5 ($199/pair).

Higher-quality pencil condenser stereo pairs include the Shure KSM141 ($870/pair), the RØDE NT5 ($219/pair), the Josephson C42MP ($1,015/pair), and the Oktava MK-012 ($695/pair with cardioid capsules and pads). The Mojave Audio MA-100 stereo pair ($1,595) are small-diaphragm tube condensers with interchangeable omni and cardioid capsules. Also worth considering is the AKG C 414 XLS/ST ($2,199), a matched pair of large-diaphragm, multi-pattern mics that can also be used individually for vocals, piano, and as room mics.

In addition to being used in a stereo configuration, sometimes the pencil condenser can supplement an overhead as a spot mic. A classic example would be to augment an overhead ribbon, which would tend to have a darker sound and subdue the upper register where the cymbals sit. A common choice for such spot-mic placements is the Shure SM81 ($349), where one is positioned over the ride cymbal and another over the hi-hat and crash. The SM81's cardioid pattern becomes more of a hypercardioid pattern with high-frequency sounds, giving you a bit of extra isolation between the cymbals, depending on their proximity to the instruments.

Samson C02

RØDE M5

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## Pro Tip: Auditioning Vocal Mics

Serious about buying the right vocal mic the first time? Here's a novel, yet obvious tip suggested by a colleague: Simply book some time in a professional studio and collect sound files of yourself singing through the contenders.

Looking at the online gear lists of local studios, my colleague picked two that had the majority of mics she wanted to hear. She explained what she wanted when she booked the session: a good-quality recording of herself singing through each of the mics on her list. Later she could listen back to each sound file and compare the results in the privacy of her own studio.

This process took two rounds of studio time, because neither place had all the transducers she was considering. However, both studios had mics she hadn't thought of, so she gave those a try, as well. (In each case, the signal path when tracking was direct, using uncolored preamps and leaving out dynamics and EQ processing.)

Total investment in research: $150 for studio time and approximately 4 hours of singing and listening. And because she claims her music-based income on her taxes, she was able to write off the sessions and the eventual purchase of her favorite microphone. Win-win!

## DRUM PACKS

When you have the option of using several mics to track drums, a cost-effective and convenient way to get enough transducers is with a drum-mic pack. These all-in-one collections (including mic clips and mounts) come in a variety of configurations to match the number of drums in the kit you use. Surprisingly, the higher-end kids have just a few mics and focus on sound quality over mic quantity. At the lower end of the price spectrum is the CAD Touring7 ($299), designed to support a 7-piece kit, and the Samson 8Kit

**CAD Touring7**

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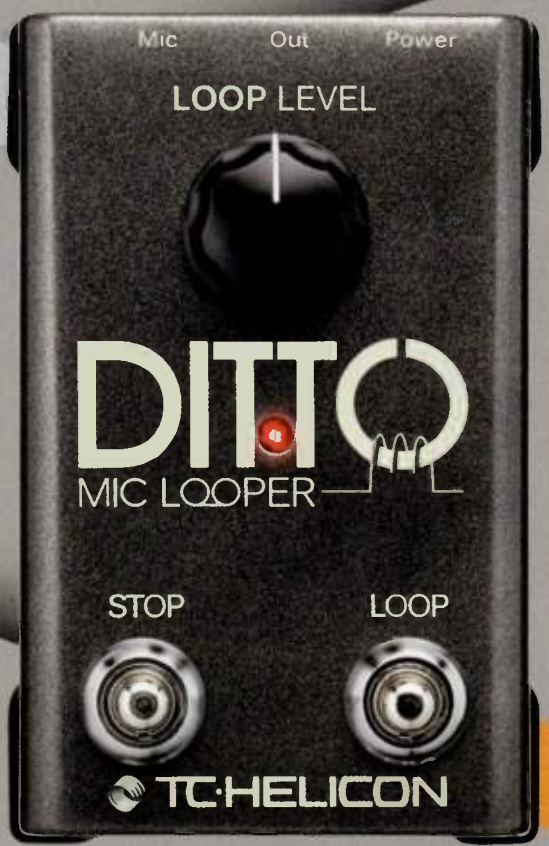


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**Shure PGDMK6-XLR drum mic kit**

($299.99), which can mike a 5-piece kit with three condensers for overhead and hi-hat use.

The next level up is the Shure PGDMK6 ($399), which packages enough of the company's PG Series mics to cover a four-piece kit, including a pair of electret condensers for overheads. For the same price, you can get the Shure DKM57-52 ($399) that assembles three SM57s and a Beta 52A in one case.

Lewitt Audio offers two drum mic kits. The DTP Beat Kit 6 ($699) is designed for a four-piece, with three DTP 340 TT dynamic mics for the snare and toms, a DTP 340 REX for the kick, and a pair of LCT 140 condensers for overheads. The DTP Beat Kit Pro 7 adds the DTP 640 REX dual-element kick, the MTP 440 DM for the snare, and the higher-end LCT 340 with its interchangeable capsules.

In the e600 Mic Pack ($999.95), Sennheiser assembled enough of its evolution 600 Series mics to cover a five-piece kit. These include four e 604s for snare and toms, an e 602-II for the kick, and two e 614 supercardioid condensers for use overhead.

Audix has several mic pack configurations. The DP4 ($449) puts the DP6 kick mic together with three i5 dynamics to cover the snare and toms, while the FP7 ($499) provides enough of the company's F Series mics to cover a seven-piece kit. Other D-series mic packs include the DP5A ($659) for a five-piece

**Audix DP7 Drum Mic Pack**

kit without overheads, and the DP7, ($899), which adds a pair of ADX51 condensers.

At the upper end from Audix is the STE8 ($2,499), which packages enough D Series mics to cover a five-piece kit supplemented by an SCX1-HC hypercardioid pencil condenser for the hi-hat and a pair of the outstanding SCX25A large-diaphragm condensers for overheads. While the price of this kit may give many home-studio owners sticker-shock, consider that this deal gives you three excellent condenser mics, all of which can be used for other recording tasks—voice, acoustic guitar, piano, or as room mics.

A different approach to the drum-mic pack comes from Earthworks and Blue Microphones, both of which provide a three-mic solution using high-end condensers—two as overheads and one for the bass drum. The Earthworks DK25/L ($1,649) includes three SR25 mics and a KickPad passive inline attenuator/EQ for use with whichever mic is put in front of the kick. The DK25/R ($1,549), by comparison, provides a pair of omnidirectional TC25s for use as overheads and an SR25 with KickPad for the bass drum.

The Blue Microphones Pro Drum Kit Kit ($2,499) comes with a matched pair of Dragonfly large-diaphragm condensers for use overhead, and the Mouse for placement in front of the kick. (For more detailed information about the various kits mentioned here, check out the article "8 Drum Mic Kits Tested" at emusician.com.)

## LO-FI MICS

Professional engineers are known to scour flea markets and surplus stores looking for old mics that can be used to provide a unusual textures. Some of the most colorful vintage mics were never intended for studio use, but were designed to improve speech intelligibility over the primitive public-address systems of the mid 20th century. As a result of their band-limited designs, these mics often favor a frequency range that gives them an old-timey sound, as if you were listening to a sound source playing from a wax cylinder or 78RPM disc.

A number of manufacturers have designed products that provide similarly colorful timbres, but without the hassles that come with ancient transducers. And the unusual casings used for these modern low-fi mics are not just for show; they have a major impact on each microphone's sound quality and pickup pattern. Overall, these mics work well on just about anything—voice, guitar, piano, and full bands. And they are surprisingly well-suited for use onstage.

The UK-based company Wasaphone offers several low-fi mics. The Wasaphone MkII (£42.50) is based around a dynamic mic element taken from a vintage British telephone that focuses on a frequency range from 200 Hz to 2 kHz. The element is sealed in a salt shaker with an XLR connector attached to the rear. The mic comes with a brass ring that fits around the canister and mounts to any mic stand.

The Wasarocket (£130), by contrast, places a "NATO-issue CB radio capsule" into a 50mm brass artillery shell and provides a frequency range from 200 Hz to 3 kHz. It also includes a brass bracket for mounting.

Harmonica players will want to check out Wasaphone's Greasy Jack (£130). Shaped like a cider apple and made of wood for easy hand-held use, it has a flat copper top and favors the 200 Hz to 2 kHz range.

Among the most popular companies making band-limited mics is Placid Audio, whose products have been used by dozens of well-known engineers. The mics are housed within a copper case, built in the USA and come with a lifetime warranty.

The Copperphone ($259.99) is a moving-coil dynamic mic with a cardioid pattern and a 200Hz to 3kHz frequency response. The tuned, ported chamber is attached to a mounting bracket made from aircraft aluminum, which also allows for horizontal positioning.

Slightly smaller in size and cradled in a vintage-looking shockmount, the Copperphone Mini ($299.99) has a slightly reduced frequency range (200 Hz to 1.4 kHz). When removed from the shockmount, its diminutive size makes is suitable for handheld use by harmonica players.

The newest mic in the line is the Carbonphone ($399.99), which utilizes a carbon-granule capsule as the transducer and copper for the housing and parts, and includes a Hammond output transformer, an XLR jack, and an aluminum mounting bracket. The mic comes with a 9V-powered, variable-filter Tone Box to shape the timbre of the mic. Although the Carbonphone›s frequency response is stated as 500 Hz to 10 kHz, the Tone Box narrows it further to bring out different tonal characteristics from your sound source. The Tone Box also provides phantom power and can be used with other microphones, as well.

**Placid Carbonphone and Tone Box**

AEA
N8
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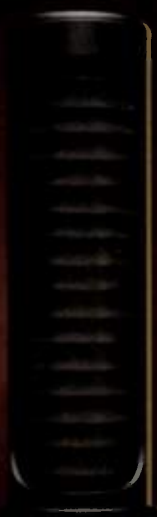

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# USB MICS

The convenience that a USB mic offers is appealing to many musicians: There's no need to get out the mic preamp, interface, and XLR cable when inspiration strikes—just plug in and play.

Over the years, mic makers have begun adapting their USB mics to the needs of musicians, adding features that both improve the recording quality and the user experience. As a result, today's USB mics sound better than ever and are no longer relegated to the world of demos: In the right hands and circumstances, this class of transducer can capture sounds that are suitable for release.

When it comes to price vs. performance, the more you pay for a USB mic, the more features you get—not to mention an increase in digital resolution. Basic models costing well under $100 might not have all the bells and whistles, but they are perfectly fine for capturing musical ideas quickly, though they often have lower bit depths and sample rates.

A few examples of budget-friendly USB mics for musicians include the Samson Q1U ($39.99) handheld dynamic mic and the Meteor ($69.99) condenser, both of which offer 16-bit/48kHz resolution (though the latter includes a built-in 1/8" headphone jack for no-latency monitoring). In that same price range, the Blue Microphones Snowball ($69.99) offers cardioid and omni patterns and a -10dB pad, and is available in three colors.

Moving up in price by $10 increments, features are added, along with accessories such as a stand, basic DAW software, and a pop-screen (depending on which model you get). Here you find Samson's traditional-looking large-diaphragm cardioid condenser, the C01U ($79.99), while the hypercardioid C01U Pro ($89.99) adds a built-in headphone amp. The C03U ($99.99) is another step up, providing multiple patterns—supercardioid, omni, and figure-8. At the $99 level, your choices also include the Audio-Technica AT2005USB (sporting an XLR output so you can also use it as a traditional mic) and the Blue Microphones Nessie (with built-in adaptive DSP processing such as a de-esser, EQ, and auto-level control).

**C01U Pro**

Things start to get really interesting, in terms of features, with the Samson G-Track ($119.99). This large-diaphragm, supercardioid condenser sports a mini-jack input that accepts stereo line-level signals from keyboards or audio players as well as mono instrument-level signals from electric guitar or bass. As a result, you can record voice along with a mono instrument, track two mono instruments simultaneously, or capture a stereo sound source. Onboard level controls and a headphone jack with direct monitoring capabilities are also included.

The Blue Microphones Yeti ($129.99) not only has its own stand but includes a traditional, threaded mic-stand mount. This mic offers three polar patterns (cardioid, omni, and figure-8) and has a built-in level control and headphone jack.

As you cross the $150 threshold, you find the Audio-Technica AT2020USB+ ($169) and Shure PG27USB ($199), both of which adapted their studio mics to the USB format with good results.

Blue Microphones steps things up considerably with its Yeti Pro ($249) by adding 24-bit/96kHz resolution, an XLR jack, and a stereo pickup pattern. Another mic that stands out in that price range is the Apogee MiC 96k ($229), a cardioid condenser that boasts 24-bit, 96kHz Apogee converters, all-metal housing, and Mac and iOS compatibility. An iOS Lightning cable and tripod stand are included. ■

**Audio-Technica AT2020USB+**

**Shure PG27USB**

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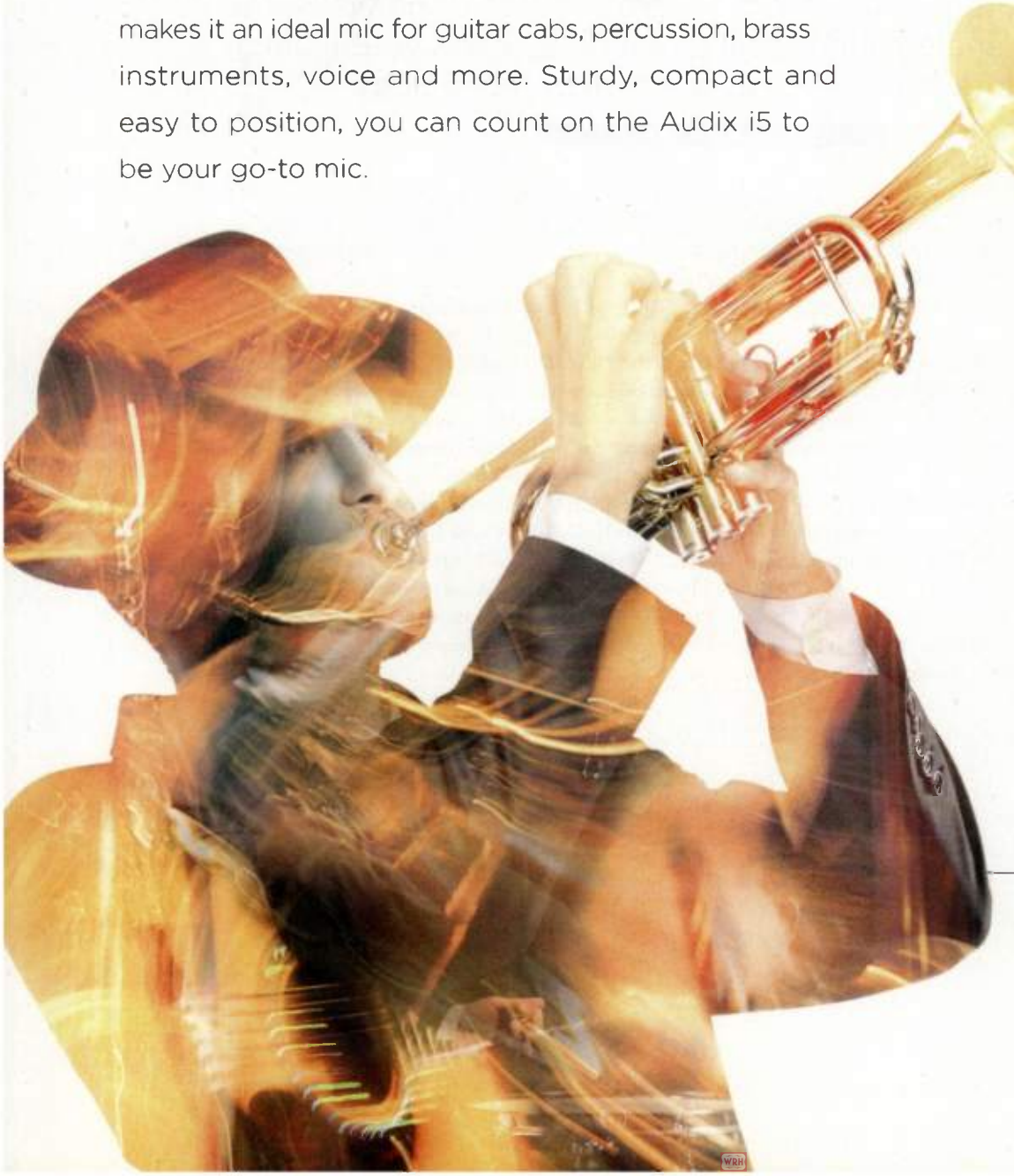

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# DEATH CAB FOR CUTIE

## On *Kintsugi*, their final recording project with Chris Walla, the band marries analog and digital techniques in the studio, finding their musical voice at the core of technology

BY KEN MICALLEF

THE FINAL DEATH CAB FOR CUTIE ALBUM TO INCLUDE ORIGINAL MEMBER, PRODUCER, AND INSTRUMENTALIST CHRIS WALLA, RECORDED ON TAPE AND IN PRO TOOLS, PRODUCED BY RICH COSTEY, AND FEATURING A WEALTH OF ANCIENT ANALOG DRUM MACHINES AND DCFC'S FIRST LIVE PERFORMANCES IN THE STUDIO AS A COMPLETE GROUP, *KINTSUGI* (ATLANTIC) IS ARGUABLY THE MOST ACCESSIBLE ALBUM THE SEATTLE FOURSOME HAS RECORDED, YET IT'S ALSO THEIR MOST ENIGMATIC.

Walla's last performance with DCFC was September 13, 2014, at the Rifflandia Festival in Victoria, BC. Walla wrote in Seattle paper *The Stranger*, "I think I long for the unknown. It might be that simple." With songwriter, vocalist, and guitarist Ben Gibbard; bassist Nick Garner; and drummer Jason McGerr left to fend for themselves, the group asked producer Rich Costey (Franz Ferdinand, Muse, Interpol, Kimbra) to record the band in his Eldorado Recording Studios in Burbank, California. After phone calls with Walla and Gibbard, the initially wary Costey was onboard.

"We began making this record with Chris at the helm in the summer of 2013," Gibbard explains from his Seattle studio, Computer World. "But a month into recording Chris called a meeting and said, 'I don't think I am the right person to [produce] this record.' He basically fired himself and we began looking for a new producer. Things weren't hitting the way they should have been hitting. It was the right call on Chris' part." The band made a decision not to tell Costey that Walla was leaving the band until they were finished recording, because they felt it might color the process. "Every band has cliques—that is how bands are," says Gibbard. "The sound of the record was equal parts the songs I was bringing in and Rich's desire to make a record that sounded like us but with some new flavors." >>

Ben Gibbard tracking at Eldorado.

Produced and mixed by Costey; recorded by Costey, engineers Martin Cooke, and Nicolas Fournier at Eldorado Recording Studios; and assisted by Mario Borgatta and mastered by Bob Ludwig at Gateway Mastering, *Kintsugi*—also the Japanese word for the art of fixing broken pottery—is an ethereal, insular-sounding record, built on the sound of drum machines and the sad mood of a lost friendship.

"I had no idea," Costey recalls. "For them it's been coming for a long time but I didn't get any hint of it. Chris was massively engaged, and I pushed all of them really, really hard. I set Chris up in our secondary control room at Eldorado because he likes to tinker and come up with ideas, from tape splices to programming, which he would incorporate into the music. And he plays ripping guitar on the album."

Costey's signature gear used on DCFC included his Studer A 827 tape machine, extremely rare UA-610 console, Neve PSM 12x2 console (1073 pre's, 10 direct outs), 52-channel SSL 4000E.

"We thought of each song as man and machine," Gibbard says. "We wanted varying percentages of man and machine on every song. There might be an LM-1 Linn Drum or a sequence happening, but we wanted it to sound like a band. I was impressed with Rich in that he brought drum machines into the band setting without having the machine over-


# Studio Essentials... PowerTools

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*"The Gold Digger is a must-have when shooting out vocal mics. It's seamless and entirely invisible."*
**~ George Seara - engineer**
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*"Finding the right mic & preamp combo is pivotal. The Cherry Picker is a fantastic workflow improver."*
**~ Jack Douglas**
Aerosmith, John Lennon, Patti Smith, Cheap Trick.

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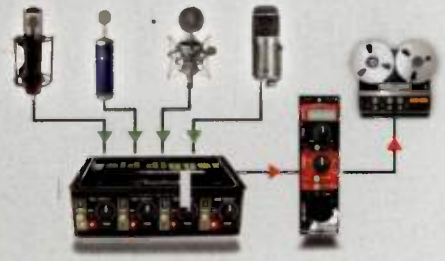
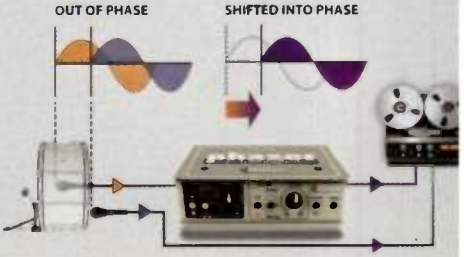
*"The Phazer is incredibly easy to use - the results are nothing short of dramatic."*
**~ Jay Baumgardner**
Evanescence, Godsmack, POD, Papa Roach.





whelm the band; that's a tightrope walk when you bring that element into a rock band. It tends to overtake everything. But in the more successful moments on this album the man and machine are playing as one. Rich was very much at the helm of that."

Going against the grain of Costey's fondness for ancient machinery, Gibbard is practically an analog Luddite. While most everyone else is embracing vintage analog technology in all of its crusty glory, Gibbard prefers the world of computers for tracking vocals and everything else.

"I have never been happier than when we were able to record vocals into a computer rather than to tape," Gibbard says. "Chris is an analog purist; he likes cutting up tape and we did record basics to tape for *Kintsugi*. Tape has a certain quality that is unmatched in a computer because of the physical nature of the medium. But there is very little difference that the average musical listener can actually hear between a record recorded to tape and one recorded well to a computer. Nobody can tell. I like that recording in computer removes the human element; you don't need an engineer to be performing the take with you. As long as when you're recording to the computer you are able to maintain a focus on the musicality and the character of the performance, and keep tight to that focus, computers are great. It's only when people try to fix everything and get lost in the myriad software effects choices that you lose focus on what is important."

Still, tape and analog processing fills *Kintsugi*. From Walla's spliced, diced, and thrown-around tape loops to Costey's vintage consoles and insistence on recording drums to tape, *Kintsugi* is a compromise, in many ways, for Death Cab for Cutie.

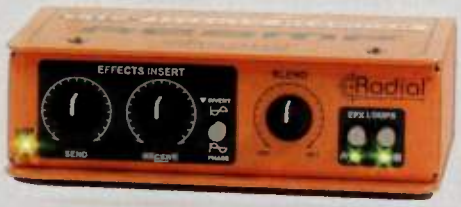
"There are definitely processed, long-sounding guitar things on the record," Costey explains. "A lot of that is Chris's natural tendency. He likes tape loops. Chris will put down ambient guitar parts across an eight-track deck, then we will bring it up and set up Chris up with eight faders. He will turn up faders as the song goes by to generate a guitar part out of that ambience. We did that on 'Good Help (Is So Hard to Find).' Chris and I share an affinity for that kind of sound."

With Walla working alone in Eldorado's B control room, free of production duties, he buried himself in his own weird tape, drum machine, guitar, and keyboard world.

"There's all kinds of keyboards on the album," explains Fournier. "Chris had his own stuff in the B room, a little Radio Shack keyboard, our Wurly 200A, Steinway Model B piano, Yamaha CP70 grand piano, Roland Juno patches. But we didn't use any soft synths. Both Rich and Chris are fans of real synths and older analog synths. Rich also has a Modcan modular synth and an ARP 2600 which we use in processing for its filters. One song has a whole bed of literally Chris' recorded tones in the key of the song on the 8-track machine, which he cut up into inch-long pieces and then put it in a shoebox. Then he tossed the tape around in the box and taped them back together, and ran that into the song. It created this kind of glitchy, tonal, moving, shifting thing in the background of the song. On another song he did the same thing, then we hooked the tape machine up to Rich's little Neve console and recorded the output of that. Chris was playing the faders bringing different chords in and out throughout the song. We had Mario, our assistant, sitting on the floor spooling the tape making sure that it fed properly. A lot of fun."

"Fun," but also an "odd situation," as Costey tells it. "Clearly if they wanted an outside producer, they were trying to figure something out," he says. "They liked my records with Muse and Interpol and we talked about a lot of different music. I listen to hip-hop and electronic music, mostly; no rock unless it's older. I like Andy Stott and Mt. Kimbie. I hate electronic music made on computers. Did you notice on Aphex Twin's *Syro* album? He listed some of the gear he used to record the album, but he doesn't use computers. A lot of art-


# for Studio Professionals!



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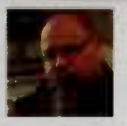

*"I use my three EXTC's on every recording and mix I do. They are absolutely, positively perfect!"*
**~ Vance Powell**
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Alison Krauss, T-Bone Burnett.

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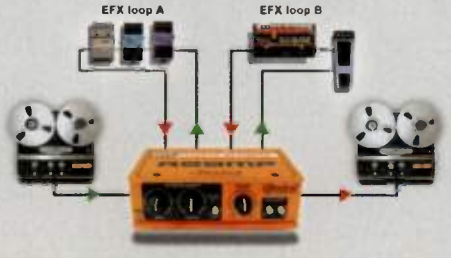


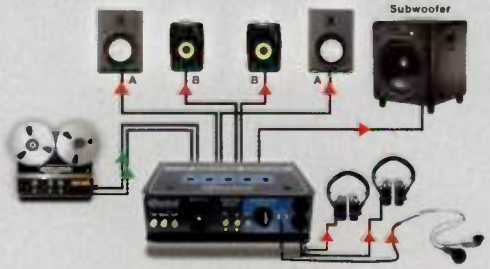


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RAGNAR PÓRHALLSSON

**Team Costey at the UA-610 console in Eldorado Studio A. L-R: engineers Martin Cooke, Nicolas Fournier, and assistant engineer Mario Borgatta. With producer Rich Costey in bottom-left corner.**

ists I like use the computer as a home base but the music is being made elsewhere. People have to make music, not just a bunch of crap going on in Ableton. All these people harness technology to make music but at the core is their musical voice. Sometimes the aesthetic choices trump the musical choices with a lot of contemporary rock music. They get their style together but not their music.

"Anyway," Costey continues, "we would set up Chris' vintage drum machines and use that as a jumping-off point. On 'Good Help,' for example, we were almost done with the song, but it wasn't right. So we set up the full band in the live room, and I felt that there was a beat that would work so I programmed it on Chris' Linn Drum, which has a cool sound, and they played along to it. That inspired the performance, and in 20 minutes it was done."

While much of *Kintsugi* has a serene, almost electronic-sounding sheen infusing the music, it's one of the very rare DCFC instances where the entire band can be heard playing live in the studio.

"Most of the album was tracked with the band playing together live, which hasn't happened in years," Costey says. "And sometimes reacting to my drum programming. We recorded all the jams onto a stereo two-track running all the time. They never do that. Ben is a song guy who doesn't care about jamming. But it's good for everyone to stretch out. That happened on a quite a few songs. If a band has chemistry, it's foolish to ignore that."

Gibbard maintains a small studio in Seattle, where he uses a Beyer M160 to capture everything, including demo vocals. "It takes me a couple takes to warm up, then I do five full passes of the song, no stopping, no comments, then make some notes," Gibbard says. "My goal is to have most of the lead vocal done in five takes. I like to get larger chunks completed, even in one take if possible, but usually one line isn't right, then we fix it, or take it from the other four takes. I wrote the song; it's not like I am figuring out the lyrics in the studio. The delivery is what matters for me."

"We used the Shure SM7, Neve PSM 10 mic pre's, and EL Labs Distressor on Ben's vocal," says Fournier. "We did all the basic scratch vocals with the SM7—it sounds good, and it can be in the drum room and be less prone to pick up everything like a condenser would. We also tried an AKG C12 and Telefunken ELAM 251 and our nice tube mics, but we really liked the way the vocals sat with Ben's voice on the SM7. 'Hold No Guns' is one mic on Ben and his guitar: a Neumann M49; one take. Other than that, we used the SM7 on all of Ben's vocals."

Costey's Universal Audio 610 board, one of only 12 in existence, was also used extensively on *Kintsugi*. "It's got that big, warm, classic tube-y sound," says Fournier. "It's not overly tube-y like some modern tube gear that over-emphasizes its tube qualities; it's just big and rich and clear. It's got these simple high- and low-shelf EQs, simple notches but with a very gentle slope that shapes the tone nicely."

Drums were tracked both digitally and analog set to time code. "Some songs were entirely digital, some all analog," says Fournier. "You get more low-end weight with analog, and better clarity with digital, so it depended on what each song called for. We might switch mid-take, depending on the song. But we used tape for drums and some guitars and Chris' tape loops."

Eldorado's gear menu includes a Shadow Hills preamp, Briscasti reverb, Neumann, Blue Bottle, Shure, Sanken, and AKG microphones, and dozens of EQs, delays, plug-ins, and more. Drums were tracked in the 20x12x20 live room, with the band in the same live room, amps located in the four isolation booths.

"There was no pre-production," says Fournier. "The songs were written but not arranged, which was done in studio—a lot of cutting and re-cutting of parts. We would re-cut guitars over and over to get the right sound, a sound that was unique. DCFC are spectacular players. The goals would change as we recorded songs. Rich wants to make sure everything is right and interesting and unique and that the direction is proper."

Guitars were recorded using Shure SM57, Royer 121, or Neumann U87 microphones, "usually a few inches from the grille, just off center of the cone," says Fournier. "We might multi-mic and amp with a 57 and a 87 lined up so they are perfectly in phase, but usually one mic. Most of the guitars were cut with the Neve PCM and the Shadow Hills preamps."

Bass tracking commenced via an Ampeg SVT, using a microphone combination of 421, a Blue Mouse, and/or Neumann FET 47. Mic placement was similar to guitars: off-center of the cone, not too far away from grille.

Drum recording changed almost per song. Compared to some studios, Eldorado's drum miking is practically minimal; again, depending on the song. "Sometimes just a kick and snare and a mono overhead, other times 16 mics," Fournier says. "A lot of the record is a Beyer M88, Jason's mic, that sounded really good placed on the kick drum, inside the shell, supplemented sometimes with a FET 47 or a NS10 kick-drum mic on the outside. Snare drum was usually a combo of SM57 or a Josephson E22. Mono overhead mic was a Sony C37 that was broken but sounds cool placed three feet over the kit or a pair of AKG C12s as overheads. Room mics were a pair of Blue Bottles, close to the ground, four or five feet from the kit. Our live room is very live so we keep the mics close to the ground so it doesn't get too washy. For room mics, we liked the spill off of Ben's SM7 vocal mic into the drums, and we set up another SM7 facing the wall in the back to capture those drum reflections to give the drums that slap. Tom mics were the Josephsons as well, and 451 on the hi-hat all usually running through the Universal Audio 610's mic preamps.

A cerebral, melancholic pop album laced with shimmers of electronic programming, wistful lyrics, and an unmistakable sense of forward motion, *Kintsugi* is essentially Death Cab for Cutie's love letter to itself, a confirmation that all will be well, that personalities and goals change, that nothing stays the same. ■

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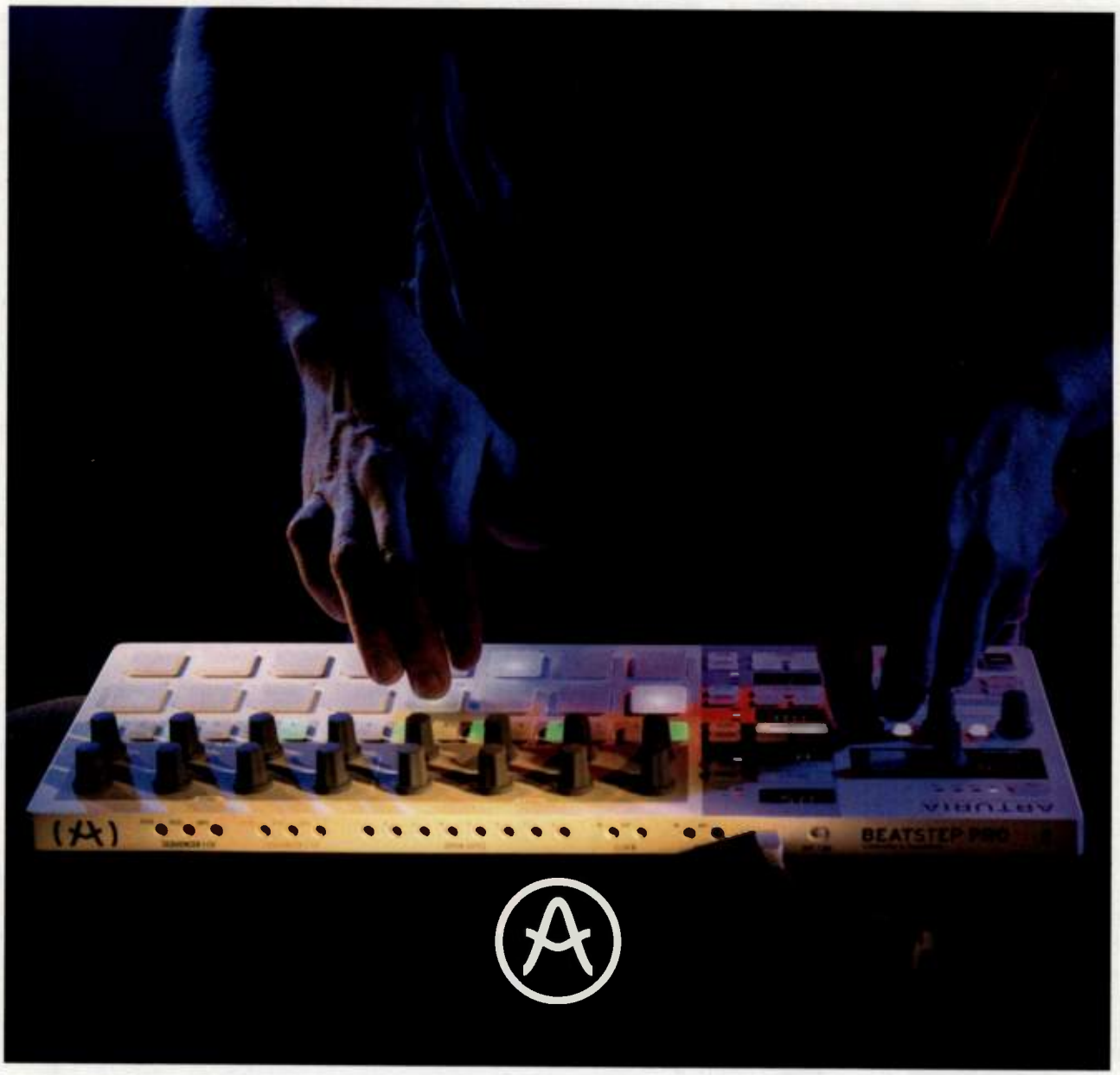


## PERFORM

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# Benasis and Steve Aoki

## << Guitar Center contest winner and superstar DJ collaborate in the studio

**BY LILY MOAYERI**

Three things changed the course of Julian Benasis' life. One, his girlfriends broke up with him; two, he decided not to go to pharmacy school; three, he entered the Guitar Center's "Your Next Record with Steve Aoki" remix contest, and won.

The 23-year-old Chicago-bred Benasis has been DJing professionally since he was 16. Working his way up from suburban teen clubs to the venues in Chicago, he was traveling for gigs by the time he was 21. At this point he had been producing original music and uploading bootleg remixes to YouTube for at least three years—a side effect of his girlfriend breaking up with him and him immersing himself in his Image Line FL Studio system, as a coping mechanism. This process also happened with his next break-up, allowing his music take a turn for the better.

Simultaneously, Benasis was working towards a pharmacy degree. Two years into the program with his trap anthem, "Booby Trap," getting a lot of attention, Benasis decided to take all the cash he had saved for college and sink it into a studio. He moved away from his laptop-and-headphones combination, expanding to a full set-up with Yamaha HS8 studio monitors, KRK 10 Active subwoofer, Akai MPK49, Native Instruments Maschine MK2, and PreSonus AudioBox 22VSL to complement his FL Studio.

This studio came together right before Benasis decided to enter the Guitar Center contest, which offered the Aoki track "Delirious" for remix. What attracts Benasis to remixes is the vocal, and for "Delirious," he downloaded the stems provided by Guitar Center and knew he could do something special.

"When I do a remix, I don't use parts other than the vocal; I like to make all of the music from scratch," says Benasis. "The vocals gave me a strong party vibe, so I went with a bounce remix. I wanted the drop to be dance-y but strong and more varied in the way it flowed. I made the drop using a custom lead I created on Lennar Digital Sylenth1; Sylenth is extremely versatile and an amazing VST to use for leads. I adjusted the main melody by taking a brassy sound and morphing it out to make a summer party groove. The horn I used was created using a real brass sample. I plotted it on MIDI to my own liking and pitch-bended it using FL Studio."

Benasis recommends the Vengeance sample packs, which lend themselves readily to various subgenres of electronic music. Additionally, he relies on Native Instruments Massive for the nastiest of bass sounds. He got to share these tips with Aoki when visiting the Dim Mak studios in Los Angeles as part of the grand prize package, which also includes a single executive-produced by Aoki ("Hard Ones" is the track Aoki chose), plus $10,000 in cash, new gear, and an opening slot for Aoki.

"This is by far the best remix that came in, with the most effective drop," says Aoki of Benasis' reinterpretation of "Delirious," which beat out more than 7,000 submissions to win the prize. "It was something brand new that added his own signature to the remix. I see a lot of future in Benasis as long as he stays consistent and his passion and drive are at the front of his game." Check out Benasis' winning remix at aoki.amplifiertv.com. ■

Steve Aoki (left) offers Benasis some production tips at Aoki's Dim Mak studios in Los Angeles.

**SQUAREPUSHER**
## *DAMOGEN FURIES*
WARP

After his 2014 sci-fi treatise, *Music for Robots*, Tom Jenkinson returns to the past. *Damogen Furies* recalls '90s acid raves where drum-and-bass was just finding a foothold, and sample rates remained at a solid 60 seconds. "Stor Eiglass," "Baltang Ort," and "Exjag Nives" sound like Jenkinson's tribute to Aphex Twin, mirrored in *Damogen Furies'* brain-crunching rhythms and lip-ripping tones. But always a sucker for a melancholic melody, "Baltang Ort" spins a sad tale through warlike rhythms that recall deep space dread.
KEN MICALLEF

**DWIGHT YOAKAM**
## *SECOND HAND HEART*
WARNER BROS.

The title track on Yoakam's latest makes a fascinating union between the country star's angelic voice, love-song lyrics, and anthemic production that's more than a bit E-Street-Band. An unexpected take on "Man of Constant Sorrow" features wailing guitars and massive rock 'n' roll drums. Track one, "In Another World," is blown up, too, with doo wop-ish backing vocals and extra reverb. Listeners might pump their fists to the magnificent wall of sound Yoakam has created if the lyrics weren't so tender and sweet.
BARBARA SCHULTZ

**PREFUSE 73**
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Producer Guillermo S. Herren debuted his Prefuse 73 alias in 2001 as a fully formed idea. His cross-stitched glitch-hop—balancing boom-bap cut-ups, loping melodies, and pixelated harmonics—is instantly recognizable. And on his first Prefuse album in four years Herren edits resolutely, tethering pastoral vibes to swarms of fractured musique concrète within his heavy weightlessness. Glacial chords, scurrying beats, and disembodied splices are just some of the occupants of Herren's world.
TONY WARE

**GHOSTPOET**
## *SHEDDING SKIN*
PLAY IT AGAIN SAM

Ghostpoet comes across as Tricky's comprehensible musical cousin. On *Shedding Skin*, live instruments back his raspy rhymes, a first for the British rapper. This is a great match for the catches in Ghostpoet's voice, which are at their best when he's head-to-head with the ladies. He battles lazily on "That Ring Down the Drain Kind of Feeling," leans against the guitar sketches of "Sorry My Love It's You Not Me," and quivers with flair through the skittish "Off Peak."
LILY MOAYERI

**SAM PREKOP**
## *REPUBLIC*
THRILL JOCKEY

The Sea and Cake vocalist and guitarist Sam Prekop eschews his trademark Brasilian-styled music for a dreamy, synth-layered sea that recalls early Kraftwerk, Tangerine Dream, and fellow Chicagoans Tortoise's space-wandering epic, "Dear Grandma and Grandpa." A beautifully ambient, warm-womb world of daydream-inducing, sun-splattered synth goodness, *The Republic* finds its center in such luminous tracks as "Loom," "The Ghost" and "A Geometric." Essential.
KEN MICALLEF

**MEW**
## *+–*
PLAY IT AGAIN SAM

Pronounced *Plus Minus*, the first album from Danish prog-pop quartet Mew in six years opens with "Satellites," a brocade of reverb and delay, embossed falsetto swells, and breathing, buzzing appliqués. Cascading guitars and multitracked vocals, studded with fluttering snares, throbbing bass, and furrowing synths, weave together into 10 richly decorative, high-tension patterns. The end result unfurls blazingly into an expansive, densely arranged textile riddled with melodic detail, harmonic texture, and dream-like proportions.
TONY WARE

**BENJAMIN BOOKER**
## *LIVE AT THIRD MAN RECORDS*
ATO

Why release a concert album on an artist with just one studio LP? Well, why not? Booker is one of the most exciting young rock 'n' roll performers to debut in 2014. Given his gorgeous, raw sound; tremendously musical drummer, Max Norton; and intensely compelling original songs, why not give the tracks on Booker's self-titled debut every possible chance of reaching the audience they deserve? Must listen: Booker calls the single "Violent Shiver" his "least favorite song," but it's genius.
BARBARA SCHULTZ

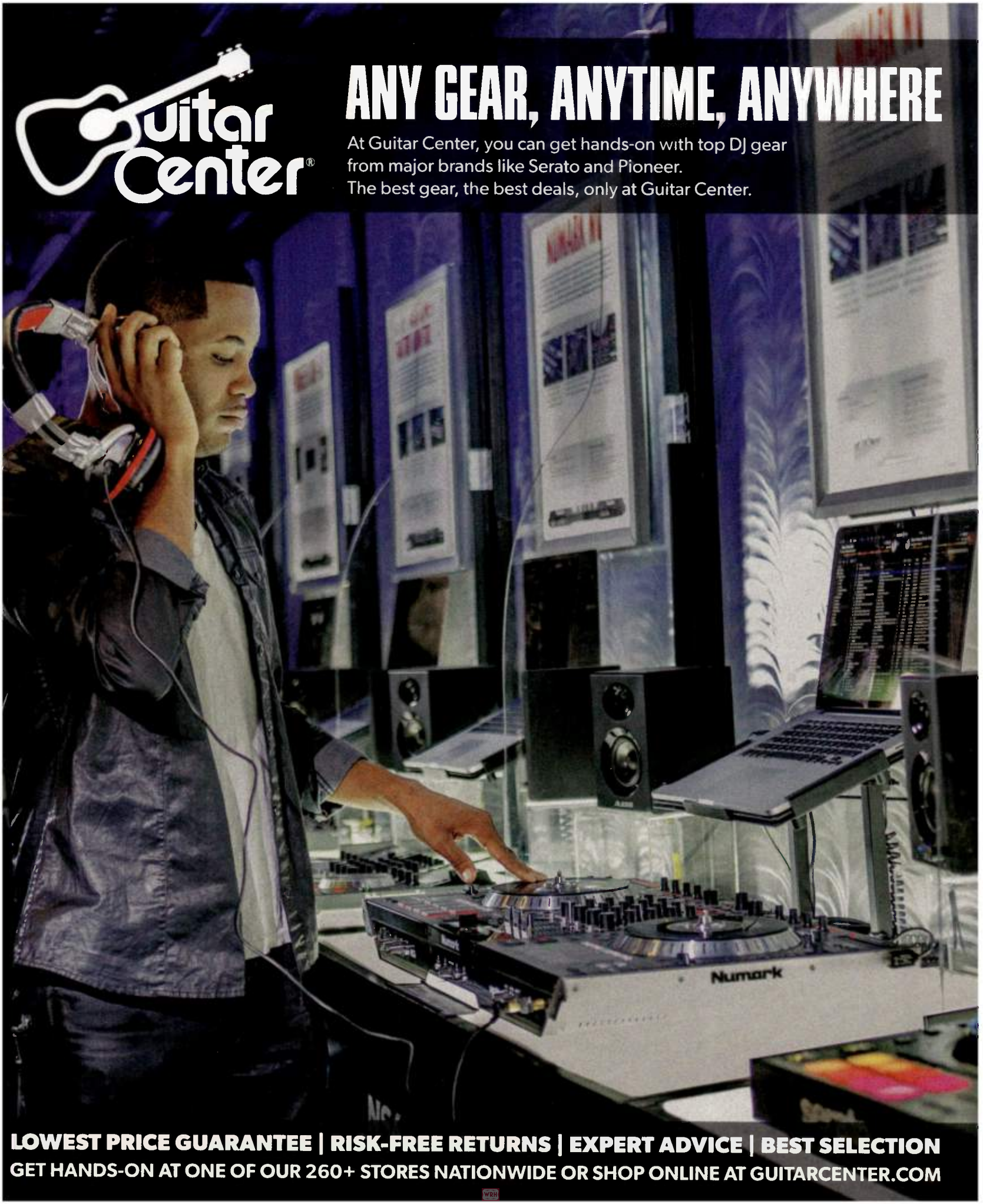
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**Fig. 1. Virtual Mix Rack accommodates up to eight processing modules and currently includes two compressors, two equalizers, and a sonic enhancer.**

**SLATE DIGITAL**

# Virtual Mix Rack

## FIVE VIBE-Y PROCESSORS IN A NEW WRAPPER

**BY MICHAEL COOPER**

Slate Digital—famous for plug-ins that emulate classic analog gear—has co-opted the 500 Series rack and digitized it. The company's new Virtual Mix Rack plug-in (VMR) creates a configurable receptacle for a new line of processing modules. Included with VMR's launch are two compressors, two equalizers, and a sonic enhancer.

Michael Cooper is a recording, mix, mastering, and post-production engineer, and a contributing editor for *Mix* magazine. You can reach Michael at michaelcooper@bendbroadband.com and hear some of his mixes at www.soundcloud.com/michael-cooper-recording.

### STRENGTHS

Vintage vibe. Overall great sound quality. Extremely low CPU load. Low price.

### LIMITATIONS

FG-116 omits all-buttons-in mode. No external sidechains. Revival's shimmer control needs greater range. No undo or redo. Three modules lack output-level controls.

$199
slatedigital.com

### RACK 'EM UP!

VMR opens with empty rack slots, into which you can load up to eight processing modules compatible with its proprietary format (see Figure 1). The GUI opens with four slots by default but expands automatically when you drop in five or more modules.

Some of the new compressor and equalizer modules model (with modifications) classic gear. The FG-116 module emulates the UREI 1176 Peak Limiter (Rev D); it adds a wet/dry mix knob, used to implement parallel compression. FG-401 incorporates models of several VCA compressors in its Circuit 1 mode, adds a proprietary compression algorithm (Circuit 2), and facilitates parallel compression. FG-N models the three-band Neve 1073 equalizer with high-pass filter (HPF) and Drive control (used to push the module to produce harmonic distortion); the module adds a fourth band that exactly duplicates the existing one for midrange frequencies, allowing additional control. FG-S models an SSL E Series console's EQ, offering four bands—two parametric midrange bands and alternate shelving/bell filters for both highs and lows—and an HPF. Also included with VMR is the all-original Revival Sonic Enhancement Processor module, a two-knob affair you can use to add air and brightness to high frequencies and fatten up the bass. (Revival can be downloaded for free by anyone.) Additional VMR modules are planned for the future.

Modules can be dragged within the rack to change their order in the signal chain. You can use multiple instances of the same module in one rack. Or drag a module from a rack in one track to a rack in another, either moving or copying the module in the process.

Each module can be bypassed or soloed, either alone or together with others. You can save and recall presets for individual modules and for the entire rack's setup (the module selection for each slot and all of the modules' parameter settings). Rack presets can be stored in separate banks (for guitar, bass, keys, and so on) for fast search and recall.

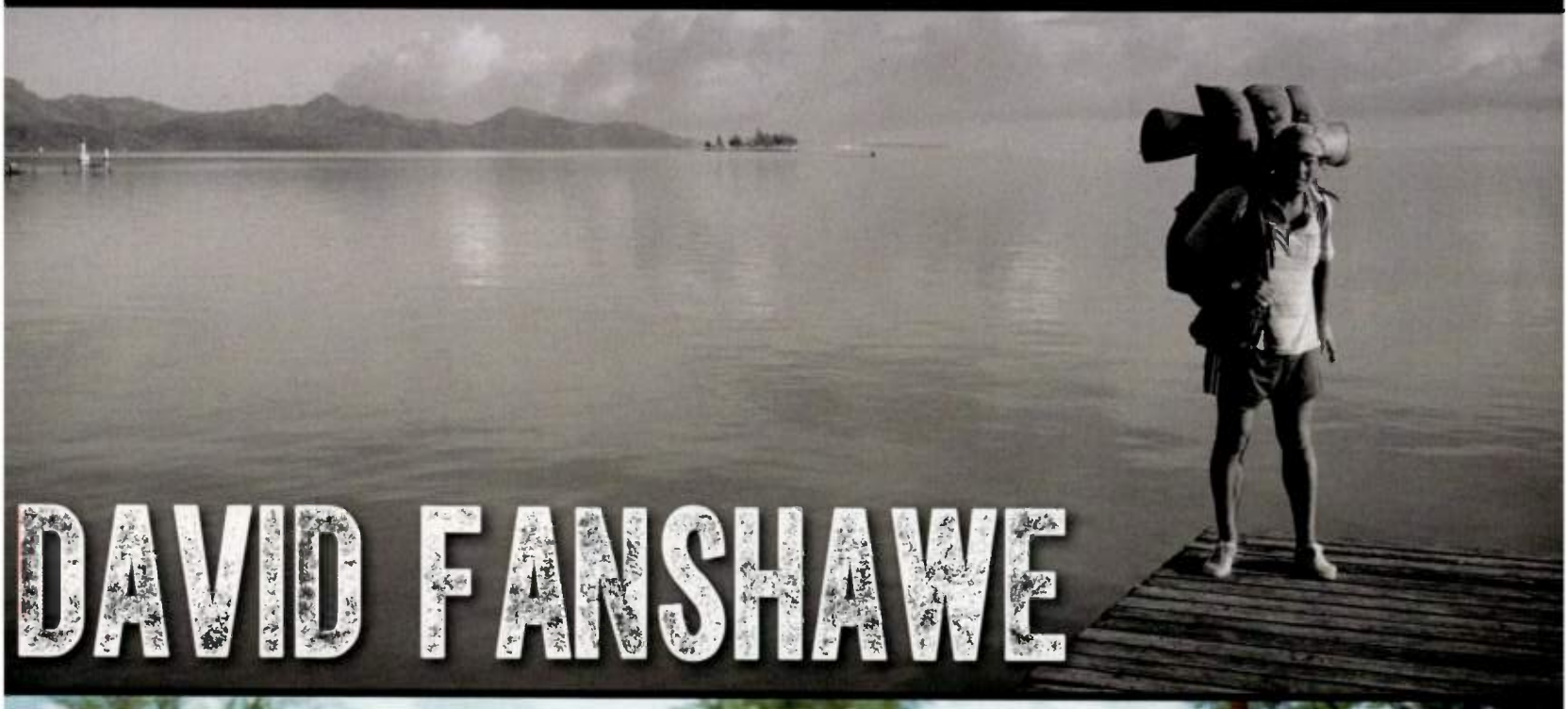
### PLAYTIME

First, the big picture: Both EQ modules are best used for relatively broad tonal sculpting. Neither one can do notch filtering, and both were ineffective at attenuating a ringing tone on a snare track.

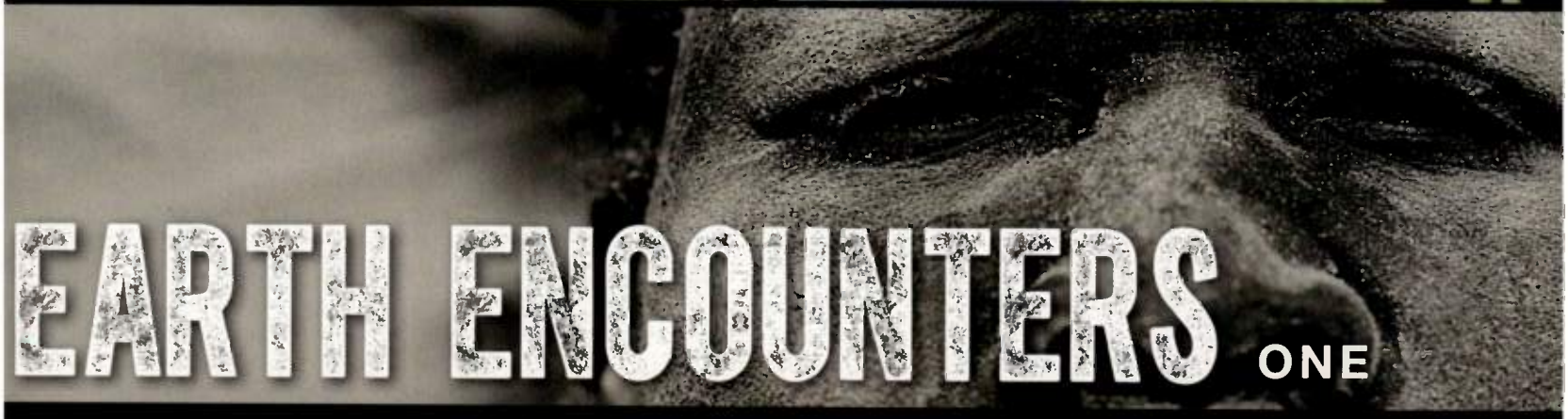
That said, FG-N sounded great on kick drum. Unlike the Neve 1073 that it emulates sonically, the module's frequency knobs offer many different intermediate switch settings; that allowed me to zero in on a little bell-curve boost at 3.82 kHz, bell-curve cut at 631 Hz, and shelving boost at 70.2 Hz. The result was a harmonically rich, meaty sound with nice beater click.

FG-401's Circuit 1 mode, with the fastest attack

A FANSHAWE ONE WORLD MUSIC PRESENTATION



# DAVID FANSHAWE



# EARTH ENCOUNTERS ONE

SPITFIREAUDIO.COM

**Fig.2. VMR processes room mics for drums to create an explosive sound.**

time selected, accentuated the kick drum's attack beautifully. The slowest release time—in either mode—wasn't slow enough to appreciably lengthen the shell's sustain. But chaining FG-116 after the 401 took care of that. Selecting a 20:1 ratio and the fastest release time (which is nevertheless quite slow) increased the drum's sustain nicely. The composite effect rendered by the two compressors sounded huge and demonstrated the power of using two or more modules at once to complement each other's abilities. Adding the Revival module and liberally raising its thickness control beefed up the low end to awesome effect. I only wish the shimmer control offered a bit more range; its effect sounded relatively subtle on percussion tracks with short-lived transients.

I could get a fairly explosive sound on stereo room mics for drums by first boosting the bass and lower highs with FG-N (spotlighting the traps) and then slamming the track with FG-116 (see Figure 2). I jacked up FG-116's input, selected 20:1 ratio and dialed in a slow attack time and fast release. Those settings hyped the room's ambience beautifully without squashing drum hits. I was disappointed, however, that there was no way for me to push the sound over the top using the classic all-buttons-in mode (depressing all ratio buttons at once) for which the hardware 1176 is rightfully famous. Slate reports a new VMR module is in the works that will do that.

On electric bass guitar, FG-N's filters once again delivered a rich tone. Boosting the module's line input 7 dB added just enough distortion to make the instrument growl but not break up. Activating the module's drive control compensated for the extra gain boost to prevent clipping the plug-in's output. Next, I placed Revival after FG-N in the rack. Boosting the thickness control even a little really flattered—make that "fat-terred"—electric bass guitar. Problem was, it also raised the level of the track enough to cause clipping. (Like the two equalizer modules, Revival has no output-level control.) I fixed that by using FG-401 as a simple level controller: Placing the compressor after Revival, I dialed in 1:1 ratio and cut the makeup gain 8 dB. The track didn't need any compression; driving FG-N hard had already saturated the track nicely. The final touch was switching in FG-401's transformer for some very subtle additional coloration. The bass sounded bad-ass!

Electric six-string guitar sounded great with a little boost in FG-S at 3 kHz and 200 Hz, followed by FG-401's aggressive Circuit 1 compression algorithm. Once again, the 401's transformer emulation added a slightly creamier tone.

I wasn't wild about how either compressor sounded on vocals; I always reach for an opto-electronic model (or plug-in emulation of same) for the money track. But I really liked how FG-N and Revival, used together, brought lead vocals forward in the mix and made them sound bigger. And very spare amounts of Revival processing sounded excellent on a full mix, adding girth to the bottom end, silvery sparkle to highs, and a subtly wider stereo image. But again, I missed having a gain control to prevent clipping downstream, not to mention to facilitate A/B comparisons.

On acoustic guitar, FG-S sounded more delicate than FG-N. Still, it had more bark than some of my other EQ plug-ins and wouldn't be my first choice for use on pristine acoustic instruments.

## UTILITARIAN CONSIDERATIONS

One of my regular complaints with earlier Slate products was that the coding was inefficient. I'm happy to report VMR breaks that mold. Instantiating VMR on 30 tracks—each instance loaded with at least two modules—had negligible overall effect on CPU resources, and I never observed transient CPU spikes. (I used an 8-core Mac Pro running DP 8.06 under OS X 10.9.5 during my review of VMR 1.0.7.5.) You can slather your entire project with vintage-flavored processing without running out of juice.

VMR offers A and B workspaces, and you can toggle between them by clicking either of their buttons (thereby avoiding the distraction of continually repositioning your mouse when making A/B comparisons). On the down side, VMR's omission of external sidechain inputs makes de-essing, de-booming, ducking, and other keyed compression techniques impossible within the rack system. I also wish VMR had undo and redo functions; you can't undo multiple parameter adjustments or restore an accidentally overwritten preset or deleted bank.

I liked VMR a lot overall. FG-N was my favorite module; it always gave a beautifully rich and full sound to drums, electric instruments and vocals. Revival added impressive beef to bass instruments, including kick drum, and sounded great on full mixes when used in strict moderation. FG-401 flattered electric guitar and, especially in combination with the FG-116, kick drum.

FG-116 sounded great on room mics for drums, lending the UREI 1176's essential character, but the omission of the all-buttons-in mode left me feeling I didn't get the full monty. FG-S was more flexible than FG-N, but FG-N pulled tracks slightly more forward in the mix in a flattering way.

Considering all you get with VMR—with the prospect of additional modules coming down the pike soon—$199 is a very low price. That makes VMR a great buy. ■

# C9 ORGAN MACHINE

The latest organ machine springboards off the game changing B9 to mine another rich vein of classic gold and deliver 9 new, definitive sounds, featuring a collection of some of the coolest electric organ and vintage electronic keyboard sounds ever. Like the B9, it delivers precise control over percussive click, modulation, attack/sustain, drawbar setting and high frequency content. Transform your instrument or use together with the B9 for dual keyboard possibilities!

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"Scuse me while I kiss the sky.

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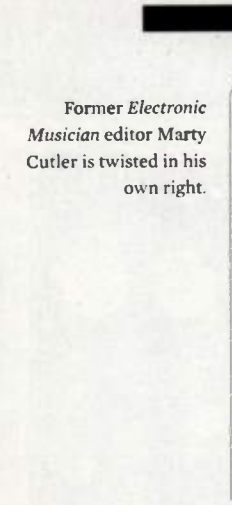
**Fig. 1. In terms of sound quality, Arturia's Matrix 12 V is a remarkably faithful re-creation of Oberheim's classic synth. However, additional modulation capabilities and enhanced polyphony sweeten the deal.**

**ARTURIA**

# Matrix 12 V

## ONE OF THE LAST OF THE CLASSIC ANALOG SYNTHS, REBORN ON YOUR DESKTOP

**BY MARTY CUTLER**



Former *Electronic Musician* editor Marty Cutler is twisted in his own right.

### STRENGTHS

Accurate re-creation of Oberheim Matrix 12. Extensive modulation capabilities. Great selection of filters. Voices page offers unique performance capabilities.

### LIMITATIONS

Occasionally sketchy documentation.

$169 street
arturia.com

Since my time at Splash Studios in New York City, I coveted the sounds emanating from keyboardist/sound designer Robby Kilgore's room—unmistakably fat and powerful, with bass, brass, and pads of great depth and complexity. Most often, these sounds could be traced to Kilgore's Oberheim Expander, dubbed "The Badger" by keyboardist Rob Schwimmer because of its deep, but sometimes confounding programming layout.

Not long after creating the Expander, Oberheim turned out its direct descendant, the Matrix 12, which added a keyboard and doubled the polyphony. The Matrix 12's sonic capabilities far outstripped those of its analog contemporaries, but due to the incursion of digital instruments, the instrument soon disappeared from the marketplace.

Fortunately, Arturia—long known for its virtual resurrections of vintage synthesizers—has released the Matrix 12 V, providing VST 2.4, VST 3, AAX, and Audio Unit versions (see Figure 1). I tested the Matrix 12 V on a 2 x 2.8 GHz Quad-Core Intel Xeon, running OS X Yosemite 10.10.02 with 14GB RAM. Installation and authorization are now handled by the Arturia Software Center, which automates and significantly simplifies the process, and keeps your plug-ins updated in the bargain.

### WAVE HELLO

As with the original synth, part of the Matrix 12 V's distinct timbral stamp is the two VCOs, both furnishing pulse, saw, and triangle waves, with VCO 2 adding noise. You can enable any or all of the waveforms at once, and each VCO has its own volume settings and a VCA. You can add subtle motion, grit, or metallic, inharmonic sidebands with the FM section, which is hard-wired, utilizing VCO 2 as modulator for VCO 1 or the filter.

The oscillators share a common filter that has no fewer than 15 filter modes—all with resonance controls. The list includes lowpass filters with four different slopes, three highpass filters, a couple of notch and bandpass filters, and most notably, filters that combine modes such as "2notch + 1Low" and a couple of phase filters, one of which is combined with a lowpass filter.

Lamentably, Arturia's manual makes no effort to detail these; however, downloading the manual for the original Matrix 12 keyboard reveals that the phase filter passes all of the VCO harmonics, but changing its frequency control shifts the phase of the harmonics. Rightly, both the Arturia and Oberheim manuals suggest that the user should experiment in order to get a feel for the capabilities of these filters. I was able to create some exotic-sounding pads using these filters; they add more sonic variety than any analog synth I've used, virtual or otherwise.

The Matrix 12 V's bank of factory sounds—devoid of effects—provide a fine demonstration of the instrument's impressive sonic signature. Nonetheless, the effects—delay, analog delay, analog chorus, phaser, flanger, and reverb—add a nice finish.

### HAT TRICKS FROM THE MATRIX

The Mod page is a tweaker's rabbit hole, and as with all of Arturia's re-creations, the manufacturer goes beyond the original feature set. To begin with, it doubled the number of modulation assignments

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**VINTAGE KING RACK 500**
Vintage King's new, very own 500 Series rack!

to forty. Arturia makes the task considerably less daunting by dividing the 12 V's user interface into several pages. In reality, the instrument's modulation matrix is a rather uncomplicated affair, with a pop-up menu that provides an orderly layout of 14 sources, 15 destinations, and a control to set the modulation amount.

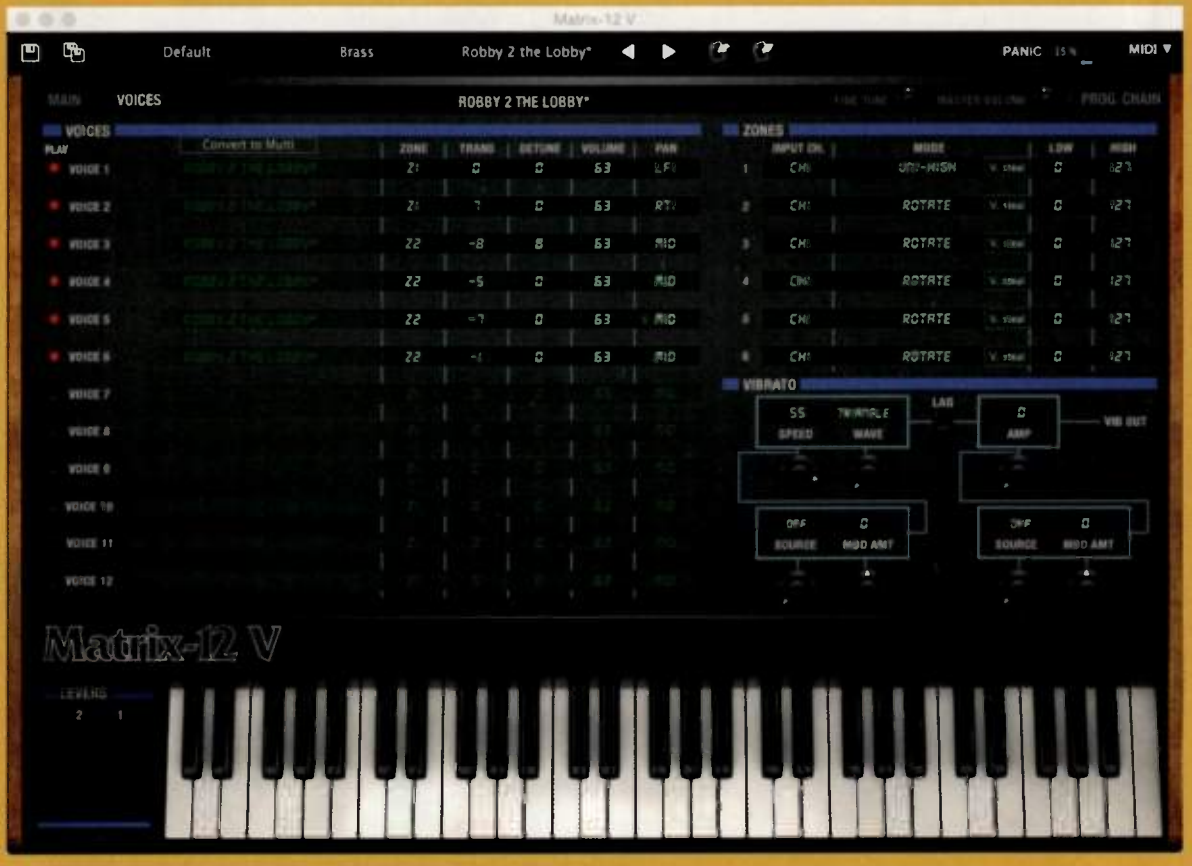
The list of modulators includes five DADSR envelopes, five LFOs, a lag processor (to smooth values), a tracking generator, and a ramp generator, and these can serve as auxiliary envelopes. Any destination can accommodate up to six modulation sources. For example, if you want modulators to modulate other modulators that modulate destinations, go ahead: The 12 V can handle it easily.

Among other features that distinguished the original Matrix 12 from its analog contemporaries were its unique multitimbral capabilities. The Matrix 12 V's Voice page lets you split, layer, detune, or assign individual voices to different MIDI channels. On top of that, there are some exciting and unique features here that may not be readily apparent (see sidebar, "Heavy Rotation").

## DISAPPEAR INTO THE MATRIX

There are scads of features that help the Arturia Matrix 12 V stand out from other virtual analog synths, a few of which I've discussed here. By far, the instrument's strongest point is its sound, which is in a class by itself.

By turns, Matrix 12 V can sound raunchy, mysterious, gauzy, or creamy. Some of the instrument's pads are among the most majestic I've ever heard, laced with subtly shifting tonal undercurrents. During the course of the review, I found it difficult to tear myself away from playing and programming the instrument: That's the most ringing endorsement I can give it. Go to Arturia's site, download the demo, and enter the Matrix. ■




**The Voices page: Note Zone, Transpose, and Mode parameters along the top.**

## Heavy Rotation: Robby Kilgore on the Matrix Architecture

The voice architecture of the Oberheim Xpander was revolutionary (and, in many ways, still is). What first fascinated me about the instrument was a feature I had never seen on any other synthesizer.

Each of the Xpander's voices could be assigned to one of three zones. In turn, each of the three zones could use a different strategy for how voices are assigned. I'm sure the designer's primary intention was to allow you to split the keyboard and have up to three different sounds being triggered simultaneously. But, for me, the cool thing was that you could assign some of the voices to a zone and make individual voices in that zone rotate through different MIDI note transpositions. It was a bit like creating an "open-tuning keyboard."

Here's how to set it up. (This works well on a nice, spitty brass patch, but in general, any sound with a reasonably fast attack and decay will do). Navigate to the Voices page, which is accessed from the top left corner of the plug-in; just below its header (see screen shot above). You'll be working in the Zone and Transpose (Trans) parameter windows on the left, and within the Mode parameters on the right.

You only need two Zones—one set to retrigger (tuned in fifths), the other to rotate. You want Zone 1 always to play two voices for every one note. Assign two voices to Zone 1, with the first voice set to one of the Unison modes. The first voice remains transposed to 0, and the second, transposed to +7 (seven semitones; a perfect fifth). If you play a C with just the two voices in that Zone enabled, you'll hear C and G together.

For Zone 2, you set four voices to Rotate, and pick a semitone transposition for each. In this case, I've chosen -8, -5, -7, -1. Now, each time you play a C, you will hear a G and an additional note that changes each time you re-strike the key. In this case, the resulting chords would be DCG, FCG, ECG, and BCG—all from striking a single note. Now that you know how to set up the rotation scheme, it's up to you to experiment.

*—Robby Kilgore*

ELEVEN WORDS THAT SPARKED A REVOLUTION

# "Wait a minute, wait a minute, you ain't heard nothin' yet."

Al Jolson's first spoken words in *The Jazz Singer* mark the first appearance of synchronized dialogue in a feature-length motion picture. Art mirrored life. Moviegoers truly hadn't heard anything like this before. And when they did, they wanted to hear more. *The Jazz Singer* had less than two minutes of spoken dialogue. But it sparked a revolution nonetheless.

*The Jazz Singer 1927*

SOUND CHANGES EVERYTHING

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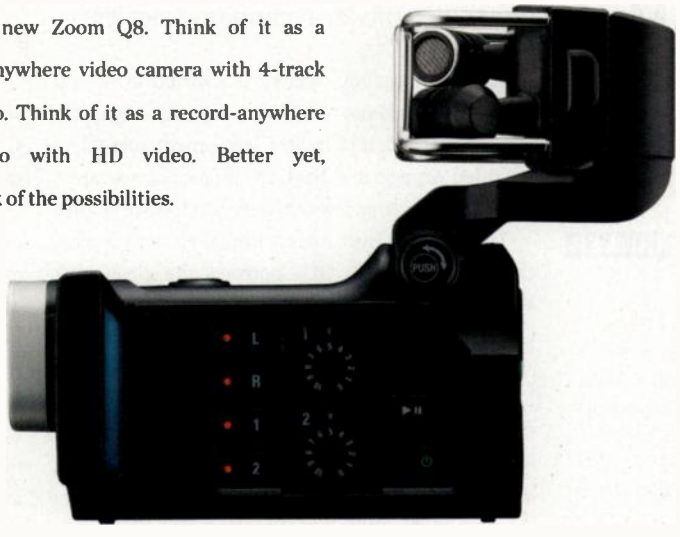

## The new Zoom Q8

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SAMPLE LOGIC

# Cyclone Retwisted

## SONIC TURBULENCE FROM A REIMAGINED SOUND LIBRARY

BY MARTY CUTLER

**Cyclone Retwisted's user interface is easier to understand and work with than version 1.0's GUI (which is visible at the bottom of the displayed patch).**

**STRENGTHS**
Includes original Cyclone sound library. Step and FX animators. Unambiguous user interface is easy to understand and navigate.

**LIMITATIONS**
Some Multi patches are inconsistently organized.

$349.99
samplelogic.com

After developing the advanced arpeggiation and sound design possibilities presented in Arpology (reviewed in the October 2014 issue), the developers at Sample Logic must have felt an irresistible urge to revisit their earlier products. For example, Cyclone 1.0 already had an impressive rhythmic component, judging by its original content; how much further could the software company take it?

Like the original, Cyclone Retwisted is several types of instruments rolled into one, breaking down into instruments and multis. Instrument subfolders are titled Arpeggiator, Bass, Harmonic Soundscapes, Kits, Leads, Pads, and new to Retwisted, Wave Synths.

Using Native Instruments Kontakt 5 as its engine, Cyclone Retwisted's GUI borrows the clean look of Arpology, while the original patch library from Cyclone 1.0, which is included here, retains its steampunk-influenced GUI.

The new Waves section is emblematic of Cyclone Retwisted's enhanced feature set. According to the developer, the section derives from an "expanded, dual-voice additive synthesis engine," but more likely the source waveforms are samples, created using an additive synthesis process outside Kontakt. Other than basic subtractive-synth features, the user has no control over the additive component of the oscillators.

Wave parameters include waveform selection, transposition, a Hi-Cut filter with Frequency and Resonance controls, and ADSR knobs that can link the filter's ADSR to the other oscillator (in addition to master attack and release envelopes for amplitude). You can also detune oscillators and set the sample's range over the keyboard.

The synth provides many ways to animate and alter sounds. You can tie volume to the FX Animator to create intricate step-sequenced patterns. You can also use the Step Animator, a separate sequencing component that provides rhythm and pitch control over notes. Between the two sequencers, the potential for creating complex interplay between rhythm and timbre is tremendous.

Multis combine patches into Construction Kits, Instrumental Stacks, and composite One-Note-Glory aggregations. I generally think of these as loops mingling with playable instruments.

The Instrumental Stacks section is populated with undulating, cinematic pads. Churches and Temples, for example, provides an unusually tasty layering of organ and choir—ordinarily a cliché, but subtly mysterious here. Explorations, on the other hand, provides a rhythmic interplay of step-animated and FX-animated filter sweeps that perfectly evoke of a sense of wonder.

I found inconsistencies in the presets for the first couple of construction kits. Dubby Dog was not a construction kit and contained multiple muted patches, while Rough Night Out was more of a split than a construction kit, albeit, a very sweet combination of distorted synth bass and rock organ. Shapeshifting, on the other hand, is a real song-starter; a pulsating bass with throaty octaves moving in and out while the upper ranges play sparkling, chimey arpeggios.

Cyclone Retwisted is a multifaceted instrument that you can shape to your own needs. It's brimming with possibilities for film and game scores, as well as composition of imaginative electronic music. ■

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**Fig. 1. Iris's Spectral Filter window lets you draw in unique, animated timbral changes.**

IZOTOPE

# Iris 2

## SOFTWARE INSTRUMENT AND SOUND-DESIGN TOOL WITH IMPROVED WORKFLOW

BY MARTY CUTLER

### STRENGTHS

Streamlined and intuitive workflow. Feature-rich synth. Intuitive and flexible modulation system. Generous and intriguing sound library.

### LIMITATIONS

Nothing significant.

$299
izotope.com

Iris is a sample-playback synth with a difference—in fact, with many differences that keep it at the top of my list for twisted and breathtaking sound design. And with version 2, iZotope has upped the ante considerably.

Iris 2 shares some operational concepts with U&I Metasynth's Image Filter and Spectral Synth. Central to Iris 2 is the ability to bring WAV and AIF samples into the oscillators (or sample pools, in iZotope terminology), which then produces a spectrographic image. Using a varied set of tools not unlike a graphics editor, you can freely draw filters along the time and frequency domains, creating sounds with timbral motion ranging from minute and subtle to huge and drastic (see Figure 1).

Iris operates as a standalone instrument as well as AU, RTAS, VST, VST3, and AAX plug-in instruments. An enhanced sample library, new to version 2, is nicely laid out, with nearly 11 GB of 24-bit samples, ranging in category from synths and granulated sounds to toys and household objects.

### GETTING YOUR IRIS UP

At first glance, the synth's single-page user interface seems a bit busy, but in reality, everything is organized into a quick, easy-to-understand workflow, with many of the deeper features conveniently tucked away. The header area—consistent no matter what your editing task—deals with global and performance parameters, as well as patch-management chores. Resize the window to suit your visual comfort.

If you are accustomed to working with the original Iris interface, you can hide the new modulation, keyboard, and master sections by clicking on small triangles to focus on the Spectral Modulation window, which remains relatively unchanged from version 1. The patch window, however, is emblematic of the new GUI design: One click brings up a set of tabs that let you choose patches, but they also access the Iris sample pool and the Osc Waves section, which contains a collection of analog synth waveforms (see Figure 2). Move from one oscillator to the next and choose your own samples, or select a new patch. It's useful to have these functions under one menu and it's a tremendous aid in designing your own sounds, allowing you to use pre-existing patch settings as a starting point.

Eight assignable macro knobs allow you to adjust your choice of parameters such as envelope and effects settings. It's a great way to tweak a sound without leaving the auditioning environment. If this is more than you need, just click the Simple Browser button on the Patch window's lower left to constrain the view to patch categories and their macros.

By the way, if you already own version 1, an import window lets you bring legacy patches into the new version, and an export button bundles the samples with the patch, letting you share patches with others. Some features, such as the Manage Libraries button, offer redundant access to other menus, which in this case is fine, as it contributes to the workflow without making the redundancies intrusive.

The revamped Iris modulation section is a pleasure to use: Drag and drop modulation sources to any destination without limit; modulate LFOs with LFOs (see Figure 3). Color coding for each modulation type makes it easy to see the routing, abetted by a numeral for each modulator. For instance, a yellow circle with a 3 on the destination will tell you that the modulation source is LFO 3

of the five LFOs. Likewise, you get five Envelope Generators, the fifth of which is hard-wired to the Master Output but is also freely assignable to other destinations.

As you may know, the Iris Spectral filter window derives from iZotope RX, the company's remarkable audio-repair plug-in. The window is informative and appealing, letting you crossfade between spectral and waveform overviews. The selection tools appear on the left, abutting the frequency plot. It can be difficult to translate the graphics into precisely predictable results, but unlimited undo offers encouragement for experimentation. And the great-sounding selection of effects, filters, and extensive modulation capabilities can be used to greatly enhance the fruits of your labor.

As with the Spectral Filter, iZotope has cross-collateralized the distortion-modeling DSP from its Trash plug-in. Choose from a half-dozen distortion types, including Saturation, Tube distortion, Clipping and Asymmetrical. I like being able to compound the distortion that occurs at higher gain with velocity or ride it with a mod wheel.

The Master filter sounds great. Lowpass, bandpass, highpass, and peak filters offer submenus with variations on each theme. The programming interface for effects can be tucked away.

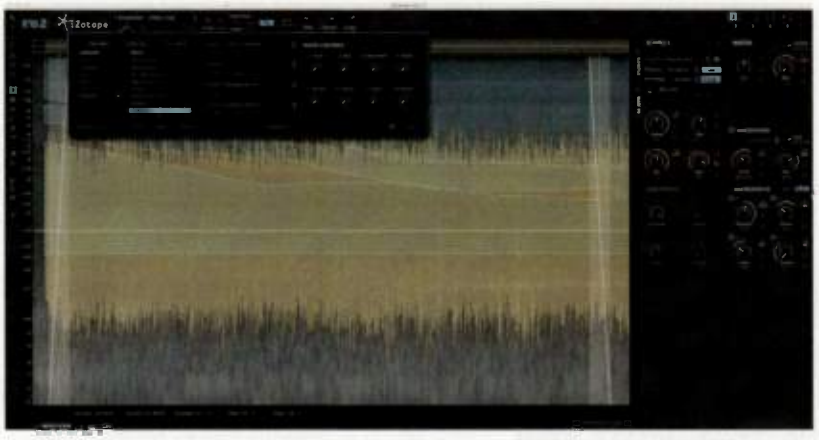

**Fig. 2. Clicking on the Iris Patch window lets you select patches, exchange samples, and tweak new patches while you audition sounds.**

## A GREAT DAY FOR THE IRIS

It's impossible to describe what Iris sounds like: transparent and sparkly on one patch; rude, glitchy, and spitting sparks on another; thick and analog-sounding on the next. Because you can load your own WAV and AIF files, the sky is the limit as to where you can take this program.

The Spectral Filter can drastically alter the sound of anything you throw at it. You can make tonal sounds atonal, or emphasize fundamental frequencies in sounds that have no clear pitch and turn them into tonal instruments. Iris is as much a sound designer's tool as it is a musical instrument.

For all that, the star of the show in version 2 is the redesigned workflow. Navigating and programming Iris 2 is palpably streamlined compared with Version 1; Iris fans will definitely want to upgrade. Sound designers and musicians in search of exotic-sounding synthesis should download the demo program and check it out. ■

REVIEW

## STEINBERG

# UR12

## USB AUDIO INTERFACE

**BY MARTY CUTLER**

$99 street
steinberg.net

FOR MANY musicians, an audio interface with a multitude of I/O can be overkill, and often, the extra features necessitate a larger footprint. For the beginner, as well as musicians looking to record voice-and-guitar projects, simpler is almost always better.

With that in mind, Steinberg gave the UR12 basic I/O with 24-bit/192kHz resolution and housed it all in a solid metal chassis. The USB audio interface has a single XLR mic input (feeding a Yamaha D-Pre mic preamp), a high-impedance instrument jack, two input gain controls, an output-level knob, a headphone jack, and a direct monitoring switch to avoid latency issues. The rear panel is similarly uncomplicated, with a +48V phantom power switch, unbalanced RCA outputs, a USB B connector, and a power selector—standard USB bus power or micro USB (for use with a power adapter when you're connected to a mobile device). There is no MIDI I/O or stereo input configuration.

I tested the UR12 with a Mac Pro desktop computer, a Macbook Pro laptop, and an iPad 3 (using an Apple Camera Connection Kit), and each device worked without a hitch. To interface with the computers, I needed to install the Yamaha USB driver, which came on a CD along with documentation. There was no need to install a driver for the iPad. The UR12 is easy to use and sounds remarkably good. For example, using a Shure KSM-32, I recorded solo bluegrass-style banjo with my Gibson RB250 Mastertone. The highs came through impressively sweet and devoid of shrillness, with fat lows and a deep, plunky midrange.

As a starter interface, the UR12 is particularly well suited to the solo artist with simple needs, but performers who work with backing tracks would be equally well served. And with a street price below $100, it is very competitively priced. ■

## YAMAHA

# DBR Series

## Powered P.A. Speakers

**BY GINO ROBAIR**

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CONFIGURABLE TO meet a variety of needs, the Yamaha DBR Series active loudspeakers are available in three models, based on the size of the low-frequency driver—DBR10 (700W; $529), DBR12 (1,000W; $659), and DBR15 (1,000W, $899). Each loudspeaker cabinet is biamped with Class D amplifiers and includes a 2-channel mixer, a highpass filter for pairing with a subwoofer, and D-Contour multiband dynamics processing for adapting it for use as a main or monitor speaker. The hard-plastic enclosure has a metal grille on the front and receded handles, creating a lightweight, easy-to-carry P.A. speaker that feels rugged.

The two combo inputs have separate input-level controls, though only Channel 1 accepts mic-level signals. Channel 2 includes a pair of RCA inputs, allowing you to run stereo audio into the channel, though the output will be mono when mixed with Channel 1. The DBRs can be mounted on a stand or set on a surface with minimized coupling. M8 screw holes on the base allow you to rig the speakers using the optional mounting brackets.

The DBR12 and DBR15 can also be used as floor monitors, and up to four speakers can be connected in parallel. Laid on its side, the enclosure angles the speaker upwards 50 degrees. Switch D-Contour to the Monitor setting to reduce low-end build up.

I tested a pair of the DBR12s in small-venue situations—a club and an art gallery—and they provided more than enough power for the audio to be clearly heard within a packed house. With so much headroom, miked acoustic instruments as well as electronic instruments sounded natural—exactly what you want, in addition to being an easy schlepp when you're done.

Remarkably powerful for its size and weight, the DBR Series is a P.A. system you definitely need to hear. ■

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# The Golden Voice

You can take these vocal miking tips from the pros to the bank.

**BY MARKKUS ROVITO**

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

Whether you're just moving into songwriting or make your living recording bands, vocal tracks can make or break the music you record. In most cases, the vocal anchors the song and stands as its most memorable (or forgettable) element. Yet vocal recording can be a mysterious art. So who better to learn from than the best?

We intruded upon five highly sought-after engineers' busy schedules to pick their brains on the best practices of vocal miking, both at home and in a studio. All of them had plenty of advice to give, so let's meet them and get to it.

Joe Chiccarelli at the console

**Joe Chiccarelli:** One of the great standbys in producing, mixing, and engineering, Grammy winner Joe Chiccarelli has been carving out the sounds of the day since the '70s. Chiccarelli continues to work with young, influential bands like Minus the Bear, Spoon, The Strokes, Manchester Orchestra, and many others.

**Marc DeSisto:** In 30 years as an engineer and mixer, Marc DeSisto has amassed credits working with little ol' bands you may have heard of like Pink Floyd, U2, and Blondie.

**Stewart Lerman:** Grammy-winning producer and recording engineer Stewart Lerman is coming off of five seasons of the HBO series *Boardwalk Empire*, where he recorded vocalists such as Regina Spektor, Elvis Costello, St. Vincent, and many others.

**Garth Richardson:** Owner of Vancouver Rockspace and The Farm Studios, Garth Richardson has helmed some iconic rock records, including producing Rage Against the Machine's debut album. His latest project is the Von Hertzon Brothers' *New Day Rising*.

**Leslie Richter:** A familiar face in Music City, Leslie Richter has spent long stints at Nashville hot spots Oceanway Nashville and Ben's Studio (Ben Folds). She now bounces around town, staying very busy as a freelance recordist/engineer, as well as building cables, patch bays, and more.

## MIC SELECTION

The fundamental question when miking anything is: Which mic do I choose? The lesson from our pros is that you don't have to limit yourself to one. Richardson, Richter, Chiccarelli, and DeSisto all talked about using two, three, or more mics at once and then either blending the results or eventually narrowing down the array once establishing the ideal piece for a singer.

"When working with a new singer, I put up every mic I have and let the singer sing on all of them," Richardson says. "I do a blind test, and we use our ears, not eyes. We are 'enginears,' not 'engieyes.' If it is a softer singer, I'll use a good condenser—Microtech Gefell mics are great. If I am doing a screamer, I use a Shure SM7 or SM58—that was the mic I used on the first Rage Against the Machine record with Zack de la Rocha. Make the singer feel like a star—like they can do anything. You'll get their best vocal performance."

Richter agrees that it's all about the individual singer. "I've been in situations where an SM7 sounds amazing on a singer, and the [Neumann] U47 sounds pretty good, but they are just enamored with the fact that there's a U47 in front of them and perform better to the fancier-looking mic," she says. "So I'll record both and have the affordable one for my mix later. Ultimately I'll take a workable sound with a great performance over [using] the best mic in the world without getting the delivery."

Chiccarelli often uses multiple mics because one will sound good when singers are at the top of their range, and another might sound better when they're singing softer. "Sometimes I'll do a very lo-fi microphone along with a much more full-bodied condenser microphone," he says. "The condenser picks up the dynamics and the air, and the lower-fi microphone I will either compress or distort a lot, and that picks up the intimacy and the growl. So I get them to complement each other and fill in the pieces."

He also suggests finding mics that have almost the inverse qualities of the vocalist. "If you have a singer with a very mid-range-y, edgy voice, use a mic that's warmer on the bottom and perhaps has more air on the top to soften the peaks in their voice. If you have a singer who is very growly and

dirty on the top end, you want something that's a little more neutral. I tend to look at microphones that fill in the missing pieces in a singer's voice.

DeSisto also usually tries two or three mics on a singer, but his go-to dynamic mic for a rock singer or anyone who sings very loud and intensely is the SM7. "Those are great mics," he says. "The capsule just doesn't shut down at all. But the performance is what it's all about. No matter which mic you have, you can always come back and tweak it, especially with today's crazy EQs that are amazing. The Brainworx [bx_digital V2] EQ plug-in is a beautiful EQ. You can really filter out the ugly frequency bands."

As for ribbon mics, Richter will use them when a singer is particularly "pitchy and tinny sounding" or when recording group vocals. "I specifically like the AEA R84 ribbon mic," she says, "because when you have three, four, five singers, it's bidirectional and sounds pretty same-y on both sides, and everybody can look at each other."

Leslie Richter

## MIC PLACEMENT

Both Lerman and Richardson stressed how important microphone placement is to getting a great vocal take. Richardson often takes the unorthodox tack of letting the singer hold the mic when recording, as he or she would on stage. "When you go to a show," he asks, "does the singer stand in one place all night? No! You must make the singer feel comfortable. I've let singers hold a tube U47, and the studio manager was not happy about it. I don't care. I care about the singer."

Lerman noted that he has the singer shift his or her distance to the mic depending on the dynamics of the performance. "Proximity effect occurs when vocalists move closer to the mic, usually resulting in bottom-end buildup," he says.

DeSisto also recommends sometimes positioning the mic capsule down, as opposed to facing up in the air. "I learned that by watching older engineers who wanted to capture a little more chest," he says. "The angle singers sing at is really important. Some people look up. A lot of times people sing looking down, but if the mic is high, you're missing a lot of the quality."

## SIGNAL PATH

All five of our experts tend to send their mics into a great preamp followed by an appropriate amount of compression, but never overcompressing it.

"I use Class A/discrete mic pre's followed by a compressor just to keep dynamics within reason," Lerman says. "This is also subject to how well the vocalists 'work' the mic to their advantage."

Richter says she puts compression after the mic pre more than 80 percent of the time, "but that depends on the singer, because some singers hear it, and it freaks them out," she says. "They're like, 'I'm really projecting, and it's not getting louder!'"

While she uses compression more like limiting when recording vocals, she'll often put two or three compressors in a row. "That took some years to sort out," she says. "You can have a really slow compressor to do one thing and then a really fast compressor to catch all the things the slow compressor misses. Or maybe you want the bite-y thing that an 1176 can do, but you want the warm thing that an LA2A or [dbx] 160 can do, so often I'll put them all in a row and not do any extreme compression with any of them. In addition to compression, especially if you're in the room with a band, I'll totally throw a filter in there, sometimes as high as 100 Hz—at least at 40 Hz—because there's nothing really happening down there in the vocal, and it keeps the kick drums and other leakage out of the vocal mic. And at home there's air conditioning and the refrigerator kicking on and off."

DeSisto will also apply some filtering to the vocal chain. "If I'm in a home studio, I'll probably filter more than if I'm at a big studio where it's a quieter situation," he says. "In the home there are outside noises, and once you turn up a condenser mic, it just starts picking up everything."

## Miked Up: Dwight Yoakam

Marc DeSisto's most recent projects involved Dwight Yoakam's April 2015 release, *Second Hand Heart*, at Capitol Recording Studios in Hollywood.

"He's discovered over the years that he's a [Neumann] U47 tube guy," DeSisto says, "and that's one of my favorite vocal mics. I like it on acoustic guitars; I like it on room sounds. It's a great mic, hands down. But with his vocals, it sounds great."

DeSisto also used Yoakam's own vintage Telefunken V78 preamp or the Mercury M72 tube preamp, which he says sounds close to the Telefunken. From the preamps, the chain went to a line input on an SSL board, then to a direct output into a Fairchild compressor and then from the compressor output to a Pro Tools input.

"That's my chain," DeSisto says, "and I'm riding the fader here or there on certain lines I know I want to ride. And if I want to hit the compressor a little harder, I hit it a little harder. If not, it's just taking out little peaks. You don't want to really hear the compression; you just want to make it so Dwight's loving it." As a final touch, DeSisto would add a little touch of chamber reverb, just for monitoring in the headphones.

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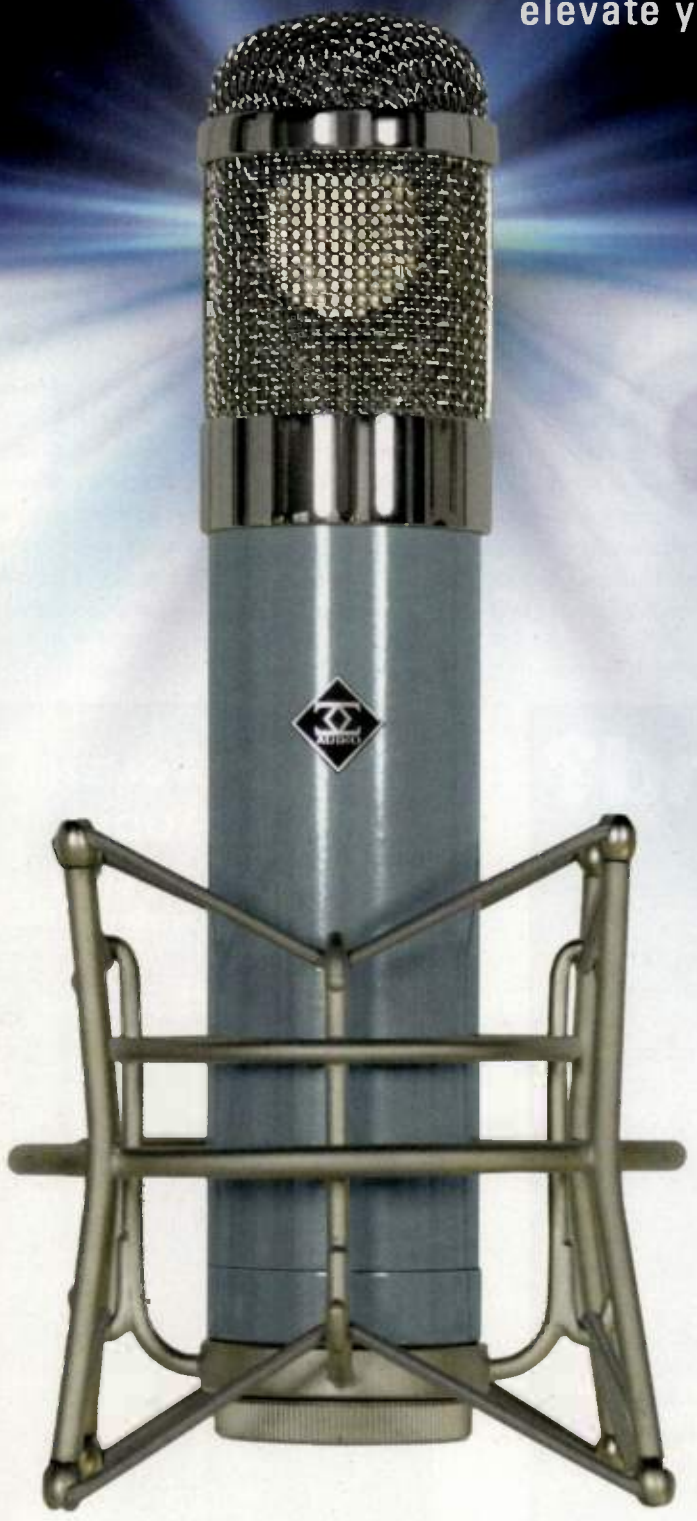

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**Ryan Hewitt** – Review in *Tape Op*, Issue #100

"It is a perfect microphone for critical vocals and female voices and compare very favorably to any U-67 I have heard. It also shines on acoustic guitars and anything that needs an open top end without over pronounced upper midrange. **I love the ADK Z-67!**"

**Michael Wagener** – Legendary Engineer –
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AUDIO

Garth Richardson

Chiccarelli is also a fan of using two compressors at once, and will even take that a step further. "I go with some personality in the preamp, and then from there I EQ to taste," he says. "I'm not afraid to process stuff when I record. I find the peaks—the unattractive spots in a singer's voice—and dip those, and then perhaps from there add some fullness to the voice. If you're first starting out, you want to be cautious with the compressor and favor things with a slower attack and faster release before you take too much of the dynamics away. But sometimes I have two compressors going; one supplies the tone and the body, and the other compressor catches the peaks that the first compressor missed. It's tricky; every singer is different and requires a different treatment.

Richardson's favorite vocal chain goes into an API 512c mic pre and then two LA-3As—the first at 3 dB of limiting and the second at 3 dB of compression. Next, he has an API EQ that he rolls off at 50 Hz and adds at 8 kHz. He adjusts everything according to the singer's voice, but goes by one cardinal rule: "If you are unsure, don't do it," he says. "Once you go too far, you can't come back, so go easy on the processing."

## ACOUSTIC TREATMENT

Many home recordists don't have a vocal booth, and many don't even have a professionally treated room, but our panel would have them not worry. As Lerman advises, "Unless you're looking for a specific room ambiance, it's best to keep the 'environment' out of the equation. It's nearly impossible to get rid of room tone later, but very easy to add after the fact." However, there are some temporary, low-cost, and fairly simple ways to get rid of that room tone if that's what you want.

"If we're in a large space, we often build what I call Foam Henge," Richter says, "big, 4'x8' pieces of foam we use to build a V- or U-shaped thing in a semicircle behind the singer to prevent reflections. It's the same in a house: If you want to invest money in all the fancy sound absorption tiles and acoustic treatments, that's fine, but really, some blankets hung on the wall or some mic stands will do to diffuse reflections behind the singer. It seems more


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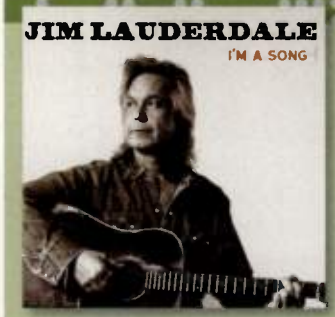


## Miked Up: Jim Lauderdale

Among Leslie Richter's many 2014 credits, her favorite project was engineering and mixing for Jim Lauderdale's album *I'm a Song*.

"Depending on the song, I either used a Shure SM5 or a [Neumann] U47 on the vocal," Richter says. "We kind of stumbled on the SM5 for him initially because we were tracking in this really big room. I put it up because he was on the floor with the band, and some of those tracking vocals ended up being keeper vocals—his voice sounded great on it. But on some of the ballads we used the U47, because it was nicer and some of the songs are throwback country."

Richter fed the mics into a Neve 1073 mic preamp, and either a Teletronix/Universal Audio LA2A or a Summit Audio TLA-100A compressor. "That's what was in the overdub studio, and it sounded great," he says. "I didn't do anything really severe with those vocals. It was kind of minimalist and simple, really."

important to put it behind the singer that in front, which seems counter-intuitive."

In fact, most of our engineers recommended emphasizing the baffling and room-deadening material behind the singer. "I definitely think having some baffling behind the singer works to help keep the sound focused," Chiccarelli says, "but you don't want to deaden the area so much that it takes the top end away from the voice."

In DeSisto's home studio, he records vocals in his son's room and folds up a futon mattress, which he stands up against one corner of the room, and puts a rug down on the hardwood floor. "If you have a loud singer in a small room, that vocal builds up in the room and really brings in the acoustics of the room," he says. "But the futon dampens it pretty well."

Richardson has a couple of clever suggestions for improvised room acoustics: First, get some packing blankets like you would find at a U-Haul store to hang up in the room and then sing into the corner. "If the room is still bad, have [the singer] put the packing blanket over his head and sing," he says. "It may get hot, but the room will not show up on your sound." Richardson doesn't think you need a vocal booth at all, but if you do want to treat a room cheaply, find a coffee roaster in your town and get a bunch of their big, empty coffee bean bags; fill those with insulation and hang them on your walls. "It looks cool, and it works," he says.

### PUT YOUR MONEY WHERE YOUR MIC PRE IS

While the pros we talked to love their vintage U87s, U47s, and other high-end tube condensers, the prevailing sentiment was that if you're on a budget, put your money into a good mic preamp, rather than one blockbuster mic. Instead, build up a stash of several diverse, affordable mics that you can use in different situations.

"You can get great-sounding mics for less money than you can get great-sounding mic pre's," Richter says. "Even really cheap mics have a use. You could get a $20 something at an antique mall and find a cool use for it. I recommend building your empire with interesting mics; you'll spend a fortune on good mic pre's. If you need a good mic pre, rent one."

For these engineers, the number-one choice, hands down, for an inexpensive dynamic mic is the Shure SM7B ($349), which all five of our panelists recommended and use regularly on their projects, especially for high-SPL scenarios. For condenser mics that won't cost you your first-born child, the Neumann TLM Series rates well. DeSisto thinks the TLM 103 ($1,099) is well-rounded with a lot of uses, and Chicarrelli says the TLM 49 ($1,699) is "interesting sounding and much darker sounding."

If you want to try to shoot for the moon and grab one of the vintage 1176, LA2A, Neve, or API preamps that the pros love, you'd better save a whole lot of money on your car insurance, or better yet, sell your car. But on the bright side, the engineers have some suggestions for good preamps that won't force you to hitchhike to your studio.

**Left: Stewart Lerman. Above: Marc DeSisto.**

Lerman really likes the Eventide Mixing Link preamp and FX loop pedal ($299). "It does many things," he says, "but also has a great-sounding mic pre!"

Chiccarelli recently used the Universal Audio 710 Twin-Finity ($799). "I think that sounds great," he says, "and having the ability to switch between tube and transistor modes is fantastic. Right there, you have different colors, and sometimes you want to saturate the tube a little more; sometimes you want to keep it a little more neutral."

Some of the 500 Series preamps, which tend to sell for $800-$1,000, also got props from Chiccarelli, who likes the API, Shadow Hills, and Sunset Sound preamps, and from DeSisto. "I haven't used a lot of the 500 Series," DeSisto says, "but I know the API 512c—you can always count on those."

If you want to commit to the 500 Series, Richardson thinks it's a great idea to invest in a preloaded "vocal box." Something like the Daking 500 RS Recording System ($3,844) fits that bill. It's an API Lunchbox slotted with six total 500 Series Daking preamps, compressors, and EQs, giving you two channels of a complete signal chain.

Yet even those who live in big-console rooms still do home recording on the side, and Richter advised not to obsess over high-end gear. "Ultimately, I believe in guerilla recording," she says. "You can make anything sound good. Something will always sound cleaner, better, fatter, warmer, or have less noise, but be able to work with what you have. People make records on all sorts of cheap stuff all the time. It's really about songs." ■

## Miked Up: Joe C's Quick Hits

Chiccarelli proved to have a great memory for vocal signal chains he's used, rattling off several examples from the last few years.

"On the recent Morrissey record I did, he was miked with a vintage Telefunken U47 microphone," Chiccarelli says. "It went through a Neve preamp, and into a Tube Tech CL 1B compressor."

He produced Alanis Morissette's 2012 album, *Havoc and Bright Lights*. "She has always recorded on a [AKG] C12 microphone," he says, "and that went through a custom Sunset Sound microphone preamp into a Retro Instruments 176 compressor."

For Keaton Henson, a British artist on Anti Records with a very intimate, quiet singing voice, Chiccarelli miked him with both a Neumann U67 and an old Electro-Voice RE15. The U67 went through an LA2A with not much compression, and the RE15 went through an Empirical Labs Distressor with a lot of compression. "Those we combined to complement each other," he says.

Finally, Chiccarelli shared that Jack White records a lot of his vocals with an old RCA 77-DX poly-directional ribbon microphone. "Because he's got a rather strong, mid-range-y voice," he says, "the warmth of the ribbon really filled it out."

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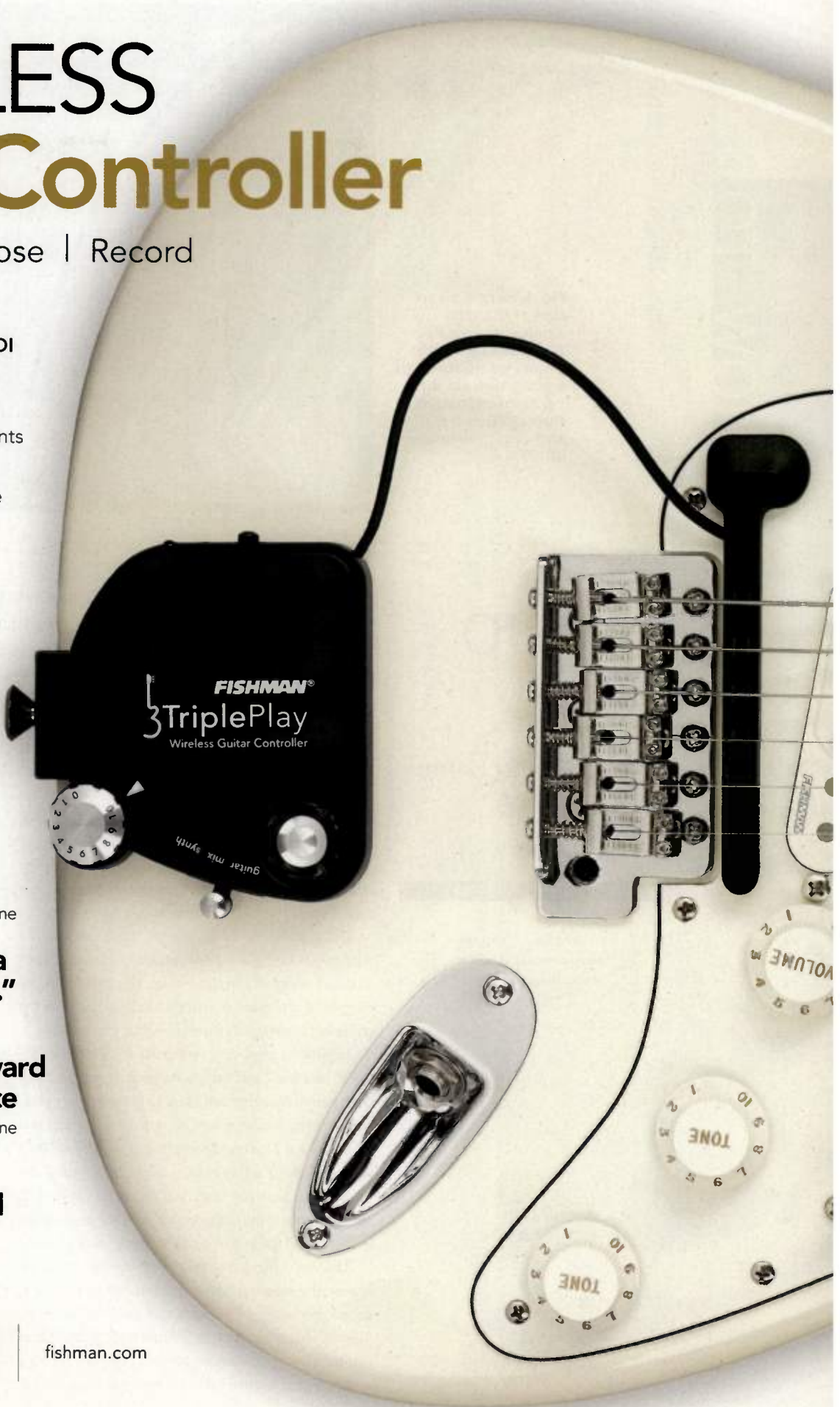


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**Fig. 1. Here's a section of the mix window from a Pro Tools session with drums going through a subgroup via Bus 1 & 2, instruments through Bus 3 & 4, and vocals through Bus 5 & 6.**

# Group Think

## Mix faster and better with category subgroups

BY MIKE LEVINE

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

Mixing is a complicated task, and anything that helps make it easier is always useful. In that spirit we present a sub-grouping technique that simplifies the process of balancing levels, allowing you to mix more quickly and effectively. This technique is particularly helpful when you have a large amount of tracks, but it's also useful on simpler mixes.

The concept is simple: Split tracks into a few subgroups, each comprising a major element of the mix. The basic groupings I use are drums, instruments, and vocals, and I'll add a forth group if there are, say, a bunch of percussion tracks. Depending on the nature and instrumentation of your mix, you could divide it up differently. For example, if you had a string or brass section, you might want to put those in their own sub group.

But first, let me backtrack for those not familiar with subgroups. On a DAW mixer, a subgroup is an auxiliary channel through which you can route the outputs of any number of individual tracks, allowing control of many tracks from one mixer channel.

In virtually any DAW, a subgroup is created by adding an aux track and using a stereo bus to route track outputs into the subgroup. Here's a hypothetical example: Let's say you were making a drum subgroup, and using Bus 1 & 2 (a stereo pair of buses) to feed it. You'd set the output of all your drum tracks to Bus 1 & 2, the input of the auxiliary track you created to Bus 1 & 2, and its output to the main output pair that you normally use to send tracks to the master track (see Figure 1).

The way I like to use this sub-grouping technique is leave the subgroup faders at their default level during the beginning of the mix, and work on balancing the mix elements, using individual track faders. Once you have a rough balance—meaning that within each subgroup, the relative balances are good—you can adjust the subgroup faders when necessary to change the relative levels of these major subgroups you've created.

You'd be surprised how helpful this technique can be. For example, having all the vocals on one subgroup makes it easy to quickly nail the critical balance between vocals and instruments. If the instruments are too loud, turn down their subgroup or turn up the vocal group; if the vocals are too loud, turn their group fader down or turn up the instrument group, and so on.

Why not just use track groups (individual channels linked together in the mixer) to accomplish the same thing? There are a couple of reasons. First, having a lot of track groups active can cause you to accidentally move a whole group when you want to just move one individual track fader. Second, if an individual track has automation written on it, you'll have to overwrite that automation (and any other tracks in the group that you're moving) to keep tracks from snapping back to where the existing automation dictates.

Speaking of automation, the subgroup faders can also be automated, giving you additional control, if needed. For instance, you could automate drum and instrument subgroups to rise subtly during choruses to add more dynamics.

Using this category subgroup scheme has helped me mix more efficiently. The beauty of it is that even with the groups set up, you're still totally free to adjust individual tracks. The difference is that you now have an extra layer of control. ■

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HOW-TO

# Make an Ableton Live Pack

## Share or sell your unused sounds, presets, and clips while promoting yourself

BY MARKKUS ROVITO

Ableton Live's Pack feature presents an excellent way to archive Live Projects for backing them up, sharing them with collaborators, or for creating a showcase for your loops, presets, and sound design skills that you can sell or distribute as your own product. Live Packs archive the Live Set session file, as well as its audio clips, MIDI clips, and Live device presets, such as Instrument and Effect Racks.

**Fig. 1. When exporting audio, use consistent file settings, and don't render above the original session's quality.**

If you're like many electronic musicians, you have tons of unfinished projects lying around. You could easily take the best elements from those projects and make a Pack for Live users to enjoy.

Open those sessions and pick out the best audio or MIDI tracks. Chop audio into loopable bits and choose File > Export Audio. In the dialog box (Figure 1) make sure Render as Loop is on and select the audio file type and resolution that you will use for your entire Pack. (Don't render to a resolution above the session's original quality.) Then export to a new folder where you'll export all your Pack files. Do the same for audio one-shots, turning the Render as Loop option off. Alternately, you could right-click on audio clips and choose one of the Convert to MIDI options (Figure 2). The resulting MIDI will probably need some cleaning up before you export it. Right-click on those and any other MIDI clips and choose Export MIDI Clip from the menu to save them to your Pack folder.

You should also save your best instrument and effect chains as Racks. Multi-select all the devices in a chain and hit Command-G to group them into a rack. Hit Command-R to rename the rack as something descriptive and/or clever. Then open the Rack's Macro Control pane and click Map. Now click one of the most used parameters in any of the devices and then click a Macro Map button to assign it to a Macro control. Stack more than one control on each Macro and then rename that control appropriately (Figure 3). The more creative and useful your Racks and Macro controls are, the greater your Pack will be. Lastly, save the Rack to your Library with the Rack's Save Preset button.

Now start a new Live Set and build a Session view collection of grouped tracks using your folder of MIDI and audio loops and one-shots, as well as your Rack devices, labeling the tracks appropriately.

Archiving your Project file as a Pack is a straightforward process. Choose File > Manage Files from the menu to open the File Management panel on the far right of the Live window. There, click the Manage Project button. On the next screen under External Files, you'll see if there are any presets, samples, etc. located outside the Project folder. If so, you must select Collect Into Project and then hit Collect and Save (Figure 4). When that's finished, you can hit the Create Pack button, which lets you name the Pack before it exports your Pack as an .alp file, using lossless compression to reduce the file size by up to 50 percent.

Many people sell their Live Pack digital files over the Internet or simply share them with the public or with musical collaborators. You could also use them as promotional or add-on content. However you play it, spread the word to the Ableton forum (forum.ableton.com), Ableton User Groups, or production blogs, or shop it around to soundware companies. The possibilities for getting it out there are almost as endless as the material you can create. ■

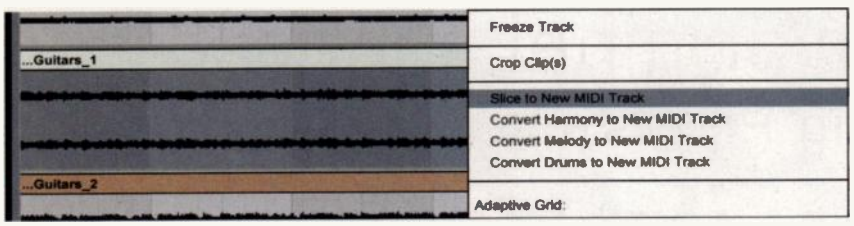


**Fig. 2. Try creating new MIDI clips from audio information.**

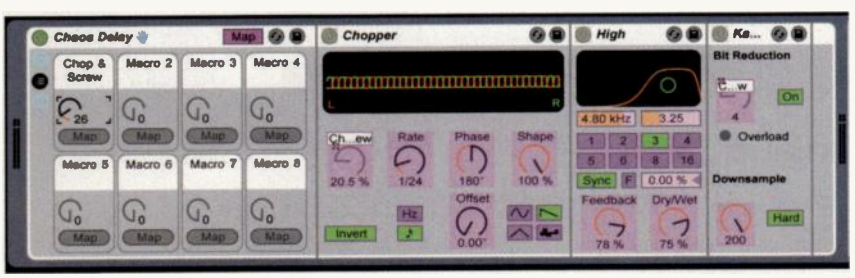


**Fig. 3. Here we're routing both LFO mod amount and bit depth to one macro control.**

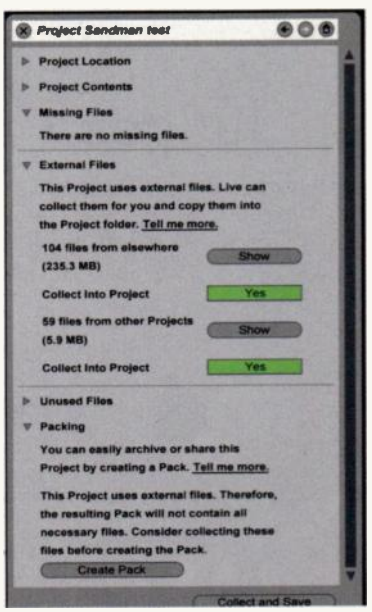


**Fig. 4. You must collect all files into the Project folder before creating a Pack.**

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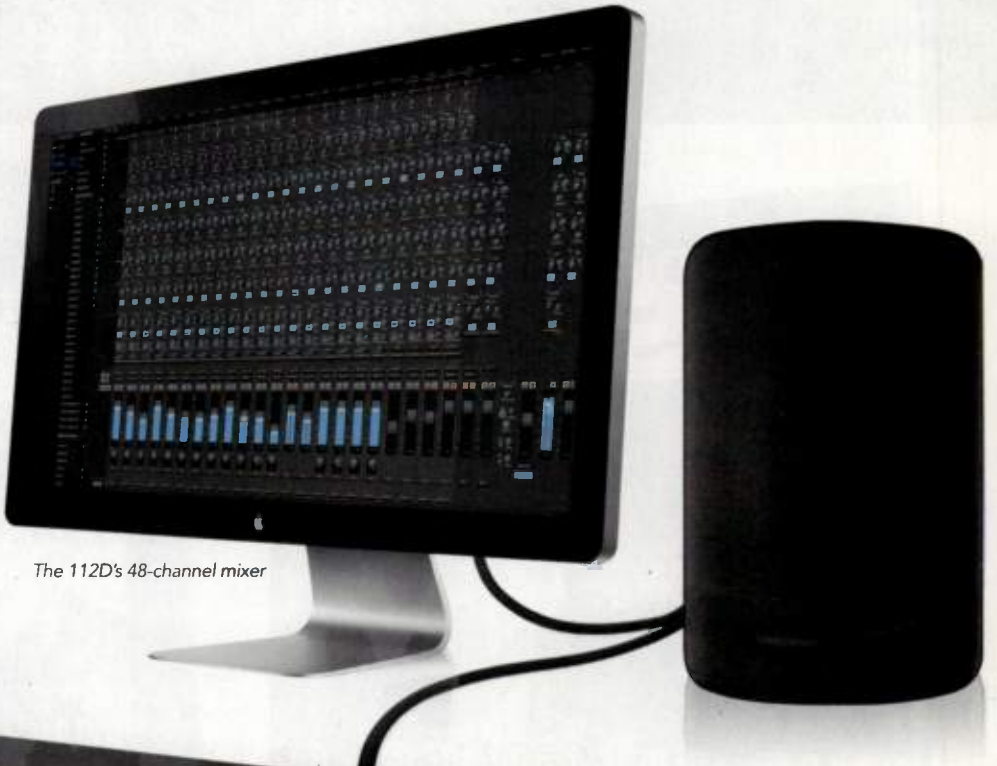

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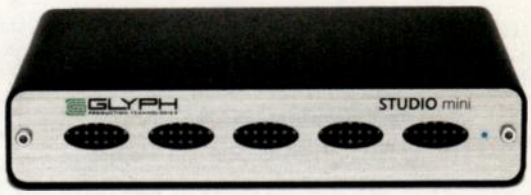


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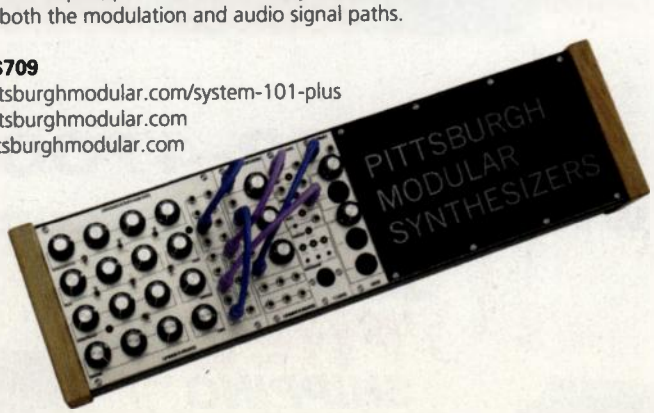


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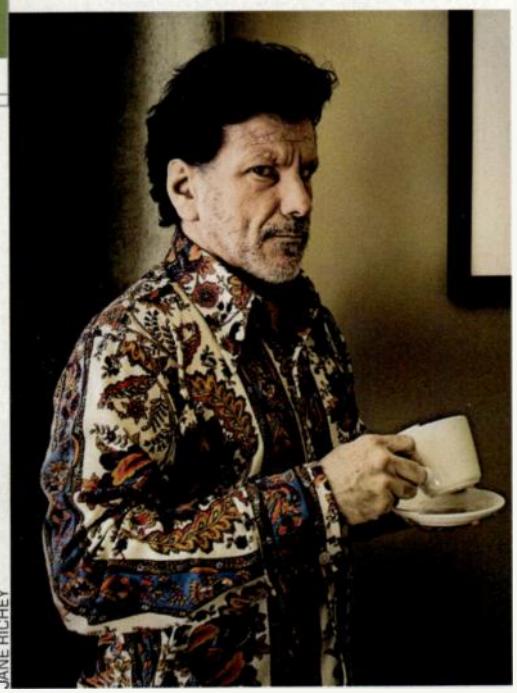
# Capturing Inspiration

## How much does your microphone really matter?

BY GINO ROBAIR

*"I didn't have a mic. I was just singing right into the mic on the computer."* —Erykah Badu (Red Bull Music Academy interview).



JANE RICHEY

That's my secret weapon. After spending a full semester introducing students to the intricacies of microphone technology, I drop Ms. Badu's quote on them regarding her creative process for the album *New Amerykah Part One*.

By this point, they have experienced the various qualities of each mic in our studio—products by AKG, Audio-Technica, Audix, Avantone, Blue, CAD, Electro-Voice, Neumann, Shure, Studio Projects—on voice, drums, amps, acoustic guitar, and whatever else they bring in. They know how much a transducer influences the sound of a recording, and they already have a wish list filled with classic mics, many of which their favorite artists have used or endorse.

Suddenly they find out that some of the vocals on a hit record were recorded directly into the built-in mic of an Apple MacBook Pro. And Badu was tracking to Apple GarageBand—freeware that arrives with your computer!

By now they're probably wondering why they bothered to take this class at all, let alone spend so much money on a DAW and interface, if all you have to do is sing into your computer to make a hit. So it's time for a reality check: Badu is not only a talented songwriter with an exceptional voice, she's working with A-level producers and engineers. Full stop. Let that sink in.

On top of that, she claims to have written upwards of 200 songs during the process of making that record, the vocals of which were demoed directly into her laptop mic. In other words, she didn't just keep the first take of the first idea that came into her head. She was planting seeds and harvesting only the cream of the crop.

The take-home message for my classroom of teens and twenty-somethings is that the mic doesn't make the music: The artist does. When inspiration strikes, you capture it with whatever you have at hand and deal with the consequences later...or not. Badu notes that the various imperfections in her vocal recordings were often kept by her engineer, Mike Chavarria, when she sent him the files.

Now I don't mean to imply that the MacBook Pro's mic is inherently terrible or that using GarageBand is unprofessional. In fact, they're a fairly sophisticated set of tools when used together. And, yes, Badu usually records in top studios with pro engineers using high-end gear. But in every case, the technology should be invisible in order for the artist to focus on capturing those precious gems of inspiration when they appear.

So it behooves us to learn the personality of each mic we own in order to be able to pick the best one for a given situation as quickly as possible. It doesn't matter if we're a songwriter or recording engineer; the time to do a mic shootout is not while you're courting the muse.

When you do find that magic combination of gear that inspires you, give yourself unfettered access to it. I know a lot of artists and engineers who leave their go-to mics set up in the studio at all times, ready for action at a moment's notice. For example, producer/engineer Tucker Martine (My Morning Jacket, The Decemberists, Beth Orton) will often leave his AEA R88 stereo ribbon mic set up on a stand in the tracking room, ready for whatever phase of the song a band is in—basics or overdubs. Similarly, producer/engineer Joel Hamilton (Tom Waits, Elvis Costello, the Black Keys) told me that his Coles 4038 stays on the stand and gets used for guitar amps, brass, and as a drum overhead.

In regards to the question about how much your mic matters, the answers are "a lot" and "not at all." A high-quality mic will capture all the timbral and dynamic subtlety of an artist, but a good song will transcend the recording media and delivery system. Sure, a recorded performance of a piece of music is defined by the gear used when it was recorded—for example, the guitars, drums, mics, amps and, of course, the voices of The Beatles are integral to the sound of the single "She Loves You." Yet the band's performance of the same song on *The Ed Sullivan Show*, using many of the same instruments but an entirely different signal path, still had a powerful impact on the millions across the world listening to the broadcast through the tiny speaker on their television.

One of my favorite anecdotes on this subject is the story engineer Nathaniel Kunkel tells about the days leading up to his first recording session with James Taylor. Kunkel spent a lot of time thinking about the signal path, worrying that he might choose the wrong mic. Then it hit him: James Taylor is going to sound like James Taylor no matter which microphone he uses.

> The time to do a mic shootout is not while you're courting the muse.

In other words, you have the knowledge it takes to track and mix a record, as well as the best signal path you can currently afford. Now stop fussing over the gear and get to work. ■

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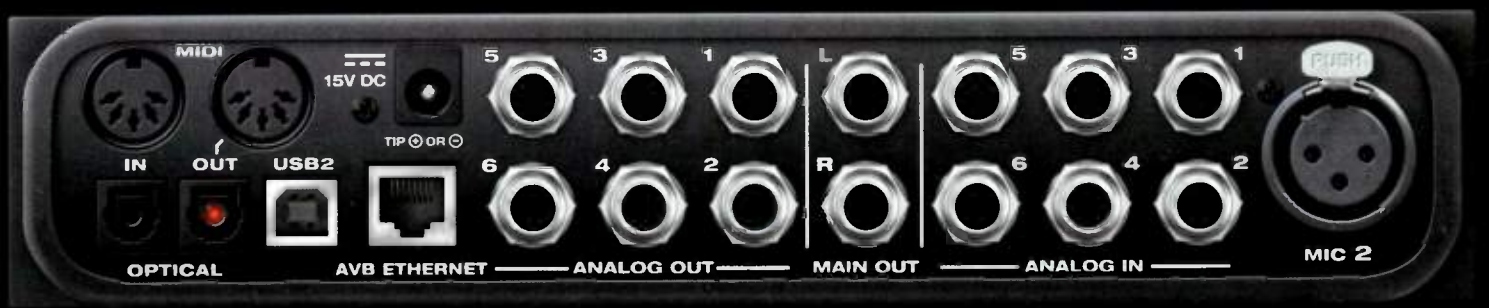


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