electronic MUSICIAN

RECORD • PRODUCE • PERFORM

EMUSICIAN.COM

REVIEWS!
IZOTOPE ALLOY 2
FX plug-in toolbox

ZOOM MS-100BT MULTISTOMP
guitar pedal

USB MICS COME OF AGE
6 VERSATILE MODELS FOR *ANY* STUDIO APPLICATION

WEB ROYALTIE$
GET *YOUR* PIECE OF THE PIE!

AVICII

THE SWEDISH HOUSE **SUPERSTAR** TALKS TECH

TOP 10 TRENDS FROM NAMM 2013

JAMIE LIDELL
ELECTRO-SOUL IN THE STUDIO

$5.99
0 71486 01017 3
A MUSIC PLAYER PUBLICATION

The Truth About TAXI...

An Unedited Forum Post from TAXI Member James Kocian
http://forums.taxi.com/post353820.html#p353820

Hi Friends,
It's been awhile, but I'm still here!!

TAXI has been the singular catalyst for me in the past 2 years. I am closing in on 2 years of membership and my experience has been overwhelming. I will be at the Road Rally this year, as I've recently been invited to speak at the 'Successful Members' panel.

This is all beyond humbling to me, and I feel indebted to Michael and his incredibly talented staff.

Taking Risks...

In a nutshell, TAXI has motivated me and allowed me to take creative risks; to dabble in genres I didn't even know existed, and to develop relationships with high-level music professionals I otherwise would NEVER have had access to.

Major Publishers

So far this year I've signed 13 songs with major publishers. I'm writing with people all over the USA, and have made regular trips to Nashville a part of my routine. I've been co-writing with a guy who has had multiple (recent) #1's. It boggles my mind actually.

Once in a Lifetime Opportunity!

I'm writing Hip Hop tracks for a well known rapper's next project, and I'm connected to a Multi-Platinum, Grammy-Winning Producer who allows/asks me to regularly send him material to pitch to the biggest artists in music. That in and of itself is enough is a once in a lifetime opportunity, and it's been ongoing for nearly a year.

There's more, but this isn't about me. It's about: T-A-X-I Have I mentioned that I live in GREEN BAY, WI? I mean, sure, we have the Packers — but it isn't exactly a music hub for anything more than Journey tribute bar bands.

I really can't stress how invaluable TAXI is to people who are willing to put the CRAFT into the ART of songwriting and music production. The "Forwards" section of the [TAXI] forum itself is worth the membership fee. Why?

Figured Out What Elements I Missed...

It's not to brag about Forwards. What I did was hit the [TAXI] Forums after I got "Returns" and found members who received "Forwards" for the same listings. Then I went and LISTENED. I analyzed the differences in our songs. Lyrics. Vocals. Arrangements. Instrumentations. Productions. I re-read the listings, and figured out what elements I missed. And I adjusted accordingly.

Where else can you get that?

The success of members (at least this member) is a TEAM effort. And I am honored to consider TAXI part of my team. It is possible to succeed. To "make it." To realize our dreams.

Don't quit. Don't settle. Don't lose hope. And stick with TAXI.

TAXI®

The World's Leading Independent A&R Company

1-800-458-2111 • TAXI.com

THE RIGHT GEAR, WITH SERVICE TO BACK IT UP!

THAT'S THE SWEETWATER DIFFERENCE!

Our **PROFESSIONAL SALES ENGINEERS** know your gear and will give you one-on-one service that fits your needs.

Rely on our **FACTORY-AUTHORIZED SERVICE** team for repairs done right — with the fast turnaround you need.

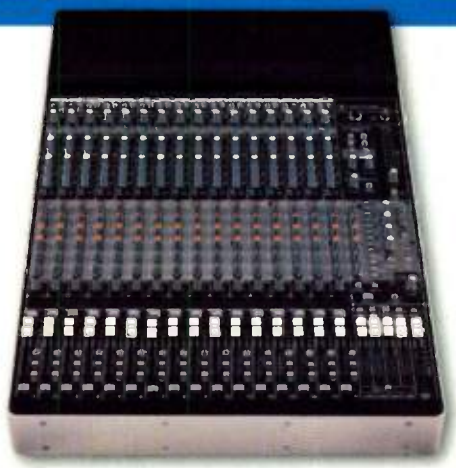
Sweetwater pioneered the **FREE 2-YEAR WARRANTY****. We stand behind the gear we sell.

CHECK OUT THE NEWLY UPGRADED SWEETWATER.COM MOBILE SITE!

• Enhanced product research • Easy-to-use checkout • SweetTrack® order tracking • DealZone • New arrivals
• User-account access • Product photo galleries with zoom • Customer reviews • Product videos • Tech specs

*Subject to credit approval. Minimum monthly payments required. Call your Sweetwater Sales Engineer for details or visit Sweetwater.com/financing.
**Please note: Apple products are excluded from this warranty, and other restrictions may apply. Please visit www.sweetwater.com/warranty for complete details.

WRH



MACKIE.
Onyx 1640i

RIVERA
RockCrusher

SHURE
SRH840

18 MONTHS
SPECIAL FINANCING AVAILABLE

ON SELECT BRANDS, USING YOUR SWEETWATER MUSICIAN'S ALL ACCESS PLATINUM CARD, THROUGH APRIL 30, 2013*

FOCAL PROFESSIONAL
Solo6 Be

Cubase 7
steinberg
UR22

Sound Construction & Supply, Inc.
AVM 6x3 Audio Video Mixing/
Mastering Desk

Our **INDUSTRY-STANDARD TECH SUPPORT** keeps you up and running — and your projects moving.

We offer the **BEST ONLINE RESOURCES IN THE BUSINESS**, giving you answers whenever you need them.

FAST, FREE SHIPPING means you get your gear when you need it, without the extra expense.

Value Added Reseller
Professional Audio

(800) 222–4700
Sweetwater.com

Sweetwater®
Music Instruments & Pro Audio

electronic MUSICIAN

COVER FEATURE

LISTEN

LUST

Cover photo of Avicii by Drew Ressler

04.2013 contents

LEARN

DEPARTMENTS

EM (ISSN 0884-4720) is published monthly by NewBay Media, LLC 1111 Bayhill Drive, Suite 125, San Bruno, CA 94066. EM is a trademark of NewBay Media. All material published in EM is copyrighted (©) 2013 by NewBay Media. All rights reserved. Reproduction of material appearing in EM is prohibited without written permission. POSTMASTER: Send address changes to EM, P.O. Box 15605, North Hollywood, CA 91615. Publisher assumes no responsibility for return of unsolicited manuscripts, photos, or artwork. All product information is subject to change; publisher assumes no responsibility for such changes. All listed model numbers and product names are manufacturers' registered trademarks.

Canada Post Publications Mail Agreement #40612608. Canada Returns to be sent to Bleuchip International, P.O. Box 25542, London, ON N6C 6B2. Periodicals Postage Paid at San Bruno, CA, and at additional mailing offices.

electronic MUSICIAN
www.emusician.com | VOL. 29 NO. 4, APRIL 2013

EDITORIAL DIRECTOR Michael Molenda
mmolenda@nbmedia.com

EXECUTIVE EDITOR Craig Anderton
canderton@nbmedia.com

EDITOR Sarah Jones
sjones@nbmedia.com

MANAGING EDITOR Debbie Greenberg
dgreenberg@nbmedia.com

CONTRIBUTORS
Michael Cooper, Marty Cutler, Steve La Cerra, Kylee Swenson Gordon, Emile Menasche, Ken Micallef, Lily Moayeri, Bill Murphy, Gino Robair, Barbara Schultz, Bud Scoppa, Tony Ware

ART DIRECTOR Damien Castaneda
dcastaneda@nbmedia.com

STAFF PHOTOGRAPHERS
Paul Haggard *phaggard@nbmedia.com*
Craig Anderton *canderton@nbmedia.com*

PUBLISHER Joe Perry
jperry@nbmedia.com, 770.343.9978

ADVERTISING DIRECTOR, NORTHWEST, MIDWEST, & NEW BUSINESS DEV.
Greg Sutton
gsutton@nbmedia.com, 925.425.9967

ADVERTISING DIRECTOR, SOUTHWEST
Albert Margolis
amargolis@nbmedia.com, 949.582.2753

ADVERTISING DIRECTOR, EAST COAST & EUROPE
Jeff Donnenwerth
jdonnenwerth@nbmedia.com, 770.643.1425

SPECIALTY SALES ASSOCIATE
Michelle Eigen
meigen@nbmedia.com, 650.238.0325

PRODUCTION MANAGER Beatrice Kim

THE NEWBAY MUSIC GROUP
VICE PRESIDENT, PUBLISHING DIRECTOR Bill Amstutz
GROUP PUBLISHER Bob Ziltz
EDITORIAL DIRECTOR Brad Tolinski
SENIOR FINANCIAL ANALYST Bob Jenkins
PRODUCTION DEPARTMENT MANAGER Beatrice Kim
DIRECTOR OF MARKETING Josh Bernstein
DIRECTOR OF SALES OPERATIONS Lauren Gerber
MARKETING PROJECT MANAGER Tyler Reed
MARKETING DESIGNER Joelle Katcher
MOTION GRAPHICS DESIGNER Tim Tsuruda
SYSTEMS ENGINEER Bill Brooks
CONSUMER MARKETING DIRECTOR Meg Estevez
CONSUMER MARKETING COORDINATOR Dominique Rennell
FULFILLMENT COORDINATOR Ulises Cabrera
OFFICES SERVICES COORDINATOR Mara Hampson

NEWBAY MEDIA CORPORATE
PRESIDENT & CEO Steve Palm
CHIEF FINANCIAL OFFICER Paul Mastronardi
CONTROLLER Jack Liedke
VICE PRESIDENT, DIGITAL MEDIA Joe Ferrick
VICE PRESIDENT, AUDIENCE DEVELOPMENT Denise Robbins
VICE PRESIDENT, CONTENT & MARKETING Anothony Savona
IT DIRECTOR Anthony Verbanic
VICE PRESIDENT, HUMAN RESOURCES Ray Vollmer

LIST RENTAL: 914.925.2449
danny.grubert@lakegroupmedia.com

REPRINTS AND PERMISSIONS
For article reprints please contact our reprint coordinator at Wright's Reprints: 877.652.5295

PLEASE DIRECT ALL ADVERTISING AND EDITORIAL INQUIRIES TO: ElectronicMusician, 1111 Bayhill Dr., Ste. 125, San Bruno, CA 94066 PHONE 650.238.0300 FAX 650.238.0262 EMAIL *electronicmusician@nbmedia.com*

PLEASE DIRECT ALL SUBSCRIPTION ORDERS, INQUIRIES, AND ADDRESS CHANGES TO: 800.289.9919, outside the US 978-667-0364,
emmag@computerfulfillment.com

Back Issues are available for $10 each at 800.289.9919, 978.667.0364,
emmag@computerfulfillment.com

Periodicals Postage Paid at San Bruno, CA, and at additional mailing offices.

Follow us on

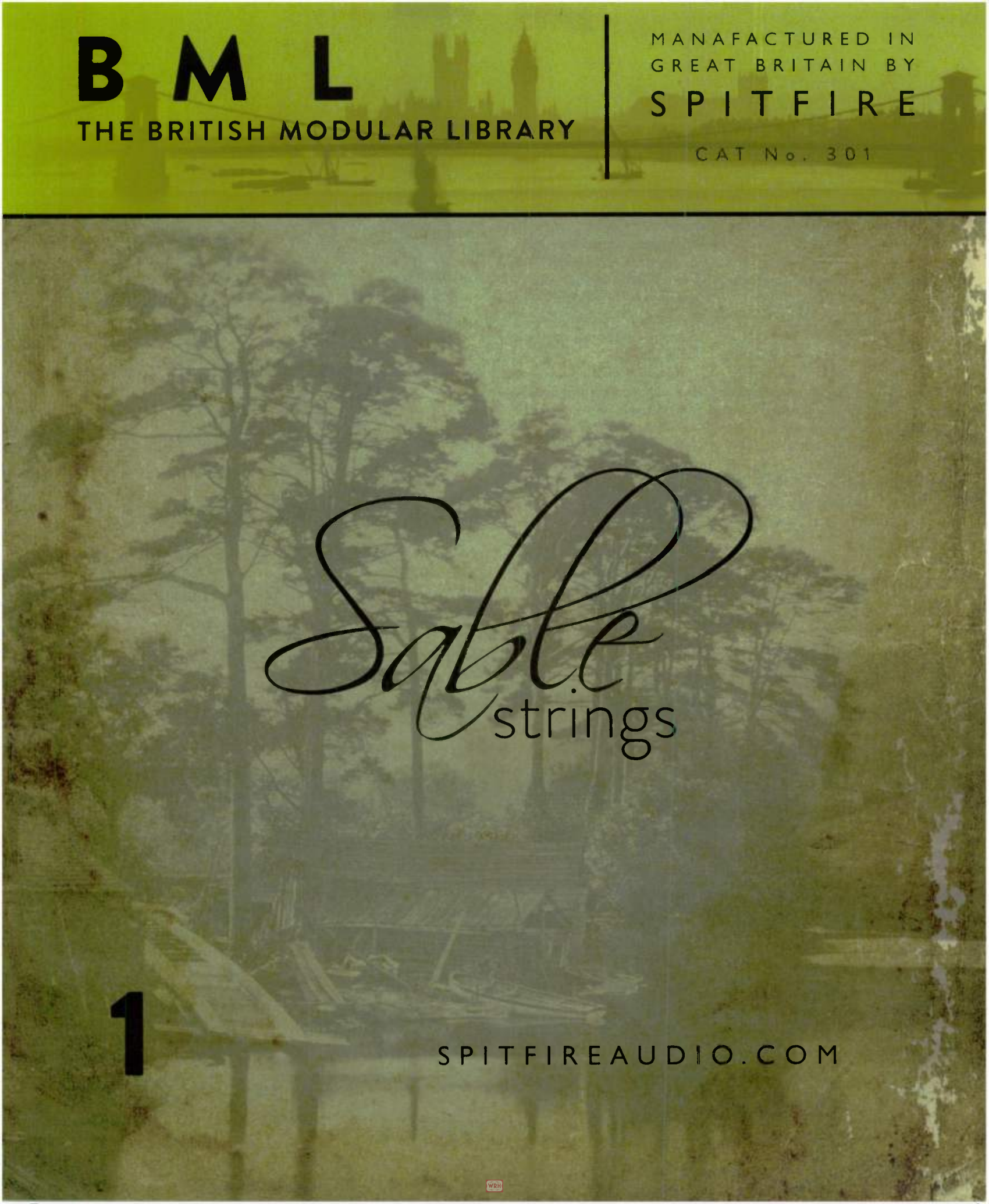
BML

THE BRITISH MODULAR LIBRARY

MANAFACTURED IN GREAT BRITAIN BY

SPITFIRE

CAT No. 301



1

SPITFIREAUDIO.COM

insight

A Steady Paycheck

LET'S FACE it: Unless you're the 1% of the music industry, the rock star model is over. So where does that leave the rest of us?

Given talent and drive, if you manage your expectations, you'll make prudent decisions that will lead to better opportunities for building a viable career. Of course, you need to work all of the angles, from touring to publishing. This means staying on top of evolving earnings models in the digital landscape.

In this month's MasterClass ("Digital Paycheck," page 58), we break down online distribution royalty structures and show you how to work them to your advantage.

If your recordings are getting digital distribution, income is being generated for you. There are safeguards in place, but you have to pay attention. You don't have be an attorney to understand digital royalties. However, it's how you *apply* that information that counts. And here is where it really pays to approach your career as a realistic, lifelong ambition, not a quick shot to stardom. For example, you might think going with a label is your best bet in the short term, but if you can hold on to your master rights, you might make out better in the long run.

Like in any business, you must carefully compare your options. You might not be a rock star, but you just might make a decent living as a musician.

SARAH JONES
EDITOR
sjones@musicplayer.com

COMMUNITY

"THERE IS A POINT AT WHICH THERE COULD BE 100 PERCENT CANNIBALIZATION [OF DOWNLOADS], AND WE WOULD MAKE MORE MONEY THROUGH SUBSCRIPTION SERVICES... WE CALCULATE THAT POINT AT APPROXIMATELY 20 MILLION WORLDWIDE SUBSCRIBERS."

Metallica manager Cliff Burnstein, comparing streaming and downloading models in the *New York Times*, January 28, 2013

The *Electronic Musician* Poll

WHAT IS YOUR MAIN AUDIO INTERFACE PROTOCOL?

USB 1.1	2%
USB 2.0	38%
FIREWIRE 400	26%
FIREWIRE 800	15%
ETHERNET	2%
THUNDERBOLT	2%
EXPRESSCARD	1%
PCI CARD OR SIMILAR	13%

DIG MY RIG

At the heart of my studio are two linked Presonus FireStudio Projects into a 15" MacBook Pro i7 with Logic Pro. I monitor with an old trusty pair of Design Acoustic PS-10s. For headphones, I use a pair of Beyerdynamic DT 770s and a Behringer 4-channel headphone amp.

Electronic instruments include a Studiologic 88-key MIDI controller, an Alesis DM-10 drum kit, a Korg microKORG, a Korg Wavedrum Oriental, and an Alesis ioDock for accessing software synths that live on the iPad.

For most electric guitar recording, there's a Marshall Haze 40-amp or a Vox 15-watt Night Train through a single 12" Celestion speaker cab. I also record guitar using a Brian Moore iGuitar 91.13 with Piezo, USB, and 13 PIN Roland interface, which is often connected to a Roland GR-55 guitar synth.

With outboard signal processing, I get a ton of use from Eventide stompboxes. Additionally, I use a Boomerang III phrase sampler and a Digitech Jamman Delay for looping, and a Zoom B3 for bass processing.

When it comes to mics, I almost always use an MXL Genesis for voice. Other mics include Audix F-15, CAD Trion 7000, MXL v69, a pair of MXL 603s, and a couple of Shure SM57s and 58s.

ERIC HAUSMANN
SPILLINGAUDIO.COM

ask!

I'M HAVING A HARD TIME MIXING DRUMS ON MY RECORDINGS. THEY DON'T HAVE THAT BIG, PUNCHY SOUND I HEAR ON RECORDS. I'VE TRIED COMPRESSION, BUT I'M JUST NOT FEELING IT, AND BOOSTING THE HIGHS GIVES MORE "SNAP" BUT MAKES THE CYMBALS OUT OF CONTROL. GOT ANY TIPS?

JONATHAN PERRY
CHICAGO, IL
VIA EMAIL

If you can hear the compression working, you're probably adding too much. But compression can also soften the attacks, so many engineers patch compression in parallel with the dry signal—the compression brings up room sounds and drum decays, while the dry signal maintains the peaks. Also try using a limiter/maximizer on drums. Limiting can sometimes preserve attacks better than compression, and similarly raises lower levels for a fuller sound.

Boosting highs with shelving probably won't help. For more definition, try adding a moderate peak in the 1-3kHz range; this should bring up the impact of the snare and toms, yet sit mostly below the main range of the high-hat and cymbals. Be very sparing, as too much boost will give a harsh sound. A tiny boost above 10kHz can add a bit of "air" that makes the cymbals shine without sounding strident, but don't add it unless you need it.

As to the kick, not all playback systems can go low enough to give a satisfying "thump." Boosting in the beater range to accentuate the beater hit gives the subjective impression of more kick, even if the low end doesn't come through.

Finally, a transient shaper can help restore lost attacks, but consider it a last result if proper EQ and use of dynamics don't do the job.

THE EDITORS

Some strategic EQ and maximization can help make drums "pop."

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

JACK JOSEPH PUIG ZOMBIE ROCK IN THE HOUSE OF ROCK

SANTA MONICA, CA
JAN 5, 2012

Vintage King Audio teamed up with with multi-Grammy winning producer/mixer Jack Joseph Puig (U2, Sheryl Crow, John Mayer, Fergie, No Doubt) to create the new $3.5 million House of Rock ultimate home studio, in collaboration with Solid State Logic, Blue Microphones, Audio Perception, JSX Audio, and other high-end audio partners. The studio occupies the top floor of an ultra-posh, themed $22 million showcase estate in Santa Monica created by House of Rock, a Los Angeles-based entertainment company. Here, Puig is seen in session with L.A.'s weird darlings, Dante vs. Zombies, known for their dark, '60s pop vibe with a Funkadelic whiff of Talking Heads, Oingo Boingo, B52s, Cramps, Misfits, and The Smiths. Pictured (left to right) are Dante White Aliano, lead vocals/guitars; Jack Joseph Puig; Laena Geronimo, violin/vocals; Jada Wagensomer, bass/vocals; Jeff Ehrenberg, drums/percussion/vocals; Gabriel Hart, guitar/vocals; Eric Fisher, guitar/vocals.

PHOTO AND TEXT BY MR. BONZAI

The Hot Box.

Introducing Radiator.

Looking for the new hot sound? Radiator™ brings instant heat to your mix, with a smoky, vintage tube vibe straight from the 1960s. It's based on an old-school classic - the Altec 1567A tube mixer and EQ, used on Motown hits and on today's hottest indie tracks. Dial up some pure harmonic grooviness with the Input and Output controls. Then tweak your tone with the retro magic of the simple Bass and Treble controls.

Drop Radiator on every channel for total analog ecstasy, and transport your mixes to another place, time, and sound.

soundtoys
plug in some attitude

FREE 30 day demo at soundtoys.com

Saffire PRO 14

+ Two Focusrite mic preamps capture your sound with pristine clarity
+ High-quality 24-bit/96kHz digital conversion, with JetPLL™ jitter elimination
+ Saffire MixControl ultra-low-latency DSP mixer/router

The Saffire Range

THE ONLY INTERFACES WITH THE FAMOUS FOCUSRITE SOUND

At the heart of any good interface are great Mic Pre Amps. Focusrite have been designing mic-pres for over 25 years. It's what we do.
We design the best mic-pres and interfaces in the business. Focusrite - Sound is Everything.

Saffire PRO 24 & Saffire PRO 24 DSP

+ Two Focusrite mic pres, based on an unparalleled preamp legacy
+ With an ADAT input, Saffire PRO 24 provides a vast I/O count for the money
+ PRO 24 DSP features VRM - simulate different monitors and rooms, using your headphones

Saffire 6 USB

+ Two Focusrite mic preamps capture every subtle nuance of your sound
+ Features four RCA outputs and flexible monitoring for laptop DJs
+ The best sounding, best performing interface in its class

LIQUID Saffire 56

+ Two Liquid preamps, each allowing you to choose from ten classic emulations
+ Total I/O count of 28 inputs and 28 outputs, including 8 Focusrite preamps
+ Professional 24 bit / 192kHz digital conversion, with JetPLL™ jitter elimination

Saffire PRO 40

+ Eight Focusrite mic pres, based on a 25-year preamp legacy
+ Professional 24 bit / 96kHz digital conversion, with JetPLL™ jitter elimination
+ Ultra-low-latency intuitive DSP mixer/router with quick one-click set-ups

For further information: (310) 322-5500
www.focusrite.com/Saffire

Focusrite
SOUND IS EVERYTHING

Guitar Center

iOS RECORDING

Record Anywhere, Anytime

From your couch to the studio to the stage, tablet technology makes high-quality music production incredibly portable and immensely powerful. Whether you're sketching out a new tune, crafting a beat, scoring a music cue or working on a tricky mix, our selection of flexible iOS-ready hardware and accessories helps you make music wherever you happen to be. From studio-quality mics that plug directly into your tablet to versatile audio and MIDI interfaces, you can take full advantage of the very best audio software iOS has to offer. Plus, a variety of stands, clips, and other accessories mean you can set up your tablet to work comfortably anywhere, so you're always ready to capture the moment when inspiration strikes, or when you just need to check that score or lyric sheet. Wherever you are, however you make music, iOS makes it easier—and Guitar Center is here to help you make the most of it.

BLUE BLUEBIRD LARGE DIAPHRAGM RECORDING MIC

Designed for versatility, the Blue Bluebird large-diaphragm condenser is a perfect complement to your iOS recording setup. Equally at home recording vocals or instruments from delicate acoustic sound to loud guitar amps, Bluebird's fully discrete Class-A circuit and custom transformers make it an indispensable sonic tool.
(22200)

$299.99

APOGEE DUET 2 iOS-READY INTERFACE

Apogee's Duet audio/MIDI interface, with single-knob simplicity and their renowned converters, rapidly became a standard for mobile laptop recording. The latest generation of Duet adds iOS compatibility for even more record-anywhere versatility, with a feature set that stands apart from other iOS audio interfaces.
LIMITED AVAILABILITY
(DUET IOS MAC)

$595.00

APOGEE MIC

Once again, Apogee's dedication to impeccable audio quality shines through with MiC, a compact condenser mic with a direct connection to your iOS device. Once you hear the results, it will become an integral part of your mobile recording toolkit.
(MIC)

$199.00

APOGEE JAM AUDIO INTERFACE

One of the best-sounding ways to get guitar or bass into your iOS device, Jam uses Apogee's PureDIGITAL connection and renowned converters for the pristine sound quality you've come to expect. Best of all, it's completely plug-and-play with any CoreAudio compatible application.
(JAM)

$99.00

IK iKLIP STUDIO iPAD STAND

With the wide variety of available music software, both for creation and performance, an iPad has become an essential part of every musician's toolkit. IK's iKlip gives you a safe, secure way to mount your iPad to a mic stand, so it's there when and where you need it
(IPIKLIPSTUDIOIN)

$29.99

APPLE 30-PIN-TO-LIGHTNING ADAPTER

Apple's new Lightning connector is small, fast, and power efficient, but may leave many of your older iPad and iPhone accessories disconnected. This 30-pin-to-Lightning adapter gives your accessories a new lease on life, enabling you to use them with the latest generation of iOS devices.
(MD823ZM/A)

$29.00

SENNHEISER HD280 PRO HEADPHONES

The Sennheiser HD280 Professional is designed to exceed the demands of the professional environment, with robust construction and extensive features that meet the requirements of today's most demanding applications.
(HD280)

$99.95

For more info on iOS-based recording, go to: www.guitarcenter.com/iOS or scan the QR code

guitarcenter.com

Electro-Voice

TAKE CONTROL.

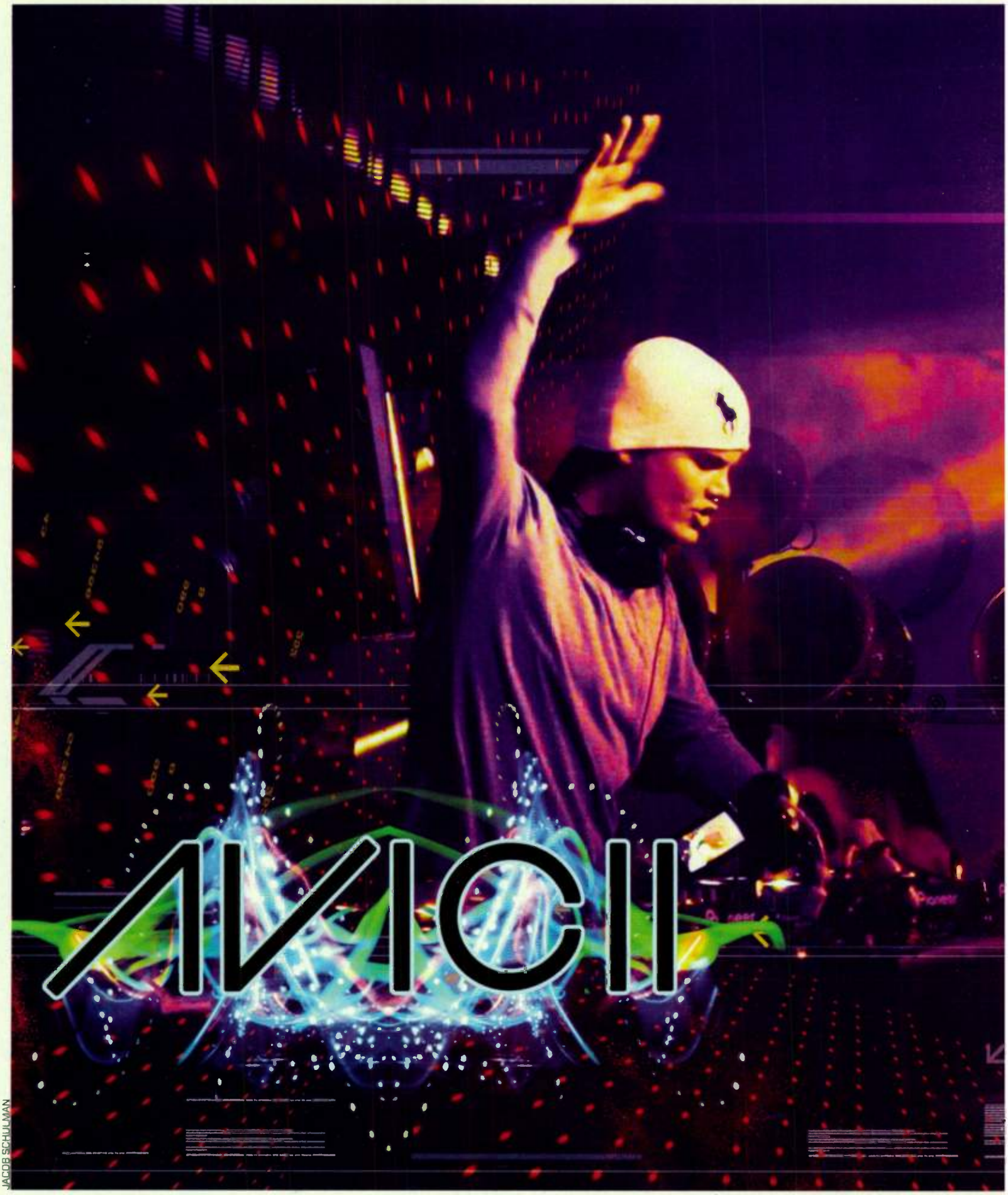
ZLX

VISUAL CONTROL & MONITORING

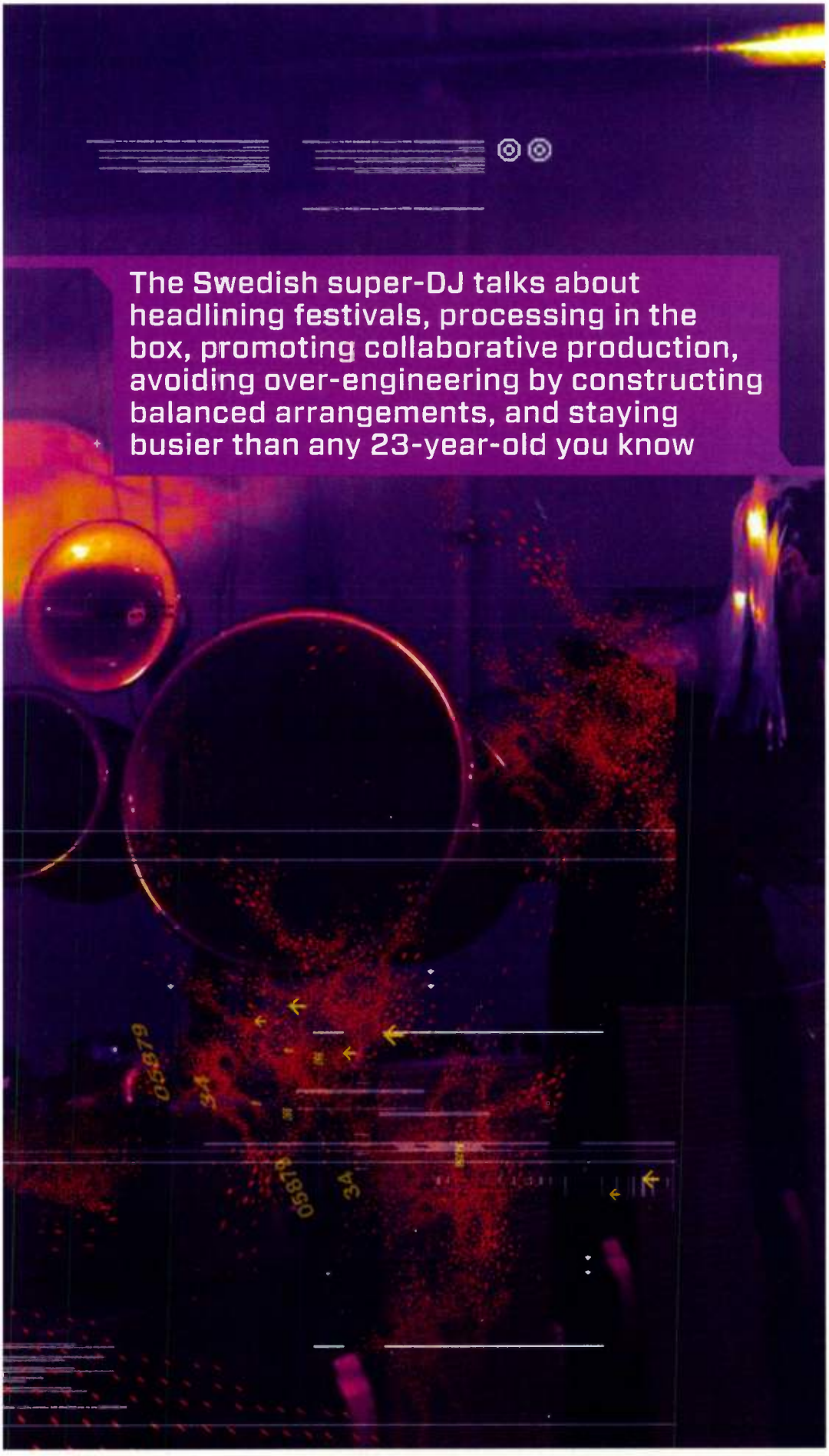
ZLX is available in 12" and 15" versions.
Passive models also available.

New ZLX portable powered loudspeakers stand apart with the most complete, innovative, and user-friendly package of features in their class, giving you more control over your sound to ensure your audience connects with your creative moment, whatever your gig. www.electrovoice.com/zlx

- **PRECISION** – DSP with LCD and application/location presets
- **POWER** – Custom-built 1000-W Class-D amplifier
- **PERFORMANCE** – EV-engineered components for superior sound
- **PORTABILITY** – Unique hi/lo grip handles and lightweight construction
- **PRESENCE** – Stunning enclosure design



JACOB SCHULMAN



The Swedish super-DJ talks about headlining festivals, processing in the box, promoting collaborative production, avoiding over-engineering by constructing balanced arrangements, and staying busier than any 23-year-old you know

BY TONY WARE

TIM BERGLING was born in Sweden, also home to ABBA, Ace of Base, Max Martin—a long tradition of impeccable dance-pop producers stretching to Eric Prydz and Swedish House Mafia. Bergling's earliest influences, however, were singer-songwriters à la Jack Johnson, classic British Invasion pop songsmiths such as the Beatles, and the Kiss, Pink Floyd, Elton John, and Led Zeppelin favorites of older siblings. Bergling quickly took to guitar and piano, but it wasn't until a friend introduced him to FL Studio (Fruity Loops) that the then-18-year-old found the means he would use to establish himself internationally as Avicii, using a DAW as his Mellotron, his way to make loops oscillate and arenas rock.

Leaking his initial efforts to blogs in 2007, just when the recent EDM wave started to swell, Bergling garnered support from such high-profile DJs as Tiësto. Bergling also counts Dutch producer Laidback Luke as a mentor. Avicii compositions (as well as some created under the monikers Tim Berg and Tom Hangs) are almost completely a process done in-the-box, outside of some preamps and assorted I/O, a few mics, some Jamo X and KRK monitors, headphones, and of course, MIDI keyboards; over time, arranging to chords and scales, as well as adding sample libraries that complement Bergling's natural gift for uplifting melody.

"I've always been able to enjoy everything: really repetitive techno or harder electro stuff, or the way System of a Down blends melodies and then goes into something hard and freaky and unique," says Bergling. "But house is my first love with electronic music, and I've always been more inclined to make house music the way the Beatles or Elton John make songs, putting together melodic, morphing sounds that build in clarity until they are epic."

Bergling hints that he's working toward an artist album that will blend the two sides of his influences—folk/rock and electronic—but in the meantime, he road-tests, compiles podcasts and satellite radio shows, headlines festivals (Ultra again last month), promotes a

collaborative production campaign (aviciixyou.com), and in general stays busier than any 23-year-old you know.

Bergling's track "LE7ELS" received a nomination for Best Dance Music Recording for the 2013 Grammy Awards. The development of "LE7ELS," which marries an Etta James sample to melodic big-room house, showcases Bergling's style of drawing in notes that he then changes to stacks of sawtooth synths in sets that have been detuned, lowpass filtered, and copied one octave up to create thickness. With envelopes shaped to control cutoff and decay by following key and velocity, the track is filled with bright, plucky accents that contrast nicely with synth stabs anchored to tightly articulated piano chords. All of this coalesces into a carefully dialed-in reverb over a lowcut bass groove/drum loop/white noise pattern and then, through a combination of sidechain ducking, chopped samples, and carefully arranged timeline regions, the track builds to that pumping pitch.

Here, Bergling offers a peek at how he selects instrument combos like he's playing *Super Street Fighter II Turbo*, why there's no shame in using samples and presets to speed the creative process, and why you don't need to over-engineer if you construct balanced arrangements built on the cornerstones of melody, harmony, and energy.

Was there another production platform for you before FL Studio? Did you spend time with vintage Roland boxes, tracker programs, or other digital audio sequencers?
Once I got Fruity Loops, that was the thing. I've played around with others since, but that was the first and I've used it the most. And all my drums are sample-based, so the quality of production has increased so much from just the samples I've collected—the kick samples, or the claps, snares, effects, all of that.

I started with one kick, and now I have five or six for different purposes. But for your everyday purposes, you only need one kick once you find the one that really works for you. Other than better samples, what has really made the difference was just experience with mixing the samples in the program, learning how you can get more air in the mix, learning what is too loud, too low, what hits harder in stereo or in mono, and that knowledge just comes with time.

Describe your different kicks and how you lay them out.
Most of the time I have one main kick and one sidechain key. Sometimes, depending on the track, I'll add another lowpassed kick with more weight on it after the break to make things hit harder, add a little top to the kick to make it go through in the production more, but usually all I need is that one kick sample and usually a duplicate as the sidechain key kick. Then I can alter the key to change the release on the kick, etc.

Do you spend time actually tuning the kicks, or do you just know which sample has the tone you're looking for?
I haven't really gotten into tuning the kicks that much; I just know what samples I have and how they will fit a song. I've always been so focused about the melody part of everything, and the technical part of mixing and mastering just came as a necessity following that. I focus more on the melody and arranging everything around it than playing with a single sample to transform it into something else.

How do you generate that initial melody?
Nowadays it's mostly on piano, but sometimes I don't play it in and I draw it out. That's where I start a production; I'll start playing around with a lead or just a piano to begin with. Then I'll come up with a melody and build everything else around that.

After you build an arrangement, do you do most of your sound design in a VST instrument or by applying effects to the instrument's channel?
I prefer to look for sounds that already evolve, but sometimes I'll hear something and know it really could use a short reverb, just something a little wet. If I can't find a sound that already has movement I can tune a piano with just a filter, setting automation on the cut-off frequency to set a mood.

Is there any particular way you customize that approach that you feel has become a signature?
One signature I like is pretty common. I like to go full on then into a breakdown with filters. I think that's one of the closer things to sound porn, where everything is going and then you drag it all down with the filter, French filter house style, then bring the sample back from underwater; I love that coming up feeling.

Are there additional tones or sequences that you like to throw in as a watermark, as little background details that brand tracks as yours?
Yeah. There's a bunch of stuff, I'd say. I use samples as effects most of the time; I'll tweak background stuff like an explosion sound, and add stuff that I've collected over time. I think a lot of stuff like that you don't even realize it's in the background because it's more of a dub sound, like I might have a crash or some squeal that you'll recognize if you listen to a lot of the tracks. Also, there are these risers [melodic note progressions] and other plucky pitch stuff I've used. You fall in love with some of it and maybe abuse it a little bit.

Has your style been impacted by any software introduction beyond FL Studio?
Not really, there were just some basics I had to learn, just like everyone else. I used to spend a lot of time in online forums and I "met" Laidback Luke on his and he introduced me to this free limiter, the Kjaerhus Classic Master Limiter, which is basically one knob but that was perfect for the way I do things. I just needed a simple way to make sure that levels were more equal and didn't go too loud. Simple stuff like that amazed me at the beginning, and I've been lucky to pick up things like that from people over time. I'm still not really using compressors all that much. I'm not very good at going deep into how things work technically. My strength is in recognizing a good sound and knowing how it can work with other sounds, but I'm not one of those people who wants to spend hours tweaking every setting.

What are some core components that give you those good presets?
I still use [reFX] Nexus a little bit [for building room, and punch], though not as much. I use [Lennar Digital] Sylenth1 a lot. I use [Native Instruments] Massive a lot, too. I do enjoy tweaking Massive; that's fun, you can do a lot with that synth. I use Kontakt a lot, too, and a lot of different expansions for that.

As someone who loves melody, but also likes to arrange around those in-your-face builds, what place does distortion play for you? Do you try to work it in or cut it out?
I've been exploring it a lot more in the last year; it's very addicting, though. You'll start using it, you'll notice that you can use it on almost any sound and make it cool and give it an edge, use it on vocals, on leads, on bass, but then it's very easy to go over the edge, to get lost in it. Once you listen to a certain distortion level for a while you think it can use some more distortion, but it really couldn't use some more distortion. You get snowed in, so you have to be careful.

I've always liked to use white noise, putting in these sweeps that build excitement, but those are like distortion and you can get lost in thinking you need more and more when you don't. It only sounds amazing if you really think about where to put it and limit how much. If you use too much, the impact gets lost.

> "I've always been more inclined to make house music the way the Beatles or Elton John make songs, putting together melodic, morphing sounds that build in clarity until they are epic." —Avicii

So walk me through your [January 2013] collaboration with Nicky Romero, "I Could Be The One," and tell me the different tools and techniques you used to prepare your sounds and seat your arrangements.
One of the main elements in the song is the lead, which has this wobble that we did with [realtime VST audio manipulation system] dBlue Glitch. It's a mix between having a gate effect as well as a pitched LFO on a bunch of different layered sounds [applied through a tempo-synced step sequencer]. I like the effect it got, very energetic. After the melody, that's the main thing we processed to make the song stand out. We had the instrumental for a long time and I would put the Justice "D.A.N.C.E." *a cappella* on it when I played that version [known for a long time as "Nicktim"] out. Finally we had the proper vocal [performed by Noonie Bao] pitched to us and [we] just fell in love [with it] straight away.

How did you establish the lead?
I've been playing around a lot with Glitch, first mainly for a crispy, randomized, bit-crushed sound, but I remembered an old track [Thomas Bangalter's 1998 single] "Colossus," and that song had a really wobbly, really funky sound that kind of inspired me to play around to create a bright and woozy effect. Again, the challenge was finding the perfect speed and pitch for the effect without losing track of who you are. Like with the distortions and white noise, you can fine-tune to the point you start to think more is better when it's not. So we had a VST synth being processed with Glitch. A similar way to get the effect is from tweaking Fruity Loops' 3xOsc [three-oscillator, subtractive synthesizer], which can be used to create a standard sawtooth and then you go under the channel's instrument tools to pitch and there's an LFO setting where you set the amount and speed and attack . . . finding the balance between those three knobs helps set the vibe. We had some of that in the track; it was several layers of sound.

It sounds like you are constantly switching between drawing in notes, doubling patterns, selecting VST instruments, clipping waveforms, setting automation . . . where does arranging stop and mixing begin? Do you differentiate them as steps in the process?
They are completely, constantly ongoing simultaneously. I do them both as I go along, and it's not done 'till the track goes to mastering.


JACOB SCHULMAN

Over time have the different environments of DJing and performing changed the way you approach your mix? Do you take into consideration the frequency response of different venues and sound reinforcement systems when you're working with hour stems?
One hundred percent, definitely. I have no patience, so when I feel I'm close to finishing a track I start playing it straight away, and that helps me hear if a certain frequency stands out too much. I don't mean anything as picky as whether things are a little bit harsh in the 7.5kHz area, but it helps me know if a section of the track sounds too quiet or the bass is too much. When you're sitting in the studio you don't always get a full understanding of whether a track has too much high end on the drop or so much bass it feels like you're crumbling parts of the club. You need to make sure parts aren't too harsh and that elements don't get lost in this big rumble, and playing it out helps.

Do you approach sidechaining as a valuable control tool or is it similarly something that can be easily abused and overused, like white noise?
It definitely can be overused, but when you learn how to use it it's the best tool. I don't think there's a single track I don't have sidechaining on, but then there's different levels of side-chaining. Even a very slight sidechain, where you don't even know it's sidechain, can make a huge difference in the mix. It just brings forth the kick without overdoing it. It makes for a more dynamic mix.

You've indicated much of what you do is through native Fruity Loops processing tools, but are there additional plug-ins you turn toward for fine-tuning?
Yeah, for vocals I use a lot of SoundToys stuff, the Decapitator or EchoBoy. It has a great deal of presets that are really good; it's not overly complicated and it's so much fun to play around with. Plus all the Waves plug-ins in general are lifesavers [especially for working with more "acoustic" sources and making samples sound less "movie music"].

> "I start a production by playing around with a lead or just a piano to begin with. Then I'll come up with a melody and build everything else around that." —Avicii

Are those more for just tightening stuff up or for adding specific coloration?
A lot are for control, but they're also for adding colors. The Waves Tony Maserati collection has a bunch of different toners and enhancers that add a really cool sound to a lot of different stuff. If you put it on the piano, it just kinda hoarsens it up a little bit . . . it gives it almost an illusion of being more real. It sounds like it's older, sounds like it's a real instrument recorded, and you can use it for so many things, not just pianos, to give it color: bass, synth leads, you can rough everything up a little or a lot.

Once you're layering these treated samples and virtual instruments, where do they compete the most? Where does the most work go into making sure it's not all snow?
When you know how to layer, they don't really.

Is there a particular way you assure this through automation and/or EQ?
Not really, no. The way I layer stuff, I'm finding every sound has its own purpose, you know? The key is just don't have two sounds for the same purpose because they'll just clash, like two sounds on the same frequencies. You can have a really strong sawtooth waveform synth and use another really strong sawtooth and it's not going to sound that good if they're on the same octave, you know? So I avoid that trap. And then I place things like piano, which always sounds amazing and fills up a lot of that void. With the piano, I usually take big chords and then put the top melody on it, with some rhythm, too. Then I'll double that pattern and go through basic styles to find stuff like a sawtooth stabby sound so I can add something extra on top that will stand out a little bit.

So you find being extremely familiar with all of your building blocks is a more valuable tool than spending hours customizing EQs?
One hundred percent. Mixing, some people say it's an art to carve and dial things in, but I would say it's more important to have experience listening and organizing. The more time you spend producing and mixing in general, changing levels, the more you'll hear right away if something is standing out too much or too little, so you can solve the problem with your sample and melody arrangements instead of trying to force things to fit on top of each other at the end. ■

Tony Ware is a frequent contributor to Electronic Musician.

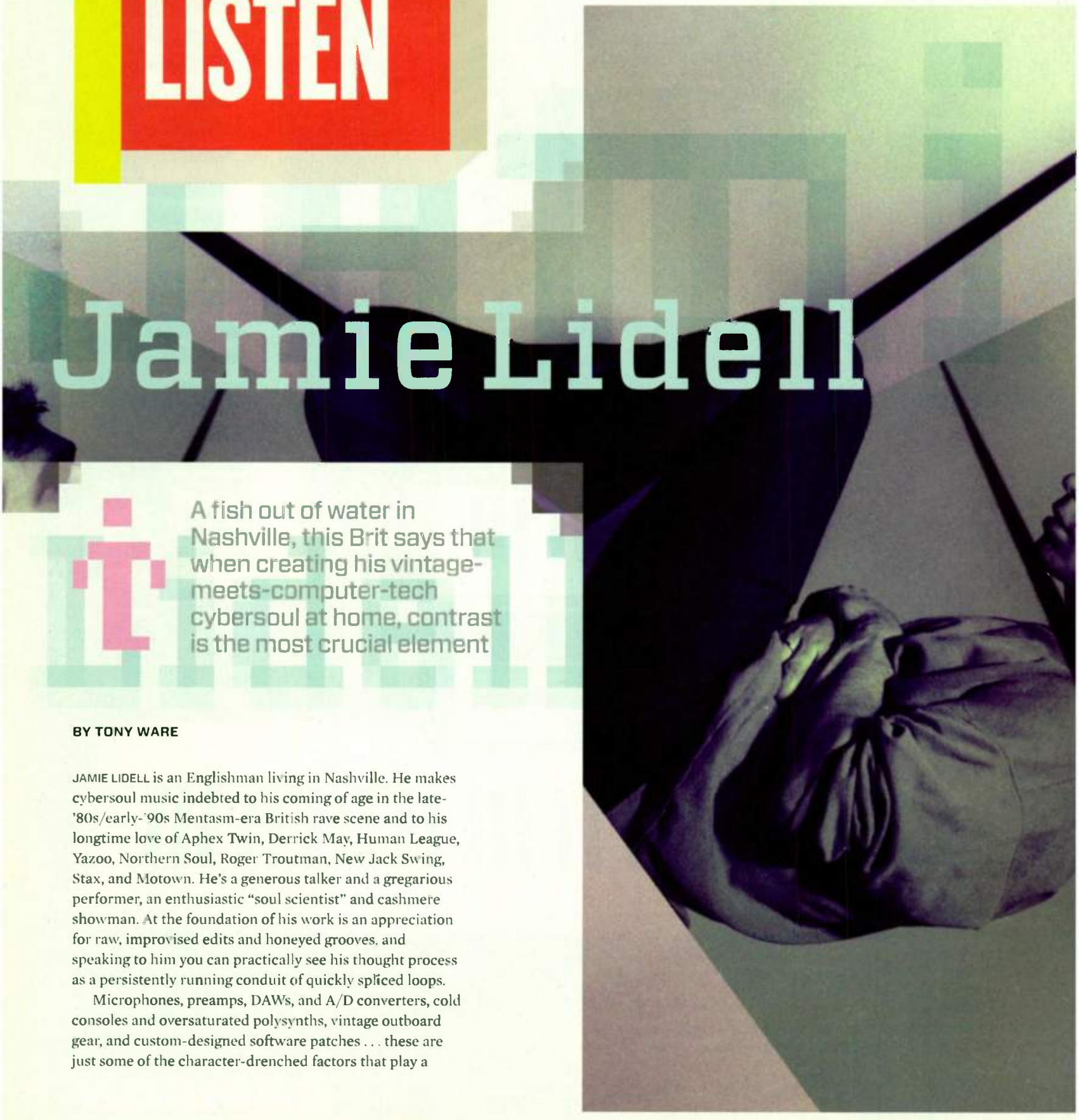
Graphite and Carbon USB MIDI Controllers.

Samson's line of controllers offer stunning displays, intuitive controls and great feeling semi-weighted keys. With options for every level of performance, production and portability, these controllers are the change that music creators have been waiting for.

SAMSON

LISTEN

Jamie Lidell



A fish out of water in Nashville, this Brit says that when creating his vintage-meets-computer-tech cybersoul at home, contrast is the most crucial element

BY TONY WARE

JAMIE LIDELL is an Englishman living in Nashville. He makes cybersoul music indebted to his coming of age in the late-'80s/early-'90s Mentasm-era British rave scene and to his longtime love of Aphex Twin, Derrick May, Human League, Yazoo, Northern Soul, Roger Troutman, New Jack Swing, Stax, and Motown. He's a generous talker and a gregarious performer, an enthusiastic "soul scientist" and cashmere showman. At the foundation of his work is an appreciation for raw, improvised edits and honeyed grooves, and speaking to him you can practically see his thought process as a persistently running conduit of quickly spliced loops.

Microphones, preamps, DAWs, and A/D converters, cold consoles and oversaturated polysynths, vintage outboard gear, and custom-designed software patches . . . these are just some of the character-drenched factors that play a

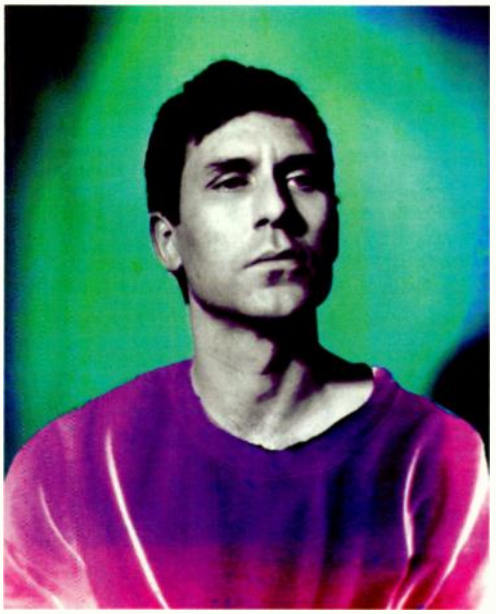
part in Lidell's recording process, and we touched on these and more one afternoon in December 2012, sitting in a snug organic café on Manhattan's Lower East Side.

"One big part of making the record was Jamie's Italian espresso machine," admits producer/engineer Justin Stanley while discussing the sessions for Lidell's self-titled fifth album. It seems that whether dedicating his energies to sonic programming or home brewing, Lidell is the kind of fellow who goes to whatever lengths it takes to draw the most personality out of any source, and the more hands-on he can be, the better.

Lidell's history releasing machine funk stretches back to the mid-'90s and to his partnership with Christian Vogel in Super Collider, a project that emerged from Brighton, England, as the logical progression of lacing some Autechre with some Prince, and some Plastikman with some P-Funk. While in the midst of that project's sophomore effort, Lidell moved to Berlin, Germany, and found himself totally skint, and, he says, in a position where being a sociable scrounger could only get him so far when the prevalent scene was "really excellent box players."

"These guys were purely techno and they would rock that sh*t," Lidell continues. "But I was never into drum machines, was never purely analog. I never had that Roland 303/606/909 formative purity phase. I came from computers—Atari ST, Cubase, linear timelines—and I had been making these ambitious Max/MSP patches to toy with my voice, because that was how I made my music.

"So I needed a way to electronically perform with my voice, and I had collaborated with guitarists with loops, so I started to think about how to combine this. So, to make money, I first combined a Boss SB-202, a Line 6 DL4 Delay, maybe another delay. I was holding it down with some dodgy guitar pedals and then bringing in a computer doing some playback. Then I worked in my Max looper patch and a portable analog console so that each track had its own output, because I've always liked that tactile feel, and we could do post stuff at the front of the house. It wasn't fancy stuff, I couldn't even do overdubbing; I'd have a couple mics, and I'd have different delays and stuff like the Mu-Tron Octave Divider running with a volume pedal on the aux to control my send level to the delays, etc. And I'd just record those signals and then play them back.



"I like layering sounds with all their natural ambience, but it can build up and make it hard to maintain airiness. First and foremost you solve these challenges in the arrangements, but when you get lost in the programming you need a great mix engineer like Justin [Stanley] to know exactly how to reshape dynamics and displace just the right thing."

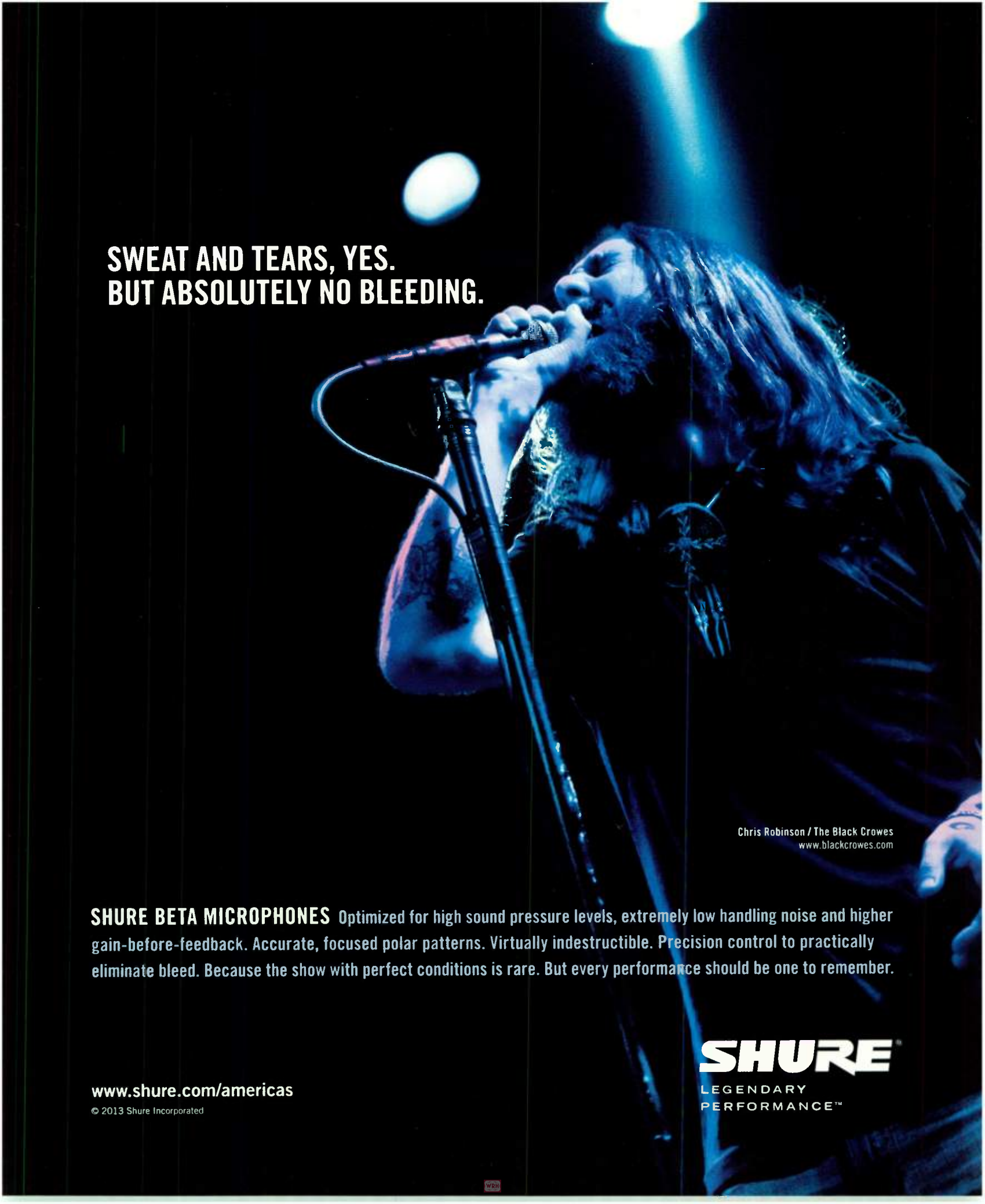
—Jamie Lidell

"The looper was a simple thing," Lidell explains, "just five tracks with the record mode and mutes easily accessible on the black keys with your fingers. Once I got that down, I started to lock a 606 to the computer's clock, and I'd also hire a Minimoog Model-D, using a bass amp to monitor my own mix to make sure I was getting the low body sound I needed to tune everything with the vocals. That was the show I was running when I put out my first album on Warp [2005's *Multiply*], and it was far less austere, way more rough around the edges than a lot of what was around me."

Honing this patch as he expressively flailed his rangy body about international stages, Lidell put together *Multiply* with his friend and fellow Berlin transplant Mocky. They worked with various studio sketches that would be laid out and manipulated through a five-loop mentality: two rhythmic/timekeeper channels, three harmonic. Presenting this approach during a serendipitously timed period of funk-soul revival, *Multiply* won Lidell's name a wider presence than any of his previous work. *Jim* (2008), an even more acoustically composed collaboration with several Canadian expats, played out like a logical, well-mannered follow-up to *Multiply*, further reinforcing Lidell's crooner side. It was with 2010's *Compass*, however, that Lidell more blatantly displayed his DSP-rumpled chops, effortlessly sloughing off the typecasting of "neo-soul singer" to be rebranded appropriately as a retro-futuristic producer.

Now, on *Jamie Lidell*, the artist has even further reconciled all the disparate elements and diverse circuitry of his tonal makeup, showing how a slowly, lovingly baked career can exhibit much more richly textured flavors than a quickly microwaved effort. *Compass* was a more emotionally uneasy album made following a move from Berlin to New York City. Lidell used a studio/space-hopping approach to find varying acoustic treatments for *Compass*, beyond the confines of his 800-square-foot apartment. The result of these sessions—spread from the Niagara Escarpment to the Hollywood Hills—is that album's aggressively direct, darkly eroded midrange. *Jamie Lidell*, meanwhile, reflects his relocation to a 3,000-plus-square-foot Nashville home, a more playful space where its owner enjoyed freely experimenting with a newfound buoyancy, digitally editing sketches and toying with rhythmic real estate.

"I'm definitely a fish out of water in Nashville," admits Lidell. "But in New York all my equipment was slowly gathering dust. Now there's this great house with loads of space. And instead of just filling it up with the gear I already had, I went out and bought more! On my last tour I picked up an [Oberheim] OB-Xa, a [Sequential Circuits] Prophet-5, a Rhodes Chroma, a few more. We started filling out the tour bus with these sonic weapons. I got the


SWEAT AND TEARS, YES.
BUT ABSOLUTELY NO BLEEDING.
Chris Robinson / The Black Crowes
www.blackcrowes.com
SHURE BETA MICROPHONES Optimized for high sound pressure levels, extremely low handling noise and higher gain-before-feedback. Accurate, focused polar patterns. Virtually indestructible. Precision control to practically eliminate bleed. Because the show with perfect conditions is rare. But every performance should be one to remember.
www.shure.com/americas
© 2013 Shure Incorporated
SHURE
LEGENDARY
PERFORMANCE™

[Oberheim] DMX drum machine, the E-mu SP-1200, all these original boxes so I could get a taste of that sound. And in Nashville I found an SSL 4000E/G console, this 56-channel, 12-foot long monster. We had to cut holes in the floor to run the power supplies down to the garage, where we had two huge six-foot racks whirring away in the basement, pulling all the power on the grid to keep this thing on. I've since sold it, but we recorded *Jamie Lidell* and a good two more albums' worth of material on it.

"What I love about the SSL is that it's the sound of the era I was going for, that [Janet Jackson] *Rhythm Nation* vocal sound," says Lidell. "By itself, it's brittle, but in a good way, and it's great for inserting equipment all over the channels; it's got a really nice, robust path. You just keep it below 0dB and let it breathe; it's got plenty of delicious headroom. We'd break out all the parts separately and really have the board rocking, because we used a lot of analog effects. We had a Publison Infernal Machine [digital pitch shifter], which was one of the first time-stretch units, and we had a lot of old delays, like the Roland RE-201 [Space Echo]. We'd stretch out everything, all the parts from my looper and all the session tracks from Pro Tools, then we'd garble it all up—analog and digital, all a mess together."

The song "You Naked" is an example of such unity. It begins with a tone from Native Instruments' Razor additive synth, and it's just a deep, heavy belly preset. "That's what they did with 'Beat It,' you know, just started it off with a Synclavier tone," reflects Lidell. "Sometimes you hear a sound that's too incredible to deny." Quickly, however, creeps in the wonky theme of the OB-Xa, a testy analog beast emitting a tonality that would take far too long to re-create digitally; it's often Lidell's synth of choice.

"I'd use the natural diffusion of the different rooms of the house, switching the mic to an omni pattern to pick up more space, while other vocals, keyboards, guitars, and tighter-sounding drums were recorded in the control room."
—Justin Stanley

"I'll often run it through an amazingly satisfying chain of the Space Echo, into the SSL, then using the SSL to apply the nonlinear reverbs of the Bricasti [Design Model 7]," he says. "They added a preset not long ago that's a real Prince thing, like the sound off the AMS RMX-16. That's the 'Kiss' reverb, on the bass drum . . . that sound is through the reverse tube program. So I used a lot of that, and the Dimension D effect on the [Eventide] H8000. But often I kept going back to the Publison. It's my sensibility; it only has seven modes, but it's this incredible sound for pitch and widening. I got really into exploring old methodologies, and I'd have that old-school sensibility where I'll often print all the effects on a take, because when you get that sound you should just commit and balance it later; why go back and second-guess yourself?"

Further exemplifying this marriage of analog to digital, Lidell took various approaches to percussion that included the sounds of an isolated live kit and drum machines. Again citing the Prince influence, Lidell commissioned Linn Electronics EPROMs be made for the DMX, and played LM-1 samples through that circuitry. Finding that to be a little cold, he ran the drums through the Publison, pitched them up, and then refined the solution by having a real drummer add parts on top.

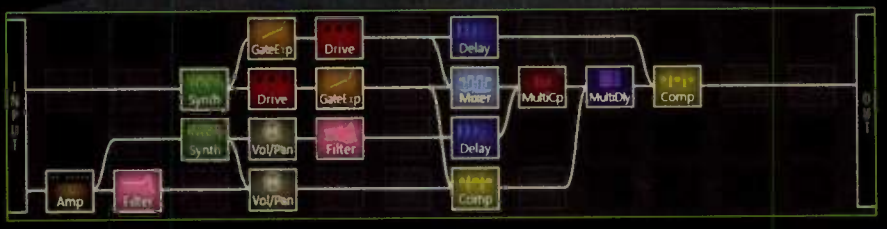
The live drums, which started with a naturally captured dead '70s quality to them, were recorded ". . . with no more than three or four mics in the cement basement of the house, and we used the staircase and adjoining room as a nature echo chamber," reveals Stanley. "I'd use the natural diffusion of the different rooms of the house, switching the mic to an omni pattern to pick up more space, while other vocals, keyboards, guitars, and tighter-sounding drums were recorded in the control room."

There were also occasions that could almost qualify as "jamming," with two keyboards being played to introduce surprising harmonic sensibilities, or bass and drums rolling on a loop simultaneously. "We tried to record two or more of us at the same time so we could bounce off each other; it always makes for a better performance," says Stanley. "Bleed was never a real concern; the performance being captured—that was the main goal."

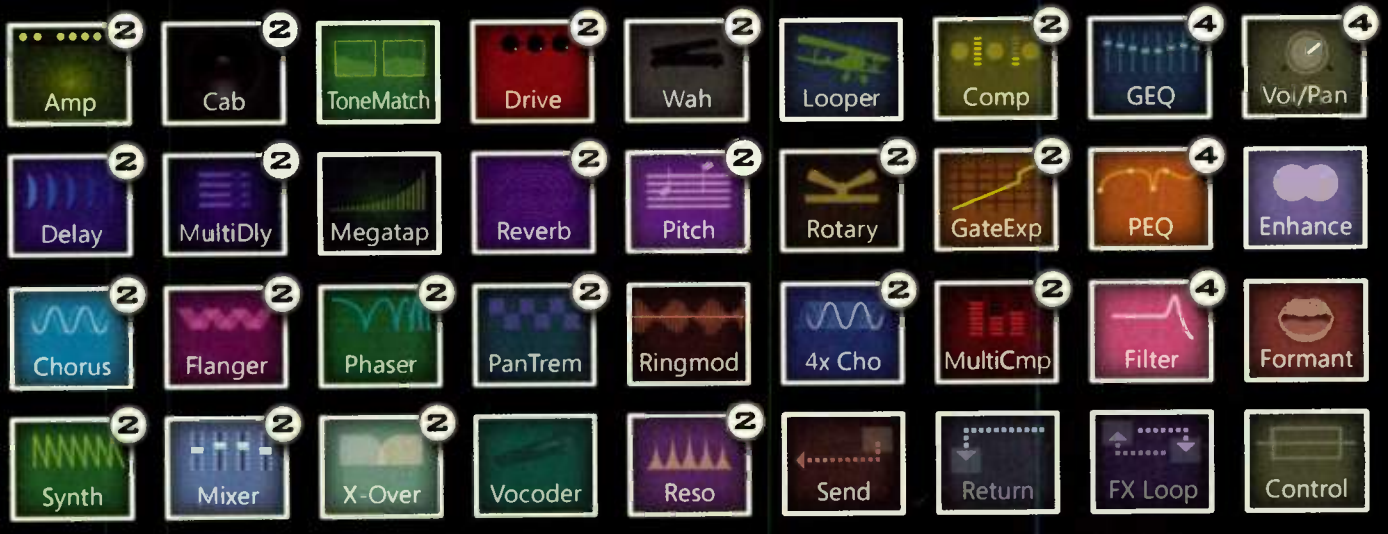
In contrast, on the song "What A Shame" Lidell brought in legendary soul session drummer James Gadson, then sequenced his hits through an MPC60; he used those live tracking samples to create a new Linn-type hybrid, bridging randomness and repetition.

AXE-FX II

THE WORLD'S MOST POWERFUL FX PROCESSOR GOES FAR BEYOND GUITAR!



Draw from an inventory of virtual amps, cabs, effects, and utilities to create powerful modular effect routings on a 4×12 stereo grid.



NOT JUST FOR GUITARISTS, THE AXE-FX II IS A "SECRET WEAPON" FOR PRODUCERS, SOUND DESIGNERS, DJs, AND ELECTRONIC MUSICIANS ON ALL INSTRUMENTS.

WITH HUNDREDS OF FX TYPES, IT OFFERS INCREDIBLE FLEXIBILITY AND THE UTMOST IN SONIC QUALITY, PLUS OVER 100 OF THE INDUSTRY'S MOST ACCURATE AMP MODELS.

FANTASTIC REAL TIME CONTROL VIA AN EXTENSIVE MATRIX OF SOURCES/DESTINATIONS. QUICK & EASY TO DIAL IN • PRO I/O & RELIABILITY • MAC/PC EDITOR • AND MORE!

Editors' Guitar Player Pick

PG PremierGuitar PREMIER GEAR

FRACTAL AUDIO SYSTEMS
www.fractalaudio.com

Guitar World Platinum Award

Guitarist Gold

Tying together all these stacked bundles of polysynths, percussion, and vocal punctuation is a wealth of processing, much of it focused on the fringes and transients. "Distortion is my favorite color; there are so many colors of it," says Lidell, who cites Thermionic Culture's The Culture Vulture, the SoundToys Decapitator analog saturation plug-in, and Universal Audio's UAD Studer A800 Multichannel Tape Recorder plug-in as favorites. "You can make so many wonderfully bizarre artifacts with the bias too low and choking," says Lidell.

> "There's a mystery and charm to parts that are 'poorly' recorded, and then treated . . . it can be the salvation of a sound, when you add that 'improperly lit' part."
> —Jamie Lidell

"To make certain tracks pop, we would add varying degrees of harmonic distortion [to individual synth tracks, drums, and sometimes vocals] . . . or give them extreme narrow bandwidths," echoes Stanley. "Also, we'd overload the inputs on the Neve 1073 mic pre's to get that amazing distortion that only they can get. And certain vocals were run through a portable Nagra mono quarter-inch tape machine."

Lidell's appreciation for emotionally charged parts resulted in a forceful, air-pushing quality. "My wife is a great photographer, and sometimes she underexposes a photo and that ends up being my favorite, because she has to save it in the dark room by doing extreme things," explains Lidell. "Similarly, there's a mystery and charm to parts that are 'poorly' recorded, and then treated. For 'What a Shame,' I recorded some Chroma parts too quietly for my demo, but they had that swing I wanted and when I bumped them up on post, it raised the noise floor and added an interesting white noise character I prefer, and that contrasts well in a stack. It can be the salvation of a sound, when you add that 'improperly lit' part; it stimulates the imagination.

"With vocals, on the other hand, a lot of times I'll just vibe, lay down a really bright shape with the AKG/Telefunken D19 [mic], then Justin would come in and we'd re-record proper parts again at the console with a Brauner VMX under a cloud with some gobos. I like layering sounds with all their natural ambience, but it can build up and make it hard to maintain airiness. First and foremost you solve these challenges in the arrangements, but when you get lost in the programming you need a great mix engineer like Justin to know exactly how to reshape dynamics and displace just the right thing."

An integral element to seating all the sounds in their three-dimensional space was the liberal application of extreme reverbs to some parts, which would in turn place other dry components in stark contrast. Next was carving: "I'd try to lose the low end below 150kHz if the sound wasn't acting as the main bass instrument," says Stanley. "And the same went for sounds that didn't have a lot of high frequency . . . I'd roll the tops off a bit just to free up as much space as possible."

Or, to put it another way, as Lidell does, "You need some blur on the lenses. It's like they say about sales of porn in HD: You don't want to see too much, because it becomes a disaster of anatomical clarity, a biology video."

A few of the rare constants on *Jamie Lidell* included the use of the Retro Instruments Sta-Level as the tracking compressor of choice, to add tube magic, and a combination of GML Parametric Equalizers and innerTube Audio Atomic Squeeze Box full-band dynamics processors on the SSL's main stereo bus, which would be sent to Burl Audio converters then back into Pro Tools for extreme automated panning, etc. The final mix, however, was done using an all-hands-on-deck approach on the console. "It helps to leave spontaneity and mistakes in the mix, and that's what makes it a lot more alive," says Stanley. ■

Tony Ware is a Washington, D.C.-based writer and editor who is willing to walk dozens of blocks, even travel several states to find the perfect blend of gear-geek talk and single-estate roasters.

Mikael Jorgensen of Wilco live using the Virus TI

THE LUST FOR LIVE

Things can't get more realtime than in a live performance. Your performance drives the audience, invisibly connecting everyone in the room. The Virus TI combines total reliability with that signature studio sound heard on countless chart topping tracks. It's the modern classic for all players who don't compromise. To learn more about the Virus, listen to it now on the stages of the world or **www.virus.info**


Virus TI Polar


Virus TI Desktop


Virus TI Keyboard


Virus TI Snow

Visit us on Facebook: www.facebook.com/accessvirus
Distributed by Kemper Americas LLC
Ph: (303) 248-3864 · info@kemper-digital.com

access

Mister Barrington

BY KEN MICALLEF

In the studio and live, trio's improv and interplay look and sound like a magician's trick

IT'S LIKE that old-fashioned shell game, Three-Card Monte, where a hustler moves his hands so fast that the audience can't tell at the end which shell covers the card. At a recent performance at New York's Blue Note club, Mister Barrington—an instrumental trio that adeptly uses Ableton Live as part of their improvisational process—similarly turned music into a bizarre visual and musical sleight of hand. When Mister Barrington performs, it's almost impossible to tell who is playing what, who is controlling what, and where the final musical note will land.

Triggering each other's computers through a combination of sidechain compression, sidechain gating, and various programming tricks and scripts, Mister Barrington merges instrumental improvising and computer programming into a wicked new beast. As heard

LOVEL JAMES

on their two self-released CDs, *Mister Barrington*, and *Mister Barrington II*, it's obvious that the trio of Oli Rockberger, keyboards, vocals, and programming; Owen Biddle, bass and programming; and Zach Danziger, drums and programming, are synth-walking, time-stretching genies. But with deep roots in New York's music scene, Mister Barrington also improvises on-the-fly as easily as most DJs cue up a Technics 1200.

Mister Barrington's collective credits reflect the trio's serious skills: Sting, The Roots, Wayne Krantz, Erykah Badu, David Holmes, John Legend, Common, Mos Def, Al Green, Levon Helm, John Mayer, and Corrine Bailey Rae have all worked with members of the trio. But Mister Barrington's own records and videos signal something well beyond R&B or pop. Like Stevie Wonder spinning soul tales over programming by Flying Lotus or Squarepusher, Mister Barrington's music is startling, especially when each musician seems to be in total sync with and literally controlling the other's computer's rigs and instruments.

"With the perception that live electronic music performances are confined to a 'just push play' mentality," Danziger notes, "our mission

Zach Danziger

is to keep searching for ways to use technology in an organic manner to further improvisation and group-interplay possibilities."

Each member of Mister Barrington uses a Mac Book Pro running Ableton Live, which, with specific patching and software scenarios, allows the musicians to effect changes in each other's computer rig. Examples of this include enabling the drum rig to gate or sidechain gate or compress the keyboard or bass rig, and the keyboard or bass rig to control the drum rig's internal synth/effect patches.

Keyboardist/vocalist Oli Rockberger uses three keyboard controllers: M-Audio Oxygen49; an Akai MPK49 controlling Ableton Operator, Native Instruments FM8, and Iris; and an additional controller, a Korg MicroKey, controlling his software Vocoder (typically for vocals), all running into an M-Audio Profire 610. A Korg NanoKontrol connects to the MicroKey, allowing looping and extra effects to the Vocoded signal. Rockberger often loops short keyboard or Vocoded phrases in real time that can be further manipulated by his onboard effects or gated by an incoming drum-rig signal.

Zach Danziger uses Ableton native effects, iZotope Trash 2, and Native Instruments FM8 to transform/effect his live performance drum sound. He triggers not only electronic drum one-shots, but also a variety of synth patches. A custom-designed Max for Live script lets him play realtime melodies, chords, and arpeggios. A Danziger remix, "Stix Beiderbecke vs. Deadmau5," based on the original Deadmau5 track, "Maths," recently reached 21,000 hits on YouTube within three days after being shared by Mötley Crüe's Tommy Lee.

Ableton Live also enables Owen Biddle, former bassist for The Roots, to trigger synth bass tones. Biddle, Rockberger, and Danziger also use Keith McMillen Instruments' Softstep to manipulate effects further. Danziger clues us in to some of Mister Barrington's techniques and tricks.

One of Mister Barrington's stated goals is to "use technology in an organic manner to further improvisation." What does that mean?
We want the technology to enhance our musicality. We don't stop at the technique of what the gear gives us; we use it to further our improvisation possibilities.

In performance and on record, each member of Mister Barrington triggers the other musician's instrument. How do you do this?
In several ways. Both in the studio and live, we use sidechain compression, mainly having the kick drum duck the volume of a track or instrument to produce a pumping feel. Live, we also do things such as routing our individual computers to control the other ones; you'd call it live sidechain gating. These techniques are usually associated with more programmed music. We've asked ourselves, "Why can't we harness our favorite elements of electronic music, but do it with live instruments?" We've been talking with different manufacturers about producing products that will help musicians to work more in this way. We need this technology to fully achieve what we want to do to.


Keyboardist Oli Rockberger works with three controllers.

LOVEL JAMES

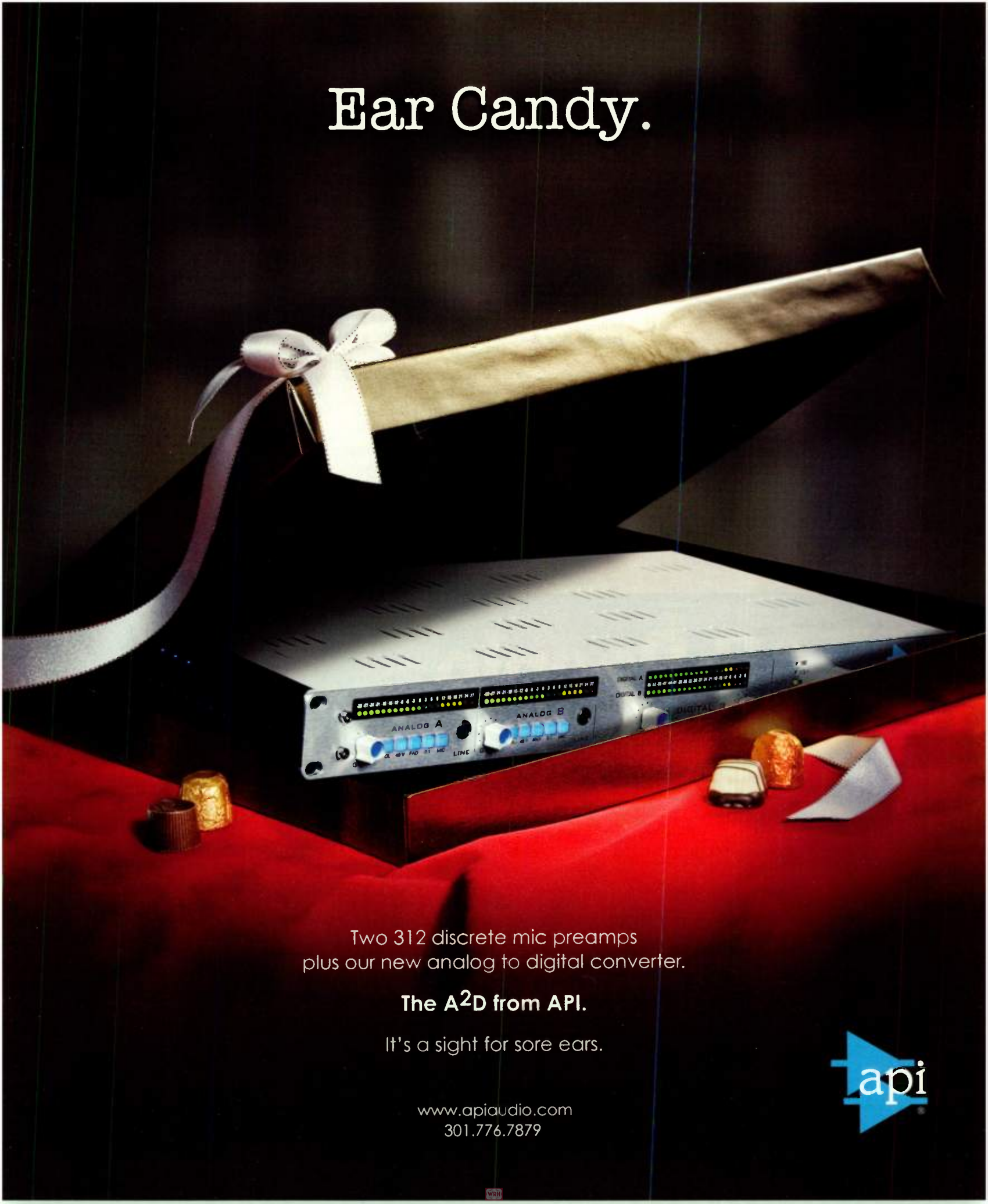
From the drum chair, how are you improvising simultaneously with your and the other bandmembers' electronic gear?
I've been using a KAT KP2 as a trigger unit, attaching piezo pickups to the drums. I also tape the piezos on the top of the cymbals. One problem is having a level of sensitivity to not double-trigger and false-trigger. But the bigger problem with more affordable gear is latency, meaning when I hit the drum or cymbal, how long does it take for the trigger to react and produce the sound? What is the delay time? The technology will never be instantaneous, but companies are developing newer interfaces that have less latency.

What are the other limitations of current gear to use when improvising?
The main one is CPU horsepower and, again, latency. The faster the laptop the better, and even the fastest one is not fast enough. Oli likes to have ten soft synths loaded at a time, and the more you load into a DAW, the higher the CPU load. They are all running in the buffer. We bought some new soft synths that are great, but they are too robust to use simultaneously without overloading the CPU. On a more powerful desktop they are perfect, but we use laptops, like most DJs, on the road. The latest MacBook is a little better. We'd like to have more high-end effects at our disposal, but again, they take up too much CPU power. So we often go with a scaled-down reverb, synth, or compressor; or use "eco mode" on certain plug-ins. That is the main limitation. There are many great plug-ins that we'd like to use all the time, but if you use too many in-tandem on a laptop they will shut it down.

So you're developing road-worthy and stronger units?
Yes, we're always finding ways to refine our setups, especially for touring purposes. We seem to favor portability over sturdiness. Some of the manufacturers come up with features that we find too general or redundant. These features can affect the unit's size and portability. I'm getting tired of electronic drum brains having not much more than the usual techno stabs and stock funk drum sounds. We've been talking with companies to develop products that have the right balance of features for our needs.

How does sidechain gating work in a live setting?
I'll give you an example. Oli can loop any vocal or keyboard phrase in real time and utilize such plug-ins as iZotope Stutter Edit to mangle it even

Ear Candy.



Two 312 discrete mic preamps
plus our new analog to digital converter.

The A2D from API.

It's a sight for sore ears.

www.apiaudio.com
301.776.7879

api

further. He uses an M-Audio controller pedal which, when engaged, mutes his signal until he receives the output from my drum rig. We do the same thing with Owen's bass. I send him my bass drum signal, which goes to his bass rig. When the bass rig gets a signal from my bass drum, it reacts and either sounds or ducks the note he is playing in that moment on his bass. It produces that familiar cut-up/whooshing sound so prevalent in today's electronic music and allows us to harness this aesthetic with improvised material.

When does each musician know this effect is going to happen?
It's a choice that we make in the moment. Both Owen and Oli are incredibly intuitive musicians. We respond when one of us goes on a tangent, using these various techniques. It's an extension of knowing when to support or interact with another musician.

So each of you can hear when the other is sending the signal?
Yes. In my case, I am always sending out a drum signal; it's just a matter of when and how they choose to engage their respective rig, letting the drums influence its behavior. I can hear when Oli is engaging his gate because his keyboards are suddenly mirroring the rhythms I'm playing on the drums. This often inspires me to tailor my drumming to the altered dialogue in that moment.


LOVEL JAMES

Top to bottom—Korg MicroKey, Akai MPK49, and M-Audio Oxygen 49.


LOVEL JAMES

Owen Biddle's bass rig.

What are the steps to understanding this?
I think it's important to have at least a basic understanding of modern studio production techniques and music software. I eventually discovered that it's not a great leap to apply production techniques in a live setting. If you're new to all of this, there are a growing number of innovative and cost-effective methods to get you started. We use a bunch of great music apps on our iPhone and iPad such as Animoog and Bebot, which inspire a different workflow. Steinberg, Native Instruments, and Propellerhead have great

ex·cel·lence [ˈek-sə-ləns]

noun

1. the quality of being outstanding or extremely good

2. a state of possessing good qualities in an eminent degree

3. what you can expect from your experience at Vintage King Audio

VINTAGEKING.COM
NEW | USED | VINTAGE
888.653.1184

20th Anniversary

0% INTEREST FINANCING
with the Vintage King G.A.S. Card
More info at www.vintageking.com/creditcard

GEFELL CMV 563 / M7S

One of history's most enduring microphone designs brought back to life

SE/RUPERT NEVE RN17

Incredibly detailed, speedy SDC with large-scale, hand-wound transformer

BEYERDYNAMIC M 160

One-of-a-kind super-rugged double-ribbon hyper-cardioid mic

BLUE KIWI

The quintessential pop/rock diva microphone, featuring the hand-tuned B6 capsule

PELUSO P-28

Inspired tube mic with impeccable detail and extremely low noise floor

apps as well. Akai just introduced a virtual Akai MPC for the iPad called the iMPC.

What other software are you guys using?
We use Lennar Digital's Sylenth, Ableton Operator, Native Instruments Massive, and Guitar Rig both in the studio and when performing live. Again, we try to use synths and effects that don't tax the CPU too much, and these have worked well for us. I asked my friend Matt Moldover to write a piece of software for me in Max for Live. It's become indispensable in my live setup.

Moldover built a MAX for Live script for you?
Yep. MAX is a programming language for audio and video; it's been around for years. You can build synths and effects and all sorts of MIDI scripts. He built me a template that allows me to play melodic and harmonic material on the drums. I use it a lot with Mister Barrington. The inspiration for this came about because I wanted a way to have more creative realtime control over melody and harmony, rather than resorting exclusively to a static backing track. I have a solo project called Stix Beiderbecke which relies heavily on Moldover's script. It follows the song form and harmonic progression so that I can improvise and compose on-the-fly in addition to just rhythmically.

Each musician's hands are full, so how are you each controlling the various effects?
In a variety of ways. Owen's main control surface is a Keith McMillen Instruments Softstep. It's a MIDI controller that you control with your feet. Oli's Akai and Oxygen have plenty of sliders and knobs that are all mapped in Ableton to control his effects. I've been using a Novation Launchpad as well as a Korg NanoKontrol. My drum pickups can also send MIDI messages, which I use to turn my effects on and off, or make my drums stutter. Another way I control effects is through automation in Ableton. I'll program it to activate a specific plug-in in a specific bar.

Could a musician in the audience sit in and still perform within this framework?
In some regard, absolutely. Although we have a lot of technology on stage, our musical approach is not all that different from what we'd do if all we had was a piano, bass, and drums. The technology allows us to expand our musical possibilities in a variety of ways, but not at the expense of spontaneity and interactivity. A musician who is comfortable playing in an improvised/interactive setting might find that there are even fewer constraints in our approach with Mister Barrington than there are in many other musical situations. ■

Ken Micallef has covered music for all the usual suspects, including DownBeat, *the Grammys, and* Rolling Stone. *His first book,* Classic Rock Drummers *(Hal Leonard), is currently in reprint status while he manages his family's cotton farm down south and ponders the future/past of the vinyl LP and tube amplification.*

"I was suspect at first, but after a few minutes with the Recoils I realized how much difference they made. They work."
~ Al Schmitt
(Barbra Streisand, Ray Charles, Quincy Jones, Madonna)

"With the Recoils I immediately noticed improvements in low end clarity – to the point that I no longer needed a sub. Incredibly, high frequency detail and image localization also improved."
~ Chuck Ainlay
(Dire Straits, Vince Gill, Lyle Lovett, Sheryl Crow, Dixie Chicks)

"The Recoil Stabilizers are great! A huge difference from regular foam pads. They sound more stationary and connected. I'm quite happy with them."
~ Elliot Scheiner
(Steely Dan, Fleetwood Mac, Sting, The Eagles, Queen, REM)

"My nearfields sound better on the Recoil Stabilizers. It's a great product."
~ Daniel Lanois
(Peter Gabriel, U2, Bob Dylan, Emmylou Harris, Robbie Robertson)

"With Recoils, when I listen to my recordings elsewhere, the results are more like what I hear when I record."
~ Ed Cherney
(The Rolling Stones, Bonnie Raitt, Jackson Browne, Eric Clapton)

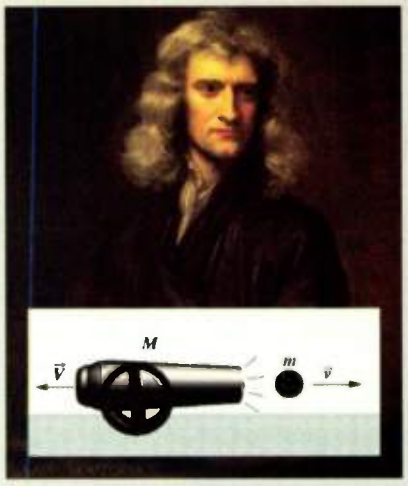
"With Recoils the low-end is more defined and I hear fundamentals that I never thought were there. Recoils brought new life to my nearfields—they have never sounded so good!"
~ Bil VornDick
(Bela Fleck, Alison Krauss)

"It really is amazing what a simple little thing like the Recoil Stabilizers can do to a system. Suddenly everything got clearer, punchier and more solid."
~ Frank Filipetti
(James Taylor, Foreigner, The Bangles, Elton John)

"The Recoils cleared up a cloudiness in the bass and mid bass that I had been battling in my studio. This is an affordable and very effective problem solving product. I love these things!"
~ Ross Hogarth
(Ziggy Marley, Melissa Etheridge, Keb' Mo', Jewel)

"I immediately noticed a huge improvement in the spaciousness of the sound field in my mixes. I love my Recoils... from now on, I'm not going to do a mix without them!!!"
~ Bruce Swedien
(Quincy Jones, Michael Jackson, Jennifer Lopez, Sir Paul McCartney)

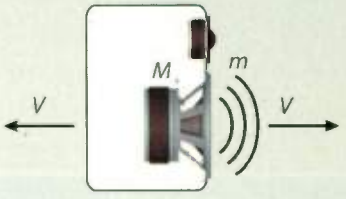
...Had Newton been an audio engineer, he would've used Recoils!



You've bought your new monitors, you put them on your desk and start to mix. However when you listen in your car or on other systems you notice that your mixes are not translating well – they don't sound the same as they did in your studio. Why?

Newton's third law of motion states "Every action is accompanied by a reaction of equal magnitude in the opposite direction."

Your loudspeaker works like a piston, constantly pushing and pulling air as the cone is thrust back and forth. The same energy that pushes against the air also vibrates into the desk, causing resonance. This 'comb filtering' effect makes it difficult to mix as it amplifies some frequencies and cancels out others.

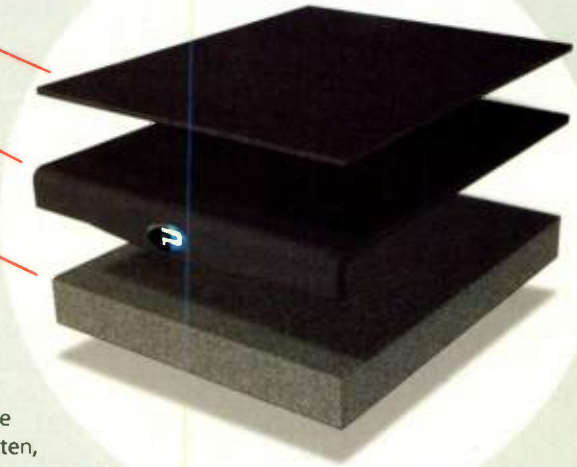


Some would say "just isolate the loudspeaker from the desk with a foam pad" but by doing so, you introduce a new problem—your speaker is now swaying back and forth unhindered on the foam, just as Newton said it would. Energy that could be producing a crisp kick or accurate bass is dissipated into the foam and is lost.

Thin, high friction solid rubber pad cemented to the platform, securely connects the speaker with minimal vibrational loss.

Massive 1/4" laser cut steel plate, precisely radiused to create an extremely rigid, non-resonant platform for optimal speaker performance.

Open-cell foam pad decouples the speaker platform from the desk to eliminate resonance that causes frequency cancellation.



Enter the Recoil Stabilizer™... a revolutionary device that at once isolates the loudspeaker from resonance while providing a massive platform that stabilizes it. At first listen, you will hear the bass tighten up and reach down by as much as an octave. As you listen closer, the mid range will solidify and the top end detail will reveal itself. Simply put, the phase shift and cancellation that have caused inconsistencies in your mixes are eliminated and you can finally hear what your speakers were designed to do.

The Recoil Stabilizer*...
Newton knew it all along!

*Patent pending

There are twelve different Recoil Stabilizers, each calibrated to precisely fit your monitors and mixing environment.

PRIMACOUSTIC®

... take control of your room!™

A division of Radial Engineering Ltd. - 1588 Kebet Way, Port Coquitlam BC V3C 5M5

www.primacoustic.com

Jim James

Regions of Light and Sound of God

ATO

Prolifically-talented My Morning Jacket frontman Jim James delivers songs both intimate and transportive on his debut solo album. Self-engineered with all instruments played by James (save for drums), he utilizes his much-documented love of reverb in new ways—enhancing simple lines of piano, bass, and drums with gentle exhales, subtle funk, and deep throbs. Unexpected guitar filigree, dusky saxophone samples, and intoxicating keyboard touches demonstrate James' ability to conjure just the right sound at just the right time. *Regions* is where James' sonic and personal atmospherics combine in a mysteriously soulful, hazily futuristic soundtrack.

MALCOLM RHOADS

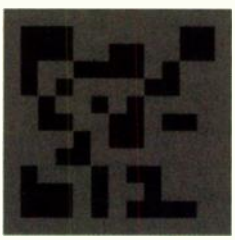
Ellen Allien

LISm

BPITCH CONTROL

BPitch Control boss, DJ, and fashion designer Ellen Allien conceived the ambient textures of *LISm* as a soundtrack to a dance performance, but its odd cadences and desolate spaces are more dead tech than fashion friendly. Allien coos the words "falling, falling, falling" during the opening of this 57-minute piece, a clue to *LISm*'s dislocated theme. At times a mysterious, deep-space rumination, later a frozen jazz beat dirge, the only constant in this Berlin dream-state is its comforting sense of languor.

KEN MICALLEF



Autechre

Exai

WARP

Exai = XI = the 11th full-length by Rob Brown and Sean Booth, which sees the fastidiously machined IDM mainstays sequencing rhythmically diverse, cohesively ominous patches that recall pressurized arrangements drawn from the duo's catalog circa 1998-2005. FM percussion melds with beautifully ugly leads and squelchy bass, all DSP splattered with boxed-in room verbs, metallic flangers, and granular racketing. Most stylistically divergent are the spectral chords and melodic inflections of "jatevee C," "T ess xi" and "bladelores."

TONY WARE

Dave Grohl

Sound City, Real to Reel

RCA

The soundtrack to the anti-digital recording documentary, *Sound City, Real to Reel* is a head-butting collection of rock-star vanity pieces, a chance for newbie director Dave Grohl to write and perform with his graying heroes. Exceptional tracks include Stevie Nicks crooning "You Can't Fix This" and Rick Springfield fronting the Foos on the nerve-rattling "The Man That Never Was." Unfortunately, Paul McCartney phones it in for "Cut Me Some Slack," wheezing like the million-dollar senior citizen these artists are destined to become.

KEN MICALLEF

Jimi Hendrix

People, Hell and Angels

EXPERIENCE HENDRIX/ LEGACY RECORDINGS

Amazing but true: ten previously unreleased Hendrix tracks! Made in 1968/69, these mindblowing blues/funk jams feature performances by Stephen Stills, Buddy Miles, Billy Cox, and others. Co-producers and caretakers of the Hendrix legacy John McDermott, Eddie Kramer, and Janie Hendrix have gently polished these brilliant rarities from arguably the greatest guitarist ever; the tracks speak for themselves, but detailed liner notes include info about each session.

BARBARA SCHULTZ

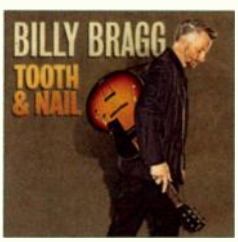
The Knife

Shaking the Habitual

RABID/BRILLE/MUTE

Officially a follow-up to 2006's *Silent Shout*, this fourth album by Swedish brother-sister duo Karin Dreijer Andersson and Olof Dreijer feels far more indebted to their industrial/metamorphic side efforts (Oni Ayhun, collaborating with Mt. Sims & Planningtorock, Fever Ray). Featuring nearly 100 minutes across two discs or three platters, it often eschews melodic immediacy for disquieted percussion, ring modulation, and guttural collisions. Even the "conventionally" structured moments are more cacophonous braindance than pitch-bent synthpop.

TONY WARE



Billy Bragg

Tooth and Nail

COOKING VINYL

Recorded live in five days by engineer Ryan Freeland in Joe Henry's Garfield House studio, *Tooth and Nail* is the first album from Billy Bragg since his record with Wilco, *Mermaid Avenue* (2008). This has some of the warmest, sweetest vocals, and the most personal songs, we've heard from this great singer/songwriter, and inspired performances grow from Henry's always sensitive, roomy production style. It's clear that artist and producer put extra heart into this album.

BARBARA SCHULTZ

Sound matters.

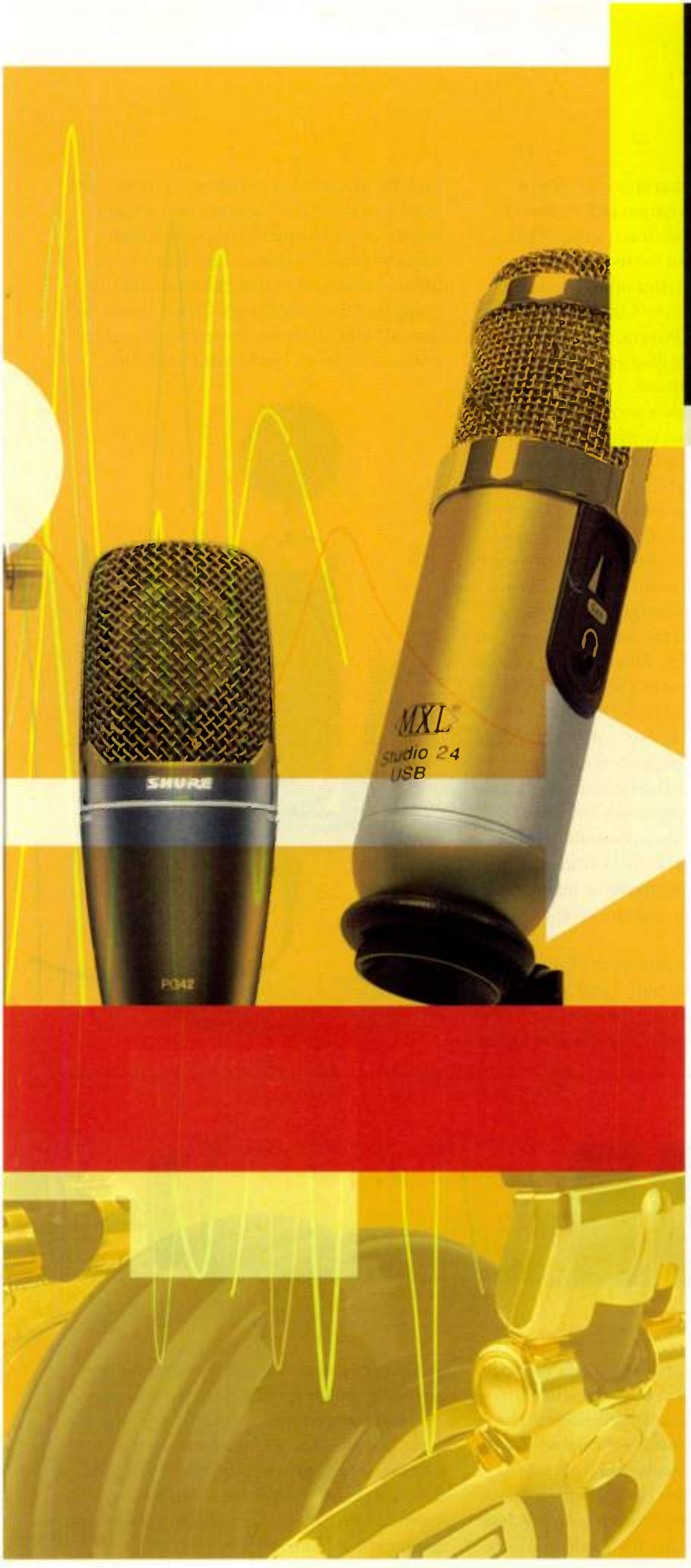
iQ5 PROFESSIONAL STEREO MICROPHONE.

Finally, your iPhone videos will sound as great as they look. With Zoom's iQ5 Professional Stereo Microphone, you can turn your iPhone, iPod touch or iPad into a high-quality stereo recorder. Featuring an adjustable mic element with both vertical *and* horizontal positioning, the iQ5 lets you capture amazing sound wherever you go.

ZOOM

Roundup

USB Mics



LUST

From podcasting to songwriting to general studio use, there's a USB mic for any application

BY PHIL O'KEEFE

WHAT COMES to mind when you hear "USB microphone?" If images of cheap plastic mics with poor audio quality, limited bandwidth, and horrible latency spring to mind, you're not alone. Many tech geeks and recording aficionados consider USB microphones as strictly for consumers, and little more than audio toys that couldn't be useful for "real" work. I used to think that too, until I was exposed to some of the latest-generation USB mics. For example, I had an opportunity to try out the Blue Yeti Pro as part of an *Electronic Musician* Roundup last July, and was surprised by just how far apart my preconceptions were from the mic's actual performance. In the process, I gained a better understanding of just how useful these mics can be.

With no need for an external preamp or converter, modern USB mics are perfect for laptop jockeys and those who need to travel light. Models with built-in low-latency headphone monitoring are great for making Skype, iChat, and other video conference calls, but also work well with voice recognition and speech-to-text software. Sample hunters who need a good-sounding mic for capturing sounds in the field will appreciate the speed with which they can be set up and dialed in. USB mics are also useful for music educators and students, allowing pupils to hear back their own performances immediately after they play, which can help them more readily hear the performance issues that the teacher is trying to highlight. Of course, USB mics are also ideal for recording podcasts, voiceover, and narration for desktop video production. For musicians and songwriters, they're quick and simple to set up, allowing you to get your ideas down fast before the inspiration wanes.

For this Roundup, we'll look at some strong USB performers and cover what each mic does well, how they compare, and even talk a bit about which potential applications are the best matches for specific mics.

Blue

SPARK DIGITAL
MSRP $199.99/$199.99 street
bluemic.com

Blue's microphones are well-known for their distinct visual appeal, and Spark Digital is no exception. The mic's royal blue body is accented by chrome at the top and bottom; the "lollipop" design mounts the condenser capsule in a double-mesh screen enclosure that sits on a stem at the mic's top. No windscreen is included, so using a pop screen to reduce plosives and wind noise is pretty much essential. (Blue's optional fine mesh Spark Pop filter works with the Spark Digital and addresses this issue.) While reasonably compact (7.76" x 1.77"), this isn't a tiny mic, nor at 1.25 pounds is it a lightweight.

Blue's Spark comes in two different versions—a standard model with the expected XLR output, as well as Spark Digital, a USB version that interfaces with your computer or iOS device (*e.g.*, iPad or iPhone). Both are solid-state, cardioid condenser mics featuring the same capsule, Class A discrete electronics with 32dB of gain, transformerless output, 128dB maximum SPL, and low (10dB A-weighted) self-noise rating. The digital model incorporates a 16-bit/44.1kHz converter.

Spark Digital includes two cables to connect to the mini USB output connector at the bottom of the mic. One has a standard USB plug at the end, while the second terminates in an Apple 30-pin iOS connector. Both are "Y" cables that also split off to a 3.5mm female stereo output jack to provide low-latency headphone interfacing. While no cable was included for use with my Lightning-equipped iPad mini, I was able to use Apple's 30-pin-to-Lightning adapter (sold separately) to interface the Spark Digital with both my iPad and iPhone 5 for recording in GarageBand.

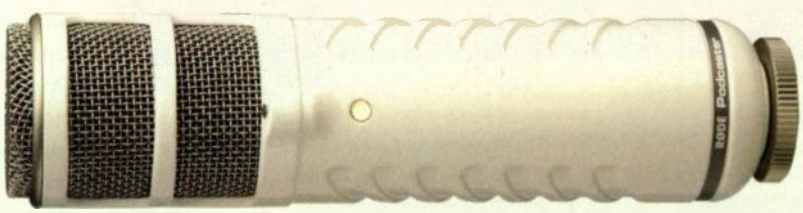
Accessories include a very nice plush drawstring storage bag (with a second internal pocket for cable storage) and a distinctive-looking desktop stand that incorporates a shock mount for the mic. This is quite effective at reducing stand-borne vibrations from reaching the mic and muddying up your recordings. Blue's optional standard shock mount, used on the original Spark, is also suitable for mic stand mounting.

A very clever design allows a single knob on the mic's front to serve as a level control for the headphones, as well as for setting recording levels. Four small LED level indicators change from blue to orange, depending on the selected control mode; the knob defaults to headphone control (blue LED indicators), but when pressed and held for three seconds, it turns into a mic gain level control. A single quick push on the knob turns the mute function on or off. With mute engaged, the knob's LED indicator flashes.

Like the original Spark, Spark Digital also offers a unique Focus control option to provide two different sounds from a single mic. With the Focus switch engaged, the lows are pulled back and the mic has a brighter, more detailed tonal character. The highs are very smooth and the overall frequency response is flatter, with less presence peak or high frequency lift than some of the other condensers in this roundup. This makes Spark Digital a good "all-around" mic, and it works well on a variety of instruments as well as for vocal recording.

RØDE

PODCASTER
MSRP $369/$229 street
rodemic.com



Talk about misconceptions. When I saw the pictures of the Podcaster's white body, I figured it had a plastic housing—but it's a hefty, metal-bodied mic that bears more than a passing resemblance to the E/V RE20 in not only overall form factor, but also weight. This is a large, solid mic, measuring more than 8.5" long and weighing 21.5 ounces.

Unlike the other mics in this roundup, the Podcaster isn't a condenser mic but a dynamic, moving-coil design with a 28mm capsule. It's also the only end-address mic of the bunch. Frequency response is 40Hz-14kHz, with a presence peak in the 8kHz–10kHz range for increased vocal intelligibility. The cardioid pattern is probably the tightest of all the mics in this roundup, so if off-axis rejection is critical, this is a good mic to consider. Additionally, due to the slightly less forward-sounding highs, it's also less subject to sibilance issues than some of the brighter-sounding condenser models in the roundup.

The Podcaster includes an internal pop filter, and RØDE's WS2 foam windscreen is available as an optional purchase if you need to further reduce plosives and wind noise. Internal shock mounting for the capsule helps minimize handling noise, but the Podcaster is

MOTIF Sounds and Xtensive Controller Integration... IT DOESN'T GET BETTER THAN THIS.

At the core of the MX series synthesizers are carefully selected sounds taken from the world famous Yamaha MOTIF XS. That powerful sound arsenal is packed into a slim and sleek package (available in 49- and 61-note versions) that fit today's on-the-go mobile life style. But the MX models aren't just synthesizers; they're designed to bridge the gap between hardware and software. By adding extensive audio and MIDI USB connectivity and advanced DAW and VST controller features, the MX integrate hardware reliability with controller flexibility to give you the best of both worlds at a ground-breaking level of affordability. For more product information, please visit **www.4wrd.it/49-61EM4** or scan the QR code below.

125 YAMAHA

suited best to stand mounting (as opposed to handheld use), due to its size and weight.

Like all RØDE mics, the Podcaster is designed and manufactured in Australia. You can extend the standard one-year RØDE warranty to a full ten years simply by registering your purchase on the RØDE website. The unusually long warranty period speaks well of RØDE's faith in the mic's ruggedness and durability.

Externally, a single bi-color (red/green) status LED lets you know that the mic is connected and powered up. It also has a 3.5mm headphone jack (the mic supports low-latency direct monitoring) and a volume knob to adjust the headphone level. The USB port is located in the base of the mic. A 3m USB cable is also included, as well as a stand adapter. RØDE's PSM1 shock mount is compatible with the Podcaster, and can be purchased separately for those requiring additional isolation from stand-borne vibrations.

The Podcaster is plug-and-play compatible with both PC (Windows/Linux) and Mac, and requires no additional driver software installation. While iOS compatibility isn't available out of the box, the Podcaster will work with iOS devices if you use Apple's Camera Connection Kit and a powered USB hub. Maximum SPL is a respectable 115dB, so no matter how loud you talk or sing into it, overloading will likely not be an issue; the A-to-D converter is 18-bit, and supports sample rates from 8kHz-48kHz.

The Podcaster easily provides clear, clean-sounding broadcast quality recordings. Although you can certainly record instruments with it too, I feel it's best suited for podcasting, as well as for use with vocal recognition and text-to-speech software, desktop video narration, voiceover work, and other similar vocal-related duties.

Shure

PG42 USB

MSRP $311/$249 street

shure.com

This wins the "largest box of the roundup" award—and when I opened it, I was surprised to see a camera-style carrying case containing the PG42 USB itself, a 9.8-foot (3m) USB cable, and a shock mount. This professional-level mic inspires confidence; while reasonably compact, the all-metal body has some heft to it, and almost feels like an elongated hand grenade. While I don't recommend throwing it, I suspect it would hold up well to the rigors of mobile use.

The grille is also substantial, with a fine-weave inner-mesh screen surrounded by a somewhat more open, yet very heavy-duty, second external mesh layer. Although this construction decreases the mic's susceptibility to vocal pops from plosives, using an external pop filter is still recommended. True to Shure's legendary reputation for durability, the body-mounted controls are also solid. They're recessed slightly to help protect them from accidental damage, but the design still allows for easy adjustments. Two rotary wheel controls, one on either side of the mic, adjust the mic gain and headphone volume. Around back you'll find a 1/8" stereo headphone jack for monitoring, and a Monitor Mix control that adjusts the ratio of playback audio and mic signal for latency-free direct monitoring. The USB output jack is at the bottom of the mic.

The Shure PG42 is available in both standard (XLR output) and USB versions, but it's an either/or choice, and dual outputs are unavailable. As with all other mics in this Roundup, USB supplies power for the onboard electronics, so the mic requires a powered USB 1.1 (or later) port. The PG42 USB is plug-and-play on both Mac and PC; driver installation is not an issue.

The large-diaphragm (1.1"/27mm), side-address condenser design is certainly usable for instrumental recording, but it's intended primarily as a vocal mic—so the 20Hz–20kHz frequency response is tailored with an upper-midrange presence peak centered at 6.5kHz, and a second high frequency lift from around 10kHz–15kHz. The rest of the response is admirably flat; a switchable highpass filter rolls off the lows below 120Hz by 12dB/octave. This is very effective at countering any low frequency buildup due to the proximity effect. The cardioid pickup pattern is tight, which provides decent isolation from surrounding sounds.

With the -15dB pad switch on the mic's rear engaged, the PG42 USB can take up to 135dB SPL without caving, and the mic is calibrated well—with the mic gain knob at minimum, a 135dB max SPL input to the mic provides full-scale digital output. There's 31dB of available gain from the onboard preamp, with signal level shown by a tricolor LED located next to the gain control (signals between -30 to -12dB FS display as green, signals above that turn the LED yellow, and a flashing red LED indicates converter clipping). The converter is mono, 16-bit, and supports sample rates up to 48kHz.

The lack of an included stand means you'll need to provide your own, but the shock mount is effective, reduces stand-borne vibration, and serves the PG42 USB well for vocal recording duties—even if the singer likes to tap their feet while singing. This is a USB mic that sounds terrific on vocals, and is a strong contender for laptop users who need to record high-quality vocal and instrument tracks on the go.

Studio Projects

LSM

MSRP $179.99, $179.99 street

studioprojects.com

The Studio Projects LSM (Little Square Mic) is one of the smallest and most compact mics of this roundup, making it an excellent choice for those who need a super-portable microphone for mobile use. Available in black, white, red, and even pink, the LSM also has serious visual appeal.

The mic's length is just a tiny fraction over 5", and it's 3" wide at the widest point. The LSM is also remarkably flat and thin, with a maximum thickness of only 1". While the LSM's head grille is actually square, the overall body shape is rectangular and rather flat, and can fit easily into a shirt pocket.

Externally, the LSM is simplicity itself. The construction is all-metal and robust, with a heavy-duty mesh grille covering the 34mm (large-diaphragm) condenser capsule. The mic body mounts into an integrated yoke, which has the threaded mic stand adapter built right into the bottom. The yoke also serves as an integrated "kickstand" for desktop use. You can tighten or loosen the yoke with two thumb screws; they hold the mic firmly in position without slipping, while allowing for easy mic orientation adjustments.

The mic's backside has two connectors: a mini USB plug, as well as a mini XLR jack. This dual-output design allows using the LSM conventionally with the included 6' mini XLR-to-standard XLR adapter cable, or as a USB mic with the included USB cable. This design approach provides an unusual amount of versatility; you can throw the LSM into your computer bag's accessory compartment for on-the-go use with your laptop, or combine it with your favorite mic preamp in the studio. Powering comes from either 48V phantom on the mini XLR jack, or USB bus powering when used with the USB connector. Don't have a mic preamp with phantom power available? No problem—the USB connection can power the LSM, even without having phantom power available on the mini XLR jack, and even when using the USB and XLR outputs simultaneously. That's right—both outputs can be used at the same time. The USB output comes after a 16-bit A/D converter, which supports sample rates of up to 48kHz.

There are no built-in monitoring capabilities, headphone jack, or other controls of any kind. As most laptops have headphone jacks, this shouldn't be a major issue, although depending on the system and drivers used, latency can be a concern. To help overcome this, Studio Projects recommends using the ASIO4ALL driver instead of the default Windows WDM plug-and-play driver. This can result in much lower latency.

The LSM's audio quality is clear, open, and sounds surprisingly "pro," with a slight forward emphasis on the highs. The LSM works great on guitar amps, drums, and other instruments, and it takes loud levels without flinching. Of all the mics in this roundup, the LSM is one of the best-suited to serve as not only a mobile recording tool for laptop users, but as a utility mic in the studio. If your budget is tight, but you need a mic that can work equally well in both environments, this is a fitting choice.

Apogee

MIC

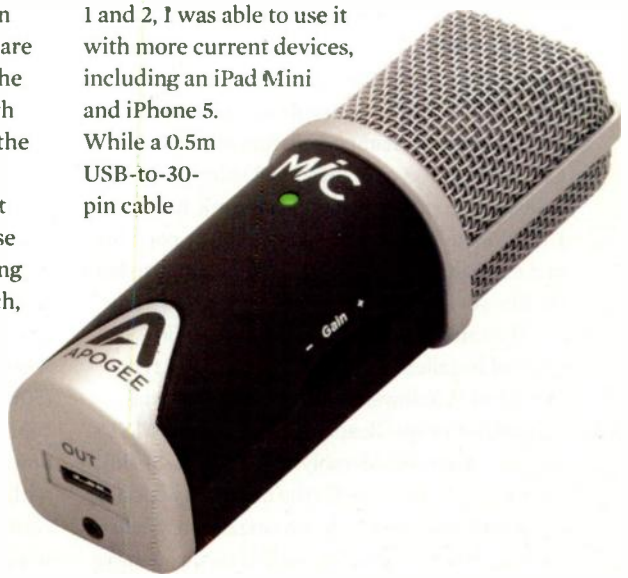
MSRP $199/$199 street

apogeedigital.com

This is another ultra-compact microphone—MiC combines a mic, preamp, and converter in an all-metal body that measures about 4.5" in length, making it a bit shorter than an iPhone 5. Despite its diminutive size, the USA-made MiC feels solid and sturdy, and the black-and-gray color scheme looks classy.

This side-address cardioid condenser mic uses a small-diaphragm capsule mounted under a dual-layer mesh grille. Apogee recommends using an external pop filter when recording vocals with the MiC. Unfortunately, it doesn't come with a windscreen, although it does come with a 1m USB cable, as well as an iOS 30-pin cable and desktop tripod. An optional mic stand adapter is available, as are longer (3m) USB and 30-pin iOS cables. The stand and tripod mounts can interface with a standard "tripod style" thread insert on the MiC's back.

The MiC is Mac-compatible; although it doesn't offer official PC support, you can use ASIO4ALL as a PC driver. Marketed as being for GarageBand on iPad, iPhone, iPod Touch, and Mac, MiC works well with all of these, as well as with more fully-featured programs like Pro Tools (Version 9 or later), Logic, and other Core Audio applications. You can even use two MiC units for stereo recording via the Mac's interface aggregation capabilities. While the included documentation says MiC is compatible only with iPhone 4 and 4S and iPad 1 and 2, I was able to use it with more current devices, including an iPad Mini and iPhone 5. While a 0.5m USB-to-30-pin cable



comes with MiC, to use it with the latest generation iOS devices, you'll need one of Apple's 30-pin-to-Lightning adapters ($29–$39, depending on model).

The onboard mic preamp supplies up to 40dB gain—plenty for nearly any recording task—and the converters are the level you'd expect from Apogee, with stellar sound quality and full 24-bit resolution, at your choice of 44.1kHz or 48kHz sample rates. The sound is smooth, clear, and detailed, with a slight high-frequency emphasis and reasonable proximity effect boost to the low frequencies when used at close range.

A single rotary-wheel-style gain control on MiC's side is the only adjustable control, but a clever multicolor LED on the front lets you know the mic's status at a glance—blue for connected but not ready, green for connected and functioning with your software, orange when you're approaching clipping, and red when the levels are set too high. By adjusting the level control and watching the LED, you can set levels without having to look at your computer. This is great if you need to move the mic away from the computer to minimize fan noise.

There's no headphone out or other monitoring capability, but as MiC is designed to work with devices that all feature headphone output jacks, this isn't a significant issue. Furthermore, your iPhone or iPad's headphone jack is still available for use with your choice of headphones or ear buds.

This a wonderful-sounding little mic. Because of its simple, hassle-free, plug-in-and-go compatibility with Macs and iOS devices, MiC is a great choice for GarageBand users, or anyone who wants to improve their iOS device's audio-capture capabilities, regardless of the Core Audio application you're using. Due to its small size, MiC also makes a fine traveling companion, and is very well-suited to the demands of mobile recording—while being compact enough to be a no-brainer to carry it around for when you need it.

MXL

STUDIO 24 USB

MSRP $169.95 /$159.95 street

mxlmics.com

MXL's Studio 24 USB is a cardioid condenser microphone with a 22mm diaphragm, placing it into the medium-diaphragm condenser category. It measures 6.89" x 1.85", and weighs 0.75 pounds (12 ounces). It has a classy-looking retro visual vibe, with a matte gray body and highly chromed head basket and grille. When connected to a powered USB port, a red LED behind the grille lights up to indicate the "front" of the mic.

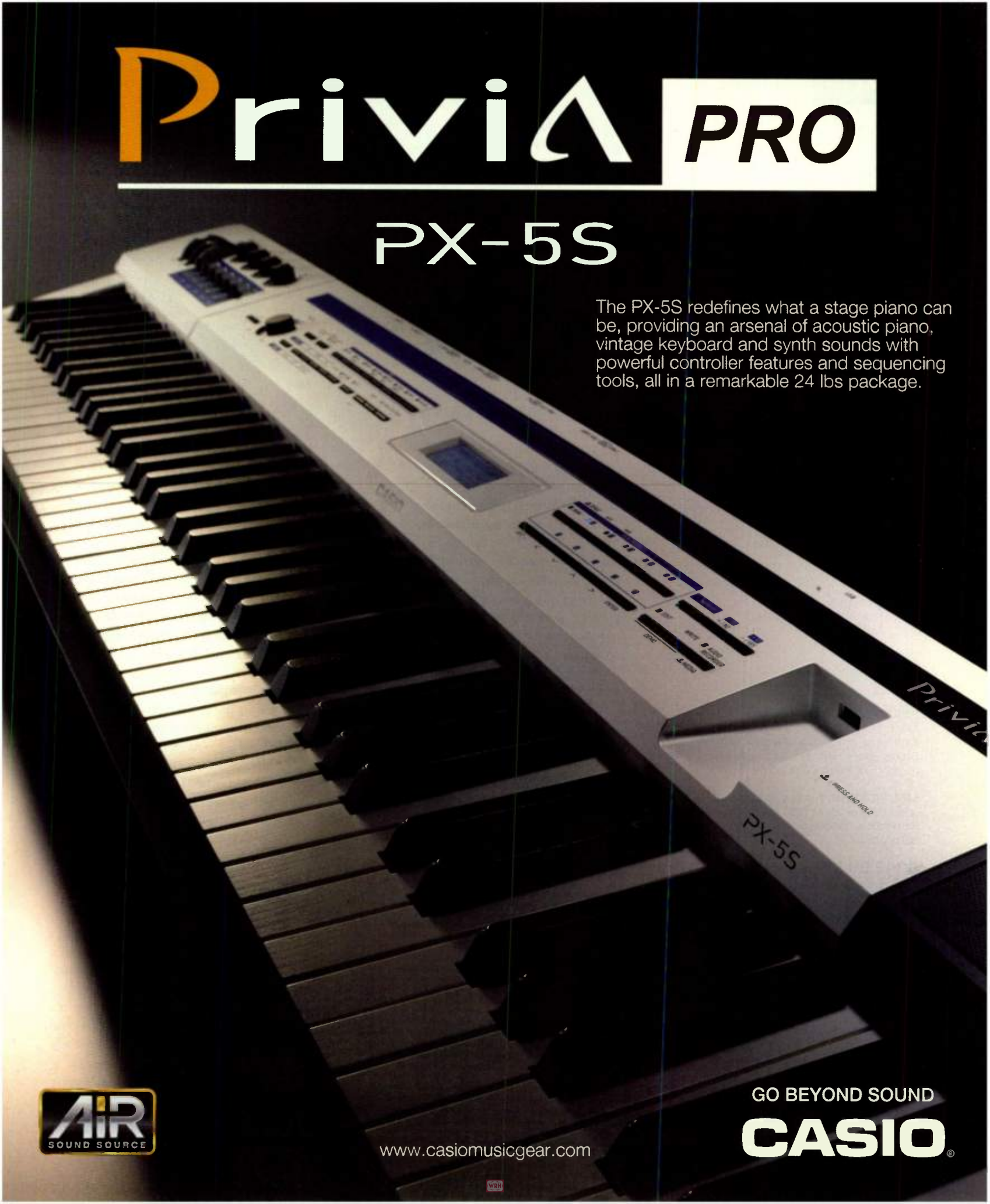
This is one of the best accessorized mics in the roundup, starting with a heavy-duty, "binder-style" reinforced cloth-covered zip-up travel case. Inside are several pockets and storage areas for its various system components, including a small, two-piece desktop stand, a threaded mic stand adapter that attaches to the mic's base, heavy-duty 3m USB cable, a helpful (and well-written) 27-page owner's manual, software installation CD-ROM, and even an MXL polishing cloth. A separate compartment holds the mic itself. Unfortunately, there's no windscreen or pop filter included, although the case is large enough to hold the one you'll likely want to buy and keep handy.

The software includes the MXL Studio Control installers for both Mac (OSX 10.4.11 or later) and Windows, along with a 30-day trial version of Cockos' Reaper DAW software. MXL's software adds considerably to the Studio 24 USB's control capabilities; while the mic's body has only a 3.5mm headphone jack and single rotary gain control, other features are accessible through the Studio Control software's extensive controls. You can adjust the mic input levels, and in addition to the gain control, the mic has four highpass filter settings (off /120Hz/235Hz/465Hz), as well as mute and phase-invert buttons. A noise gate offers four attack time options (50ms/100ms/150ms/200ms), with a continuously variable threshold from -34dB down to –82dB. Also included: a software leveler with separate minimum and maximum threshold controls, as well as fully adjustable attack and release knobs. Three more virtual knobs provide control over playback level from the software running on your computer, headphone volume level, and mic monitor level for near-zero latency direct monitoring through the 3.5mm headphone output. You can save your favorite settings as presets for later recall.

The disc doesn't include the latest ASIO4ALL driver, but it's always best to go online and download the latest available version anyway. Overall, installing the MXL Studio Control software is painless, and everything just worked—no unpleasant surprises or issues.

Sonically, the Studio 24 USB leans towards being slightly bright, with a noticeable presence peak centered in the 8kHz–10kHz region that adds detail and sheen. The software-adjustable low-frequency rolloff allows compensating for proximity-effect bass boost, as well as reducing any subsonic gunk. While I did notice a bit of noise in the headphone feed at some settings, it didn't translate to the recordings I made. The 24-bit converters sound very good, and support sample rates up to 48kHz. This mic is a solid choice for laptop users who want a very good-sounding USB microphone that's suitable for high-resolution 24-bit recording, and which offers extensive control over the input signal. ■

Phil O'Keefe is a multi-instrumentalist, recording engineer/producer, and the associate editor of Harmony Central. He has engineered, produced and performed on countless recording sessions in a diverse range of styles, with artists such as Alien Ant Farm, Jules Day, and Voodoo Glow Skulls. His articles and product reviews have also appeared in Keyboard *and* Guitar Player *magazines.*


Privia PRO
PX-5S
The PX-5S redefines what a stage piano can be, providing an arsenal of acoustic piano, vintage keyboard and synth sounds with powerful controller features and sequencing tools, all in a remarkable 24 lbs package.
AiR SOUND SOURCE
www.casiomusicgear.com
GO BEYOND SOUND
CASIO

Zoom MS-100BT MultiStomp

Innovative guitar pedal combines Bluetooth, iOS, and cool sounds

BY CRAIG ANDERTON

The MS-100BT MultiStomp, with the StompShare app in the background.

SUMMARY

STRENGTHS: Creative effects, and plenty of them. Bluetooth connection for loading and trying new effects from StompShare. Very easy to tweak. Tap tempo. Extremely compact.

LIMITATIONS: The app store amps sound better to me than the built-in ones. Impractical to access lots of different patches live.

$249.99 MSRP, $149.99 street
samsontech.com

THE MS-100BT multieffects pedal has several features that stand out. First, it can load new effects and amps from an iOS app called StompShare; prices range from $0.99 for effects to $1.99 for amps—very reasonable. Zoom circumvents the 30-pin/Lightning issue by nuking the cable entirely, and using Bluetooth to transfer patches from your iOS device to the MultiStomp (it's fast, too). Second, it offers true multieffects—buying an amp or effect adds it to the roster of 100 processors (92 effects and eight amps), which you can store as effects chains in 50 presets.

One of StompShare's best features is that in addition to audio demos, you can load an effect into the MS-100BT and play through it for 15 minutes (and you're not limited to one trial period). What's more, all parameters are editable via the MS-100BT's hardware controls, so you can really explore the possibilities. You can also insert the effect into a patch with other effects to check it out in context.

Onboard Effects The MS-100BT has quite a selection, including "out there" effects like a bit crusher, ring modulator, and several synthesizer-type options. Although I often find these kinds of sounds to be clever but not useful, some of them are definite keepers. It also has the expected collection of dynamics, EQ, time-based, and modulation effects. You can load up to six effects, within limits of the available DSP; I found it very difficult to run out of DSP power.

The amps are good, but others who are as picky as I am will appreciate the multiple pages of tweakable parameters—you can even mix and match amps and cabinets. One cool studio trick is to turn off the cab and use an amp sim's cab to create a variety of flavors. My favorite amps were the optional-at-extra-cost ones; I particularly liked the Tone City, Match 30, and MS Crunch amps, with the Centagold overdrive providing a great complement to any of them. Basically, for $6.96 I got the amp sounds I wanted and more . . . that's a helluva deal.

Painless Interface For tabletop programming, the combination of three push-pots and multiple pages make it virtually painless to navigate around, despite the flexibility. However, for live use there's no random access, or MIDI footswitch compatibility; you program a "playlist" of effects, and step through them to get from preset to preset. For a half-dozen presets, this is doable but too many more, and you'll be tap dancing. (Hey Zoom—how about an iPad app for preset random access?)

Beyond Guitar Even without Bluetooth and the StompShare app, the MS-100BT is packed with useful effects, yet its size would let it slide right into a pedalboard. It's mercifully easy to tweak and adapt presets for feeding an amp or going direct into a mixer. We'll see what optional effects appear in the future, but the 22 existing effects are off to a fine start—and the overall sound quality is a step up from previous Zoom products. This level of functionality at this price, with these kinds of sounds, is *very* hard to beat—and good for a more than just guitar. ■

Marketplace

Fig. 1. The transient shaper (shown here) and exciter are greatly improved in Alloy 2.

iZotope Alloy 2

Signal-processing plug-in toolbox gets a sonic makeover

BY MICHAEL COOPER

SUMMARY

STRENGTHS: Sounds great. Feature-packed and extremely versatile. Rock-bottom price.

LIMITATIONS: Nothing major.

$199 MSRP, $149 street, $79 upgrade from Alloy 1
iZotope.com

THE ALLOY 2 channel-strip plug-in incorporates an 8-band paragraphic equalizer, harmonic exciter, transient shaper, de-esser, limiter, two dynamics processors, comprehensive metering, and spectrum analyzer into one GUI. Clicking on a processor's associated tab opens its GUI for editing.

New and Improved Alloy 2's transient shaper is much improved (see Figure 1); I got an excellent kick drum sound in multiband mode. Boosting the high-frequency (2–20kHz) band's attack control enhanced the beater's slap, while increasing its bass band's sustain (below 120Hz) made the shell ring with booming reverberation. Lowering the middle band's (120–2,000Hz) sustain control attenuated snare drum bleed; conversely, boosting that band's sustain control provided a more "live" drum sound.

Activating one of Alloy 2's two dynamics modules downstream from the shaper, I dialed in a 30:1 ratio with peak detection, 0.01ms attack time and a hard knee. Adjusting the module's sidechain filter (new to Alloy 2) to weed out bass frequencies conditioned the compressor to react only to the beater slap. That de-emphasized the kick's attack, while makeup gain made the shell thunder even more. Lowering the module's mix control restored the beater's punchy thwack, but the shell still sounded easily twice as big. Huge!

Alloy 2's improved multiband exciter transformed a polite electric bass track into a churlish, burping bad boy by letting me vary the relative amounts of added harmonics emulating tube, tape and "retro" (transistor) circuits. (A "warm" mode—producing only even harmonics—is also available.) I liked adding bass-band retro excitation for a tight bottom, tape-style harmonics between 200 and 950Hz to broaden the mids, and tube-style distortion in the highest band to soften the top end; being able to solo each band made editing easier. Reducing the wet/dry mix control blended in some of the original signal, preserving the track's focus.

Activating Alloy 2's limiter module—downstream from the exciter—smoothed the bass track's level fluctuations and made it sound fuller. I could also unlink the limiter's two channels on a stereo track for drum-room mics, which Alloy 1 wouldn't allow, to preserve the soundstage's width.

Going Solo Alloy 2's versatile equalizer lets you solo a frequency band, which was really handy when hunting down harsh resonance in a female vocal track; useful keyboard shortcuts speed this process considerably. You can also solo a frequency band in Alloy's outstanding multiband de-esser module to home in on offending vocal sibilance, and drag a band's low and high crossover-frequency handles to narrow the bandwidth to cover only the sibilant frequencies.

Chaining Alloy 2's two dynamics processors in parallel on the lead vocal track allowed creating a blend of two different sounds. One compressor was set to soft knee, 3.5:1 ratio, RMS detection, high threshold and moderate attack and release times to enhance density. The other compressor was set to create audible pumping: hard knee, 20:1 ratio, peak detection, low threshold, and very fast attack and release times. Combining the two processors gave the "stormy" character I wanted without defenestrating the vocal's fidelity and dynamic range.

Only the Beginning There's a lot more to Alloy 2; it's not just a channel strip—it's a channel universe, filled with processors to color your world. You won't need NASA's budget, however, to climb onboard. At only $199 MSRP, Alloy 2 is a steal. ■

Michael Cooper is the owner of Michael Cooper Recording in Sisters, Oregon (www.myspace.com/michaelcooperrecording), and a contributing editor for Mix magazine.

TOOLS FOR CREATION

B&H
PHOTO - VIDEO - PRO AUDIO

The Professional's Source™

When it comes to the B&H sales staff, knowledge and experience are a given. We offer unparalleled expertise and solutions for the Audio professional.

Visit our SuperStore in the heart of NYC, give us a call, or browse our newly expanded Web site featuring live assistance, and experience for yourself the most knowledgeable and helpful sales staff anywhere

420 Ninth Ave, NYC
Visit Our SuperStore

800-947-5509
Speak to a Sales Associate

www.BandH.com
Shop conveniently online

2

3

1
Grundorf
ABS Series
Amp racks
$209.95–$379.95
HIGHLIGHTS Designed to house amps, processors, patchbays, etc. • manufactured from ABS material, with 3mm-thick, high-density ABS shell and heavy-duty aluminum extrusion • high impact resistance and light weight for easy transportation • available in 2-, 4-, 6-, 8-, 10-, and 12-space configurations • gasket-fitted front and rear lids with 2.25-inch inside depth
TARGET AUDIENCE Those who need to protect their electronics—musicians, DJs, houses of worship, corporate AV centers, schools, etc.
ANALYSIS Rack equipment represents a considerable investment; the ABS Series provides a cost-effective way to provide protection.
grundorf.com

2
Future Retro
db Mastering Processor
Analog routing/monitoring
$2,500
HIGHLIGHTS Quick selection of tracking, playback, summing, and mastering modes • 16 channels of balanced passive summing • 8 channels individually selectable between mono/stereo • stepped monitor control • 8 stereo insert channels with hard bypass switching • monitor section for 3 speaker pairs • mid/side processing with width control
TARGET MARKET Studios that need a multifunction device for routing, monitoring, and passive summing
ANALYSIS You can't do everything inside the box; dB provides the missing link to the rest of your studio.
future-retro.com

3
ESI
MAYA44 USB+
Audio interface
€99 (about $123) street
HIGHLIGHTS Aluminum case • 4 analog input and 4 analog output channels with RCA connectors • combined optical S/PDIF digital output with miniplug connector and 1/8" stereo headphone output • extremely compact—approximately 4.75" x 2.75" x 0.75" • DJ-friendly headphone out provides a separate stereo output signal
TARGET MARKET Portable, mobile audio interface that's also suitable for DJs
ANALYSIS New interfaces keep hitting the market, but the MAYA44 USB+ distinguishes itself by cramming a lot of I/O into a very small package.
esi-audio.com

4
PreSonus
PRM1
Reference mic
$79.95 street
HIGHLIGHTS 1/4" pre-polarized electret-condenser capsule condenser mic designed for use with audio-analysis tools • linear frequency response between 20Hz and 20kHz • omnidirectional polar pattern • all-metal chassis
TARGET MARKET Those who need a reference mic for audio analysis, but particularly, StudioLive 24.4.2 and 16.4.2 owners who need a mic for use with the Smaart Measurement Technology built into PreSonus's Virtual StudioLive mixer-control software
ANALYSIS A greater awareness of the importance of acoustics is spurring developments in testing, which often require a reference mic.
presonus.com

All prices are MSRP except as noted

5
TC Electronic
Ditto Looper
Looper for guitarists
$129

HIGHLIGHTS Made by guitarists, specifically for guitarists, with an accent on live use • extremely compact, pedalboard-friendly size • true bypass • five minutes of total looping time • undo/redo function to help build songs • unlimited overdubs • 24-bit uncompressed audio • analog-dry-through

TARGET MARKET Guitar players who don't want loopers that are also intended to accommodate singers, drummers, keyboard players, etc.

ANALYSIS Loopers continue to increase in popularity with guitarists, thanks to their ability to create massive textures and sound-on-sound capabilities in live performance.

tcelectronic.com

6
Bettermaker
EQ232P
Analog equalizer
$4,950 street

HIGHLIGHTS Two-channel analog equalizer • each channel has a 12dB/octave highpass filter, two active parametric filters, and two-stage, Pultec-style PEQ section • digital recall of all parameter controls and automation via a DAW plug-in • saves up to 399 presets internally

TARGET MARKET Studios who want analog hardware, but the option for digital control via DAWs

ANALYSIS It's now pretty accepted that the studio solution isn't analog vs. digital, but analog *and* digital. The EQ232P combines both technologies to provide analog sound with digital control.

transaudiogroup.com

7
On-Stage Stands
KS7190 Quantum Core
Column keyboard stand
$299

HIGHLIGHTS Two-tier stand, with independent per-tier height adjustment, supports 125 lbs. per tier • adjustable stand tilt • integrated cable management • fold-away captive support arms • built around rigid extruded aluminum core • combination 3/8" and 5/8" threaded adapter at the apex accommodates any gooseneck or boom arm to eliminate the need for a mic boom stand

TARGET MARKET Performing keyboard players

ANALYSIS X- and Z-type keyboard stands are stable, but a column type has a smaller footprint, often resulting in a neater stage setup.

onstagestands.com

8
Waves
Element
Virtual instrument
$200

HIGHLIGHTS Analog-style polyphonic instrument • intended to combine the fat, gritty sound of classic synths with the flexibility and control of digital synths • integrated effects • 16-step arpeggiator/sequencer • MIDI Learn for all controls • massive preset library • unified, single-page interface lays all parameters in front of the user • modulation matrix

TARGET MARKET Those who desire a highly editable, yet straightforward synthesizer so they can create their own signature sounds easily and efficiently

ANALYSIS This is bound to attract a lot of attention, as it's the first virtual instrument from plug-in wizards Waves.

waves.com

Top Ten Trends at NAMM 2013

BY CRAIG ANDERTON

FOUR DAYS of NAMM with virtually no sunshine. Really. So, it was up to the manufacturers to spread some light, and while (with a few crucial exceptions) this show was not about revolutionary concepts, some trends came into sharp focus. Here are the top ten trends I saw, and there were quite a few products to back them up.

Live Performance Takes Center Stage From PreSonus' big splash with their StudioLive Active Integration series powered speakers, all of the Mackie DLMs being used in various booths, Electro-Voice's ZLX active speakers, and new digital mixers for live performance from Soundcraft, Behringer, and PreSonus, live performance products were huge. Well, not so huge, actually; a lot of them were pretty compact. But you know what we mean. (And given all the subs, sometimes NAMM looked like a scene from *The Hunt for Red October*.)

Wireless Everything It's not just about iPads controlling things, but also products like Alto Professional's Stealth system—a transmitter/receiver combo that can turn up to eight speakers into wireless extensions of your sound system. Furthermore, in the plethora of wireless mics and guitar boxes, Shure's GLX-D series stood out: The receiver for their guitar wireless fits right into your pedalboard, and even includes a tuner. About the only wired things were the showgoers pounding on the local Starbucks, Earthgrounds, and Java City "designer coffee" stands.

Smaller, Lighter, Kinder to Your Wallet Yamaha's MX49 and MX61 keyboards exemplified this trend, by essentially offering a mini-Motif in a lightweight, highly portable package that also serves as a MIDI/audio interface and control surface. And talks to iOS devices. Also, M-Audio's Axiom AIR 25 controller, and Akai's MAX 25, put a ton of capabilities into compact enclosures that host 25 keys, pads, and other hands-on, touchy-feely goodies. While these smaller/lighter products don't roll up into a ball and fit in your pocket (yet), someone's probably working on that now.

Speakers are Waking Up Traditionally, the most boring part of your studio is just there to move air in the hopes that it will sound somewhat like real music. But the times are changing; after the March of the Near-Field Monitors, JBL has introduced the full-size M2 speaker system. It sounds wonderful, and reminds us just how good big speakers can sound. The new Sceptre models from PreSonus are extremely cool, too; Eve Audio continues to develop the ribbon tweeter; and ADAM is bringing their speakers to a new audience with a lower price point.

iPads Continue to Play Pet Brain It seems that just about everything runs on an iPad, can be controlled by an iPad, or uses an iPad to expand existing capabilities. As to how companies are coping with having a bunch of 30-pin products in their warehouse after Apple said "it's not 30-pin anymore, it's Lightning" . . . well, let's not go there, okay?

Direct From Manufacturer Hits Hardware First it was software: "buy from our online shop," neatly bypassing the issue of distributor and retailer markups, as well as fighting for shelf space. But now, it's starting to hit hardware, too. Monoprice is selling (mostly) Chinese gear direct at basically distributor cost, and the quality seems to be on a part with similar gear selling through stores. Sub-$100 guitars that are set up individually? Retailers, the issue isn't just Amazon any more.

Insanely Low Pricing Case in point: Peavey's Vypyr VIP-2. This amp has separate modeling options for electric guitar, acoustic guitar, and bass, along with a ton of effects, a pricey user interface with a ton of LEDs, and kickass tone. When I asked the price, I was told "around $200." "That's a joke, right? So what's the real price?" "Around $200. Well, maybe it will be $230." Seriously. Anyone who doesn't think Peavey is a technology company hasn't made it past the '70s.

Cool Controllers It's not just about keyboards anymore; Numark's Orbit was one of those "you have to see it to believe it" kind of products. While marketed to DJs, its MIDI-based universality, small size, built-in accelerometer, and light show-vibe switches not only make it a killer live performance controller but a great wireless remote for the studio. And let's not forget Ableton's Push, which crosses over the line from controller to a true (and enticing) musical instrument, or the continuing evolution of the YouRock MIDI guitar disguised as something that looks like a game controller. And touchscreens? Look no further than Slate Pro Audio's MTI, or Cakewalk Sonar X2 running on Windows 8.

Analog Guitar Stompboxes Rule Multieffects haven't exactly gone away, and products like the Axe FX, Variax HD (sweet), and Kemper Profiling amp are proving that high-tech and guitars are forming an ever-closer relationship. But go to Hall E, or even the main halls, and whether you're checking out Boss boxes or Tech 21's version of reality, analog electronics remains king of the stompbox hill.

The Flu Either you got it before you went and didn't go, or you got it at the show, or you ended up after the show tired, exhausted, ears ringing, and in pain—and it was even worse if you had the flu on top of it. Come to think of it, you should probably wash your hands after reading this article. Just sayin.' ■

THE JOHN LENNON
SONGWRITING CONTEST

ENTER
your original songs

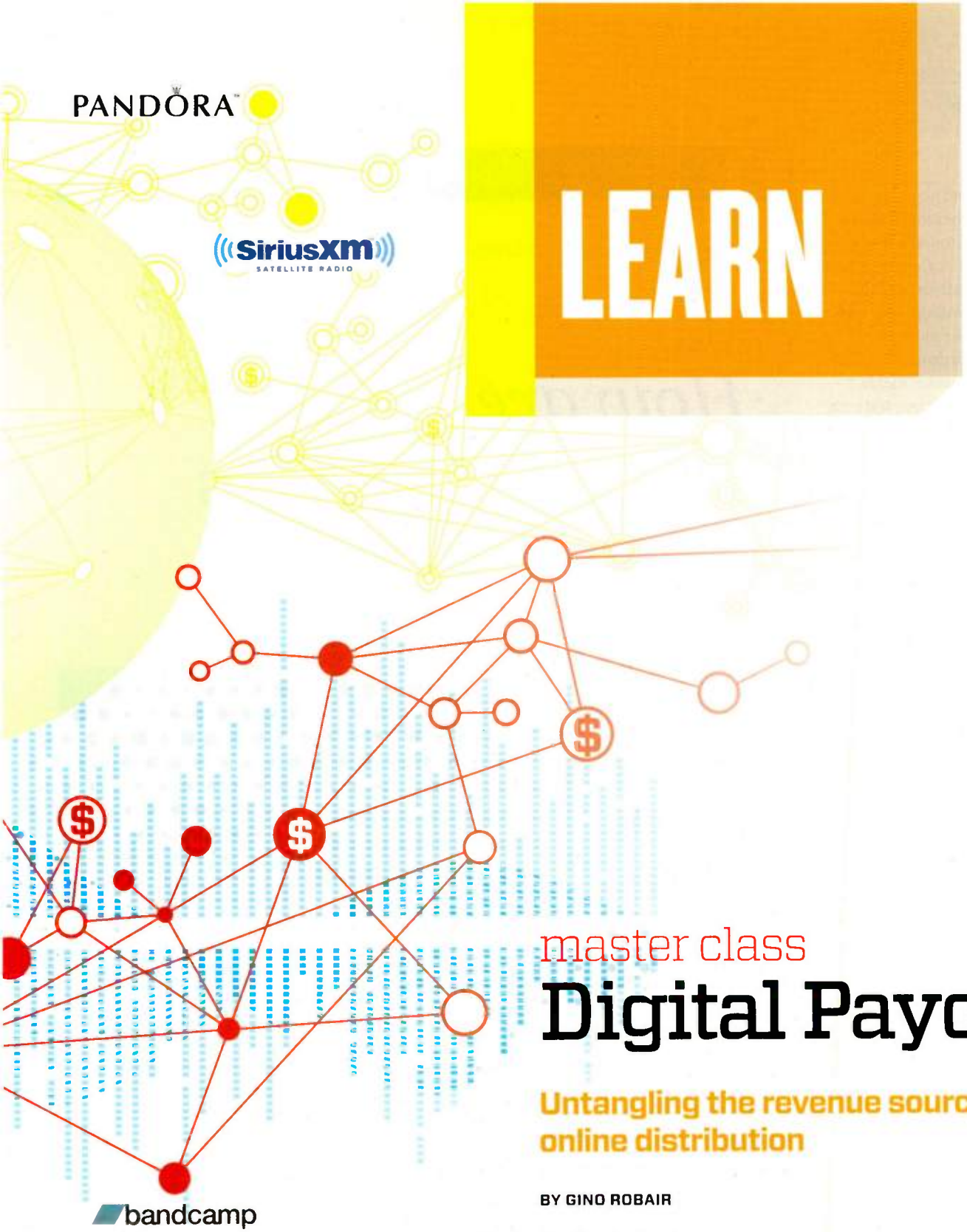
Top Judges • Big Prizes • Win $20K

www.jlsc.com

Sponsored By:

NEUTRIK · audio-technica · sonicbids · Roland · creativeallies artist, meet artist · NAMM believe in music · DIGITAL MEDIA · DISC MAKERS · Ampeg · MACKIE. · BOSS


Rhapsody
Spotify
amazon.com
iTunes



LEARN

master class

Digital Paycheck

Untangling the revenue sources of online distribution

BY GINO ROBAIR

IF YOUR recordings are getting digital distribution, income is being generated for you. In order to get your piece of the pie, it's important to understand where the money comes from and how it is classified and distributed so that you can maximize your earning power.

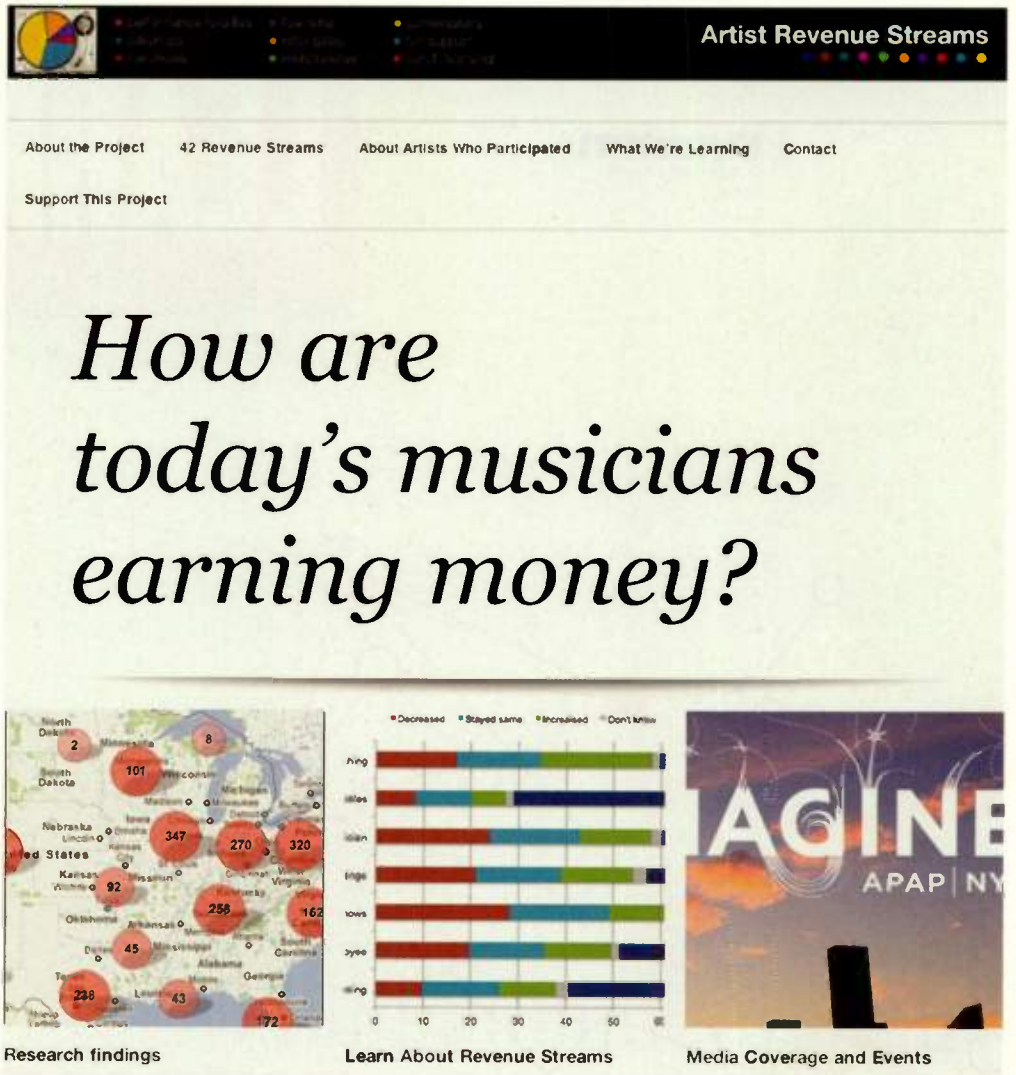
Because the paradigms for making money from music in the digital age have rapidly evolved, the variety of potential revenue streams can seem confusing at first glance. Let's untangle the ways that artists earn income when their music is delivered over the web or via satellite and cable.

Terminology To understand how royalties are collected and distributed in the United States, you need to wrap your head around a few terms and how they are treated by U.S. Copyright Law. First, Copyright Law differentiates between compositions and sound recordings. Recordings have two sets of copyrights: the musical composition, the public performance of which is administered by the Performance Rights Organizations (PROs) such as ASCAP, BMI, and SESAC; and the sound recording itself.

In the traditional broadcast model, the PROs collect money for licensed performances of the composition on broadcast radio, television, and film, and divide it between the creator of the work (the songwriter or composer) and the publisher. However, the PROs do not collect money for the performers (who may or may not be the songwriter).

In the U.S., money is not collected and distributed to the performers on a sound recording when it is broadcast over the airwaves. However, digital performances of recordings do yield such a royalty, which is split between the performers and the copyright holders of a recording (typically the record label). The way in which the music is digitally served makes a difference in terms of the rates that are due for a performance, how the royalties are collected and who distributes them.

It shouldn't be surprising, however, that in some ways, the music biz hasn't changed all that much. There is a degree of transparency in the government-set statutory rates that are used, and opacity in the areas involving the major labels. And as always, there are ways for consumers to get access to the music that don't result in direct remuneration to the rights holders.



The Future of Music Coalition is a fantastic resource for information about the changes in digital rights management. Visit money.futureofmusic.org.

Three Ways to Earn Digital music delivery can be divided into three categories: non-interactive streams, interactive streams, and downloads/sales. Although there may be a bit of ambiguity in how a streaming service is classified, it's important to understand how the three categories work in a general sense and how they are treated differently for royalty purposes.

Non-interactive Streaming The term *non-interactive* is used to describe a "radio-like" service that accepts little or no input from the listener about what music is played. A clear example of this is SiriusXM Satellite Radio. However, Pandora is also included in the non-interactive category: Although listeners can create a station based on an artist or band, the service doesn't allow listeners to choose or repeat a specific song. Thus it is tagged as being non-interactive.

The radio-like paradigm of the non-interactive services results in a radio-like royalty stream, but with a major difference. As with terrestrial radio, non-interactive services get a blanket license with the PROs—in this case for a non-interactive stream—that is used to compensate the composer and publisher of a musical work that is played by the service. These rates are made public.

Unlike terrestrial radio, non-interactive services also pay a royalty that is divided among featured recording artists (45%), non-featured recording artists (5%), and owners of the master recording (typically a label, which gets the remaining 50%). The Copyright Royalty Board (CRB; www.loc.gov/crb), which is appointed by the U.S. Library of Congress, sets the rates based on public negotiations with interested parties that participate in a public rate-setting process every four to five years. The Library of Congress put SoundExchange (soundexchange.com), a non-profit performance rights organization, in charge of collecting and distributing these statutory rates. Visit the SoundExchange website to see the different types of non-interactive streams that are covered and what they pay.

Musicians and master-recording owners who have music being streamed online can

se·lec·tion [səˈlekSHən]

noun

1. the action or fact of carefully choosing someone or something as being the best or most suitable

2. a number of carefully chosen things

3. an extensive variety of tones for a sound engineer's sonic palette

MOOG ANALOG DELAY
Pristine sound, hands-free control, stereo-linkable

PHOENIX DRS-EQ-500
Rich, musical 4-band EQ with 16dB of detented boost & cut

CHANDLER GERMANIUM 500
Famous Germanium amp tone with variable feedback control

BURL B1D
Rock-solid Class A mic pre with custom input & output transformers

CARTEC FE-Q5
3-band inductor EQ with the same xfmr as Cartec's EQP-1A

WUNDER ALLOTROPE EQ
The same vintage-style inductor EQ you love from the Wunder PEQ2

register with SoundExchange for free, even if they already belong to ASCAP, BMI, and SESAC. That's because SoundExchange collects a different type of royalty from digital streaming services than the traditional PROs do. In fact, if you write, publish, perform, and release your own material, you'll reap the maximum benefits by belonging to both types of performance rights organizations.

"The beauty of what we do is that it doesn't all go to the big acts or the big record labels," says Michael J. Huppe, the President of SoundExchange. "We all know that terrestrial radio has heavy spins of the bigger acts and the bigger labels. We all know that when you want to sell something at WalMart and you're fighting over limited shelf space, obviously the larger entities have a bit more leverage. The beauty of the Internet is that there's no limited shelf space, there's no limited bandwidth, and there aren't a limited number of FM stations in a market: It's unlimited. And because of that, the money that we pay out is much more dispersed than the other revenue streams. For instance, in 2011, 90% of the payments were $5,000 or less in annual payments. I can tell you that with most of the record labels, we are the number two digital-music revenue source behind iTunes."

Featured performers and master-recording owners get paid directly by SoundExchange. But unlike the performance tracking done by traditional PROs, which can take years to reach the composer and publisher, SoundExchange turns the money around quickly to its constituency. "Assuming everything is submitted properly [by the streaming organization]," Huppe explains, "the vast majority of our royalties go out the door in five to six months. I don't have an exact number, but it's north of 80%."

The remaining 5% of royalties set aside for non-featured vocalists and non-featured musicians is sent to the AFM & AFTRA Intellectual Property Rights Distribution Fund (raroyalties.org), which was created by government statute under U.S. Copyright Law as a result of the Digital Performance Rights Amendment (DPRA) and Digital Millennium Copyright Act (DMCA). Although AFM and SAG-AFTRA are union organizations, you do not have to be a union member to collect royalties from the fund.

In order to get your piece of the pie, it's important to understand where the money comes from and how it is classified and distributed.

(The fund is also the repository of monies from the Audio Home Recording Act, Dutch home taping and broadcast royalties, and Japanese Rental Royalties.)

To see if you have unclaimed money, go to the fund website's Digital Performance Royalties page and click on the tab marked Search Unclaimed Royalties. If your name appears on the list, you can fill out an online address form to register.

While this may seem like a chance to finally dip your beak in the digital stream if you're a perennial side player, "the Fund only is able to make distributions on a limited number of sound recordings that were digitally transmitted each year," according to the website. A different list of recordings are chosen for non-featured musicians and non-featured vocalists. For example, "Sound recordings subject to distribution shall be identified based on a frequency of transmission/activity report (Frequency Report) ranking provided by SoundExchange for each year of distribution. For each year, the Fund shall review the top 100 Frequency Report ranked recordings and determine the number of non-featured musicians appearing on a recording." Consequently, this fund is less likely to generate revenue than SoundExchange does for, say, an independent artist in a niche category.

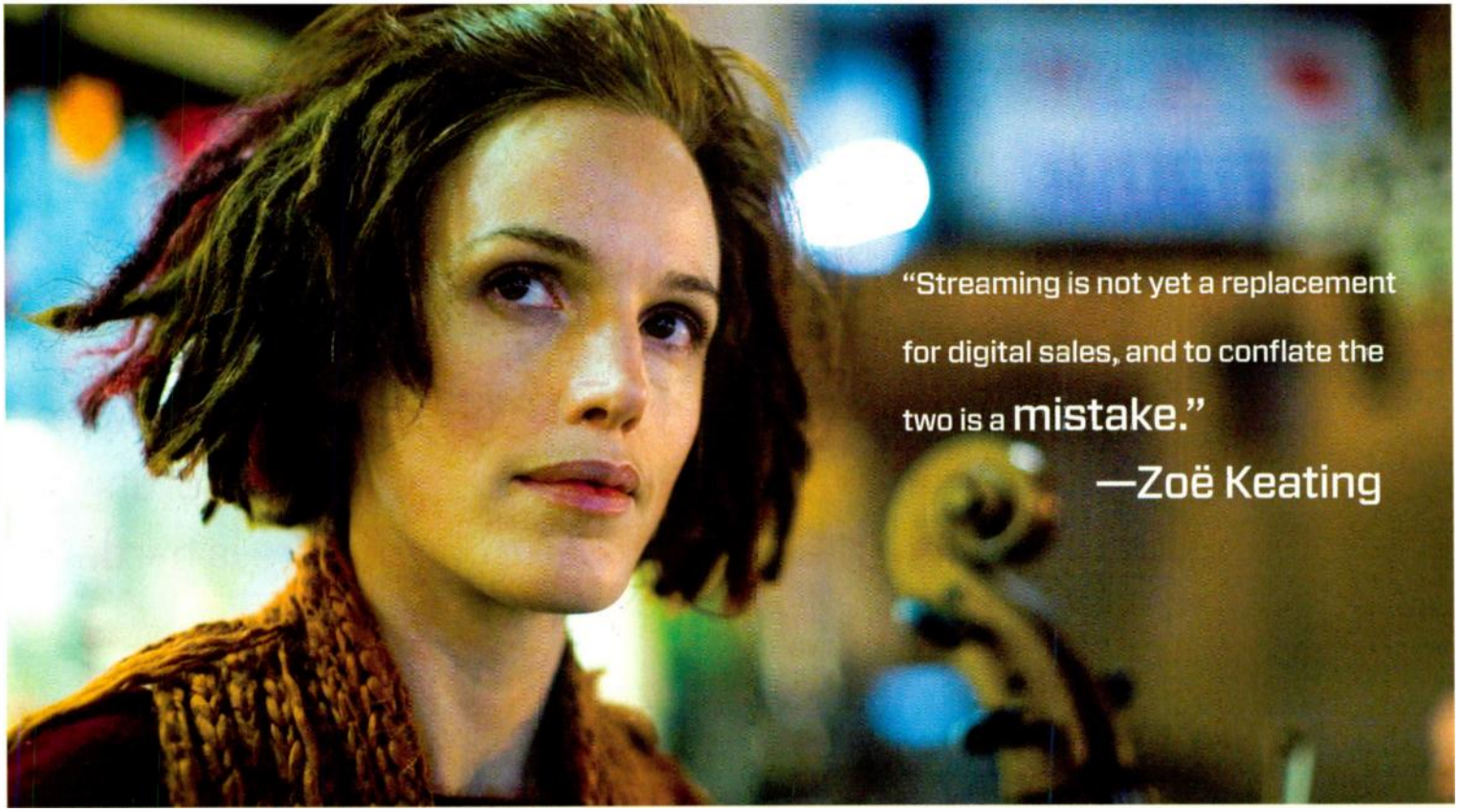
Interactive Streaming Interactive digital services, in contrast, allow listeners to choose what they hear. Such interaction differentiates this type of service from a radio-like experience, and is thus an important legal distinction when it comes to rights management. Examples of this type of service include Spotify, Slacker, and Rhapsody.

It's also in the interactive streaming services that we lose transparency. And it should come as no surprise, because the rates for interactive performances of sound recordings are determined between each major label or aggregator (such as The Orchard/IODA) and the streaming service. The rates aren't published, and in all likelihood they vary between the different labels and aggregators. (Aggregators act as middlemen to smaller labels and individual artists by negotiating deals with online delivery organizations and, most importantly, tracking performances, collecting money, and distributing payments.)

Interactive sites also get a blanket license from the PROs for the composition royalties of each performance, which are distributed by ASCAP, BMI, or SESAC and divided between the songwriter and publisher. In addition, interactive services pay a mechanical royalty based on a percentage of revenue. (A mechanical royalty is a compulsory statutory rate that is typically paid to publishers and composers when their works are recorded.) The royalty rate was negotiated by the Digital Media Association (DiMA), the Recording Industry Association of America (RIAA), and the National Music Publisher's Association (NMPA) and approved by the CRB.

Consequently, songwriters, publishers, and labels (master-recording owners) will benefit the most, financially speaking, from interactive streaming. However, the return per stream is very low, and as we'll see in a moment, you have to have some sort of mainstream visibility to reap significant financial rewards from this revenue area.

Downloads Obviously, this is the traditional sales model, where downloads are handled like sales of physical copies. And just like the world of physical product (*e.g.*, CDs and LPs), there are levels of middlemen who take a cut of the sales based on where they are in the distribution chain. The amount you'll earn



Zoë Keating is a solo artist who has proven that musicians can make a good living from their work with digital distribution.

from the download depends on whether you use an aggregator to distribute your work through services such as iTunes and Amazon MP3, whether you work directly with these services, or if you keep the middlemen to a minimum and use a DIY setup such as Bandcamp.

With the distribution landscape changing so rapidly, it's difficult for an indie artist to manage accounts with multiple digital services without some sort of assistance. Consequently, many DIY artists use aggregators such as The Orchard/IODA and Avatar because they aggressively monitor the playing field for their constituents. On the other hand, there are hybrid services such as CD Baby that not only sell direct to customers but also act as aggregators and get your music into a wide array of services.

Of course, we'd like to keep as much of the actual sale price as possible, so why not ditch the middlemen altogether, right? In some cases, it might not make sense to completely remove all of the services between an independent musician and potential customers, because the middlemen have market reach that most indie artists do not. So it's important to weigh the benefits of having your music available to a broader market through something like iTunes or Amazon MP3 and giving up a percentage of each sale versus keeping more of the money and selling fewer downloads because potential fans have a harder time discovering your work.

Just as they did with interactive streaming, each label and aggregator has made private deals with the larger distributors. Consequently, there is no transparency when it comes to earning equality between established acts and independent artists. In addition, no royalties are collected directly from the retailer. Rather, it's up to the label to compensate the copyright owners in more or less a traditional way based on "units" sold.

How Much Money Are We Talking About? Other than the statutory rates that are publicly known, there is little else to go on when it comes to tracking exactly how much a given artist's music will earn from various forms of digital performance. With a download service, you keep a percentage of the sale price after any middlemen take their cut (*e.g.*, 30% for iTunes). It may look discouraging at first, but it's a far more transparent scenario than the days before web-based distribution.

Considering the historically poor job that major labels have done of fairly compensating their artists, it's a pleasant surprise to find that musicians will see returns of any kind from streaming thanks to organizations such as SoundExchange and the AFM & AFTRA Intellectual Property Rights Distribution Fund. In fact, SoundExchange will not send money that's due to a featured performer through the record label. "If we get a Letter of Direction from a performer telling us to direct their royalties to their record label," notes Huppe, "we won't honor that because it is a core policy and a fundamental tenet of SoundExchange that we believe in artist-direct pay." Thankfully, an indie artist whose music isn't destined or designed for major label distribution doesn't have to deal with the accounting opacity that comes with such a major's contract.

Bay Area recording artist Zoë Keating (zoekeating.com) has presented her own earnings as an online case study of contemporary revenue sources (tinyurl.com/apvqszy). The most revealing part is a spreadsheet that tracks her royalties from October 2011 to March 2012 by income source: Spotify, iTunes, Amazon, Bandcamp, SoundExchange, and ASCAP. The thing that makes this case so compelling is that she embodies all of the earning sources: composer, performer, and master-recording owner. For example, under the SoundExchange tab you can see that she earned from those two quarterly statements $704.51 as a rights owner and $573.69 as a

featured performer, the majority of which came from Pandora streams. Compare that to the quarterly statement from Spotify: It tracked 32,227 items, the bulk of which were individual streams, which yielded $132.15.

"I think Spotify is awesome as a listening platform," notes Keating in the spreadsheet's notes. "In my opinion, artists should view it as a discovery service rather than a source of income." She goes on to say that as a non-mainstream artist with a variety of income possibilities, "[s]treaming is not yet a replacement for digital sales, and to conflate the two is a mistake." At this point in time, the earning potential from a service such as Spotify is stacked against the unsigned artist, who doesn't have a stake in company like the major labels demanded in exchange for agreeing to license their content.

As if to underline the disparity between artists and rights owners and the streaming services, I was served this chilling message from the free version of Spotify: "Why pay for Spotify? You'll never have to buy music again." In his blog the Lefsetz Letter, noted entertainment business attorney Bob Lefsetz repeatedly says music subscription services for listeners is the way out of this mess for artists and rights holders. "Once everybody has a subscription, there's tons of money involved, " he writes. "As for who's gonna get it . . . the lion's share of revenue for streaming services is paid to rights holders. Assuming you own your rights, that will be a lot."

YouTube and You Another online revenue stream that can be utilized by musicians is YouTube. While labels and right-holders have been stymied in their search for a way to monetize the platform in a highly controlled way, clever artists are taking advantage of the earning power of Google AdSense to add to their bottom line.

"You can definitely make money through the ads from Google AdSense," say Josh Kenson and Jonathan Morrison, co-founders of the music-tech site TLDToday.com. "It's based off of views, and then the type of ads that are getting placed with your videos. And if a musician is doing it right, that's just a portion of their income if they're selling merchandise or doing affiliate marketing." (An affiliate is someone who has a link on their site for a product that connects directly to a retail site. If the person viewing your page clicks on your affiliate link, you get a percentage of the sale based on the agreement between you and retailer. Companies such as Amazon may have thousands of affiliates in their program.)

Like anywhere else, advertisers pay differing amounts for ads on Google AdSense, and the amount you earn from them changes depending on which one is shown. In addition, it's important that a relevant ad is served up when someone visits your video page. For example, if you're in a dark metal band, a relevant ad might be one that leads to an instrument retailer, while a non-relevant ad would be one that sells, say, yoga pants.

"You don't have a choice as to which ad is served," notes Kenson. "We've seen it where the ads are relevant and the ad dollar will triple, quadruple, and sometimes even go five times over what we'd normally see. If you're getting an ad that isn't relevant, they're going to a default ad and it's paying you the minimum." Correct tagging and titling of your video increases the chances that you'll get relevant ads served.

You don't have to spend big bucks to produce videos that draw attention to your music—OK Go proved that early on. The trick is to create something to visually accompany your music, whether it's an MTV-style video, a behind-the-scenes tour diary, or a making-of documentary while you're in the studio. The most important thing is to create compelling content that looks and sounds great, and to get lots of it out there in a timely fashion to keep your fans excited.

It's important to remember that even in the digital world, success comes only to those who promote their work effectively. Despite the fact that your music is available throughout the world immediately, getting the attention of music consumers is harder than it has ever been.

Embrace the Future It's very easy to view the current state of affairs in a negative light because the traditional money making rules seem to no longer apply. Yet, the future looks very positive for the composers and performers who are willing to work hard with the latest tools and explore the new revenue models as they're developed. Most people in the industry agree we're in transition, and it might seem prudent to take a wait-and-see attitude. However, those who have been the most successful in recent years are the ones who have been proactive with contemporary forms of promotion, utilizing social media, YouTube, and all of the other offerings that they can have direct control over, as well as the entities they cannot, such as iTunes, Pandora, and Spotify.

It's important to remember that even in the digital world, success comes only to those who promote their work effectively. Despite the fact that your music is available throughout the world immediately, getting the attention of music consumers is harder than it has ever been. The easy availability of music-distribution tools means that more artists are vying for listeners, so strategic marketing, even at the guerrilla level, is just as important as ever in creating fans for your work and monetizing it when you do. ■

Gino Robair is a former editor of Electronic Musician. *Special thanks to Kristin Thomson of the Future of Music Coalition (music.futureofmusic.org), Michael Huppe of SoundExchange, Maureen Droney of the Recording Academy, Zoë Keating, and Edward R. Hearn.*

Read your copy of Keyboard the way you want!

Keyboard is now available in print and can also be found in your iTunes store. Choose your subscription to *Keyboard* today – print **OR** digital!

Go to www.mykeyboardmag.com for a print subscription

For the iPad version you can either search in your iTunes store OR go to www.keyboardmag.com/ipad

From lessons penned by music's brightest stars, to hands-on workshops that help layers master the latest tools, to the most heavily-cited equipment reviews in the business, Keyboard *is the only place to learn which notes to play and which knobs to turn—empowering musicians of all styles and skill levels to use music technology the way they want to. Choose your subscription method to* Keyboard *today—print OR digital!*

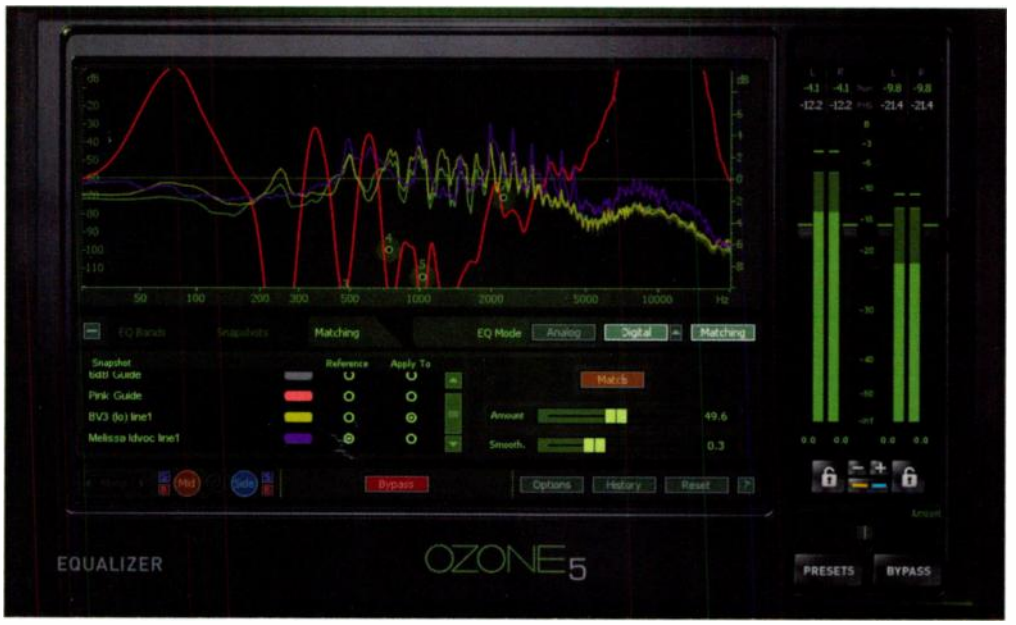


Fig. 1. The Equalizer plug-in in Ozone 5 Advanced applies matching EQ to a pitch-shifted vocal. Note the severe EQ (the off-the-scale red line in the top section of the GUI) needed to correct comb filtering and roll-offs caused by pitch shifting.

Repairing Pitch-Shift Artifacts

Damage control for harmonized vocal tracks

BY MICHAEL COOPER

CELEMONY MELODYNE is an incredibly useful plug-in for arranging background vocals. Working with a copy of the lead vocal, you simply drag each melody note lower or higher in Melodyne's GUI to hear how the resulting pitch will sound as a harmony part in combination with the original lead vocal track. In this way, you can compose contrapuntal (non-parallel) harmonies and immediately hear them without singing or recording a single note. Pitch-shift intervals greater than a third will typically incur ugly processing artifacts—muddiness and a pinched, phasey sound—but who cares? After all, these are just throwaway tracks used to test your arrangement.

Or not. My dark secret: I'll often use Melodyne-generated BVs—alone or in combination with real singers—in my final mixes. The impeccably tight phrasing and familial diction cloned from the lead vocal track are often impossible for real performers to trump. The proviso is I have to make those raggedy pitch-shifted tracks sound smooth enough to use.

In this article, I'll share tips for diminishing the injury caused by large-interval pitch-shifting. There's no miracle cure. But using these pointers, you can expect to recover roughly 25% of the original audio fidelity—good enough that, blended with the lead vocal and mixed into a fairly dense ensemble recording, nobody will be able to tell the BVs were not sung by live performers. Our first-aid treatment begins with restoring clarity.

Remove Masking Distortion Bounce each harmony part (with pitch-shifting applied) to a separate track so you can process it independently. Instantiate a broad-spectrum noise-removal plug-in on the track. The goal here isn't so much to remove hiss as it is to sponge out any distortion artifacts having characteristics similar to noise. iZotope Denoiser, part of the company's superb RX2 plug-in bundle, works great for this purpose. That said, the improvement in clarity will be subtle, as there will remain yet another type of poison to bleed out.

Fill in the Gaps One of the most toxic side effects of pitch-shifting tracks is deep comb filtering. One way to add back missing frequencies in the spectral notches is to process the rendered track with a harmonic exciter. I like to use the component Exciter plug-in in iZotope Ozone 5 Advanced for this application, inserted after Denoiser. (The

exciter module in the all-in-one Ozone 5 plug-in works equally well for this application.) Exciter's multiband processing allows me to add harmonics to only the midrange band, where the damage to pitch-shifted vocals is typically most apparent. Exciting the track fills in the spectral gaps a bit, resulting in a sound that's a bit fuller and more natural.

Match the EQ The Matching EQ mode in Ozone 5 Advanced's Equalizer plug-in—or the equalizer module for the integrated Ozone 5—can be used to reverse comb filtering and other timbral damage to a pitch-shifted track. The crux is to use Matching EQ to reproduce the lead vocal's native spectrum in its pitch-shifted spin-off (see Figure 1). Instantiate Equalizer on the lead vocal track. In the Snapshots tab, capture the spectrum for one phrase of the vocal. Click on the Save Set button in the plug-in. Open another instance of Equalizer on the pitch-shifted track, and click on the Load button in the Snapshots tab. Choose the lead vocal's spectral snapshot as the reference, and apply it to the pitch-shifted track in Matching EQ mode. Adjust the Amount and Smooth sliders for the most pleasing timbre; for tracks shifted down in pitch, I find respective settings of 50 and 0.3 work well. You'll get the best results if you capture the unique spectrum for each vocal phrase in turn and apply matching EQ line by line.

If your equalizer plug-in can't execute matching EQ but provides a spectrogram, you can manually fashion an inverse EQ curve to reverse comb filtering. In your DAW, loop a short phrase in the pitch-shifted vocal track. Looking at the peaks and notches in your equalizer's spectrogram as the phrase plays back, fashion a set of bell-curve filters that will together create an inverse EQ curve to flatten the response. While you're at it, correct any low- and high-frequency roll-offs to taste with EQ, too.

The peaks and notches will change from one vocal phrase to the next, so you'll have to work in very short sections and readjust your filter parameters as you work on each phrase in turn. Once you're satisfied the EQ is sounding as good as you can make it for the current vocal phrase, render all processing (de-noising, harmonic excitation, and EQ). The result will sound far from perfect in isolation, but significantly better than the original pitch-shifted track.

Use All Three Tools Used alone, any one of the processing techniques I've detailed will yield only subtle effect. Used together, however, they can make a significant improvement in the fidelity of pitch-shifted vocals. But don't stop there. Double one or more of the pitch-shifted vocal parts with live-performance overdubs, and the composite effect can sound truly amazing. ■

Michael Cooper is the owner of Michael Cooper Recording in Sisters, Oregon (www.myspace.com/michaelcooperrecording), and a contributing editor for Mix *magazine.*

Fig. 1. All MOTU I/O boxes use a quasi-star configuration for distributing master clock throughout the system. The MOTU 24I/O is shown here.

Master Clock Distribution

Sync your digital devices optimally for the best sound quality

BY MICHAEL COOPER

IF YOUR recording rig is digital, you need to sync every device in your system to the same clock. Ignore this precept, and your sessions will be plagued by clicks, pops, and drop-outs—if your gear even passes signal at all. But that's not the end of the story. The specific clock you choose as master—and the way in which you distribute clock to all your digital devices—can make a big difference in sound quality.

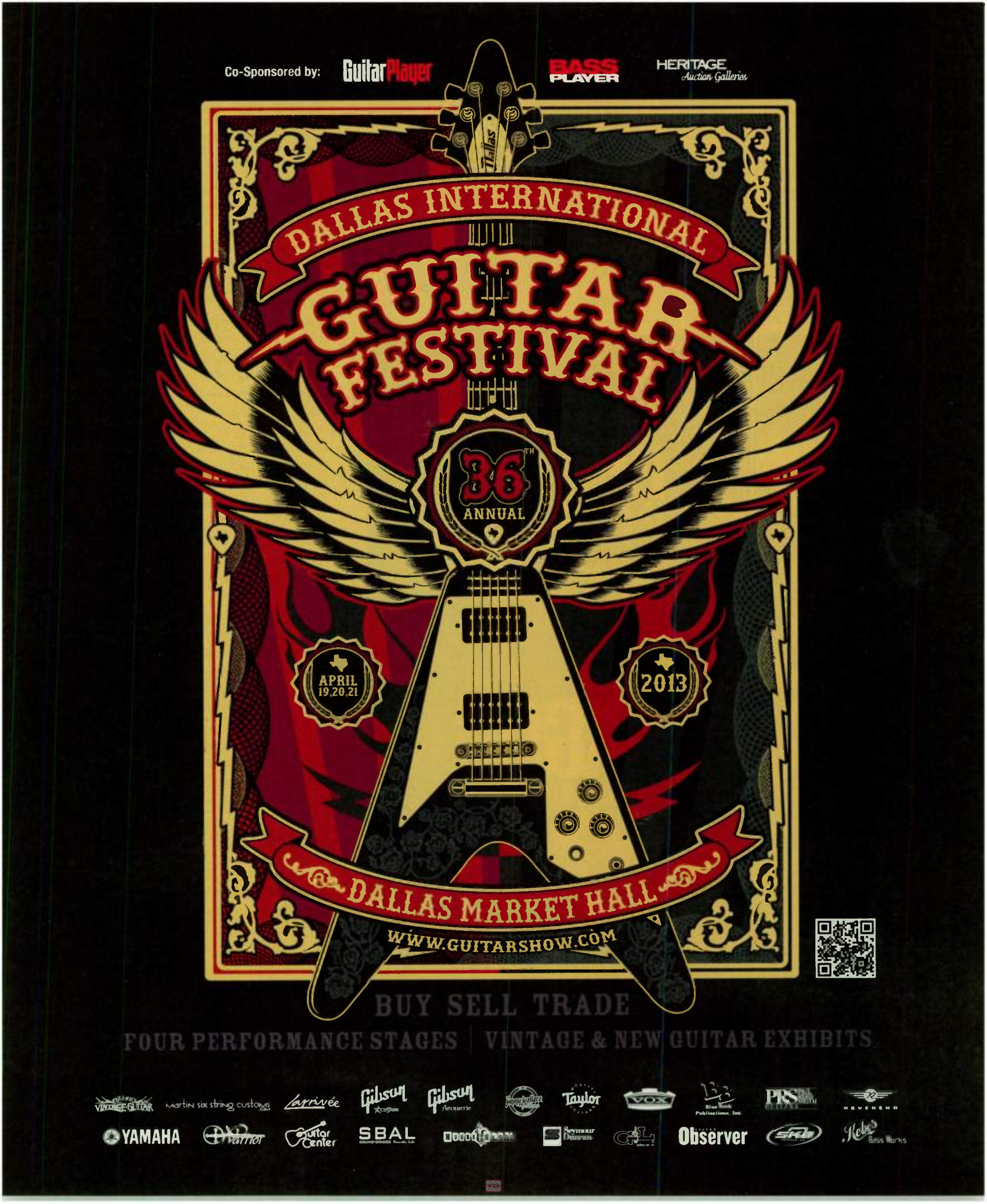
An inferior clock and poorly configured clock distribution cause jitter. In essence, jitter is dynamic deviation from the true sampling frequency of a digital clock. When that deviation causes digital 1's and 0's to arrive at a downstream device just a hair sooner or later than its nominal sampling frequency specifies it should, audio quality suffers. The stereo image narrows, localization in the stereo field becomes imprecise, bass instruments lose focus and get flabby-sounding, high frequencies sound harsh and glassy, and the overall sound becomes slightly veiled. On the other hand, a rock-solid clock distributed optimally makes for a tight, crystal-clear, warm, silky-smooth sound with pinpoint imaging. In this article, I'll offer some tips for firming up the clock throughout your system. The first step is to choose the best device to serve as clock master.

Pick the Timekeeper If you've got the greenbacks to spare, buy a dedicated master clock; Apogee Electronics and Antelope Audio both offer excellent products. If that's not an option, determine which of your digital boxes has the most stable clock. Make test recordings of acoustic guitar or some other delicate, full-range instrument, using each of your digital devices as clock master in turn. (It will help if you play the same simple, short phrase for each test recording.) Play back your recordings. The clock that produced the best-sounding recording should be used henceforth as master clock for your entire system.

Don't Scrimp on Cables Use cables purpose-built for digital audio to carry all your clock (and digital audio) signals. Standard coax and mic cables are bad substitutes for S/PDIF and AES/EBU cables because they don't have the bandwidth and impedance digital audio requires. Using analog cables for clocking is a recipe for runaway jitter and dropouts.

Use Star Configuration Daisy-chaining word clock from one device to another produces progressively amplified jitter as you move downstream in the signal chain. You'll achieve the lowest jitter throughout your system by distributing master clock in a star configuration. In such a setup, master clock is distributed directly to each digital device in your system using discrete outputs.

Most digital devices provide only one word clock output, making it hard to use them to forge a star configuration. If, however, your designated clock master has an unused AES/EBU or S/PDIF output, you can use it together with its word clock output to get the job done. For example, you can patch the


Co-Sponsored by:
Guitar Player
BASS PLAYER
HERITAGE Auction Galleries
DALLAS INTERNATIONAL
GUITAR FESTIVAL
36TH ANNUAL
APRIL 19,20,21
2013
DALLAS MARKET HALL
WWW.GUITARSHOW.COM
BUY SELL TRADE
FOUR PERFORMANCE STAGES | VINTAGE & NEW GUITAR EXHIBITS
YAMAHA
Guitar Center
SBAL
VOX
PRS
Observer

AES/EBU output on your master-clock device to your I/O box, and connect the master device's word clock output to your digital mixer. The clocks for the I/O box and mixer will be phase-locked to the master clock and to each other. In this case, the AES/EBU cable doesn't send any audio but only clock signal.

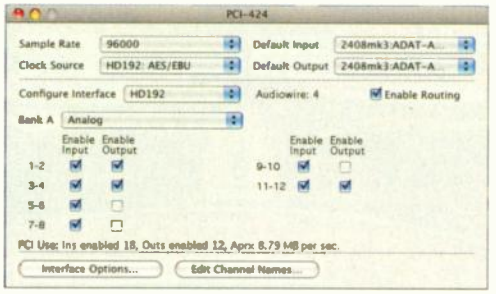


Fig. 2. In the MOTU PCI Audio Setup software utility, an HD192 I/O box is slaved to AES/EBU clock provided by an external converter. The HD192 automatically passes the clock on to all other I/O boxes connected to the PCI-424 card via their respective Audiowire cables.

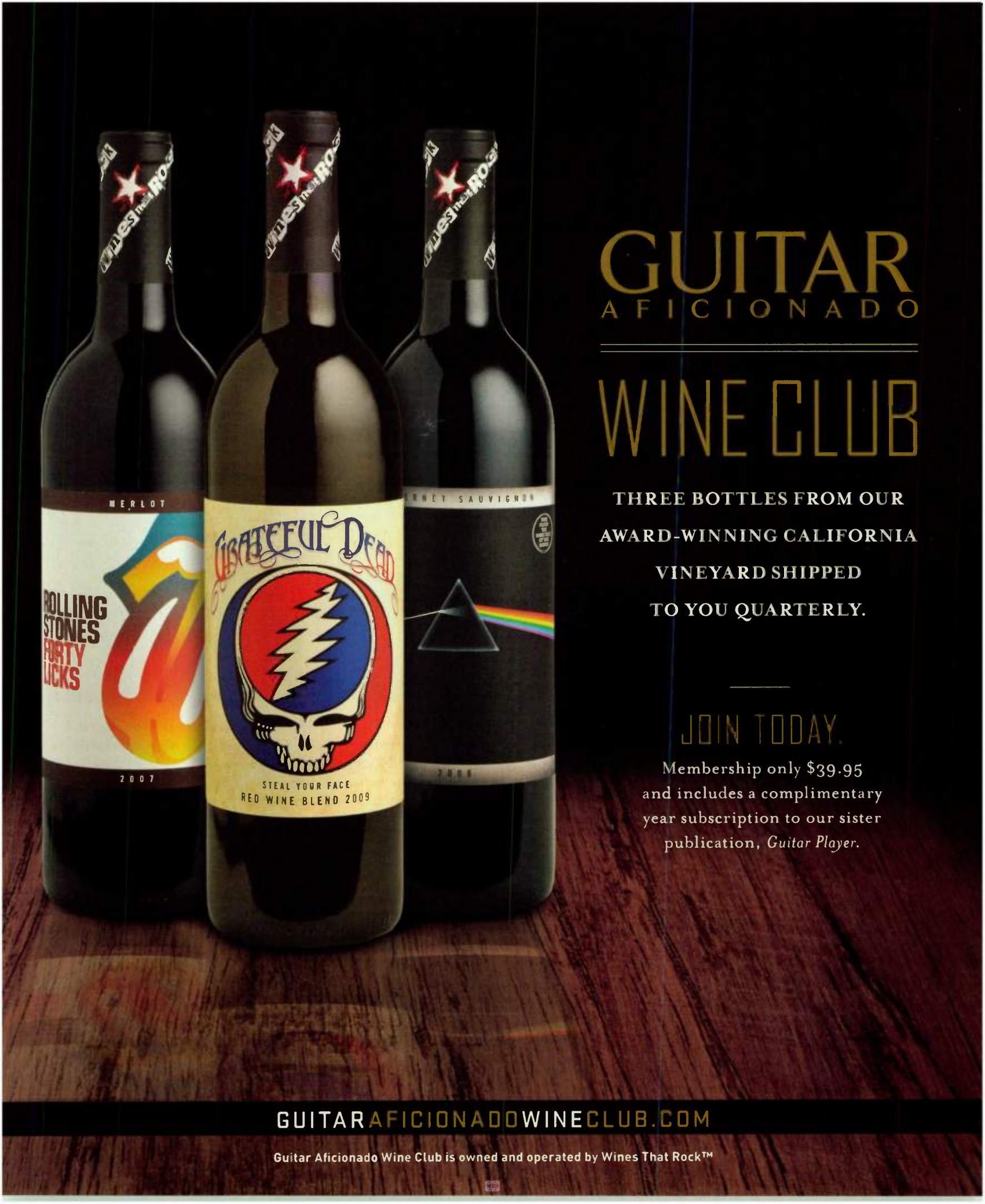
Syncing Multiple I/O Boxes MOTU implements a proprietary, quasi-star configuration for distributing master clock to two or more of its I/O boxes (see Figure 1 on page 68). In a PCI system (like the MOTU 24I/O and HD192 I/O boxes use), the box chosen as master sends clock signal over Audiowire cable—FireWire cable that uses MOTU's proprietary data format—to a PCI-424 card installed in an expansion slot in your computer. The card then distributes the clock to each of the other I/O boxes in your system over discrete Audiowire cables.

MOTU's FireWire/USB I/O boxes (such as the UltraLite-mk3 Hybrid and 896mk3 Hybrid) work slightly differently. They use an aggregate driver to distribute word clock. As with PCI-424-based systems, you choose one I/O box to be clock master. But instead of an expansion card distributing the clock, the computer itself distributes its host clock to the other boxes in the system via their FireWire or USB bus.

If you own a very high-end A/D converter with a clock that's superior to those in your MOTU I/O boxes, slave one of the I/O boxes to the converter's word clock, AES/EBU or S/PDIF output (see Figure 2). The recipient box will send the clock on to all the other MOTU I/O boxes in the system. Any unused digital output on the converter can be used to slave a digital mixer to the master clock, thereby automatically phase-locking the mixer to your MOTU boxes as well.

Use What You Have You'll always get the least amount of jitter and the best-quality sound by using a high-end master clock specifically built for the purpose. But if you own a potpourri of high-end and downmarket converters, I/O boxes and other digital hardware, take the time to discover which has the best clock and figure out how to get the closest to a star configuration in distributing clock throughout your system. You might just give your system's audio fidelity a boost without spending a dime. ■

Michael Cooper is the owner of Michael Cooper Recording in Sisters, Oregon (myspace.com/michaelcooperrecording), and a contributing editor for Mix *magazine.*



GUITAR AFICIONADO

WINE CLUB

THREE BOTTLES FROM OUR AWARD-WINNING CALIFORNIA VINEYARD SHIPPED TO YOU QUARTERLY.

JOIN TODAY.

Membership only $39.95 and includes a complimentary year subscription to our sister publication, *Guitar Player*.

GUITARAFICIONADOWINECLUB.COM

Guitar Aficionado Wine Club is owned and operated by Wines That Rock™

Getting More Than You Quantized For

The How and Why of Dither

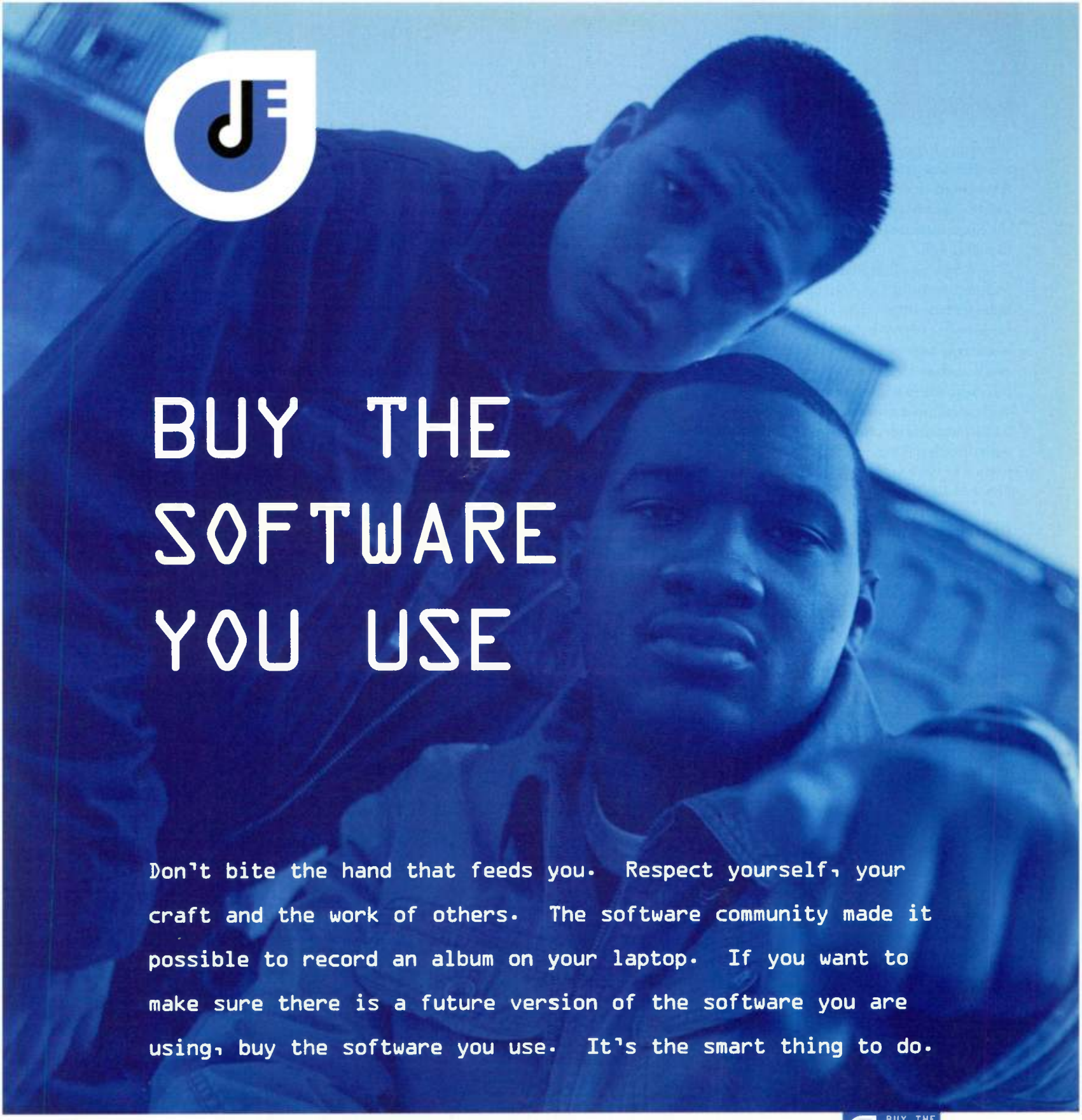
BY GINO ROBAIR

COMPUTERS STORE information as binary numbers, where something is represented in one of two states—one or zero; on or off. Each sample or measurement contains a specific number of ones and zeros that represents the analog voltage level at a specific point in time. This measurement is called *quantization*, and it determines the dynamic range of a digital recording. The more data we capture per sample, the greater the dynamic range we can record (up to a point), and the quieter the sounds we can capture. In other words, with 0dBfs (decibels relative to full scale; the maximum digital level) as our ceiling, the bit depth we sample determines how far below that ceiling we can accurately quantize, or record, a signal.

Because we're measuring a continuous voltage in discrete intervals, there is a point below the quantizing resolution where you have steps in the waveform, albeit small ones, and you theoretically cannot capture low-level information below this point. The level has dropped below what the least significant bit (LSB) can register. This is where dither comes in.

Dither is a randomized signal—noise—that is added before the input of the ADC or during bit reduction. It not only mitigates the distortion caused by quantization errors when you reduce the word length of a PCM file, but it can extend the dynamic range of the bit depth beyond its theoretical limits. Adding low-level noise causes the LSB to toggle, which lets you statistically capture input values that are smaller than the LSB: This creates an average value that incudes levels that are below what the LSB would normally be able to encode. In other words, dither allows you to encode less than one bit's-worth of information. For example, Sony's 16-bit DAT machines offered Super Bit Mapping (SBM) technology when recording, which yielded a dynamic range resembling 20-bit resolution through noise shaping.

Perceptually based noise-shaping algorithms distribute the spectral energy of the dither



www.imsta.org

BUY THE SOFTWARE YOU USE

INTERNATIONAL MUSIC SOFTWARE TRADE ASSOCIATION
New York • Toronto • Berlin • Tokyo
Tel: 416 789-6849 • Fax: 416 789-1667
Email: info@imsta.org
BUY THE SOFTWARE YOU USE

The International Music Software Trade Association is a non-profit organization that represents the interests of music software and soundware publishers. One of our most important functions is to advocate for the legal use of software in the music production and creation landscape. We do this primarily through public education campaigns. We are supported by our members who are software and soundware developers, distributors, retailers and publications. We are fighting piracy on moral grounds appealing to the good in all of us. We are trying to change behavior.

signal into frequency ranges where the human hearing range is least sensitive. It's common for software developers to put the majority of dither noise above 15kHz, moving it towards the Nyquist limit of 22.05kHz for a 44.1kHz sampling rate.

Software products that have dither usually include algorithms that are optimized for different types of program material. There are three types of POW-R dither: type 1 for spoken word; type 2 for music with a limited dynamic range, such as rock and hip-hop; and type 3 for music with a wide dynamic range, such as classical music (see figure 1). The Waves L2 Ultramaximizer offers two types of dither with three levels of noise shaping. The dither portion of WaveArts FinalPlug includes 11 dither/noise-shaping algorithms.

Hearing is Believing You can hear the effects of dither at the end of an audio file. Play a 24-bit file without dither and listen to the way the sound fades out. In a well-recorded file, you should hear the sound decrease evenly to silence. (Turn up the output level of your playback system to hear the final moments clearly, but be careful to reduce the level before further playback, so you don't damage your speakers.)

Dither is a randomized signal—noise—that is added before the input of the ADC or during bit reduction.

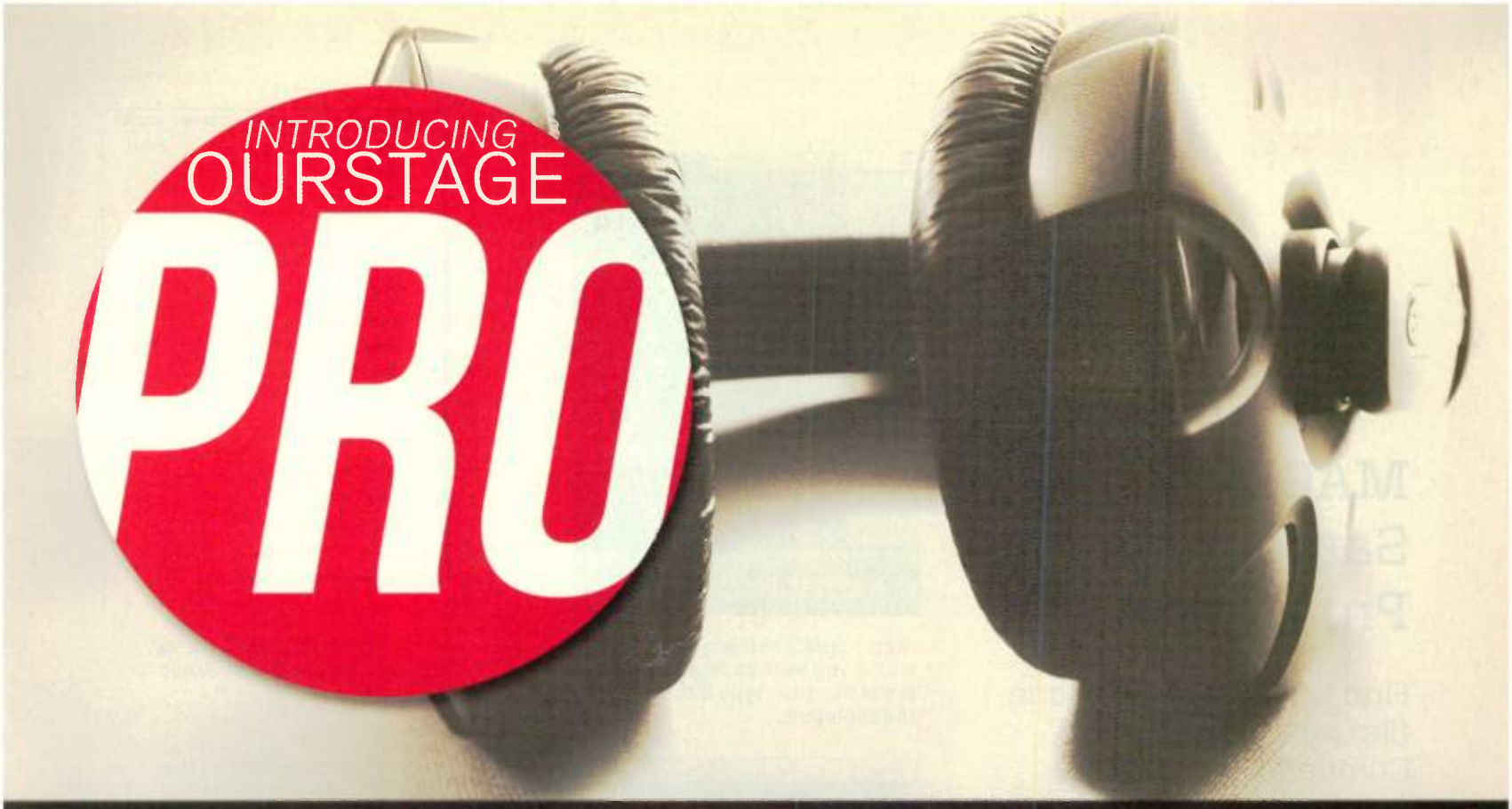
Next, create a 16-bit version without dither. Listen to the fade out (again, increasing your playback system's output level). As the non-dithered signal fades to zero, you'll hear a distorted crunchiness. Now, create a 16-bit file using dither and listen to the fade once again. At the very end, you'll hear a smooth transition into hiss-like noise.

Try each type of dither your DAW offers and listen to the way it changes the frequency spectrum and soundstage of your mix, and listen for added distortion or graininess in the sound.

Do not use noise-shaped dither more than once. It should be the final process when converting 24-bit files to 16 bits for use in a CD master, and you shouldn't process these files any further. Typically mastering engineers apply bit reduction with the proper dither after they've completed their work. You'll get the best results if you deliver full-resolution 32- or 24-bit files of your mixes and let the mastering engineer do the processing.

For a detailed explanation about dither in easy-to-understand language, read *Mastering Audio: the Art and the Science*, 2nd Edition by Bob Katz (2007, Focal Press). ■

Gino Robair is a former editor of Electronic Musician.



CHANGING THE WAY ARTISTS MAKE MONEY, *CHANGING THE MUSIC INDUSTRY...*

Featuring **Revshare** - Your song spins, you get paid
Artist Funding - Receive donations from fans
Music Licensing - Land top placements

ourstage.com
The **New Music** Revolution

Sign up at OurStage.com to learn more

MAGIX Samplitude Pro X

Find similar sounds in one file using Samplitude's Comparisonics feature

BY CRAIG ANDERTON

OBJECTIVE

Identify sections of audio with similar characteristics when you need to perform multiple edits

BACKGROUND

The Comparisonics "audio search" feature makes it easy to find similar pieces of audio in a file. In this example, a drum part's cymbal was miked too closely and is too loud, so the goal is to find each cymbal crash instance and lower its level.

If the file is in a Virtual Project, hold Shift, then double-click on the object. This opens the file as an HD wave project. You can also type W, then simply load a file.

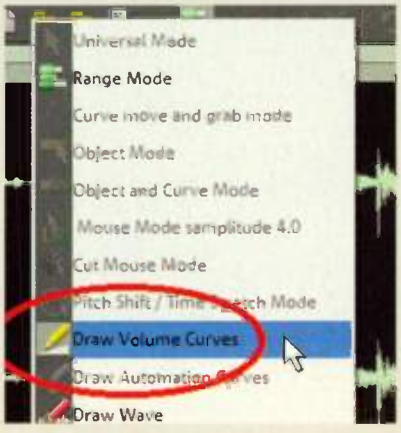
TIPS

■ Step 5: If this file came from a Virtual Project and you want it to end up in the same VIP, select the file's entire range, copy it, then paste it back into the VIP.

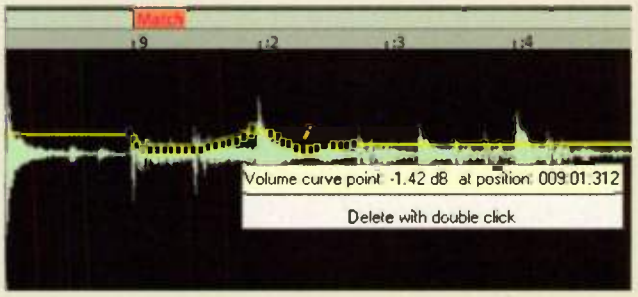
Step 1 Select the range with the sound you want to find elsewhere in the file, then type C to copy it to the clipboard.

Step 2 From the Object menu, choose Comparisonics Audio Search.

Step 3 Adjust the sensitivity. Higher sensitivities will find more matches, but overly high settings can give false positives. Sections that match the audio are indicated with Match labels just above the timeline.



Step 4 Choose Project Properties from the File menu, and make sure Destructive Wave Edit Mode is unchecked. Then choose the Draw Volume Curves cursor.



Step 5 Draw in the appropriate volume change at each matched section.

Go mobile with your MOTU studio

Run Digital Performer 8 and MachFive 3 on the new Apple MacBook Air, control your audio with the elegant one-touch Track16, then add the latest advances in studio technology.

Apple MacBook Air
Anything but lightweight

Sure, MacBook Air is unbelievably thin and light. But Apple also designed it to be powerful, capable, durable, and enjoyable to use, with enough battery life to power your entire MOTU mobile studio. That's the difference between a notebook that's simply thin and light, and one that's so much more.

MOTU Track16
Desktop audio I/O with effects and mixing

Track16 offers elegant one-touch operation: press an input or output and turn the knob. It's that simple. With plenty of I/O available for a well-equipped mobile MOTU studio, Track16's pristine mic preamps, balanced line-level audio connections, and renowned MOTU engineering deliver world-class audio quality.

Novation Launchkey
Next-gen USB/iOS controller

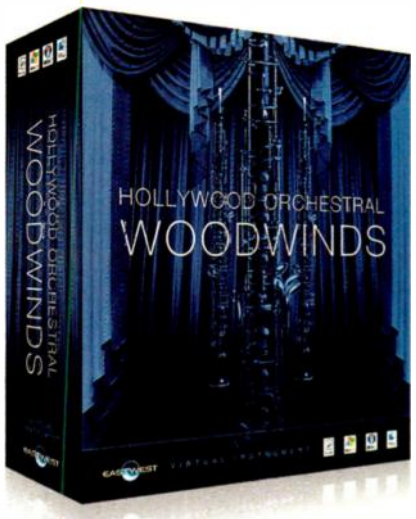
The Launchkey 49 gives you cutting-edge control over your MOTU mobile studio with 49 smooth, synth-weighted keys, nine faders and buttons, eight encoders, dedicated transport controls, and 16 velocity-sensitive multi-color trigger pads. Available in 25, 49 and 61 key versions.

Value Added Reseller
Professional Audio

MOTU

EastWest Hollywood Orchestral Woodwinds
Diamond and Gold Editions

From award-winning sound engineer Shawn Murphy (Star Wars Episode II and III, Jurassic Park, Titanic, and many other blockbusters), Hollywood Orchestral Woodwinds is the most detailed collection of orchestral woodwind instruments ever assembled. Instruments include Alto Flute, Bass Clarinet, Bass Flute, Bassoon, Clarinet, Contra Bass Clarinet, Contra Bassoon, Eb Clarinet, English Horn, Flute, Flute 2, Oboe, and Piccolo Flute. Advanced features include true legato intervals at 2-3 dynamics, true connected legato repetitions, true double tonguing for all instruments and sections, expressive sustains, 9-way staccato and staccatissimo round robins at three dynamics, and much more.



Shure Beta 181 Stereo Set
Ultra-compact side-address instrument mics

Designed for discreet placement and control in live or studio environments, the Sweetwater-exclusive Beta 181 Stereo Set includes interchangeable cardioid, supercardioid, omnidirectional, and bidirectional capsules for superior versatility. The small-diaphragm design provides superior audio with consistent, textbook polar response in a form factor small enough to get close to the source in the tightest conditions. High SPL handling, ultra-smooth frequency response, and interchangeable polar patterns make this the perfect stereo mic pair for any technique in the book. This must-have mic bundle comes with two mic bodies and eight capsules in a custom case.

Genelec 8040A
Active bi-amplified studio monitor

With performance comparable to much larger systems, but in a compact package, the bi-amplified Genelec 8040A is ideal for use in MOTU studio situations where wide frequency response is needed but space is limited. Use the 8040A for nearfield monitoring in project/home studios, edit bays, broadcast and TV control rooms, and mobile production vehicles.

Sweetwater®
Music Instruments & Pro Audio

(800) 222-4700
www.sweetwater.com

FedEx
FREE SHIPPING
NO MINIMUM PURCHASE
ON MOST ORDERS. CONTACT US FOR MORE INFO.

CLASSIFIED ADVERTISEMENTS

CATEGORIES

INSTRUMENTS

STUDIO FURNISHINGS

PARTS/ACCESSORIES

EDUCATION/TUTORIALS

TALENT & EMPLOYMENT

Buying or selling instruments through our Classified Ads offers you convenience, a big marketplace, and a wide range of instruments and prices. Electronic Musician suggests the following guidelines to help the buyer and the seller in these transactions: 1) Get a written description of the instrument, which should include the serial number. 2) Get front and back photos of the instrument. 3) Get a written purchase agreement, with a 24-hour approval clause allowing the buyer to return the instrument for a full refund if it does not meet his/her reasonable expectations.

INSTRUMENTS

STUDIO FURNISHINGS

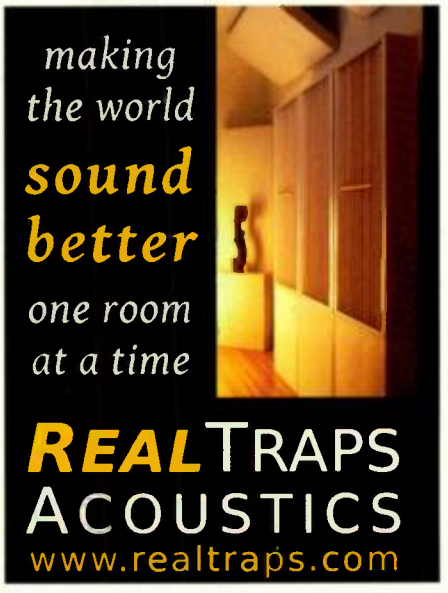
PARTS / ACCESSORIES

JustStrings.com

World's Largest Selection of Guitar & Bass Strings!

www.juststrings.com (800) 822-3953

ACOUSTIC PRODUCTS & SERVICES



EDUCATION / TUTORIAL

BAND-IN-A-BOX IMPROVEMENT PRODUCTS™

"You can put a Better-Band-In-Your-Box."

"Norton Music (since 1990)"

www.nortonmusic.com

Graduate Assistantships (tuition and salary) available for COMPOSERS with strong audio production portfolio interested in pursuing MFA in Theatre Sound.

For more info, visit:

www.cla.purdue.edu/theatre/academics/graduate/sounddesign.html

To advertise with us, contact:

Michelle Eigen 650 238 0325

meigen@musicplayer.com

The Omega Studios School

The Omega Studios School of Applied Recording Arts and Sciences

Now Available: Certificate Programs in Recording Engineering

Omega Studios School offers extensive hands-on training for anyone with a serious interest in audio engineering, live sound and music business. Omega is a Pro Tools certified training school.

MSRP: NONE

EXTRA INFO: FINANCIAL AID AVAILABLE

OMEGA STUDIOS SCHOOL
5609 FISHERS LANE
ROCKVILLE, MARYLAND 20852
www.omegastudoschool.edu
ADMISSIONS: admissions@omegastudios.com
301-230-9100

Chromaphone – Creative Percussion Synth

Applied Acoustics Systems

Available Now

Chromaphone combines acoustic resonators to create drums, percussion, mallet, string, and synth-like instruments. Drum skins, bars, marimbas, plates, strings, and tubes form pairs that get sparked into life by a configurable mallet and a flexible noise source.Chromaphone's preset library includes a wide range of expressive and responsive instruments that span from warm and mellow pitched percussions for melodies to punchy one-shots and kits for rhythm tracks.

SRP: $199

www.applied-acoustics.com
888-441-8277

600800 Large-Diaphragm Condenser Microphone & 615808 8-Channel Audio Mixer with USB I/O

Monoprice

Now Available

Monoprice introduces their Pro Audio Series, including 600800 Large-Diaphragm Condenser Microphone (with Shock Mount, pad & hi-pass) and 615808 8-Channel Audio Mixer with USB I/O (Plug-N-Play for PC & Mac).

SRP: $75.00 and $79.88 respectively

www.monoprice.com

605300 3-inch Powered Portable Monitor Speakers with Protective grill (pair) & 605500 5-inch Powered Studio Monitor Speakers (pair)

Monoprice

Now Available

Monoprice's 605300 3-inch and 605500 5-inch Powered Studio Monitor Speakers rival the sound quality of any studio monitor of their sizes. The 3-inch has protective grill for portability.

SRP: $75.79 and $165.78 respectively, per pair

www.monoprice.com

Five Signs That Your Gear Owns *You*

BY CRAIG ANDERTON

1

You spend a lot of time on the phone with your Sweetwater sales engineer. As in, *a lot*. As in, Verizon is offering you attractive incentives to *please* switch to AT&T. Just a friendly heads-up: Your sales engineer is looking into what's involved in filing a restraining order.

2

When your buddy gets all effusive about his cool new GF, you think he means "Gear Fanatic." Even more sadly, you think the terms "male" and "female" were invented to describe plugs and jacks, not the biological functionality of humanoid bipeds. Do they have remedial classes for sex ed? Just sayin'.

3

That Apple Mac IIci in the corner . . . seriously. 80MB hard drive, 25MHz processor, and it accepts only NuBus cards. Honest, you'll never use it again. But if you really can't *bear* to part with of it, then take out the motherboard, and it makes a *divine* planter! Convicted felon Martha Stewart recommends petunias.

4

You have a software update sitting on your computer, but you're terrified to install it because the version you have works. *Show some spine!* Don't let your current software boss you around—it's an *update! What could possibly go wrong?*

5

You *really believe* that you have to plug in cables in the "right" direction, so that the teeny-tiny little sentient electrons all march together in the same direction, goose-stepping their March of the Milliamps from one plug to another. And you're really afraid that if you plug it in backward, you may alter the ytilaer fo cirbaf. I mean, the fabric of reality. Hmmm . . . maybe you're right.

cakewalk
by Roland

SONAR X2

The Professional Touch

Experience SONAR like never before with all new touch functionality. Improve your workflow with intuitive gestures like 'swipe' and 'pinch to zoom' that allow you to navigate through projects using the Skylight User Interface. Transform any touch screen into a virtual pad controller to trigger loops and one-shots using the Matrix View. Or open up a whole new way to mix and interact with plug-ins, the Console View, and ProChannel. Give your music a professional touch with SONAR X2. Touch is available on Intel®-Inspired Ultrabooks™, and other touch enabled devices running Windows 8.

SEE IT IN ACTION AT WWW.CAKEWALK.COM/TOUCH

Enhanced for intel inside CORE

Available at worldwide music retailers including: Musician's Friend, Sweetwater Music Instruments & Pro Audio, Sam Ash Music Stores, Guitar Center

MOTU

motu.com/ultralite

"The UltraLite-mk3 allows me to capture my musical ideas anywhere, anytime on my laptop, with sound quality that I rely on and trust."

— FERNANDO GARIBAY

PRODUCER/RECORDING ARTIST
LADY GAGA, BRITNEY SPEARS,
U2, ENRIQUE IGLESIAS

UltraLite mk3 HYBRID FW•USB2

10 x 14 Hybrid FW / USB2 interface