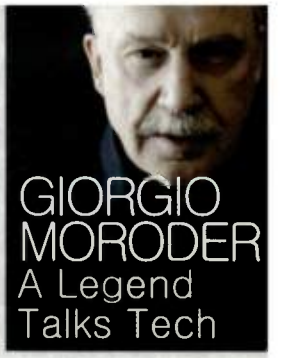
electronic
MUSICIAN
RECORD • PRODUCE • PERFORM



GIORGIO MORODER
A Legend Talks Tech

ROBERT GLASPER
The 'Covered' Sessions

One-Room Recording Tips

Creative Uses for Sidechains

Trick Out Your 500 Series Rack

Advice from Top Engineers

REVIEWS

MOTU
1248, 16A AND 8M

CAKEWALK
SONAR PLATINUM

OUTPUT
SIGNAL

CLOUD
44-A

PSP
PSP L'OTARY

SINGULAR SOUND
BEATBUDDY

SampleSlicer

NewBay Media 08.201
$5.99 CAN $6.9
71486 01017 3
A MUSIC PLAYER PUBLICATION

You deserve confidence in your workflow. You deserve Mercury.

Confidence is the result of an audio workflow with no compromises. Ultimate trust in your equipment is the key to unlocking the freedom to create without limits. At the heart of any workflow, whether it's on stage, on the road, in the studio, or in the basement, Mercury production drives embody that trust. From ultra portable, to rack-mount powerhouse, there's a Mercury drive perfect for your next project.

OWC

www.macsales.com | 1-800-275-4576 | Free 24/7 customer service

Creativity Without Limits

Earn A Degree Or Take Classes — In San Francisco Or Online:
School of Music Production
& Sound Design For Visual Media

Visit www.academyart.edu to learn more about total costs, median student loan debt, potential occupations and other information. Accredited member WSCUC, NASAD, CIDA (BFA-IAD, MFA-IAD), NAAB (B.ARCH*, M.ARCH), CTC (California Teacher Credential). *B.ARCH is currently in candidacy status.

Academy of Art University
Founded in San Francisco 1929

888.680.8691 // www.academyart.edu
Yellow Ribbon Participant

RØDE NTR

Solid State Logic
VHD Pre

Chandler Limited
TG2-500

Rupert Neve Designs
543

Purple Audio
Odd

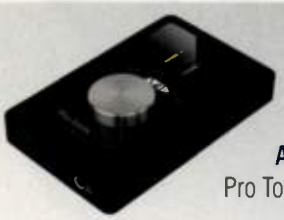
JBL LSR308

MONITOR NOT INCLUDED

Sweetwater
Creation Station 450v4

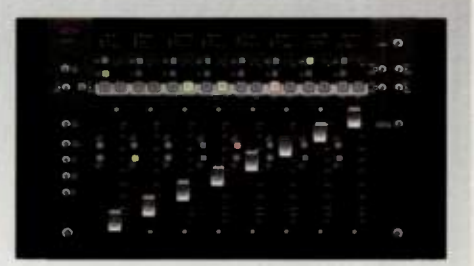
iZotope
Studio Bundle

Singular Sound
BeatBuddy



Avid
Pro Tools | Duet

Cakewalk
SONAR Platinum



Avid
Artist Mix

Pro Audio ■ Recording ■ Mixers ■ Monitors ■ Microphones ■ Guitars ■ Keyboards ■ Drums ■ Live Sound

0% INTEREST FOR 24 MONTHS*

On purchases of select manufacturers' products made with your Sweetwater Musician's All Access Platinum Card between now and August 31, 2015 – 24 equal monthly payments required.

*Offer applies only to single receipt qualifying purchases. No interest will be charged on promo purchase and equal monthly payments are required equal to initial promo purchase amount divided equally by the number of months in promo period until promo is paid in full. The equal monthly payment will be rounded to the next highest whole dollar and may be higher than the minimum payment that would be required if the purchase was a non-promotional purchase. Regular account terms apply to non-promotional purchases. For new accounts: Purchase APR is 29.99%; Minimum Interest Charge is $2. Existing cardholders should see their credit card agreement for their applicable terms. Subject to credit approval.

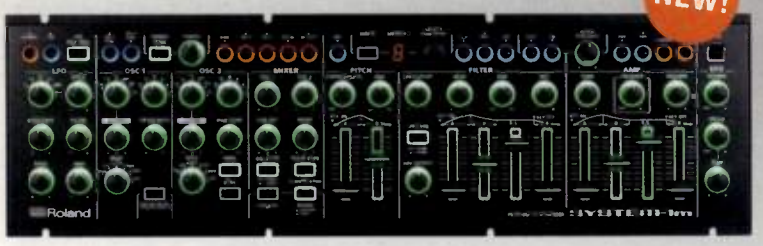
Korg Kronos

NEW!

Universal Audio
Apollo 8 QUAD

Manley Core

NEW!



Roland AIRA System-1m

Dangerous Music D-Box

"NEVER HAS THERE BEEN A BETTER BUYING EXPERIENCE. SWEETWATER IS ALWAYS MY NUMBER ONE CHOICE FOR ALL MY NEEDS."

Johlene from Richmond, KY

Toontrack EZdrummer 2

Knowledgeable Staff, Top Brands, and Competitive Prices That's the Sweetwater Difference!

(800) 222-4700
Sweetwater.com

Sweetwater®
Music Instruments & Pro Audio

FREE 2-YEAR WARRANTY**
Total Confidence Coverage™ Warranty

FREE PRO ADVICE
We're here to help! Call today!

FAST, FREE SHIPPING
On most orders, with no minimum purchase!

**Please note: Apple products are excluded from this warranty, and other restrictions may apply. Please visit Sweetwater.com/warranty for complete details.

08.15
electronic MUSICIAN

CONTENTS

DEPARTMENTS

Electronic Musician (ISSN 0884-4771) is published monthly by NewBay Media, LLC 1111 Bayhill Drive, Suite 440, San Bruno, CA 94066. Electronic Musician is a trademark of NewBay Media.

POSTMASTER: Send address changes to Electronic Musician, 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.

MUSIC

38

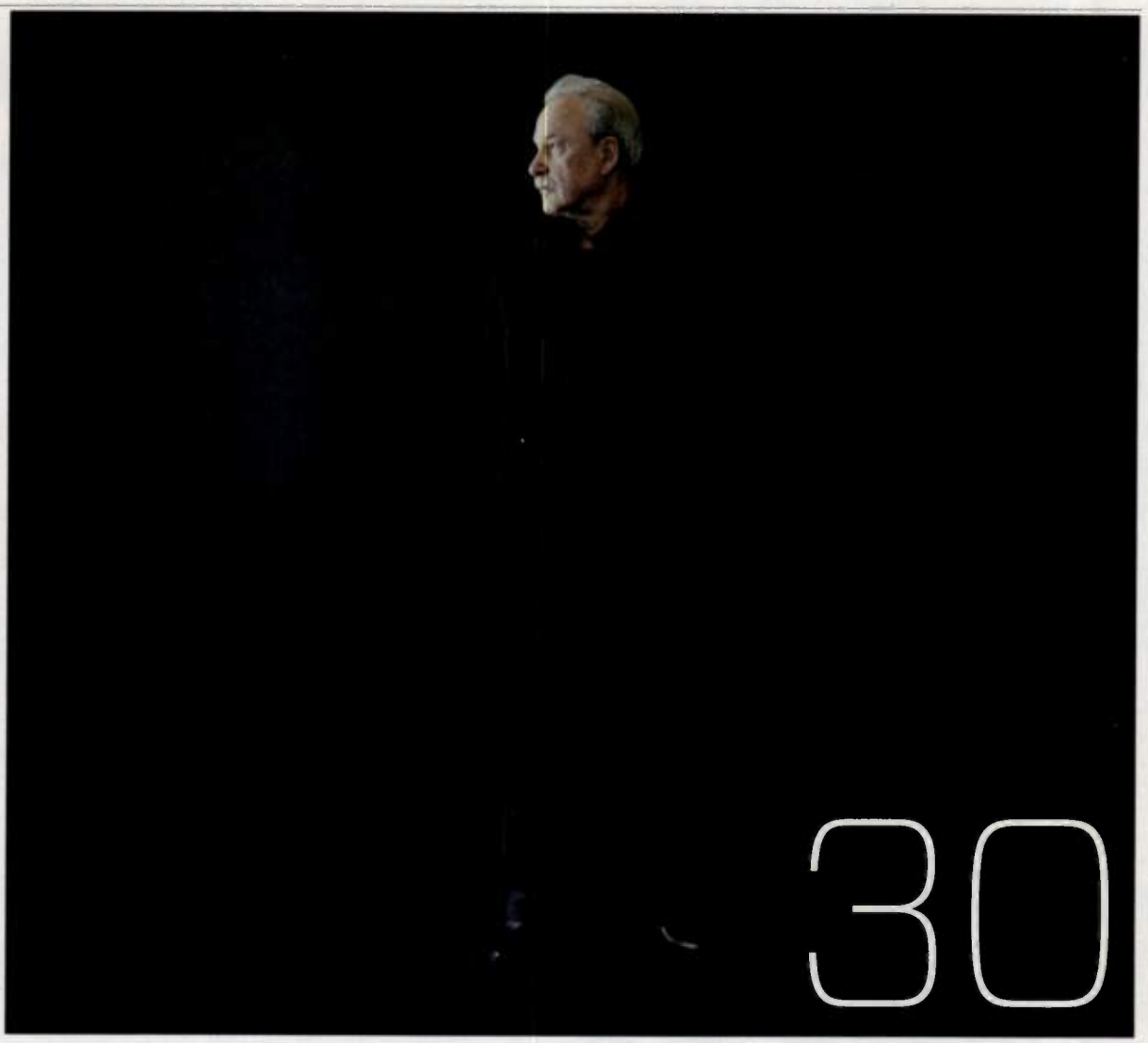
ROBERT GLASPER TRIO
Grammy-winner follows two Experiment projects with jazz album *Covered.*

42

ÓLAFUR ARNALDS
Icelandic singer/songwriter re-imagines Chopin.

46

PLAYLIST
New releases from Snarky Puppy, Ratatat, Emmylou Harris & Rodney Crowell, and more!



30

GIORGIO MORODER

Giorgio Moroder has launched careers, shaped music genres, and minted Number One hits. Now he is entering a new phase as a DJ and is set to drop *Déjà Vu*, his first album in decades.

GEAR REVIEWS

48

MOTU 8M, 16A, 1248, AVB
Thunderbolt Audio Interfaces

52

CAKEWALK SONAR PLATINUM
Digital Audio Workstation

56

OUTPUT SIGNAL
Sample-Based Instrument

58

CLOUD 44A
Ribbon Microphone

60

SINGULAR SOUND BEATBUDDY
Drum Machine/Stomp Box

VCOs · VCFs · VCAs · Poly Mod · Dual FX · Polyphonic Step Sequencer · Arpeggiator

prophet~6 | STATE-OF-THE-ART VINTAGE

6-Voice Analog Poly Synth

Grammy® winner and MIDI co-inventor **Dave Smith** presents his latest creation: the **Prophet-6**. Much more than a tribute to the legendary instrument that revolutionized the synth world, it's quite possibly the fattest, punchiest, modern analog you've ever laid both hands on. Vintage tone. Modern dependability. History never sounded better.

SEQUENTIAL
www.sequential.com

Designed and built in California by
Dave Smith
INSTRUMENTS
www.davesmithinstruments.com

electronic MUSICIAN
www.emusician.com | VOL. 31 NO. 8, AUGUST 2015

EDITORIAL DIRECTOR Michael Molenda
mmolenda@nbmedia.com
EDITOR Sarah Jones
sjones@nbmedia.com
TECHNICAL EDITOR Gino Robair
gino@ginorobair.com
MANAGING EDITOR Barbara Schultz
bschultz@nbmedia.com
CONTRIBUTORS
Michael Cooper, Marty Cutler, Steve La Cerra, Kylee Swenson Gordon, Emile Menasche, Ken Micallef, Lily Moayeri, Markkus Rovito, Bud Scoppa, Tony Ware, Geary Yelton
FOUNDING EDITOR Craig Anderton
ART DIRECTOR Damien Castaneda
dcastaneda@nbmedia.com
STAFF PHOTOGRAPHER
Paul Haggard phaggard@nbmedia.com

ADVERTISING DIRECTOR, EASTERN REGION, MIDWEST & EUROPE
Jeff Donnenwerth
jdonnenwerth@nbmedia.com, 212.378.0466
ADVERTISING DIRECTOR, WESTERN REGION & ASIA
Mari Deetz
mdeetz@nbmedia.com, 650.238.0344
ADVERTISING SALES, EASTERN ACCOUNTS
Anna Blumenthal
ablumenthal@nbmedia.com, 646.723.5404

SPECIALTY SALES ADVERTISING
Jon Brudner
jbrudner@nbmedia.com, 917.281.4721
PRODUCTION MANAGER Beatrice Kim

THE NEWBAY MUSIC GROUP
VICE PRESIDENT, PUBLISHING DIRECTOR Bill Amstutz
GROUP PUBLISHER Bob Ziltz
SENIOR FINANCIAL ANALYST Bob Jenkins
PRODUCTION DEPARTMENT MANAGER Beatrice Kim
GROUP MARKETING DIRECTOR Chris Campana
SENIOR MARKETING MANAGER Stacy Thomas
CONSUMER MARKETING DIRECTOR Crystal Hudson
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 Robert Ames
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:
Electronic Musician, 1111 Bayhill Dr., Ste. 440, 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

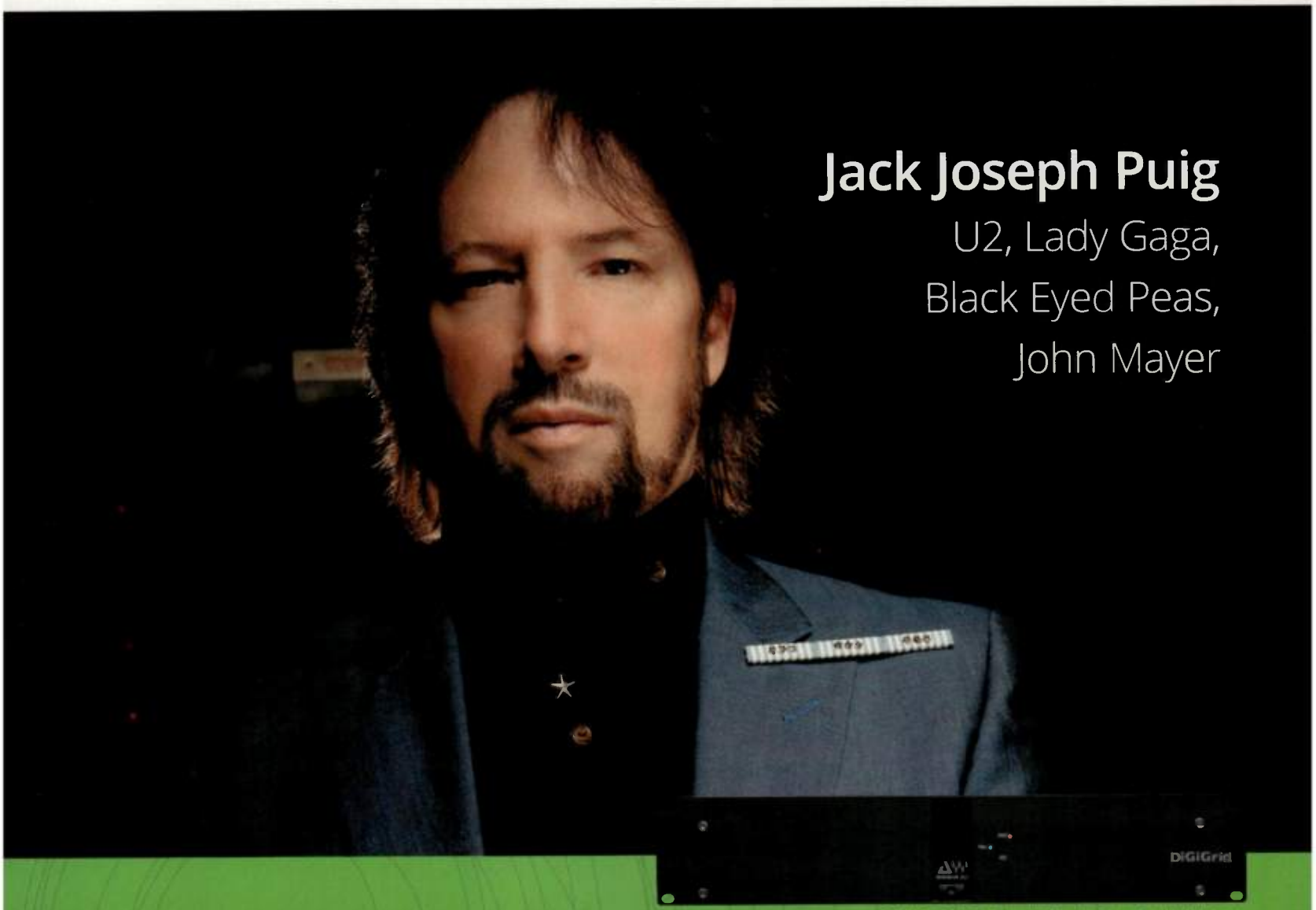
Back Issues are available for $10 each at 800.289.9919, 978.667.0364,
emmag@computerfulfillment.com

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

Follow us on

The DLS lets me catch creative magical moments. It allows me 'worry-free' mixing!

DiGiGrid Creative Audio Interfaces.



Jack Joseph Puig

U2, Lady Gaga,
Black Eyed Peas,
John Mayer

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

DiGiGrid

Find out what DiGiGrid DLS interfaces can do for your system at digigrid.net
For U.S. sales: www.waves.com

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

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

insight

In Praise of Modularity

TWO THINGS that musicians expect these days in the products they buy are variety and plug-and-play compatibility. The 500 Series format is a prime example of a category that fits both criteria. The standardization of module and rack size, as well as the power connector, provide an excellent vehicle for anyone interested in creating a personalized palette of colors for tracking and mixing. Moreover, the format's portability means you can take your favorite tools with you when you work in other locations. Together, these features have made 500 Series modules extremely popular, which has resulted in manufacturers developing products for the platform with increasing frequency.

What I find interesting is how the category has expanded past basic channel-strip functionality into sound design tools. For example, the Moog 500 Series Analog Delay offers CV, MIDI, and software control via DAW plug-ins; the Meris Ottobit is a bit reducer that can yield vintage videogame audio quality; and Radial's Tank Driver lets you drive an external spring reverb with any signal you please.

But for many, the modular format provides a convenient and portable solution for specific tasks, such as building a collection of favorite compressors for treating a drum kit or matching preamps to specific microphones. The trick, as always, is to separate your technical needs from your desires, in order to avoid impulse buys and the flavor-of-the-month syndrome. Do your homework, and you will end up with a hardware system that provides years of reliable service, with the price tag amortized over decades rather than months.

GINO ROBAIR
TECHNICAL EDITOR

electronic MUSICIAN

WEB HIGHLIGHTS

This month on emusician.com

Q&A With Underworld

Plus...
Novation MoroderSynth Giveaway
The DIY Advisor: One Step to Boost Your Business
Bonus One-Room Recording Tips

...and lots more!

gadget geek

The X Clip
Dual Microphone Clip

We love the fact that duct tape has 1,001 uses in the studio, but we also love the ability to cross "taping two mics together" off that list. The X Clip plastic dual-microphone clip is designed to pair a Shure SM57 with just about any small-diaphragm condenser. Microphones easily slide in and out of the simple mount, letting you adjust phase coherency in seconds, and eliminating the need for extra mic stands. Available for $19.99 at xclip.com

FIRST LOOK

Novation MoroderNova

BY MARKKUS ROVITO

PIONEERING PRODUCER Giorgio Moroder influenced three decades of house, techno, and other EDM artists. In the '80s he became a movie soundtrack hit machine. Coinciding with Moroder's comeback album, *Déjà Vu*, Novation surprised the synth geek community with the limited-edition MoroderNova, a reskinned MiniNova synth that adds 51 expertly programmed patches representing an authentic overview of Moroder's remarkable career.

Just 500 MoroderNovas will go on sale in July for a MAP of $449, a premium of $50 over the MiniNova price. We had a chance to play the exclusive MoroderNova patches, and they delivered impressive reproductions of the original Moroder sounds, many of which he created on a Moog Modular system and other prized vintage synths.

Moroder was famous for his arpeggiator use, and 15 of the 51 special patches are arpeggiated, including highlights from his singles with Sparks and Blondie, as well as his solo singles from the *E=MC²* and *From Here to Eternity* albums. Those albums also inspired the three vocoder patches that utilize the included gooseneck mic.

Some of the most recognizable sounds come from Moroder's soundtrack work on *Scarface*, *Flashdance*, *Midnight Express*, and especially *Top Gun*, where the dead-on bass from "Danger Zone" and synths from "Take My Breath Away" should bring a smile to your face. There's also the iconic arpeggiated percussion from the Donna Summer classic "I Feel Love."

This instrument is testament to Moroder's lasting contribution to electronic music. Most of these beautiful, long-evolving pads; warm, complex leads; and distinctive basses will fit right into modern productions. Although the Moroder patches don't take advantage of the synth's handy Animate features, many of them sound great drenched in the board's built-in effects and when enacting slow sweeps on the giant Filter knob.

We're giving away a MoroderNova!

One lucky reader will win a limited-edition MoroderNova synth: a 37-key instrument featuring 51 "Moroder-approved" custom patches and a sleek design (moustache included).

To enter, visit emusician.com/MoroderNovaContest. Open to US residents.

ASK!

SOMETIMES, WHEN I SHARE A PRO TOOLS PROJECT WITH A COLLABORATOR, THE AUDIO FILES ARE MISSING WHEN THEY OPEN IT. I DON'T HAVE THIS PROBLEM WITH REASON SESSIONS. WHAT AM I DOING WRONG?

M. S. PERRY
COLUMBUS, OH
VIA EMAIL

Unlike some DAW programs, Pro Tools doesn't store all of the project data under a single icon. For example: You share a Reason project by sending a Reason Song File. But with Pro Tools, you need to have more than just the .PTX file to hear your entire session play back if audio files are involved.

In fact, *session* is the key word. You must share the entire Session folder, and within the folder you must have, at the very least, the Audio folder and .PTX session file. If the project involves video content, the Video folder (with all the video files) should also be in the Session folder.

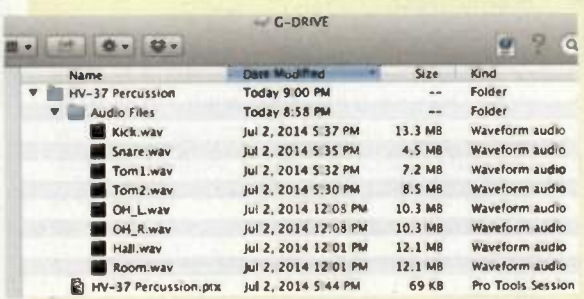
The good news is that, when you begin a session, Pro Tools creates the Session file for you and, if you've set your preferences correctly, puts all the assets in the proper places as you record or import.

However, there are occasions when you could be working with audio that is being accessed from another drive and isn't actually being stored inside the Audio folder. This could be a disaster when you share the session only to find out that some of your files are missing. Here are two things to consider when you plan to send your project to someone else, as well as when you're done and want to archive the project.

Before you begin working, go to Pro Tools Preferences, select the Processing tab, and then check the box that says Automatically Copy Files on Import. That way, no matter if you use the Workspace browser, Import Audio command or drag-and-drop, the files are copied into the session folder.

When you're ready to share or archive the session, use Save Copy In from the File pulldown menu to make sure all of your assets are in the right place. When the dialog box appears, check All Audio Files as well as the other boxes that pertain to the assets you need. You can also use this command to change the resolution of the project.

THE EDITORS



In this screen capture, you see a simple Pro Tools session folder with the bare minimum of what you will need to share the project successfully with a collaborator: the Audio Files folder with the required assets, and the .PTX session file.

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

FIVE QUESTIONS WITH
Daryl P. Friedman, Chief Advocacy & Industry Relations Officer for the Recording Academy

BY SARAH JONES

PAUL MORIGI

"IF EVER there were a time for creators to have their voices be heard, it's now," says Daryl P. Friedman, the Recording Academy's Chief Advocacy and Industrial Relations Officer. Friedman and other members of the Academy are working to secure support in Congress for the Fair Play Fair Pay Act of 2015 (H.R. 1733), which ensures equitable compensation for music creators, whether their work is streamed over the Internet, served via satellite, or played on terrestrial radio.

Also on high on Friedman's To Do list is ensuring passage of the Allocation for Music Producers Act (AMP; H.R. 1457)—an initiative that would make engineers, mixers, and producers eligible to earn royalties for all recordings they work on. We asked Friedman to help educate *Electronic Musician*'s readers about the Academy's important advocacy work on behalf of all music creators, and to explain what individuals can do to support these efforts.

Why is now such a crucial time for music creators to get involved in music advocacy?

Copyright laws and music-licensing issues are being reviewed, and bipartisan discussions are underway. Congress wants to look at these issues and create a holistic solution that takes the reality of new technology and new consumption patterns into account. There is a consensus in D.C. on these issues, and this is probably the most important time for music policy in a generation or longer. Over the past several years, Congress and the Copyright Office have undertaken a thorough review, which now is providing a foundation for updates to the Copyright Act. These updates can alter the ways that music is licensed, as well as how royalties are paid, who receives them, and how payments are divided between music services and creators.

Taking action now, speaking up, can make a difference in ensuring that the next generation of artists, producers, and songwriters, and those that follow, can sustain a livelihood in our business. It's an important time to educate Congress and let your voice be heard, and we encourage all in the music community to pay attention to what's going on surrounding copyright and licensing.

How is the Recording Academy spearheading advocacy efforts in Washington?

The Recording Academy has a number of advocacy initiatives underway that help to educate legislators on issues that are important to songwriters, artists, producers, and recording professionals. In our recent Grammys on the Hill event, now in its tenth year, 200 Grammy advocates from across the country converged on Capitol Hill and participated in more than 80 meetings with lawmakers to ask for their support for the Fair Play Fair Pay Act, as well as other issues of importance in the music community. At the same time, we spotlighted individuals who are championing rights for the music makers with our Grammys on the Hill Awards.

We've rolled out a number of high-profile initiatives to elevate the conversation in the past several months, including the Grammy Creators Alliance, Grammys in My District, and the Managers' Think Tank. And we've recently introduced changes inside the Recording Academy that allow local members, at the Chapter level, to get involved in grassroots efforts to help bring issues to the forefront. There's a lot going on, and we're helping the music community have a platform to speak with one voice on these important issues.

What are the biggest obstacles standing in the way of fair terrestrial radio royalites in the U.S., and how will the Fair Pay Fair Play Act protect these royalties?

The Fair Play Fair Pay Act sets out fair compensation for music creators, leveling the playing field by setting up a comprehensive, united approach to solving pay inequities for music professionals. The bill addresses four previously separate parity issues within one encompassing piece of legislation. It establishes a process for setting fair-market royalty rates, creates a performance right for artists on terrestrial radio, closes the pre-1972 loophole to see that veteran performers receive royalties, and—for the first time—codifies royalty payments to music producers.

With Fair Play Fair Pay, real progress towards fair pay for all music creators will be made. Major corporate interests are working against this bill, and we believe that now is the time that those who make the music, who create the content that is broadcast and streamed, need to be heard. As the only national membership organization to represent all music creators, The Recording Academy is in a unique position to educate and inform legislators in this critical time.

Many of *Electronic Musician*'s readers are producers and engineers. For them, what are the key takeaways of the AMP Act?

This is an important bill for producers and engineers as it is the first time in U.S. history where there is finally a bill designed to address the needs of studio professionals. The AMP Act is a bipartisan bill that will ensure that producers get efficient and direct payment of the performance royalties they are due. The bill will create a statutory right for producers to receive royalties from SoundExchange when they have a letter of direction from a featured artist. It will also create a new process where producers can request royalties from artists for older recordings when there is no letter of direction in place, if the artist doesn't object.

The AMP Act is supported by The Recording Academy, which represents more than 24,000 producers, engineers, artists, songwriters, and other individual music creators, and by SoundExchange, the independent nonprofit performance rights organization responsible for collecting and distributing digital performance royalties to music creators and copyright holders.

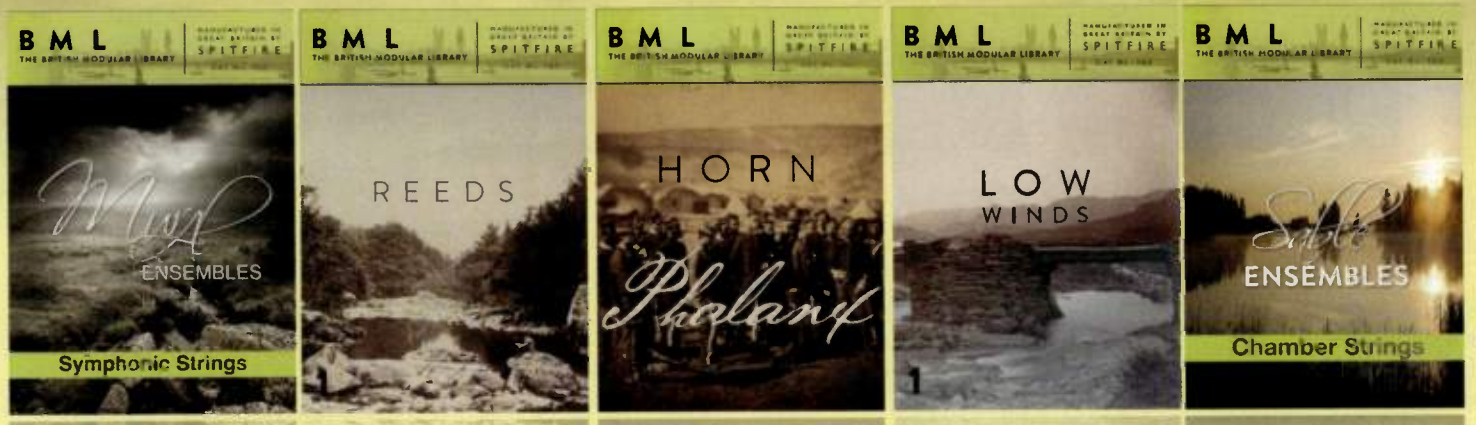
Do you have any advice for ways to get music makers fired up to reach out to their representatives?

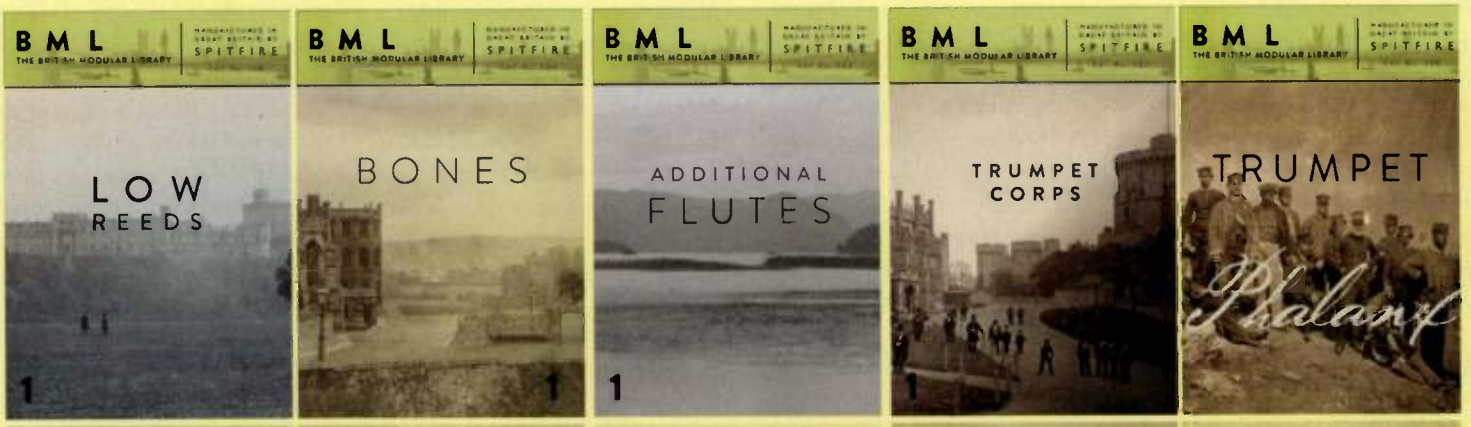
It is always a great benefit when the community of music creators comes together to have their voice heard. Phone calls, letters and emails can all be an effective way to contact your representatives, and, as previously mentioned, in-person meetings are ideal, and something we continue to do in Washington at our Grammys on the Hill Advocacy Day, and all across the nation in the fall during our Grammys in My District.

For additional information on the AMP Act, visit grammy.org/the-amp-act. And to learn how to encourage your representatives to support the AMP Act, visit grammypro.com/advocacy-action#/10.

BML

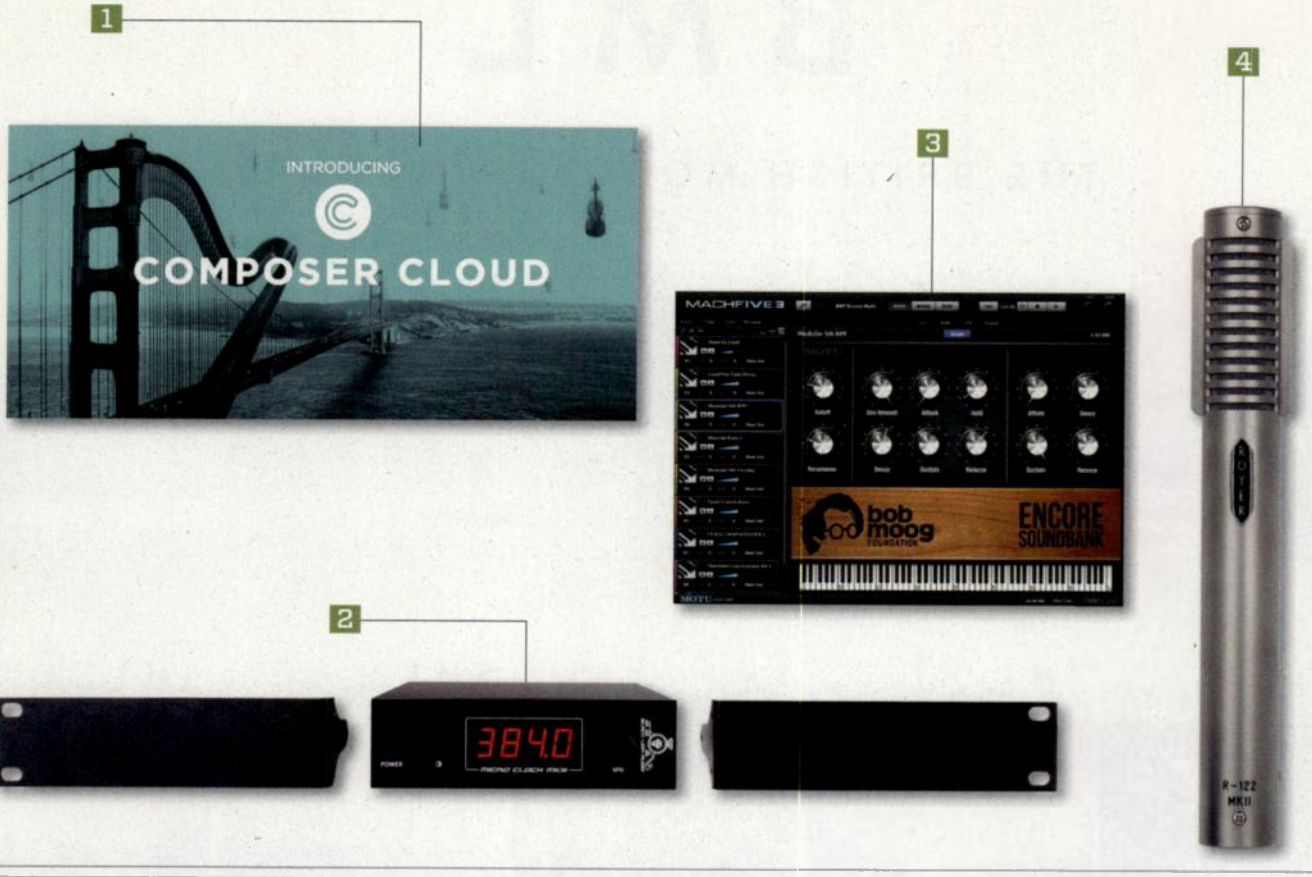
THE BRITISH MODULAR LIBRARY





BUILD **YOUR** ORCHESTRA

WWW.SPITFIREAUDIO.COM



1

EASTWEST

COMPOSER CLOUD

Virtual instrument/sound library service

$29.99-$49.99 per month

HIGHLIGHTS Thousands of virtual instruments and sounds can be accessed through a cloud-based subscription • all major DAWs supported • $29.99 level provides choice of seven instrument collections plus an additional collection for free every quarter • $49.99 gives access to the entire catalog of instruments and sounds • exclusive content is promised for the future

TARGET MARKET Musicians, composers, producers

ANALYSIS An affordable way to use EastWest's high-quality virtual instruments and sound libraries.

composercloud.net

2

BLACK LION AUDIO

MICRO CLOCK MK3

Word clock generator

$999

HIGHLIGHTS Low-jitter crystal oscillators • supports clocking frequencies from 44.1 to 384kHz • six BNC outputs with individual drivers for isolation • XLR (AES), coaxial and optical (S/PDIF) outputs • improvements in signal division, noise filtration, and transformer isolation over the previous version • 1RU with removable rack ears • frequency display can be dimmed

TARGET MARKET Recording engineers

ANALYSIS A surprisingly small and aggressively priced way to distribute word-clock to the digital devices in your studio.

blacklionaudio.com

3

MOTU

THE BOB MOOG FOUNDATION ENCORE SOUNDBANK

Sound library

$99

HIGHLIGHTS 2GB library available as a soundbank for the free UVI Workstation virtual instrument player • works in any DAW that supports virtual instruments • sound-design contributors include Suzanne Ciani, Vince Clarke, Edgar Froese, Jordan Rudess, Larry Fast, Al Kooper, Goldfrapp, and more

TARGET MARKET Instrumentalists, composers, sound designers

ANALYSIS A wide-ranging collection of instruments and percussive sounds at an affordable price. All proceeds will be donated to the Bob Moog Foundation.

motu.com

4

ROYER LABS

R-122 MKII

Phantom-powered ribbon microphone

$1,995

HIGHLIGHTS Similar to the R-122 but with a switchable -15dB pad and switchable low-cut filter (100Hz, 6db/octave) • 2.5-micron, low-mass aluminum ribbon • because of the offset element design, the front and back of the mic provide differences in SPL handling and timbral quality • lifetime warranty for the original owner as well as the first re-ribbon free

TARGET MARKET Recording engineers, musicians

ANALYSIS Useful features added to an already great-sounding microphone.

royerlabs.com

All prices are MSRP except as noted

5

AUDIFIED

U73B

Compressor plug-in

$149

HIGHLIGHTS Modeled software version of a classic German tube-based compressor, for Mac and Windows OS • supports Audio Units, VST2, VST3, and AAX • input and output gain controls • limiter mode with soft-knee compression • control over release time • side chain • requires iLok account

TARGET MARKET Musicians, recording engineers

ANALYSIS Designed to provide vintage-sounding dynamics control, the U73b can be used on drums, vocals, guitars, or an entire mix.

audified.com

6

WI DIGITAL SYSTEMS

AUDIOLINK PRO

Wireless digital audio system

$199

HIGHLIGHTS True diversity system that works on the 2.4Ghz band with a direct range of 100' • 16-bit, 48kHz resolution • 3.5mm stereo I/O • compatible with Mac, Windows, and iOS • supports 2-way wireless USB 2.0 audio apps • use with headphones or earbuds for monitoring • transmitter is lightweight enough to be attached to a guitar strap or the performer's clothing

TARGET MARKET Musicians

ANALYSIS Designed for uses ranging from live performance to silent practicing.

widigitalsystems.com

7

SOFTUBE

HEARTBEAT

Virtual analog drum machine

$199

HIGHLIGHTS Eight instrument channels with individual effects sends • 4-channel Auto Layer Machine for creating chains of events, adding fills, or introducing randomness • includes model of the vintage Dyna-mite dynamics processor • stereo reverb • filter-echo effect with controls for frequency cutoff and resonance • saturation on master output • global controls for velocity and Time Gate

TARGET MARKET Beat producers, DJs, composers

ANALYSIS An interesting take on the '80s drum machine paradigm, with a unique way to add variation to patterns.

softube.com

8

PRESONUS

STUDIO ONE 3

Digital audio workstation

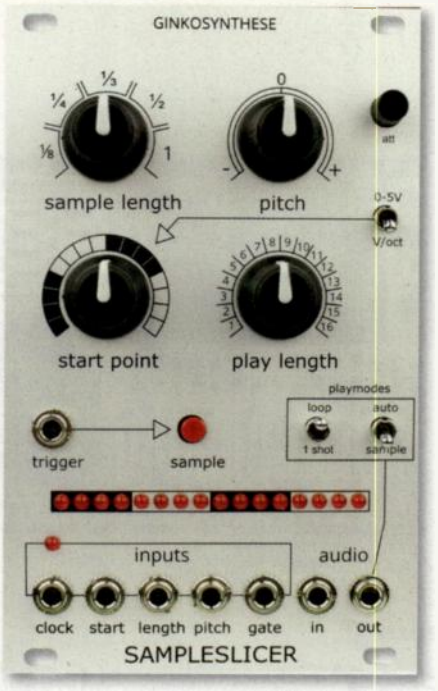
$399.95 Professional; $99.95 Artist

HIGHLIGHTS New Arranger track • Scratch Pad • FX Chains • two new instruments: Mai Tai polyphonic analog-modeling synth and Presence XT sampler • supports multi-instruments • MIDI Note processing • automation curves • updated time and pitch changing algorithms • step recording • Bitcrusher and Rotor audio effects • support for Mac/PC multitouch displays • controllable from an iPad app • feature-limited Studio One Prime is free

TARGET MARKET Songwriters, composer, engineers

ANALYSIS A remarkably robust DAW with a competitive new feature set, priced for a variety of users.

presonus.com



You can sample the input manually or by sending Sampleslicer an external trigger, then have it loop or play back only once.

GINKO SYNTHESE

Sample Slicer

REAL-TIME AUDIO CAPTURE AND MANGLING FOR EURORACK

BY GINO ROBAIR

A module that offers voltage control over audio files is hard to resist—especially when it samples in real time. With the Sampleslicer (€335 direct; roughly $365), Ginko Synthese (ginkosynthese.com) provides a convenient way to record up to 15 seconds of 12-bit digital audio and then manipulate it manually or with CVs.

As you capture a sample, the skiff-friendly module's software divides the incoming audio into 16 parts based on the rate of the signal present at the clock input. It then plays through the 16 steps linearly while individual LEDs show you where you are in the sample and how much of it you're accessing. During playback, you can change the starting point, alter the pitch, and adjust the Play Length using dedicated controls or CVs.

Unfortunately, you cannot reverse playback or rearrange the slices. Moreover, you cannot save or recall loops: That would go against the design philosophy of this module. While the lack of storage simplifies things in one respect, there were times when I hated losing the sample I had captured. Be sure to have your DAW standing by and ready to record.

To capture sound, hit the Sample button or automatically initiate sampling by patching a signal into the Trigger input. The Auto setting lets you hear the source signal while the module's buffer fills. Select One-shot and the sampled sound will play only once after it's captured. Use Loop to make it repeat, then plug a signal into the Gate input to rhythmically interrupt playback with the source signal. All of this control allows you to create patches where the module samples and manipulates sound on its own, with or without the source input being heard—very nice!

The length of the sample is determined with the Sample Length knob, which divides the incoming clock in five ways—1/8, 1/4, 1/3, 1/2, or 1. To get the longest sample, set the control to 1, send a pulse into the Clock input, and watch as each LED lights to indicate the 16 sampled steps. Set the knob to 1/2 to fill the buffer in half the time, or to 1/4 to halve that further. Once the buffer is full, the sound plays back from whichever starting point and Play Length are selected.

To control the Start Point and alter the pitch of the sample using a CV patched from a keyboard, switch from 0-5V to 1/V and set the Sample Length to 1. The amount of pitch change and whether the Pitch input responds to linear V/octave or Hz/V is set by holding down the Sample button while powering up the module. Depending on your choice, you have the ability to drop the pitch as much as 4.5 octaves or raise it 1.5 times. Pitch things way down and you're treated to the lovely aliasing timbres of early samplers.

I used a variety of CV sources to modulate sample playback—LFOs, joysticks, envelopes—all of them worked well. The most interesting results came about when I used a randomized pulse to initiate sampling while patching the module's output through a modulated filter, then back to the input to create a feedback loop—ever-evolving crunchiness!

Whether you're grabbing sound from your synth or the outside world, Sampleslicer will transform it quickly and in wonderful ways. ■

Special thanks to I/O Music Technology (io-mt.com) for loaning us the module for this article.

LAUNCHKEY

The essential keyboard controller for producing electronic music in Ableton Live…

…now rgb.

novation

www.novationmusic.com/keys/launchkey

What's in Your Lunchbox?

Top engineers take us inside their 500 Series systems, and share tips for configuring the ideal rack for your recording needs.

BY GINO ROBAIR

The modular hardware format known as the 500 Series continues to be popular with musicians and engineers, both in home studios and full-size facilities. For anyone with a desktop DAW system, a rack of well-chosen modules can improve that system's audio quality in a minimal amount of space. And the wide array of products available means engineers can dial in a sound that is more personalized, while tapping into functionality that goes a lot further than that provided by a mixer or audio interface.

I spoke with four pros—Ross Hogarth, Marc Alan Goodman, Warren Huart, and Sam Seifert—who rely on 500 Series modules as part of their workflow. In this article, we will learn about each of their journeys into the land of the Lunchbox and beyond, to find out what products they use and why they chose them.

ROSS HOGARTH

If you've been listening to the radio over the past four decades, you've heard the work of Ross Hogarth (hoaxproductions.com). In addition to engineering and mixing for scores of major artists—Van Halen, John Mellencamp, the Doobie Brothers, Keb' Mo', Mötley Crüe, REM, and Lyle Lovett among them—the Grammy-nominated engineer's credits include feature film soundtracks, tour production, and live sound. Not surprisingly, Hogarth has witnessed the evolution of the 500 Series format.

"I have a really long history with them," he explains. "Originally, you didn't think of them as 500 Series. Back in the early '80s, I started using API and Aengus EQs, from an Aengus console, in the old Aphex 4B1 rack, which had only TT and TRS connections on the back. The only way to power them was with this Aphex rack. It was just the easiest, most transportable thing.

"But this allowed me to take the EQs that I love out of those consoles and take them somewhere. For me, that was Indiana—particularly to John Mellencamp's studio—and use them on kick and snare. The Aengus EQs had a specific sound: They're gritty and great on bass. However, the [API] 560 has been my go-to EQ on kick and snare for my whole career, and the 550A EQs for anything—drums, guitars. The sound of the EQs from those API consoles is so distinctive, and you could have a few of these racks with those EQs piled into them."

And how does he view the format today? "Now you have so many choices of what to put in your rack, and there are so many racks to choose from—it's insane."

I asked Hogarth if he has noticed any differences between the racks made back then and the ones being produced now. "I'm a big fan of correctly powered 500 Series modules. Some of the older racks, which didn't have the power supplies upgraded, were underpowered and didn't sound that great once you piled in a bunch of modules. The 4B1s were fine to power four APIs, but there was a time in the mid-2000s as this format took hold, when the power supplies were not sufficient to power a larger rack of modules. Some of the people using them went back to the manufacturers and asked them to make improvements. Most of the racks are good now. There's API, BAE, Empirical Labs, Purple Audio, Radial, just to name a few.

"I still have some 4B1s that I occasionally throw a couple of 560s and 550As into," he continues. "I went in and changed some components on the supplies, because they weren't all that well-built originally. I also have BAE 6- and 11-space racks, and a 2-space Empirical Labs rack for certain things because it's horizontal, not vertical. The two racks I have my eye on are the Radial Workhorse, which has the busing matrix in it that comes out to a DSub: Radial's all about solving problems. And the Purple Audio Sweet 10—it's a rack that a lot of people who build modules use because it's so stable. All of these companies are definitely pushing each other. Like everywhere else in the industry, if someone is doing good work, you have to keep your game up."

As you would expect from an engineer of his caliber, Hogarth is partial to certain sounds, many of which come from products he has used throughout his career. I was curious to find out what he uses for tracking.

"The 312s are the great workhorse preamp that you can't get away from," he says. "Brent Averill was the first guy to take a 312 out of a console and put it into a rack [Brent Averill is now BAE/British Audio]. I still have a bunch of them.

"A new one I use is the 736-5 Preamp by Skibbe Electronics, which is a copy of the preamp found in the custom Flickinger console that Sly Stone used. Wade Chandler, who was Brent Averill's tech, started his own company [Chandler Limited] and has some killer 500 Series pre's—the Germ 500 and the Little Devil. Great River has the 2-space MP-500NV and the Avedis MA-5s are terrific.

"I have a reason for everything I use," Hogarth explains. "One preamp, I might find is really open and clear. Another I might like for its harmonic distortion: That's really cool, but if you're doing something where you want a really clean preamp, that's not the one. And, of course, now they're adding EQ into some of the preamp modules, creating something that is more like a channel strip."

When mixing, Hogarth starts with a few favorites and then chooses his palette from there. "It depends on the mix," he explains. "I'll go to my 560 or 550As for specific things if I don't want the plug-in. As an aside, I lent what I call my 'famous 560s' to Will Shanks at Universal Audio. So the 560s they have in their UAD-2 bundle are my specific EQs."

For mixing, Hogarth likes the Retro Instruments Doublewide Tube Compressor, "which is like a mini Sta-Level," he says. "In addition, I have a Standard Audio Level-Or, which, like the [Shure] Level-Loc PA limiter, just smashes the heck out of stuff—very aggressive, weird, and distorted-sounding. The Level-Or can just destroy a room sound—it's certainly not pretty—but it's a JFET limiter and, basically, a distortion processor that they build into a little 500 Series module.

"Although a lot of de-essing is done in the box, I processed David Lee Roth's voice completely analog, using one of my favorite de-essers, the Empirical Labs Derresser, which really works well on his voice," says Hogarth. "Going back to the first few Van Halen records, the famous engineer Donn Landee used the API 525 compressor: They made those early Van Halen records on the Sunset Sound consoles with the APIs in there, and so I held true to some of the compression that David likes on his voice.

"I also have the TB Audio TBDD module, which is based on the Roland Dimension-D stereo chorus. It sounds really good. That's one of the more obscure things I have in my rack."

With such a wide variety of modules available, I wondered what Hogarth would recommend to somebody who wants the flexibility of the 500 format, but who isn't sure where to start. "It comes down to what you're looking for and what you want," he says. "That goes for anything outboard. So people have to figure out the kinds of sounds they want before they make a decision.

"In the days of making records, we would come into a studio and use the console. And then that console—whatever it was: a Trident, Neve, or API—was the sound. Now, with all this outboard gear and everyone doing this pick-and-choose, it goes back to the core sounds: Is it an API mic pre, or a Neve-type mic pre, or is it based on a germanium transistor? Or, you can have, say, an API EQ being driven from a germanium pre or a Neve-like pre. It all comes down to sonics and what you're looking for."

Ross Hogarth behind the desk in Blackbird Studio A, Nashville.

MARC ALAN GOODMAN

"The thing with the 500 Series is the convenience," explains Marc Alan Goodman, owner/operator (with partner Daniel Schlett) of Strange Weather recording studio (strangeweatherbrooklyn.com) in Brooklyn.

I asked Goodman what he likes most about the 500 Series: "The shared power supply in a small format, he says. "I can fit 10 channels, with power, in three rackspaces and mix and match what those channels are. There are very few other products you can do that with. That's the biggest advantage."

I asked what lured him into the realm of 500 Series modules. "That is a pretty big question. We have a 48-channel API 1608, which I chose in part because I could use 500 Series modules in it," he explains. "I was also looking for something that was a vintage design.

"I was getting sick of working on vintage desks and having them never work properly. Around 2006 or 2007, there wasn't really much on the market that was viable as a console, in my price range, and sounded good. I ended up going with the API on those grounds. The fact that it had 500 Series slots, as opposed to their other desks that support the thinner series, seemed like a big advantage to me, because I wanted to be able to try some different things."

So, what was he sonically interested in at that time? "The desk I was working on in another studio was an old Auditronics and I loved the EQs in it. But the thing was pretty fussy. However, Ed Anderson at Purple Audio had cloned them: It's his redesign of the inductor EQ, but with the Purple amplifier. So I thought I could get an API desk and fill it out with these EQs that I love, which I did over a period of a year.

"When my tastes changed, I swapped them out and tried tons of different options. The advantage of the 500 Series in general is the size: We're in New York, and nobody has a lot of space. Comparatively, we have a ton of rack space and it's always full. And we're always trying to figure out what we can pull out to try something new. The 500 Series helps alleviate that a little bit by sharing a power supply. I know a lot of people frown on that, thinking that a shared power supply is going to disrupt the quality of the products in the rack. That seems completely ludicrous to me, because we're sharing an original power source for everything in the studio.

"As long as there is enough current there to power the modules, there is no reason they shouldn't run just as well," Goodman continues. "Obviously, if things are poorly designed you increase the possibility of noise. But we're talking about companies like API, Purple, and some of my favorite ones, the Avedis E27 EQs. They're extremely well-designed."

> "I can fit 10 channels, with power, in three rackspaces and mix and match what those channels are. There are very few other products you can do that with. That's the biggest advantage."
>
> —MARC ALAN GOODMAN

I asked Goodman if he has ever run across compatibility issues. "I haven't run into significant problems with anything in my 500 Series, really. Every once in a while I will find something that is a little quirky; a level will be down in one rack, but the module will work great in another rack. I have to assume that is a rack issue, not the gear itself."

To meet a variety of needs, Strange Weather's racks include stationary as well as portable models. "We have the API desk and there's a producer's desk in there, so we have another bucket of 16 patchable slots. And we have a Purple Sweet 10 now, and another API 6-space Lunchbox."

When asked whether the modules are used for tracking or mixing, Goodman notes that "they get used for everything. Primarily we have EQs in there, and we have a couple of compressors. I used to have a bunch of mic pres, but now that we have the API desk, we don't need a lot of outboard mic pre's.

"My business partner, Daniel Schlett, is doing a record up in Canada in August, and he is scrounging together 500 Series racks and pre's from friends because it's going to be more convenient to carry them up there. And he knows what sound he's going to get: He's trying to find a bunch of 512s."

Part of the allure of this kind of modularity for Goodman is that he's able to pick external EQs to fit different projects and get a variety of sounds. "At one time we had a 16-channel desk but eight different types of equalizers in it. And you could pick by the channel. We've expanded that: Now that the desk is bigger—it's 48 channels—we really only have 4 different EQs in the channels on the desk.

"When I'm deciding to track drums and [figuring out] which channel I want to use for the kick drum, I can select based on the EQ and still have the full functionality of the desk. That is really nice."

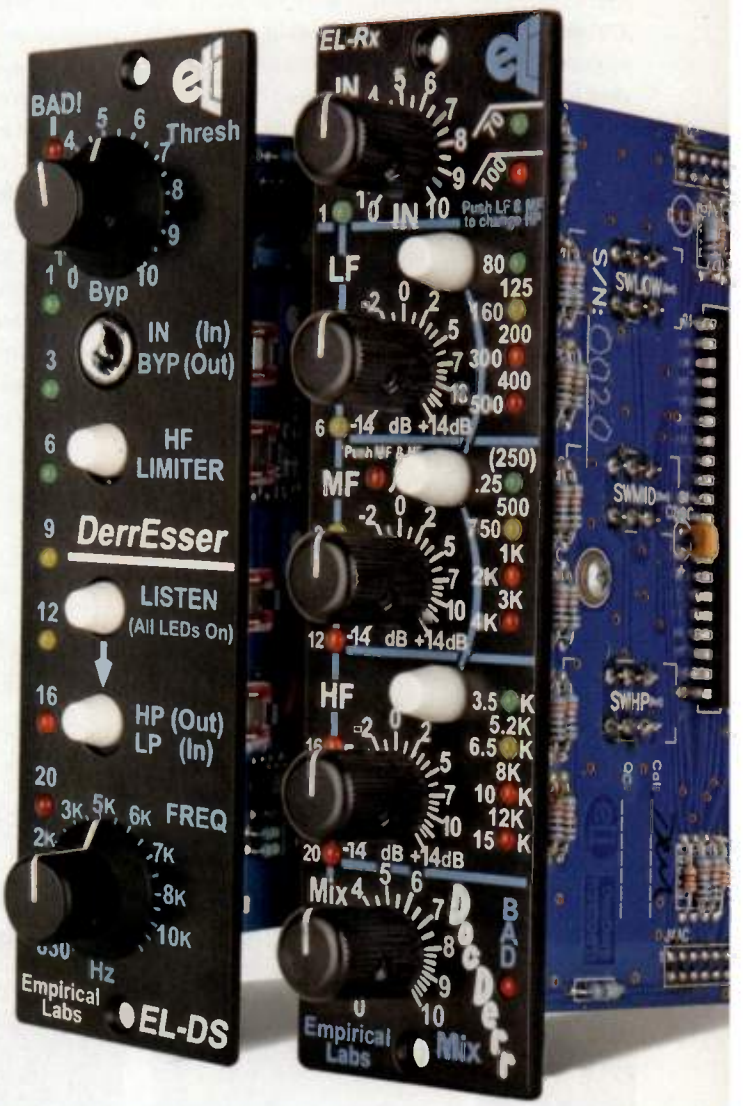
Marc Alan Goodman at work.

The API 1608 at Strange Weather recording studio, Brooklyn.

LEGENDARY

EMPIRICAL LABS HERITAGE FOR YOUR 500 SERIES RACK

Distressor. FATSO. Lil Freq. Mike-E. These are names synonymous with legendary studio gear. For two decades Empirical Labs has consistently redefined categories with analog processing that works a little easier, a little better, a lot longer...and is always fun to use. We're at it again, bringing our legendary Empirical Labs sound and control to your 500 Series toolset.



DOCDERR MODEL EL-RX

DocDerr is a multi-purpose tone enhancement module that houses six different sections of digitally controlled analog processing.

Empirical Labs' first compressor in the API 500 format offers renowned *Distressor-inspired* compression at an unprecedented price and an extremely musical tape emulation circuit.

Add to that an extremely low-noise preamp capable of working with line level or instrument level signals, four sections of EQ combining a two position high pass filter with three parametric bands, a "Mix" knob which allows the user to blend the uncompressed EQ's signal with the compressed and saturated signal and you find the DocDerr opens up a pallet of incredible sonic possibilities. Like the DerrEsser, it is available in vertical or horizontal versions.

"The DocDerr is another piece of gear from Empirical Labs that I could not imagine not having. It's a super musical eq and the compression/saturation circuit is so fat and punchy sounding...and because it has the blend knobs to do the parallel thing, it's a complete mixing tool. It is a must have for me."

- Jacquire King (Kings of Leon, Modest Mouse, Tom Waits, Norah Jones)

DERRESSER MODEL EL-DS

DerrEsser is a multi function dynamic high frequency "Fixer". In its basic "DS" mode, it is an effective, level insensitive "de-esser" - a device that will adjust the high frequency gain on overly trebly or spiky vocals or other sources in an extremely musical manner. However, unlike other de-essers, the device allows for multiple use of its powerful circuitry.

"We were primarily interested in the DeEssing but as it turns out, we're using them for the limiting way more than in De-Ess mode. Who'd have thunk? Excellent job, man. The DerrEsser is an amazing new piece of gear. We came for the De-essers, but stayed for the HF Limiter." ***- Bob Weston, Chicago Mastering Service***

EL500 POWERED RACK & DI BOX

- At the heart of the EL500 Rack is a super quiet power supply - over 30 dB quieter than some supplies we've seen.
- All 500 series modules will flush mount cleanly in the EL500, providing a much more professional look and feel.
- The EL500 offers both XLR and phone rear panel inputs and outputs to allow it to interface perfectly with any system.
- An excellent ¼" Instrument Preamp / Direct Box input is provided on the front panel. There is also a switch that will link two compressor modules.

Exclusive Worldwide Distribution By:

wavedistro

www.wavedistro.com

Empirical Labs inc.

Technology for the Artist

www.empiricallabs.com

WARREN HUART

"I don't rent my studio out. It's only for the projects I produce, even though it's comparable to the best studios I've been in." Warren Huart (warrenhuart.com) adds that he's not being a snob: It's just a fact. As an in-demand producer, songwriter, and mixer with artists such as Aerosmith and The Fray, as well as for film and television work (including *The X Factor*), he knows what he's talking about. For starters, Huart's well-appointed Spitfire Studio includes an SSL console, a Cadac board (for tracking drums), six Pultecs, as well as a Studer A80 tied to an Endless Audio CLASP, which he used on Aerosmith's *Music from Another Dimension* exclusively.

With so much gear at his disposal, why did Huart invest in a 500 Series system? "Initially it was traveling," he says. "And one of the biggest problems I found, even in some of the best studios in different parts of the country, was that they'd have 'a console.' But if it didn't have the mic pre that you wanted to use on the vocal, then you were out of luck.

"Ten or 15 years ago, if I flew to Indiana to make a record with The Fray or bands like that, I would usually get an equipment budget and the record company would pay to fly stuff out. But as you're probably well aware, that doesn't really happen that often anymore. What I do now is go out with a couple of 500 Series racks. That makes it significantly easier to bring the handful of pieces I need."

Not surprisingly, he puts his modules through their paces at every stage of the production. "I use them for mixing, tracking, and everything. I occasionally use EQ going in, but it's only a tiny amount. I try not to overly EQ. My setup here is pretty extensive. I have an SSL console and a lot of mic pre's. But I use the SSL only for mixing."

But while many engineers see the 500 Series as a way to explore a wide variety of flavors, Huart is also looking for a specific sound for his work, particularly when tracking. "All the pre's I use are a combination of 1073s and 312s. The sound of a 1073 is pretty much rock 'n' roll, especially if it came from England. You put a 57 into a 1073, with maybe an 1176 on the other side, and you've got every guitar sound you can imagine. That on a Marshall cab is the sound of Jeff Beck or Jimmy Page: It just sounds like music. Whether it's because that's what we're used to or not, who cares? That's the sound.

"When I first started over here, BAE were the only people making 1073s, having come from England and knowing what they were. I have one of the original 19" rackmount 1073s, which I've used on everything: It's on The Fray's vocals, Steven Tyler's vocals.

"Now, with the 500 Series BAE 73MPL, I can fly with a 1073 pre mixed in with all my other toys. And, of course, when I get back to the studio, I've got two racks of 500 Series sitting here. It's got all different flavors of stuff in it. I use it all on a daily basis. But the convenience of bringing that much equipment in one little unit is a big deal."

> "In the new world we live in, with smaller studio footprints, a 500 Series rack, a computer, and a pair of speakers are pretty much all people need today."
>
> —WARREN HUART

When asked about his primary modules, Huart didn't hesitate. "I use a 560b on the kick and a 560 on the snare. For guitar, I use Phoenix Audio DRS-Eqs. For the bass and the vocal, I love the BAE 1073D. The toughness in the lows that you get is really good."

"I keep all the BAE pre's on the right-hand side of my console because my tracking room is on the right-hand side, and I keep all of my EQs on the left-hand side because I'm using them only on the mix. So it's kind of a combo platter."

I asked Huart if he thought the format would be of use to someone who is starting out and setting up their first high-quality system. "In the new world we live in, with smaller studio footprints, a 500 Series rack, a computer, and a pair of speakers are pretty much all people need today. I work with a lot of people who are significantly younger than me who have grown up never having seen a console or understanding what it is. And they're making great music because those are the tools they've been given.

"So, if you're a kid and starting to put together your own system it makes perfect sense to use the 500 Series, rather than buying a whole bunch of rackmount. After the initial investment of a couple hundred bucks for a certain amount of units, you can just cherry-pick the different pieces of equipment that you want.

"I don't think the 500 Series was designed by API with the future in mind: It was just designed as a modular system for their console, so you could switch out EQs, etc. But that design is definitely a very important part of the future. Which is probably why every manufacturer now is figuring out how to make its products fit into it."

Huart with his BAE preamps—a pair of 312As, a 73MPL, and a 1073D.

In the rack, Warren Huart's favorite EQ modules for kick, snare, and guitar: The API 560b and 560, and the Phoenix Audio DRS-Eq.

SAM SEIFERT

Based in Austin and built by Asleep at the Wheel's Ray Benson, Bismeaux Studio (bismeaux.com) caters to a wide range of projects, from record production to advertising and film work. The studio is based around an SSL AWS900 SE and a vintage 1968 20-channel API console that originally sat in RCA's Studio C in Nashville. I asked Bismeaux's studio manager, Sam Seifert, what drew him to the 500 Series format.

"Flexibility. The ability to cater to your needs for that session, whether you're working here, in another facility, or in a house someone is renting to make a record," he says. "Just being able to mix and match what you need for the session, that's the main reason why I started using 500 gear.

"We have also had some 500 slots built into our console, in the sidecars, for our in-house work. That's useful because other producers and engineers can bring their favorite modules that we don't have in-house and are able to utilize them in the session."

With two classic consoles in the control room, I asked Seifert where they used the modules most. "We use them primarily for tracking. But there's always a record that you're mixing where that stuff can jump out and the outboard gear comes into effect.

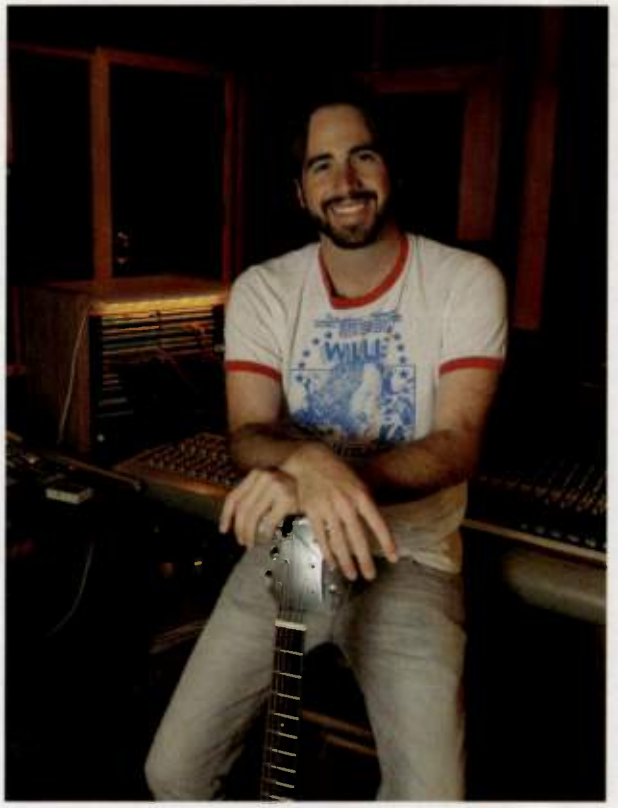
"The preamps I have are the Millennia Media HV-35s. The EQs are the API 550A, 550b and 560, and the Maag EQ-4. The dynamics processing we have situated in another manner."

Because Benson and Asleep at the Wheel tour regularly, I wondered if they took their 500 Series rig on the road for recording, but Seifert says that it was just too much for their needs. Nonetheless, the portability of their modules gets tested in other ways.

"We do a lot of remote recording," Seifert explains. "We have a TV show that we do the audio production for called *The Texas Music Scene*. And I've had clients that have rented out a house for a whole month to make a record and would take the Millennias and the EQs out for tracking like that."

"The rack that we travel with is an API; one of the Lunchboxes. But in the studio we built our own console into the sidecar. We were able to power it appropriately, and we have a good tech. We just took the connectors and powered them ourselves, and made our own 500 rack. So we're able to pull and swap modules over there pretty liberally.

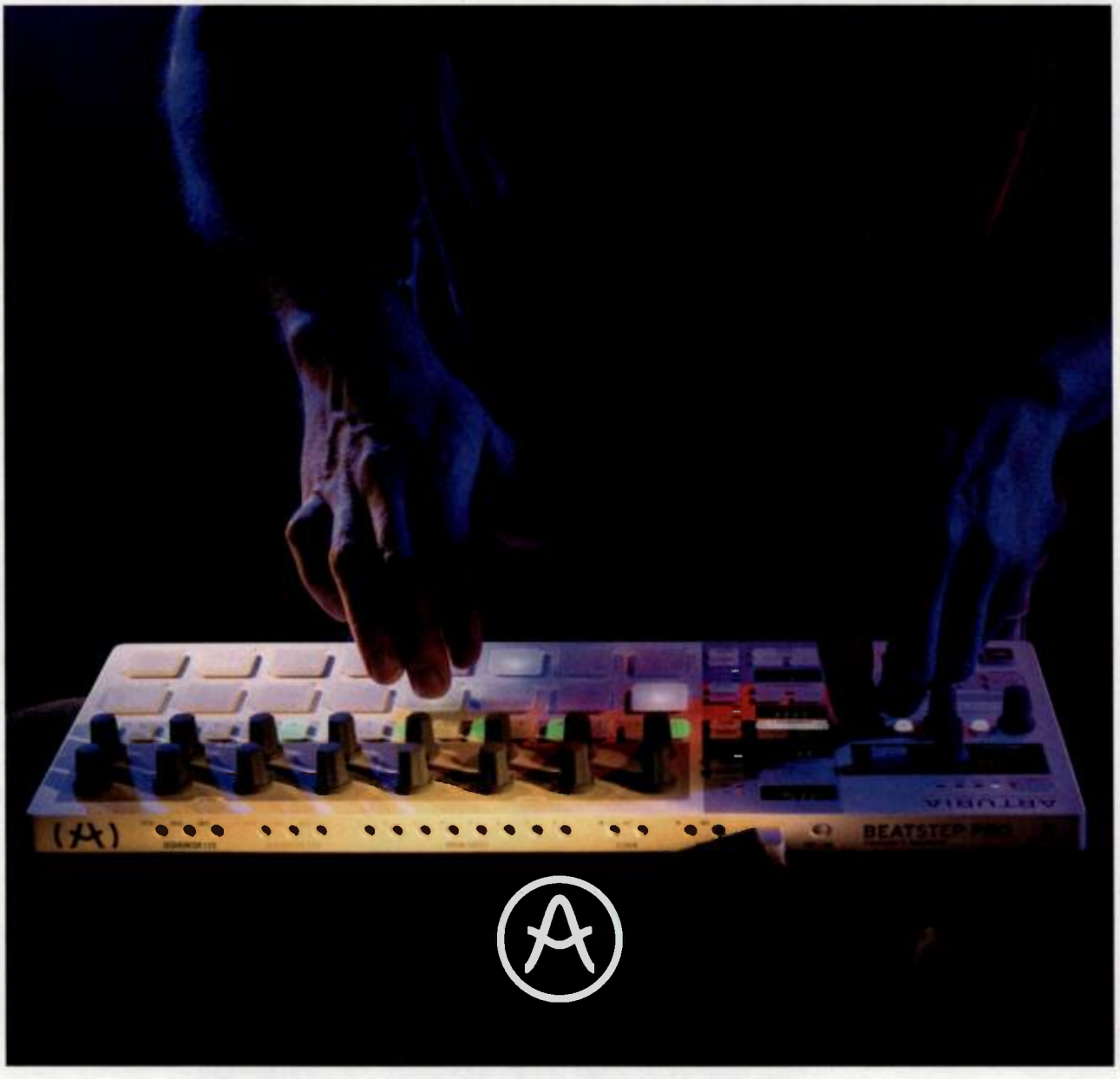
"It's fun for a session to be able to pick and choose. And all of these companies have figured out how to make them sound great in such a small frame." ■



Sam Seifert in the control room of Bismeaux Studio, Austin, TX, in front of the classic API console originally used in Nashville's RCA Studio C.

ARTURIA©

YOUR EXPERIENCE • YOUR SOUND

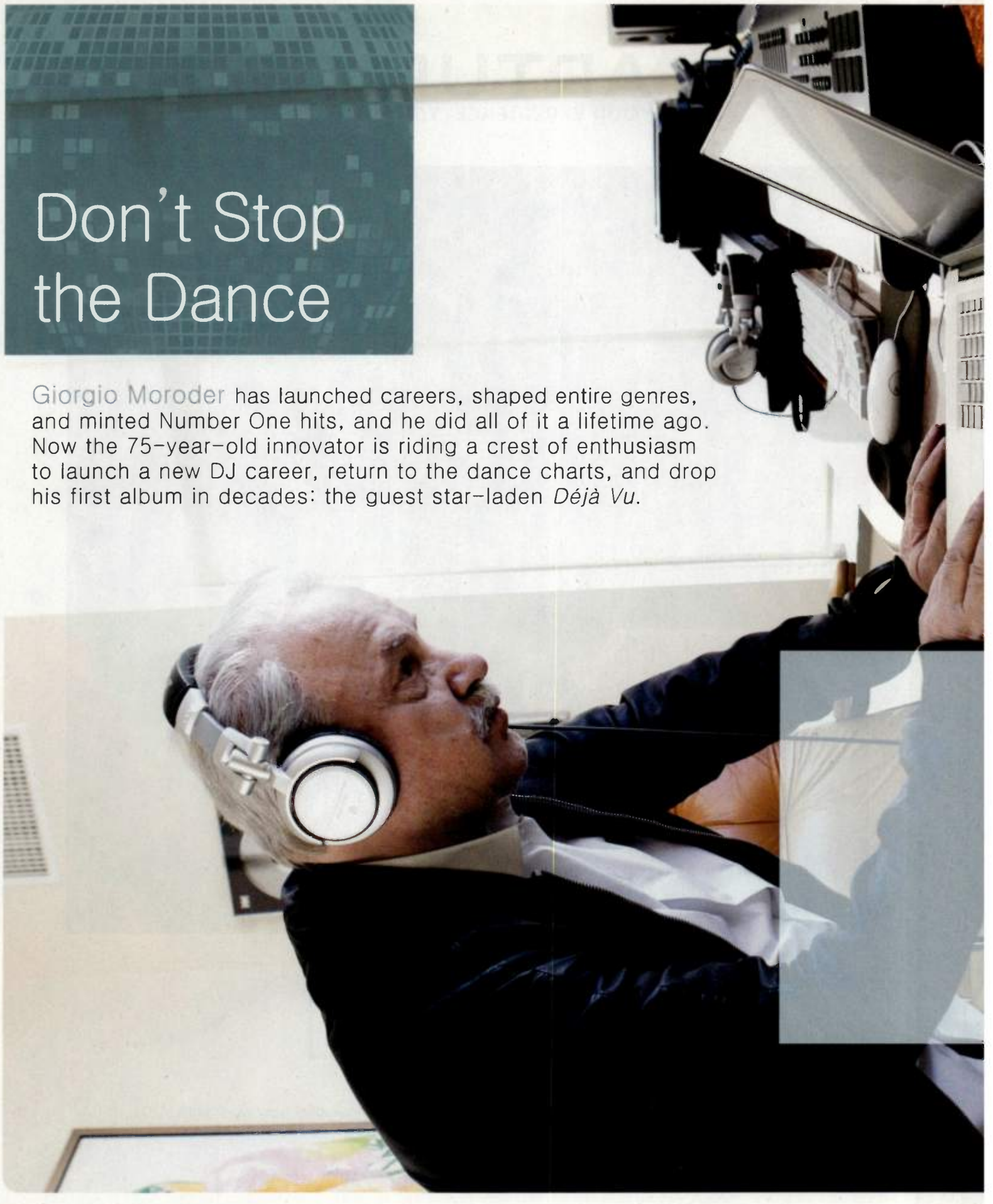


PERFORM

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

Don't Stop the Dance

Giorgio Moroder has launched careers, shaped entire genres, and minted Number One hits, and he did all of it a lifetime ago. Now the 75-year-old innovator is riding a crest of enthusiasm to launch a new DJ career, return to the dance charts, and drop his first album in decades: the guest star-laden *Déjà Vu*.



BY MARKKUS ROVITO

EVERY career becomes unique in retrospect. However, very few seem to need the sheer amount of retrospection as Giorgio Moroder, who at 75 is enjoying a career comeback after taking a 22-year early retirement. The Italian Moroder spent much of his early career in Germany, where he became a professional guitarist and bassist at a young age and developed what is still a noticeable German accent. In the late '60s to mid-'70s he released several albums of Beatles-esque, "bubblegum" pop/rock, landing a few European hits and exploring new sounds with synthesizers and studio techniques.

Hot Stuff: The Most Influential Moroder Productions

Donna Summer "I Feel Love," 1977

By creating a rhythmically hypnotic disco song with a bouncing arpeggiated bass line using nothing but a Moog Modular and Summer's dreamy, soulful vocals, Moroder accidentally created house music, although a genre called house wasn't actually born until the early-'80s in Chicago.

Giorgio Moroder *From Here to Eternity*, 1977

More synthesizer disco with click track beats. This time, the heavy use of vocoded vocals and an expanded sound palette made it sound more like the techno pop of Kraftwerk or something 808 State would do a decade later than anything from Studio 54.

Giorgio Moroder "Chase," 1978

One of Moroder's most remixed tracks, this instrumental from the movie *Midnight Express* stands as one his most sophisticated synth compositions, evolving through various melodic motifs, flanged pads, and layered and filtered arpeggios.

Blondie "Call Me," 1980

At a time when bands felt compelled to take sides in the disco/punk standoff, Blondie played fast and loose with genres. This Number One hit set the tone for a mutated type of post-punk danceable rock.

Sigue-Sigue Sputnik *Flaunt It*, 1986

This album launched so-called "cyber punk" music, which threw bursts of frenetic guitar, samples, and highly effected vocals over a bed of driving synths and drum machine backbeats. The genre itself didn't go far but it influenced industrial and other alternative styles for years to come.

Then in 1975, he put out the experimental electronic album *Einzelgänger* on his own Oasis label. The record didn't penetrate much farther than Germany, but that same year, he took another musical turn when collaborating with Donna Summer on their first disco hit, "Love to Love You Baby." Over the next couple of years, Moroder would start to merge his electronic experiments with disco, beginning with his *Knights in White Satin* album and culminating in Summer's 1977 space-disco epic "I Feel Love," a new landmark on the dance music timeline made entirely with a Moog Modular system.

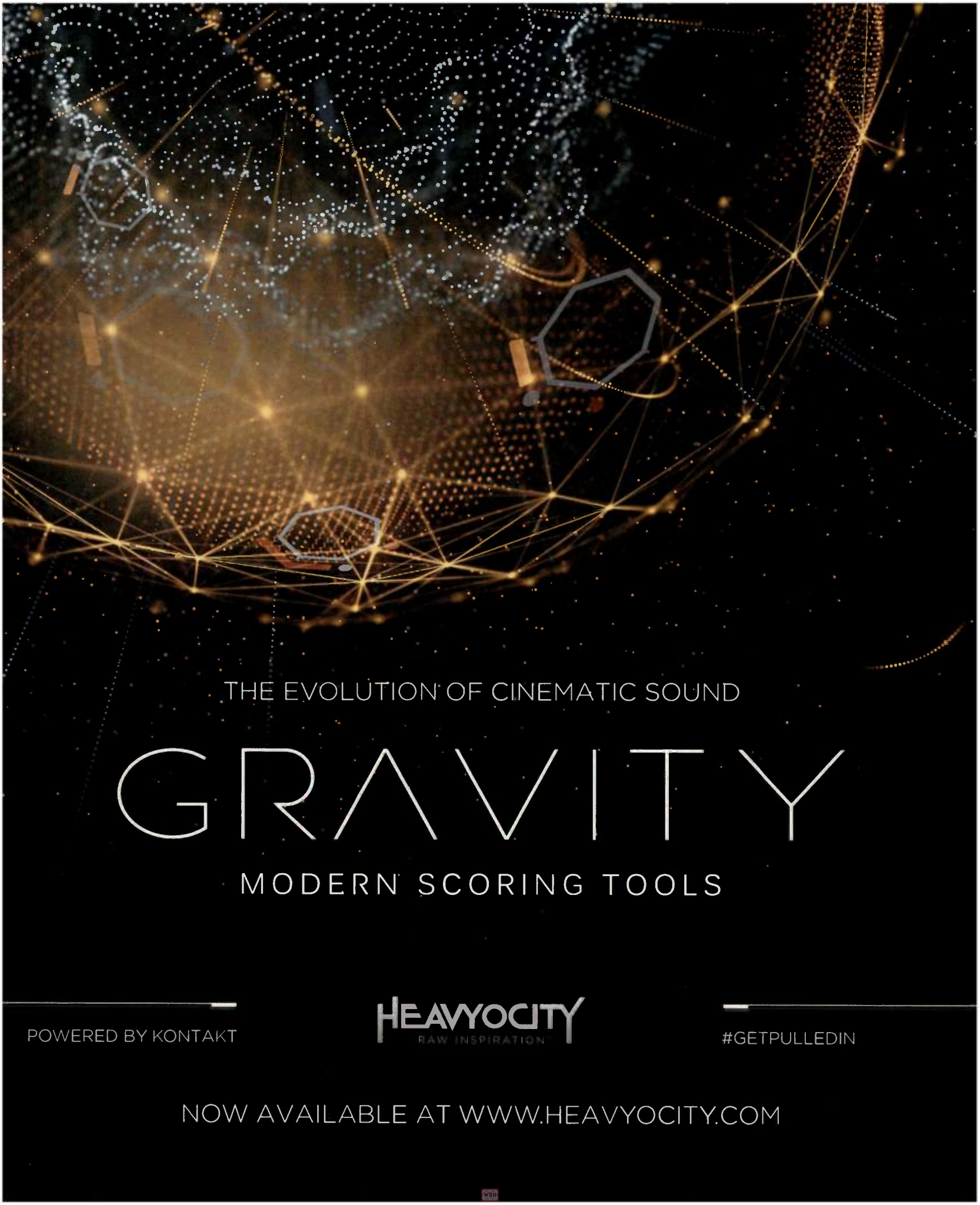
Moroder left a prolific trail of electro-disco in his wake in the form of both solo albums and further artist collaborations, including most of Summer's biggest hits. After his first foray into movie scoring with 1978's *Midnight Express*, Moroder's MO through the mid-'80s became movie soundtracks that spawned hit singles, such as Blondie's "Call Me" (*American Gigolo*), Irene Cara's "What a Feeling" (*Flashdance*), and Berlin's "Take My Breath Away" (*Top Gun*).

Moroder's work during that time ranged from enormously cheesy to legit synth-pop classics. he has admitted that he probably took on too many projects at once in the '80s, and by the end of the decade, his output waned. One last album, 1992's *Forever Dancing*, was largely ignored until years later, and Moroder settled into a more leisurely life.

However, the following year, Daft Punk released their breakthrough *Homework* album, and the duo became the unlikely torchbearers for electronic dance music, which rode peaks and valleys of popularity over two decades but eventually made Daft Punk and the whole genre a global sensation. Recognizing Moroder's groundbreaking work, they invited him to appear on a tribute track called "Giorgio by Moroder" on 2013's *Random Access Memories*, and things just snowballed for Moroder from there. Pretty soon he was back in the studio, remixing modern songs (which you can find on Soundcloud) and learning to DJ with Ableton Live and the Novation Launchpad. Novation wanted in on the new Giorgio heat as well, calling on him to bless the new limited-edition Moroder-Nova synth.

His new album, *Déjà Vu*, dropped on June 16th, and it shows how appropriate Moroder's style is for the modern age. Many of the tracks have a similar pulsing synth feel bolstered by uplifting strings, funk guitars, and bouncing beats, but the sound palette and singers have been updated. Vocalists like Charlie XCX, Britney Spears, and Foxes grace the album, and the feel-good floor fillers "Right Here, Right Now" featuring Kylie Minogue and "Déjà Vu" featuring Sia have already invaded the US dance charts.

It may not be true that everything old is new again, but Giorgio Moroder is reborn, and it feels like love.


THE EVOLUTION OF CINEMATIC SOUND
GRAVITY
MODERN SCORING TOOLS
POWERED BY KONTAKT
HEAVYOCITY
RAW INSPIRATION
#GETPULLEDIN
NOW AVAILABLE AT WWW.HEAVYOCITY.COM

May's announcement of the Novation Moroder-Nova took a lot of people by surprise. How long were you working on that?
We were talking on and on, but I think we were seriously talking starting about a year ago—last spring.

How much creative input did you have on that?
To be honest, very little. They changed the look of the synthesizer a little bit. They added the black and shiny chrome stuff. Obviously, they added my mustache logo. The sounds were done by them. They sampled them, adjusted them, and made them ready.

Did they sample any of your original recordings or synths to get the sounds?
I don't know exactly, but they probably took some pieces of some of the Donna Summer songs, probably some from my albums, from *Sparks*, where I used the synthesizer a lot, and a collection of different sources.

How long did you work on *Déjà Vu*?
Oh God, probably from late fall 2013, all of 2014, and it was mostly finished by the end of the year, but then there are some mixes, remixes, retweakings—basically a year and a half.

So you started on it pretty soon after the Daft Punk collaboration. Were you ever expecting anything like that invitation to work with them?
No. I was in Paris at the time, and they just called to ask if I wanted to collaborate on the album. So I went to the studio, and I thought, "great, I'll go in and we'll sit down on the piano and start composing," and they said "no, no." They only wanted me to talk about my life. So I just spoke for like two hours, and didn't have a clue what they wanted to do with it. They finally played it to me, and I was quite pleasantly surprised at how they used it. They did a great bassline; the whole nine minutes are nicely done.

You worked with so many of the great vocalists of the '70s and '80s. How did you choose the vocalists for *Déjà Vu*?
It was basically the record company, the management company, and myself. We were thinking what kind of artists could fit with my style, and what artists were available? They are all busy, busy. Some I guess did not want to work with me; a lot of people did. Most of the singers responded positively.

Did you work with them closely on the songs?
No, actually very little. Some acts I had in the studio and we composed it right there. Some I gave them the tracks. For example, Sia, I gave her the tracks with a certain melody on them, and she sang a top line; she wrote the lyrics and did the

harmonies. I got almost a finished song, which I then worked on. But she did a great job.

What studio were you working in, was it your own?
No, I have a studio here at my apartment, but it's very small. It's up to date with the technology, and it's great to do demos. I can do vocals, but I'm not using it as a professional studio. I use a studio in Burbank. I use a studio in Santa Monica. Then some of the singers like Sia, I don't really know where she did it, if it was in Los Angeles or somewhere else.

It's a very modern collaboration process not to be in the same room with somebody, isn't it?
I think a lot of productions are made this way, because I notice—contrary to say 20-30 years ago—all the singers are so busy right now. And most of the singers now have their own engineer who knows which mic the singers use. A lot of them have a vocal producer, so they are quite independent; they can do a lot of stuff by themselves. So like David Guetta and Avicii and those guys, I don't think they are sitting in the studio with the acts present all the time. It's a new way of working. I think if I would have to go find the studio, the singer, the arranger and all that stuff with some of those singers who are traveling the world, an album would take quite some time.

Modular synthesizers have made a bit of a comeback since you were known for using them decades ago. Did you use modulars on *Déjà Vu*?
No. I have Smitty, my guy here in Los Angeles. He doesn't have the Moog [Modular], but a ton of synthesizers. In my studio, I only have sounds in the computer, because I just do good demos. I have my loops, my bass, my chords, and all that stuff. Sometimes I try to find some new sounds, but I leave it to the musicians who do the tracks to find the great new sounds.

Is there anything you like better or worse about making music now than 30 years ago?
Actually, it's interesting both ways. I'm not saying it's better. Now, you probably have a little less control over what's happening. With Donna Summer, David Bowie, or Blondie, I was more in control. You were in the studio, you record, you finish the recording and you start to work on the tracks and mix. It was more in my hands. Now, if a singer gives you a great vocal, it's there and it's great, but the control is a little less. So it's probably less work and less intensive, but I like both ways.

A lot of your best-loved productions stand out for their use of arpeggiators. What is it about arpeggiators that you love so much?
I started with an arpeggiator with "I Feel Love," and it worked so well. If you play one note or a chord, you have so many beautiful ways to make it sound great. It gives a feel of warmth and rhythm. It's kind of a driving force, especially if you have one note, like a bass or cello kind of sound. Then if you use it with chords, it's [sings "duh-duh-di-di-duh-duh-di-di, duh-duh-di-di-duh-duh-di-di"]. It works quite well in a lot of stuff.

To me, "I Feel Love" was the first house music song, and it certainly inspired a lot of people. Do you get a sense of how important that and your other music has been to people?
Well, right now I read much more than I was reading when it came out, and a lot of people liked it, loved it. But since the EDM of let's say four to five years ago, people noticed more and more. And since house became so big now, they say, okay, Giorgio was one of the first ones to actually do house. Although I can tell you, real house guys would not acknowledge me at all! But that's okay.

How are you enjoying DJing?
DJing, I love. It's great. First of all, I love the music. I love dance music. And I love loud music; I'm almost a little deaf in one ear, but it's okay. And it's great to perform in front of sometimes 20,000 people, 30,000 people. It's quite something. I opened the Kylie Mi-

nogue tour in Australia for five gigs, and it was quite fun. We had eight, nine, ten thousand people in the venues, and it's nice to be in the middle of that. You know, the crowd surrounds you. And I'm not nervous or anything. I feel very safe, and I just do my job.

What did you do to get so comfortable using modern DJ equipment?

I started to DJ with a friend of mine, Chris Cox, and we decided to use Ableton Live. So with Ableton Live, I have a lot of possibilities, probably more than if I would use [Pioneer] CDJs, because I have four tracks. I basically use one track for the music, and tracks 2 to 4 for effects, loops, and little things, so it's a great way to be more creative DJing.

Was it a challenge to get up to speed with Ableton Live?

I started with it, and then Chris and I had a problem because he couldn't come with me to Mexico—he had already a previous gig somewhere. So I had about two weeks' time to learn to use Ableton, and it's very intuitive. I have Pro Tools here in the studio, so it's not a big jump from this program to the other one.

To promote the album, will you get a band and do any live shows?

No, right now I'm leaving tomorrow for Europe. I do probably three weeks promoting the album with interviews, some radio stuff and some TV stuff. I just came back from Paris from a big TV show. Then I start to DJ again at the end of June. So it's a combination of DJing and promoting.

They're keeping you really busy, just like all those young singers.

Yeah, well, you know you have to do it. Everybody's promoting, so they want me to promote too. I'm more than happy. It's a little tough, because it's one day in a city and then travel the next day somewhere else, but you know, I'm so used to travel.

You said in the Daft Punk "Giorgio by Moroder" song that that synthesizer was the sound of the future. Is there anything new today that you think is the sound of the future?

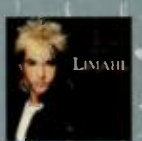
Well it's not the sound of the future anymore, because it's now more than 30 years, but at that time, it certainly was. And by the way, that was Brian Eno, who heard a song and he went to David Bowie—I think they were in Berlin producing an album—and said, "listen David, I think this is the sound of the future." So actually it was Brian who got the word out. I never really thought about that, at least at the beginning. ■

Mo' Moroder: Underappreciated Gems

Giorgio "Son of My Father (part 1)," 1972
A catchy example of Moroder's early bubblegum rock that previews of his love of flanging and synth ear candy.

Munich Machine "In Love with Love," 1978
Moroder's teaming with Pete Bellotte produced vocoded early Euro techno every bit as deserving as Moroder's solo stuff, although it flew under the radar.

Sparks – "Tryouts for the Human Race," 1979
The indiosyncratic L.A. rock band proved to be an unexpected match for Moroder's synth mastery. On this sleeper hit, an anthemic chorus melts into triumphant synth solos. Glam heaven.



Limahl "Never Ending Story," 1984 and Philip Oakley & Giorgio Moroder "Together in Electric Dreams," 1984
Two songs from movie soundtracks featuring singers from '80s bands (Limahl=Kajagoogoo; Oakley=The Human League), these infectious singles are like litmus tests for your tolerance of the effeminate, sugary synth-pop of the day. If you love them, you pass.

Donna Summer & Giorgio Moroder "Carry On," 1992
With a bittersweet melody and classic early '90s house vibe, this was Moroder's swan song for 22 years. Strangely, it was remixed and won the first Grammy for Best Dance Recording in 1998.

DELUXE ELECTRIC MISTRESS

From flowing iridescent tapestries of phosphorescent sound to Mach 1 jet flanging, the definitive analog flanger is now in a die-cast package and with true bypass!

An EHX exclusive: Filter Matrix mode stops the sweep for freeze-frame tones and tricks. Uses a 9V battery or standard 9.6DC-200 power supply. **Power supply included.**

HOLY GRAIL NEO

We took the Holy Grail's lush Hall and time-less Spring reverbs and added the studio-grade plate reverb from the Holy Grail Max. The Neo is our most compact pedal to feature EHX's luscious plate reverberation. **Power supply included.**

NANO 360 LOOPER

A compact, affordable looper with 360 seconds of recording time and 11 storable loops for maximum control and flexibility. Its user-friendly layout makes recording, overdubbing, undo-redo and erasing quick and easy. High quality audio and unlimited overdubbing with no sound degradation. Equipped with a silent, momentary footswitch. **Power supply included.**

BAD STONE PHASE SHIFTER

A reincarnation of the highly sought after pedal now in a nano package and faithful to the original circuit design. The Bad Stone was the first phaser to employ variable feedback and features six stages of phase shifting plus a manual mode that lets you freeze the phase. It's full on phaser bliss! **9V battery included.**

GOOD VIBES

This hypnotically haunting effect takes you on a trip back to the '60s. Like the original Uni-Vibe®, it uses photocells to create chorus and vibrato with a warm, undulating, liquid groove for a sound and response that's true to the classic design. Boosted power rails provide 21st century definition and headroom, and an expression pedal input puts free-form control for both speed and intensity at your feet. Very groovy! **Power supply included.**

NEW FROM

electro-harmonix

Est. 1968

AND THEN THERE WERE THREE

BY BARBARA SCHULTZ

Robert Glasper Returns to Straight-Up Jazz (Sort of) With *Covered*

In the category of Problems We All Wish We Had, you'll find Robert Glasper's challenging decision as to how to follow up his Grammy-winning Robert Glasper Experiment albums, *Black Radio* and *Black Radio 2*.

Glasper formed the Experiment after recording with the Robert Glasper Trio for several years. The first *Black Radio* album shook his fan base and the R&B world mightily with its blend of electronic and acoustic jazz, spoken word, R&B, and hip hop, all embellished with inventive arrangements and effects, and featuring multiple guest vocalists.

With *Black Radio 2* (2013), Glasper continued this avant-garde approach, and built on a new fan base that extended into the R&B and electronica realms.

The Robert Glasper Trio and Keith "Qmillion" Lewis tracked *Covered* live in Capitol Studio A.

"Now, it's been five years since I played trio," Glasper says, "and my friends in the jazz world are like, 'Where'd you go? You left us!' I was also feeling like this is the time to give the *Black Radio* vibe a break. I wanted to go back and do a trio record. I missed playing piano and the piano trio vibe. But I also always want to something different that I haven't done before.

"So I thought, if I'm going to go trio, I'm not going to go back and just do jazz tunes again. I've acquired this mainstream audience, and I want to bring them along on the trio journey. That's why I chose to do cover songs."

Glasper also saw potential pitfalls in choosing covers that would fit with his trio return. "I didn't just want to do all R&B songs," he explains. "Because that can be corny. I decided to do songs from my iPod: different songs that I've loved through the years, from different genres."

So while the tools and the lineup are stripped down for the trio album *Covered*, the palette of material is almost as broad as can be, featuring the music of Joni Mitchell, Radiohead, Macy Gray, Jhené Aiko, Kendrick Lamar, Quincy Jones, Harry Belafonte, and more. "It's random as hell," Glasper says. "I love the fact that it's random."

Glasper also decided to inject extra electricity into the trio's performances by cutting the album live, albeit in an optimal studio environment: *Covered* was made in front of an audience, in two nights of sessions at Capitol Studios, Hollywood.

"We rented a bar and couches and put them into the studio, so it was a little swanky and had a little more vibe to it," Glasper says.

In most ways, the environment was ideal, but Glasper's longtime engineer, Keith "Qmillion" Lewis, explains that creating a hybrid between studio and nightclub environments posed particular challenges.

"We had to sort out what we were going to do with the audience," Qmillion says. "In a studio situation, in the best of all possible worlds, you don't have any extra people around. You don't have noise. You don't have a P.A. in the room. We actually didn't make any of those final decisions till the day of. We got there and said, 'Okay, if we do the drums in the room, everything's not going to sound as good. The drums are going to sound great [to the audience], but everything else is not going to sound as pristine as we would like [on the recordings].'

"So at the last minute, we decided to throw the drums in the booth and keep everybody else out in the room. The people in the room were not really hearing the drums except for what was bleeding through the isolation booth, but when you consider the number of people who are going to hear in the room vs. the people who are going to hear the record, it's a big ratio. We had to go with what sounds good on the record and hope the people in the room understand why they don't hear the drums.

"After we made that decision, and we knew we weren't going to put a P.A. in the room, it was just a regular miking setup—the same way we do anything else—and it's a Neve [VRS] console in there, so we tracked to Pro Tools, but we went through the Neve."

So, with drummer Damion Reid in a booth, and Glasper and bass player Vicente Archer situated in the tracking room of Capitol Studio A before an invitation-only audience, Qmillion miked up the studio's Yamaha grand the way he always does on a Glasper session:

"I used my three [AKG] 414s," the engineer says. "The two that are in the front, the stereo pair that go for the low and the high, are placed in the middle of the piano toward the front, above where the keys strike everything. They're positioned by ear to get a good spread. The third one goes in the back for the low end.

"Rob's playing style is very unique to him," Qmillion continues. "I've used this same mic setup on other piano players who are like: 'Give me that Robert Glasper sound.' I can use the same mics, same setup, but it does not sound the same. No one plays like Rob plays. His touch is very light at times, because he uses a lot of dynamics; he doesn't bang on the piano. The 414s really capture the nuances of his playing. If you listen to it, my idea is to have you feel like you're inside the piano—kind of surrounded by Rob's piano."

Qmillion's drum miking scheme was also his go-to setup for Reid: On kick, an AKG D112 inside and a 414 outside, as well as a reverse NS10; Shure SM57s on snare top and bottom; Neumann KM84 on hi-hat, Sennheiser MD421s on toms, another KM84 on ride cymbal, and Neumann U87 overheads.

"On bass, I did something slightly more unusual," Qmillion says, "I used an AKG D112 as well as a 414, and we also had a live signal going—two mics plus the live direct. It gives me choices in what kind of sound I make [in the mix]. Different songs on the album are more hip hop and some are more traditional jazz. The different mics gave me options to create a different bass sound for different tracks."

And this illustrates Glasper's confidence that Qmillion is the ideal engineer for his projects. "Keith used to do sound for Mint Condition," Glasper says. "They're a live instrumental band that plays urban music, which is very scarce, but they're also jazz-based. So, Keith understands the instrumental part, and he understands R&B music and hip hop.

"A lot of times when you play instrumental, an engineer might mix it really light in the booty—there's no bass, no *mmph* to it. But Keith understands all that stuff, plus he's a musician himself. And that makes everything easier, when you have an engineer who is a musician." ■

BandH.com

B&H
PHOTO - VIDEO - PRO AUDIO
The Professional's Source™

B&H Delivers in Every Way

FREE Expedited Shipping on orders over $49*

B&H is the world's leading Pro Audio equipment retailer

- The largest inventory • Top industry experts on staff
- The most helpful customer service anywhere

Visit BandH.com the ultimate resource for all your Pro Audio needs

Be informed with B&H.com/Explora's huge collection of Pro Audio educational content:

- Articles • Tutorials • Trends • Reviews • Tips • Interviews
- Newly-Release Gear Profiles • Recorded Live Events • Streaming Videos

420 Ninth Ave, NYC
Visit Our SuperStore

800-947-5509
Speak to a Sales Associate
or consult with Live Chat online

www.BandH.com
Shop conveniently online

*Applies to In-Stock Items. Some restrictions may apply. See website for details.

THE CHOPIN

ÓLAFUR ARNALDS

BY KEN MICALLEF

In the hallowed halls of classical music performance and recording, tradition is a master to be obeyed, from the conductor's dress to prescribed orchestral dynamic levels to the customary length of applause from the devoted audience.

This regimented observance of customs, by master musicians, cunning conductors, and a devoted public serve to maintain the status quo in performance, and in the techniques used to record classical music. For example, it is widely accepted that the pinnacle of classical audio fidelity is to capture the epic reverberations of New York's Avery Fisher Hall, the Vienna Konzerthaus, or Boston's Symphony Hall, using standard miking schemes such as the famed Decca Tree. (For an explanation of the Decca Tree classical recording method, read the article on recording "Beethoven's Ninth in 5.1" from our sister publication *Mix* at mixonline.com.) The mighty orchestra captured with distant room mics within a cathedral-like concert hall is the art form as God intended, so tradition goes.

Then there are the renegades, the shape-shifters messing with the minds of classical music's upper crust. Pianist Chad Lawson's *The Chopin Variations* (Hillset) takes a beautifully minimalist and textured approach to the work of Frédéric Chopin. Nils Frahm's inventive classical and electronic music using acoustic and electronic keyboards; the Erased Tapes label's atmospheric treatments of its avant-garde releases; and pianist Max Richter's stunning *Recomposed by Max Richter: Vivaldi, The Four Seasons* (Deutsche Grammaphon) all also bring fresh blood to staid ideas.

And now, Icelandic classical/ambient music pioneer, soundtrack explorer, new millennium music stylist, and former hardcore punk drummer Ólafur Arnalds takes a different, totally unexplored turn on *The Chopin Project*, recorded with prolific and award-winning pianist Alice Sara Ott. On *The Chopin Project*, Ott performs on a 100-year-old piano, which Arnalds captured using original miking techniques that allowed the piano and the pianist's every movement to be heard. He then mixed the results with found sounds: one heresy among many on *The Chopin Project*.

"Modern classical recording is very pure-istic," notes Arnalds. "Everyone uses the Decca Tree mic setup and the same DPA 4006 mics. It's very much about capturing a pristine concert hall, a $200,000 Steinway D Grand Piano, and everything tuned to perfection. In rock music there's a lot more freedom in what you do with the recording technology. With *The Chopin Project*, I wanted to show how big a part the sound world plays in a composition—like how important the sound is in a composition; if you hear the same piece recorded twice using different methods you might have a completely different reaction to that piece."

In another radical departure, Arnalds recorded Ott playing Chopin in bars and pubs on old pianos around his native Reykjavik, as well as in his studio and Nils Frahm's in Berlin. Arnalds embraced the concept that altering the recorded event, merging piano with found sounds and human sound effects, would upend the spotless approach typically applied to recording Chopin's compositions, and shake up hidebound attitudes toward classical music recording in general. Although classical music fans were among the first to embrace digital recordings, classical recording engineers came last to the party of flavoring digital recordings with older analog gear.

"Classical music today uses the flattest mics you can find, the flattest preamps, and the perfect stereo image with the Decca Tree," explains Arnalds. "They record straight to Pro Tools with the highest possible bit rate. We went the opposite way. We recorded to Pro Tools and tape as well. We mastered everything to tape. We used portable Nagra tape machines, the ones made for location recording that have batteries, which was great when we went looking for old pianos. We mastered to Ampex tape at Nils Frahm's

PROJECT

PHOTOS BY: HEDINN EIRIKSSON/COURTESY OF MERCURY CLASSICS

studio. We tried a few different tape mixes, then chose our favorite when listening back without really knowing what we were choosing."

Following a lineage that includes recordists and artists from Sam Phillips to Phil Spector to Brian Wilson to the Black Keys, Arnalds brings the "studio as instrument" approach to classical music. "We're using the studio as an instrument to interpret the feelings that I get through music," says Arnalds. "The interpreter is not only Alice playing the piano but also me holding the microphone or adding synths or mixing the album or doing effects or arranging the music. There is a lot more to interpretation than just performing the piece."

The Chopin Project began with Ott and Arnalds searching for old pianos throughout Reykjavik. "A part of this whole idea was to add an environment to the recording to help tell the story," Arnalds explains. "So we went exploring. We walked around Reykjavik and found bars and pubs and pianos that hadn't been played for years or were only played on weekends by jazz pianists. We recorded a song on all of them using the portable Nagra.

"Without exception, there would always be some phones beeping," Arnalds continues. "So we made field recordings and put it all together in Pro Tools. When you hear creaking or voices, those are the natural sounds from the piano. And there are voices recorded from the pubs. Sometimes you're hearing Alice's voice because she tends to hum along to the songs involuntarily. I really like that. It's a part of the idea to really capture the atmosphere in the room, not to get rid of these extra involuntary sounds but to include them."

In Frahm and Arnalds' studios, three pairs of mics covered Arnalds' 1903 Beckenstein grand piano, including AKG C12As, Coles ribbons, and Neumann KM84s. Preamps included Telefunken V72 and V76. Arnalds says that compression was "heavily EQ'd on the way in," using a Pultec EQ, Teletronic LA2A, and a stereo UREI 1178. This is all in contrast to the way classical music is conventionally recorded: via distant microphones, to Pro Tools using digital compression and EQ.

"We actually compressed the sounds, we close-miked the piano and prepared the piano," Arnalds says. "We dampened the hammers with felt and put the mics literally a couple of inches away from the strings to capture every single creaking part of the piano. You can even hear Alice's fingers touching the keys. You can hear her breathing, the creaking of the wood; this is very unusual for classical music to actually intentionally capture the imperfections and to record with mics like the AKG C12 and preamps like the V72 and V76, which are very colorful mics and preamps. They don't capture sound as we hear it with our ears; they actually change the sound. That's in total opposition to how classical music is usually recorded."

Rather than employ the Decca Tree, Arnalds close-miked his fully restored Bechstein, using three pairs each of Neumann, Coles, and AKG microphones. "The Neumann KM84s are the closest mics and the widest stereo span as well," Arnalds says. "They were right above the hammers. They pick up all the extra sounds, all the hammer sounds; it's an old grand piano, so the hammers creak as well. You can hear the dampers lifting up when Alice presses the sustain pedal. We used felt on the hammers to dampen the piano and make it quiet. Doing that, you get more sustain in a way. You've flattened out the transient a bit. And because the piano is quieter you hear more of the extra sounds. Suddenly Alice's breathing becomes louder, and all of the hammer sounds become louder because the strings are dampened.

"A foot above the piano and also in wide stereo above the hammers, I had the AKG C12A pair, which became the main mics in the mix—the sound I liked the most," he continues. "They were the warmest and captured such wonderful noises from Alice's breathing because they weren't so close to the piano. They were set on omni, the others were cardioid, so they picked up more of the room. And then under the piano, mirroring the KM84s under the sound-

board I had a pair of Coles 4038s for the low mids, which are often missing when you put mics very close to the piano."

The Chopin Project is a beautiful, soothing and occasionally macabre album, with its delicate piano, strings, and odd found sounds flowing together. What sounds strange and unintelligible in Nocturne in G Minor is simply the sound of tape noise and rain, generated through a 1/4-inch tape deck similar to a Sony Walkman. "Eyes Shut"/Nocturne in C Minor includes what sounds like breathing, rustling papers, and wind. "Those are all the sounds of the piano and Alice, all natural sounds, nothing we added," Arnalds says.

Arnalds conducted many experiments during the recording process, none more fruitful than remixing and adding strings to support the piano sections. "The other whole part of the record is the idea of re-composition, mixing and adding strings to works that were originally only piano," Arnalds explains. "Making new works out of ideas from Chopin: In the last piece, Prélude in D Flat Major ("Raindrop"), you're hearing a Roland Space Echo create an ambience that follows the piano throughout the piece. It distorted the piano to hell! And we put echoes on a very long feedback, which is definitely not something done with classical piano. It's there in the background as an ambience."

The sound of *The Chopin Project* was further developed during the mixing phase, when Arnalds used various EQs within Pro Tools to define the mix. "A lot of surgical EQ'ing was done in Pro Tools but not much else," Arnalds says. "I used the FabFilter Pro-Q; that is my favorite for surgical EQ. But most everything is vintage. Even the reverb is an EMT 240 plate, and an outboard Lexicon unit. So most of the mixing is out of the box."

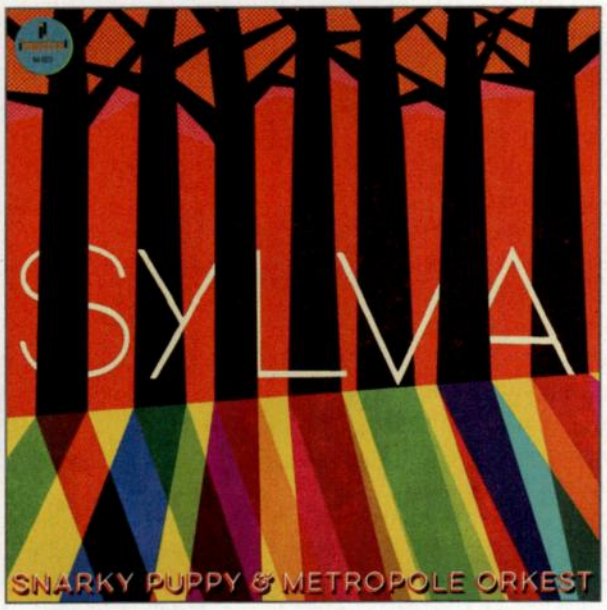
Currently taking a break from his soundtrack work on BBC's *Broadchurch* series, Arnalds is developing an installation with German artist Joachim Sauter for Barcelona's upcoming Sonar Music Festival, and a permanent installation for Singapore's Jewel Changi Airport, which will boast the world's tallest indoor waterfall, and a massive indoor park with indigenous trees and plants and walking trails.

"Sauter's work involves kinetic art," Arnalds says, "like digital objects that move in real space in very computerized ways. We are using the signals from these machines to control sound, a very interesting area of music."

Speaking of controlling sounds, we asked Arnalds what he imagined Chopin would think of *The Chopin Project*. "Chopin was himself an improviser; he would play his music in bars and pubs," Arnalds replies. "I think he would definitely prefer this approach to his music always being played

the same way and always recorded with the Decca Tree. He would have experimented with ways of recording like composers do today. When I write a piece I think, 'How is this going to sound and how will I record this?' That's part of the composition. Chopin was a composer and if he was alive today, I think he would also think 'I've got the notes, and the performer, now how are we going to record it?' That's always another part of the piece." ■

Contributor Ken Micallef also writes for *Downbeat* and *Modern Drummer* magazines.



SNARKY PUPPY & METROPOLE ORKEST
SYLVA
IMPULSE!

From King Crimson and Weather Report to Frank Zappa and Tower of Power, everyone's favorite jam band Snarky Puppy references a widely diverse collection of bands, many of whom live on mainly in the hearts of diehards and crate-diggers. But where *Sylva* could have been titled *Sybil* for the songs' complex, seemingly multiple personalities, the music is grandly held together by bassist/leader Michael League's emotionally heroic compositions. At the heart of Snarky Puppy's music lies an incredible humanity, a soulful appeal for fans of all ages.
KEN MICALLEF

BARRENCE WHITFIELD & THE SAVAGES
UNDER THE SAVAGE SKY
BLOODSHOT

For fans of low-fi and soul, few pleasures are greater than the arrival of a new album by Barrence Whitfield & the Savages. They've got all the nasty distorted-guitar fun of '60s punk plus the punch of Stax-style horns, all fronted by a singer with such magnificent intensity that reviewers often compare him to Howlin' Wolf. Plus, who in the world wouldn't want to hear a song called "Incarceration Casserole"?
BARBARA SCHULTZ

RATATAT
MAGNIFIQUE
XL RECORDINGS

Returning five years after their last full-length, Mike Stroud and Evan Mast deliver a signature exercise in groove and dynamics. Whereas 2010's *LP4* toyed with ethnic/folk inflections and instrumentation, *Magnifique* is all about the pocket. Slower tracks bend through pedal steel's sinuous resonance, while up-tempo numbers stack filter swells into new melodic dimensions. Spatial processing lets compression-enriched guitar figures and dilating synths swagger intently while transients push wide, sustaining momentarily for emphasis.
TONY WARE

FRANCESCA BELMONTE
ANIMA
FALSE IDOLS

Featured on a few Tricky albums, Francesca Belmonte's voice is a familiar one. For *Anima*, Belmonte's solo debut on Tricky's label, he steps into role of producer. Their dark, unsettling styles are a good match, but *Anima* is very much Belmonte's personal project. The pain in her hoarse tones on "Come Take" is tangible, while her voice grows thick with intensity on "Joker." Raw emotion runs in the family with her 10-year-old cousin's raps on the eponymous "Daisy."
LILY MOAYERI

EMMYLOU HARRIS & RODNEY CROWELL
THE TRAVELING KIND
NONESUCH

Building on the success of *Old Yellow Moon*, Harris and Crowell reunite for this equally wonderful album, which includes six new songs co-written by the artists. Each of these two performers has a voice of delicate and unusual beauty, and together, they make something so moving as to become almost otherworldly. With production by the visionary Joe Henry, these roots arrangements form the perfect framework for two of the greatest living country singers.
BARBARA SCHULTZ

SILKIE
FRACTALS
ANARCHOSTAR

London dubstep DJ/producer Silkie emerged with a compelling blend of funk, jazz, and soul influencing his wet, midrange synth fusion. Now, four years since his last album, he returns to lush, melodic, vibed-out pads, phasing chords, and swing-heavy beats. He nods to early '90s jungle and garage, but the core remains radial patterns and wonky pitch-bending basslines. *Fractals* contributes the second chapter to the Anarchostar label's cosmic space opera, doing it with fluid, lysergic style.
TONY WARE

OZRIC TENTACLES
TECHNICIANS OF THE SACRED
MADFISH

Mind blown, body sated, soul rising to join a halo on the horizon, I think I'm tripping but I'm actually enjoying the 21st album by the legendary Ozric Tentacles. Rawkers come and go, jam bands spew their spastic sarcasms and leave the stage, but Ozric Tentacles remain a kind of trance-laden divining rod separating soaring rock riffs from molten crud, blazing hypno-beats from dance loops, and howling, head-shattering melodies from the depths of their whammy bar-twisted, synth-melting, Echoplex-spinning psycho-subconscious.
KEN MICALLEF

Radial 500 Series Racks... More of Everything!

"The Workhorse certainly lives up to its name. The feature set is deep, the system is scalable, construction is solid and it sounds great"
~ Mix

"The Workhorse is one of the most versatile and well equipped racks I've ever tried. It exudes the typical Radial Engineering detail and thoughtfulness..."
~ Sound-on-Sound

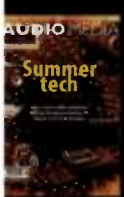
"Radial can't seem to leave well enough alone! Oftentimes, they take what might be otherwise mundane and turn it into a must have."
~ Tape Op

"Every connection and function worked as promised. The Workhorse is truly professional grade and worth the cost."
~ Pro Audio Review

"The Workhorse makes a terrific host for modules - solidly built with useful routing features and extensive connectivity."
~ Resolution

"No other manufacturer currently offers anything like this level of functionality in a 500 series rack."
~ Audio Media

"From its build quality to its feature set and open-ended architecture, the Workhorse is currently unrivalled for supremacy."
~ Recording



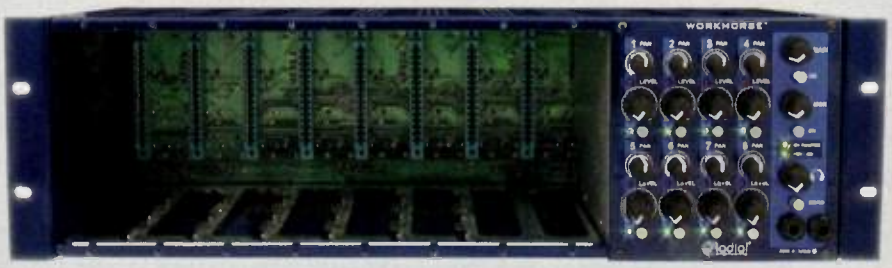
"Radial is to be congratulated for putting plenty of thought and design smarts into such a compact and attractive package."
~ Audio Media

"The Workhorse is a more sophisticated, more capable, and more costly re-thinking of what a 500-series rack frame should be."
~ Electronic Musician

More Performance!

The Workhorse™ - an 8 channel power rack with built-in summing mixer! Lets you combine modules in series or in parallel with more efficiency to deliver creative results that let your mixes stand out. D-subs, XLR and ¼" TRS connectors for cross patching are included!

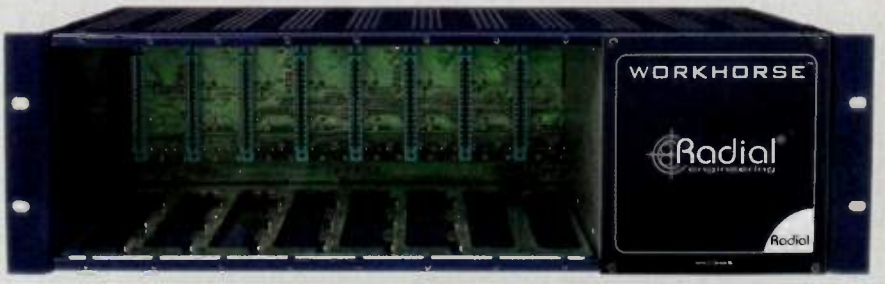
resolution AWARDS 2012 Winner Interconnect



More Flexibility!

The Workhorse WR-8™ - designed for those with mixers in place, the WR8 gives you 8 channels to house your 500 series modules and lets you upgrade by adding the Workhorse mixer section later. Fully backwards compatible to older 500 series formats.

TEC AWARD WINNER



More Power!

The Powerhouse™ - This 10 space power rack delivers 1600 milliamps of current for extra headroom while maximizing your studio space. Built-in feed and stereo link switches make it easy to integrate with your recording system.

PAR EXCELLENCE nominee

More Convenience!

The Powerstrip™ - Single rack space Powerstrip lets you assemble your favorite preamp, EQ and compressor to create the ultimate channel strip. Use it in the studio or take it on the road!

More Easy!

The Cube™ - This small wonder gives you a more easy and affordabe way to enjoy the fun and excitement of 500 series mixing, combining up to three modules to create all new sounds! Place the Cube on your work surface, carry it around the studio with the built-in handle or build it right into your desktop with the optional mounting flanges.

More Options!

The NEW Six-Pack™ - Desk-top power rack for 500 series modules lets you mix and match up to six modules and safely power them to create stereo channel strips or unique signal chains. The powerful 1200 milliamp supply will not sag when loaded. Set the SixPack down on your work surface or carry it around the studio with the integrated handle.

Electronic MUSICIAN Editors' Choice 2013

* Modules shown are not included!

www.radialeng.com

1588 Kebet Way, Port Coquitlam BC V3C 5M5 tel:604-942-1001

Radial® engineering

...power tools for power players℠

Fig 1 With its complement of analog and digital I/O, the MOTU 1248 can serve as the main interface of a studio or key player in an AVB setup.

MOTU

1248, 16A, and 8M AVB Interfaces

POWERFUL INTERFACE AND NETWORKING OPTIONS

BY LARRY THE O

Larry the O has been involved with audio and music for more than 35 years as a performer, engineer, sound designer, producer, composer, and writer. He has written many dozens of articles for *Electronic Musician* since 1986.

STRENGTHS

Powerful, comprehensive, and extremely flexible system. Excellent audio quality. Scales easily from a one-room studio to a multi-venue complex.

LIMITATIONS

Needs more documentation and tutorial materials.

1248 $1,495 street
16A $1,495 street
8M $1,495 street
AVB Switch $295 street
motu.com

Just before the flip of the millennium, MOTU launched its first scalable audio interface system with the release of the PCI-324 card and accompanying 2408 interface. Eventually, the company expanded to a family of audio interfaces with different I/O capabilities, up to three of which could be connected to the card. Now MOTU has recast this concept with their new AVB interfaces. (See "The 411 on AVB," page 49.)

But this new family of devices is more than MOTU's newest audio interface system. It epitomizes the latest in Ethernet-based audio networking technology and an emerging genre of interfaces with cross-platform software that incorporate full, large-scale mixing with comprehensive routing. All of this is in addition to multichannel interfacing to host software that runs on your computer. There's a whole lot crammed into these boxes.

For this review, MOTU sent me three interfaces: the flagship 1248, the 16A, and the 8M, as well as the AVB switch that is required to use three or more interfaces.

Other than the portable UltraLite AVB, MOTU's AVB interfaces come as 1U rackmount packages with all-metal chassis. It is clear that this equipment is built for professional use. Quarter-inch instrument inputs and headphone jacks are the only connectors appearing on the front panels. This keeps a clean look, but can be slightly inconvenient if you use one or more interfaces as a stage box in live performance.

The front panels feature high-res displays with meters to show input and output levels. When lots of channels are in use, the biggest concern is confirming they are all working at levels that are within bounds; these displays fulfill that purpose very well.

The concept behind this kind of system is that each interface has a different selection of input and output types and quantities, allowing you to pick and choose according to your situation. The chart on pages 50 and 51 gives a summary of the configurations of each of the interfaces currently in MOTU's AVB family.

WHAT'S IN THE BOX?

The 1248 is the flagship of the line, an I/O grab-bag in the spirit of the 2408 and its successors, with four mic preamps and a pair of instrument inputs, with eight balanced line inputs and 12 outputs on TRS jacks (see Figure 1). For digital I/O there are two sets of ADAT optical I/O and S/PDIF in and out. The 8M, by contrast, offers eight mic/line inputs on combo jacks, eight balanced TRS outputs, and two sets of ADAT I/O (see Figure 2).

The 16A is ideal for those who, like me, have a substantial quantity of outboard gear or synthesizers (see Figure 3). It sports 16 balanced line inputs and outputs on TRS jacks, plus the same digital I/O and interfacing package as the 8M.

The other MOTU interfaces offer their own specialized I/O selections. The 112D is entirely digital I/O with AES/EBU, ADAT optical, and MADI. The Monitor 8 provides up to eight stereo mixes (derived from eight analog inputs, 16 channels of ADAT optical, and up to 64 channels from other devices or track playback from the computer) that can feed six headphone amps. There's even a new AVB version of MOTU's popular UltraLite portable interface. All of the interfaces support sample rates up to 192 kHz.

The MOTU AVB interfaces can connect to a computer in three different ways. Thunderbolt will be

your best bet, given its impressive bandwidth, if you have a Mac equipped with it. Each interface also has a USB 2.0 port capable of carrying 64 channels in each direction—currently the only option for Windows users. I used both USB and Thunderbolt to connect the interfaces to my Mac Pro and had no issues with either; everything was smooth and easy. The third method is to connect directly to an Ethernet port on a recent Mac that supports AVB. (According to MOTU, any Mac with a Thunderbolt port running OS X 10.10 Yosemite will support AVB Ethernet.)

The ADAT optical inputs on the interfaces let you expand the system with non-AVB-compliant devices that have ADAT outputs. I added eight mic inputs without using any of the interfaces' analog connections by connecting the ADAT output of my Presonus Digimax D8 to a MOTU ADAT input.

Not everyone will need multiple interfaces, of course. A 1248 or an UltraLite AVB will make a fine interface on its own, and you can always hook up another MOTU AVB interface to accommodate a larger project.

A second MOTU AVB interface can be daisy-chained via AVB, but when you get past two devices, an AVB switch is needed. MOTU's AVB switch allows up to five interfaces to be connected and provides a port for bridging to a standard Ethernet network without compromising AVB functionality (see Figure 4).

All of MOTU's AVB interfaces are controlled and configured using a Web application that will run on any standard browser. This means the interfaces can be controlled from a Mac or Windows computer, an iPad or other tablet computer, or even, in theory, a smartphone (though in practice, the small screen size would be a serious challenge). The Web app is logically laid out and not difficult to use, once you have your head around how the system works.

GET MIXING

Most of the interfaces include full 48-channel mixing, with panning, dynamics, British-flavored EQ, solo, and mute on each channel. Mix buses have an LA2A leveler emulation. The mixing has extremely low latency, but overdubbing requires playback of existing tracks, which reintroduces latency through the DAW as a potential issue (with the same solution as usual: select a small buffer size while recording).

But MOTU has optimized AVB latency. The AVB standard defines a maximum latency of 2 ms for up to seven "hops" through switches with a 100MB Ethernet connection. The MOTU AVB devices use Gigabit Ethernet and clever engineering to achieve a fixed latency over seven hops of less than a millisecond point-to-point in the network at a 48kHz sample rate, including the combined contributions of network, interface, *and* processor. That's tight.

To try working with the mixer alone, I used the 1248 for a rehearsal of a band in my studio. I connected a pair of line outputs to two compact, powered P.A. speakers, and the only difference from using a traditional mixer was the lack of physical knobs, buttons, and faders, which was not even an issue in that context. Currently, there are no control surfaces that work over AVB, but MOTU is in conversation with control surface manufacturers.

Fig. 2. With eight mic/line inputs on combo jacks, the MOTU 8M can support a wide range of input configurations.

SOUND

Given how long MOTU has been making interfaces, one would expect the AVB family to sound excellent, and they do. MOTU has had mic preamps in previous interfaces, but has never been known as a mic preamp manufacturer, so I was curious about the onboard mic pre's in these devices. One concern was my affinity for using light analog compression while recording, especially with drums. That's not really possible when using mic preamps onboard an interface. How would recording without analog compression work out?

Each mic input on the 1248 offers +48V phantom power, a 20dB pad, and a polarity reversal switch. In addition to control for these features in the Web app, the 1248 supplies front-panel switches for the phantom power and pad. For loud sources like drums, I found myself engaging the pad on more channels than I usually do with my outboard mic pre's, but that posed no problem.

The 8M's mic inputs are a little different from those on the 1248. For a start, they are on combo jacks instead of XLRs, and accept instrument- or line-level signals as well as mic signals. They also have two features aimed at addressing my analog compression concerns. The first is VLimit, a hardware limiter on each mic input that allows signals to go up to 9 dB above 0 dBFS without clipping. The second is SoftClip, a compressor that kicks in before 0 dBFS.

I often engineer sessions on which I also play

The 411 on AVB

AVB is an extension to the Ethernet standard designed to provide reliable, low-latency audio and video performance using basic Ethernet hardware. It is an open standard, which has the advantage of not costing manufacturers any kind of license fee to use it, but the disadvantages that development tends to be slower than with a proprietary standard (because numerous companies must agree on changes; always difficult to achieve) and implementation details can vary.

By contrast, proprietary systems such as Audinate's Dante (also based on Ethernet hardware) can be developed by their creators as they wish, and the developer can exert a modicum of control over implementations. The disadvantage is that equipment manufacturers must pay license fees to use the system, adding to the cost.

The primary aspect of AVB that optimizes it for use with real-time audio and video is, bandwidth is reserved for each audio or video stream to ensure samples reach their intended destinations on time. Audio samples running over standard Ethernet are not guaranteed to arrive on time (or, in some cases, at all), latency is not entirely predictable, and there is no reliable means of providing synchronization and clocking. AVB is designed to remedy all of this. It carries a master clock signal and even allows query and discovery of devices on the network.

MOTU says that its 1Gbit AVB network can carry up to 512 channels over the network. Channels can be moved not only from interfaces to a host computer, but between interfaces. The use of three or more devices requires the addition of an AVB-compliant switch.

Another major plus of Ethernet-based systems like AVB is that devices can be placed up to 100 meters apart. For a musician, that means you can put an interface in your house, run one skinny cable from the house to the studio out back, and be able to record vocals in the bathroom and the piano that sits in the living room while the drummer and guitar amps are recorded in the studio with an interface that lives there. In live performance, an AVB interface with lots of mic preamps makes a great stage box, while another interface at front-of-house with line inputs (or even digital I/O) carries prerecorded material, outboard synthesizers, or effects. Of course, in installations and commercial production facilities, interfaces can be located in different venues or studios.

drums, which makes it harder to set levels precisely for the kit. I tend to be conservative about levels to avoid trouble, but sometimes a take will have moments where I play with a bit more enthusiasm than during my level-test recordings. I made extensive use of VLimit to compensate for this during recent tracking sessions for Reconnaissance Fly's second album. While there were only a few times limiting engaged, it worked well in preventing clipping without imposing any significant sonic penalty. (You can always hear limiting; it's just a matter of how objectionable the sound is.)

Other sources I recorded through the mic preamps included steel-string acoustic guitars, electric guitar amps, woodwinds, vocals, and vibraphone. The sound of the preamps is clean and clear, essentially uncolored, but not lifeless. I like their sound and am entirely happy making records with them. There was plenty of gain for both mic and line inputs, which was easily adjusted in the Web app. They easily beat the pants off the mic pre's in most small console and inexpensive outboard channel strips. I also made use of the instrument inputs for bass and electric guitar and was pleased to hear they did not lose body and punch the way many DIs do.

Moreover, MOTU's AVB interfaces played nice with all of the host applications I use regularly: Digital Performer, Pro Tools, Studio One, and SoundForge Pro. Sound design tools like iZotope Iris 2 and Sony Spectral Layers Pro were just as happy. I found it well worth the time to name inputs and outputs in the MOTU Web app so that they showed up in the DAWs. I saved presets containing names, as well as routing, for tracking (lots of mic inputs), overdubbing (track monitoring as well as mic inputs), and mixing (integrating outboard gear). These presets were very helpful in speeding workflow.

	ANALOG I/O							
MODEL	MIC IN	INSTR IN	TRS LINE IN	OTHER IN	TRS LINE OUT	XLR LINE OUT	OTHER OUT	PHONES OUT
1248	4	2	8		12			2
8M	8*		8*		8			1
16A			16		16			
24Ai				(6) 4-ch Phoenix				
24Ao				(6) 4-ch Phoenix			(3) 8-ch DB25 and Phoenix	
Monitor 8			8		10	2	(6) TS mono	12
112D				(3) 8-ch AES/EBU on DB-25				
UltraLite AVB	2	2	6		8			1
AVB Switch								

NETWORKING INTERFACES

There is an inescapable tradeoff between power and ease of use; the price for increased flexibility is greater complexity. Providing access to more features and options creates the necessity of dealing with them all, and this tradeoff heightens significantly with quantity; lots of channels means lots to handle and go wrong.

This issue manifested in a few areas while I was using the AVB interfaces. The first was the introduction of additional layers of routing in the signal path. I set up the 1248 as the master interface that was connected to the computer. If I plugged a mic into a preamp input on the 8M, getting that signal to a DAW required routing it in the Web app to a channel in an AVB stream from the 8M to the 1248, choosing that stream in the 1248 as an input stream, routing from the correct channel of the correct stream to one of the channels going out to the computer, then, in the DAW, mapping that interface channel to a software input channel and, finally, choosing that input channel as the source for my track. It's all logical and understandable, but a lot to deal with and keep in your head.

With three interfaces connected, and all of the channels each can handle for input, output, and mixing, the size of the routing matrix itself becomes an issue. MOTU allows sections of the matrix, such as analog inputs or ADAT input channels, to be collapsed, but when a section is collapsed you see only that there is routing happening, but not what the routing is. I developed the habit of leaving any sections I was dealing with in an expanded state, but that put so many connections onscreen, I had to concentrate in order not to route, for instance, channels to the mixer instead of to the computer. The Web app's GUI does as good a job as I've seen in finessing the power-vs.-ease-of-use tradeoff, but it can't be eliminated.

Then there is the issue of switching the mixer between input sources during recording and playback of channels when reviewing a just-recorded take. You can create presets that remember the state of the entire interface system for each setup you use, which is one way to solve this problem. MOTU provides a collection of presets for common needs, such as using an interface as an input expander, a basic interface, or just using the onboard mixing. I'd love to see MOTU implement a quick way to call up presets from the keyboard for fast context switching.

These devices are feature-packed, and compre-

Fig. 3. The MOTU 16A offers plenty of balanced analog I/O for studios with a majority of line-level sources.

DIGITAL I/O								
ADAT OPT IN	ADAT OPT OUT	S/PDIF COAX IN	S/PDIF COAX OUT	OTHER OUT	MIXING	INTERFACING	NOTES	PRICE
2	2	1	1		48 ch w/ panning, EQ, dynamics, aux send	Ethernet AVB, Thunderbolt, USB2, Word clock In, Word clock Out/Thru		$1,495.00
2	2				48 ch w/ panning, EQ, dynamics, aux send	Ethernet AVB, Thunderbolt, USB2, Word clock In, Word clock Out/Thru	*Combo jacks	$1,495.00
2	2				48 ch w/ panning, EQ, dynamics, aux send	Ethernet AVB, Thunderbolt, USB2, Word clock In, Word clock Out/Thru		$1,495.00
3	3				48 ch w/ panning, EQ dynamics, aux send	Ethernet AVB, USB2, Word clock In, Word clock Out/Thru		$995.00
3	3				48 ch w/ panning, EQ, dynamics, aux send	Ethernet AVB, USB2, Word clock In, Word clock Out/Thru		$995.00
2					24 x 16 x 8 w/ panning, EQ, dynamics, aux send	Ethernet AVB, USB2		$995.00
3*	3*			(1) MADI In, (1) MADI Out, (2) 8-ch AES/EBU on DB25 connectors	48 ch w/ panning, EQ, dynamics, aux send	Ethernet AVB, Thunderbolt, USB2, Word clock In, Word clock Out/Thru	*3 additional ADAT ports for 2x sample rates	$1,495.00
1	1					Ethernet AVB, USB2, MIDI In, MIDI Out		$649.00
						(5) AVB, (1) standard Ethernet		$295.00

hensive documentation is essential to using them. The manual I received covers all three of the AVB interfaces I reviewed, as well as the AVB switch, in less than 100 pages (the index is just over two pages), yet it just wasn't enough information to get my larger, networked sessions running without a lot of experimentation and searching around. The manual has helpful illustrations and instruction on hooking up common system configurations, and MOTU has posted a series of helpful tutorial videos: Visit the AVB product page at motu.com/avb, click the Resources tab, and scroll down to find them. The videos explain routing and other advanced topics but do not give sample applications.

There is one other issue that could be an inconvenience, especially for small studios and systems. Quarter-inch outputs from the MOTU AVB interfaces are balanced but not cross-coupled. There are good audio reasons for doing this, but it means that you cannot simply plug a regular, unbalanced TS plug into an output jack without risking distortion. (You would have to use a TRS plug with the ring contact disconnected, in that case.) In an installation where connections will remain as they were made, you wire it right the first time and you're done. But if you want to be able to patch out to unbalanced gear freely, you must have properly wired custom adapters or cables available.

CONCLUSION

I worked these interfaces pretty hard, using lots of channels, various sources and microphone types, and performing tracking, overdubbing, mixing, and rehearsal sessions with them. I made presets and patched in outboard compressors and reverbs. What I found was excellent audio performance and awesome capabilities and flexibility.

Fig. 4. If you plan to daisy-chain three or more AVB devices, you will need to add the MOTU AVB Switch to your system.

If you move into bigger, more complex networking situations, however, expect a significant learning curve. But once I finally got my head around signal flow and reconfiguration of the system, I had few functional complaints. I'd love to see MOTU incorporate color-coding in key places (like the routing matrix) and add a few other features to help tame the complexity of all that I/O distributed across multiple interfaces, but the challenge of complexity is inherent, not poor design. More documentation would make a difference.

The MOTU AVB family of interfaces provides excellent solutions for a wide variety of contexts—small studios, venue installations, multiroom production facilities, even live sound. The ability to configure a system with the I/O you need, scale systems up easily, and use long cable runs is very powerful. Running the control software as a Web app is an elegant solution to cross-platform control. The onboard mixing is easy to use.

I found a whole lot to like about the MOTU AVB interfaces and hardly anything not to like. Highly recommended. ■

REVIEW

Sonar Platinum lets you store your mix configuration using Mix Recall, as well as save and recall output and bus routing.

CAKEWALK

Sonar Platinum

WORKSTATION UPGRADE OFFERS NEW FEATURES AND A MEMBERSHIP MODEL

BY BRIAN SMITHERS

Brian Smithers is a musician, engineer, and educator in Orlando, Florida. He is Chair of the Workstations Department at Full Sail University.

STRENGTHS

Membership model means frequent updates. Improved AudioSnap. VocalSync. Addictive Drums 2. Mix Recall. MIDI enhancements.

LIMITATIONS

VocalSync and AudioSnap require a bit more manual tweaking than competing technologies.

$49.99/month membership; $499/one-year membership
cakewalk.com

The latest version of Cakewalk Sonar features a membership licensing model, the end of version numbers, and enough new or enhanced features to keep this product among the handful of DAWs worthy of professional audio production. We last reviewed Sonar X3 in July 2014, so this review will focus on the program's new features.

Despite the loss of version numbers, Sonar continues to come in three levels, now called Sonar Artist, Sonar Professional, and Sonar Platinum. As a general rule, the interface and core features are the same in all three versions, with the key difference being the number of plug-ins, instruments, and goodies. We reviewed Sonar Platinum and got to see three update packages.

As many software companies are introducing subscription models, Cakewalk has opted for what it calls a membership structure. The key difference is that with Sonar, whether you buy, upgrade, or pay monthly, you end up with a permanent license; in other words, it's not a rental. You could think of it as simply a 12-month installment plan to purchase Sonar accompanied by a year of updates. For those new to Sonar, pricing ranges from $9.99 per month (or $99 outright) to $49.99 per month (or $499 outright). Renewal pricing (Cakewalk's way of saying annual upgrade) is 50 to 60 percent less than a new purchase. Whether you purchase, use the payment plan, or select renewal, you get 12 months of updates, new features, fixes, and bonus content.

ACTING ON IMPULSE

REmatrix Solo is a single-IR version of OverLoud's innovative convolution reverb that allows you to combine up to five different IRs. If you were a fan of PerfectSpace and wondered when Sonar would include a 64-bit convolution reverb, REmatrix Solo is your answer. Its operation is straightforward, and it includes a wide variety of IRs and presets: What more could you ask for? You can adjust decay time, pre-delay, and stereo width, and a 1-band EQ lets you fine-tune the reverb's character. You can import your own impulse responses as WAV or AIFF files, although for some reason these are all stored in one big file, which makes managing your IR collection more difficult than it ought to be.

In the February Sonar update, Cakewalk included more than a hundred new impulse responses from "a legendary NYC studio." This release simultaneously demonstrates an advantage of Sonar's new membership program and a disadvantage of integrating REmatrix Solo into the ProChannel. Obviously, having your DAW manufacturer add value to your product on a monthly basis is nice, and these rooms can add character to any track you recorded in a too-dry vocal booth or closet. However, the limited space available within the ProChannel interface means sorting through 126 files from a drop-down list (see Figure 1), which is challenging, to say the least. It would be great if the interface had room for a searchable browser, the ability to arrange user IRs in submenus, or at least a descriptive metadata that showed up in the IR display.

Mixing in Sonar is now better than ever, thanks to expandable sends, FX "stacking," and my personal favorite, Mix Recall. Unlimited sends are nothing new in Sonar, but to manage screen real

Fig. 1. REmatrix Solo is a very good convolution reverb that would benefit from a larger and more informative interface.

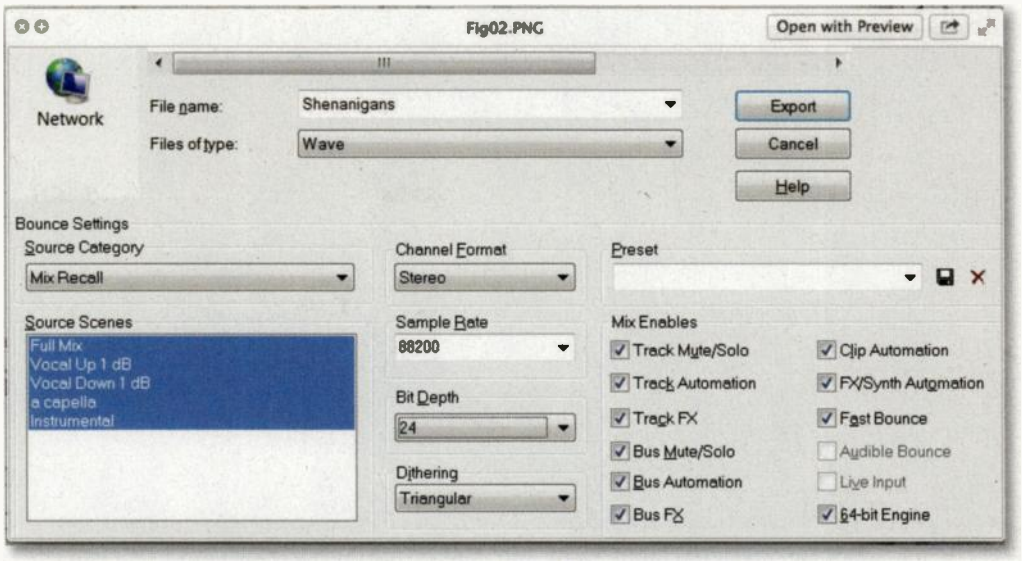


Fig. 2. Among its many uses, Mix Recall automates the process of bouncing alternate versions.

estate efficiently, the sends area of the mix window shrinks and expands to show only the number of sends you're using. Previously, space for only one send was allotted, and you needed to scroll between them. Similarly, space was provided for three effects plug-ins no matter how many were in use, and you scrolled between them; now the FX slot shrinks or expands as necessary.

It used to be that each plug-in you opened would open in a new window, causing them to accumulate and clutter the screen, but now the default behavior is to recycle an open window by switching it to the next plug-in you open. Ordinarily, only one plug-in window is open at any given time. You can choose to pin a window open, in which case a new window will open for the next plug-in. This will be particularly welcome if, like me, you tend to do a lot of work on a laptop.

Mix Recall allows you to store any given mix configuration as a snapshot and restore it at any time. Frustrated with your mix, but not sure if fatigue is causing you to doubt yourself? Save it as a mix scene, reset the mixer to its default state, and start from scratch when you're rested. Save your new mix and then switch between the two to hear whether it's really better to go with your first instinct. As of the March release, you can also save and recall output and bus routing, and all mix scene information is saved in session templates. Between mix scenes, session templates, and track templates, if you're wasting time performing repetitive mix tasks, it's your own fault.

Mix scenes can store track and bus controls and automation, synth settings, surround controls, MIDI controls, and even arpeggiator controls. You can apply a stored scene to the entire mix or just to selected tracks and buses. If you're in the habit of bouncing multiple versions of a mix, such as vocal up, vocal down, a cappella, instrumental, etc., you can save each of those as a mix scene and then choose to bounce any or all of them in a single step from the Export Audio dialog box (see Figure 2).

ALL TOGETHER NOW

Another cool new feature is VocalSync, a region-based effect that aligns vocal tracks to a specified guide track. If you need to tighten up your background vocals or double-tracks, this could be just the thing. All you do is right-click on a track to designate it as the default VocalSync guide track and then right-click on any clip you want to align to the guide and choose VocalSync from the Region FX menu. VocalSync analyzes the clip and calculates the best fit, showing you a split view of the guide and "dub." A knob lets you adjust the amount of alignment, but as is often the case with intelligent functions, more is not necessarily better. I found that under most circumstances it was best to go with VocalSync's suggestion.

I used VocalSync on a number of male and female harmonies and doubles, and it often worked well to tighten the timing between tracks. It sometimes aligned better if I chose a different guide track, so I had to compromise between the take I preferred and a better match. I found that, as the documentation suggests, it's best to pre-edit anything that's way off, as VocalSync works better with small adjustments. It also sometimes helped to break a phrase up into smaller clips. In some cases, VocalSync would misjudge a phrase and make matters worse. I was discouraged by this until I remembered that Sonar X3 had introduced Melodyne Essential; canceling VocalSync on the handful of misjudged phrases and fixing them manually with Melodyne worked in short order.

As cool as it was that Cakewalk included Addictive Drums with Sonar X3, it's even cooler that it now includes Addictive Drums 2. Addictive Drums 2 adheres to the same basic paradigm that most high-quality drum plug-ins follow, with multi-miked sampled drum kits, lots of control over the sound of the kits, built-in mixing functions, a library of MIDI beats with variations and fills, and lots of add-on packs available for purchase. As with its predecessor, the chief selling point for me is the sound quality of the drum kits available in Addictive Drums 2. They are recorded very well and feature a great deal of expressive variation via velocity and strike zones. You can add pieces to the kit and swap out pieces to create custom kits. Whether you play your drums from a keyboard, pads, or an electronic kit or program them with MIDI loops and manual editing, you can count on getting authentic and inspiring sounds.

With the license to Addictive Drums 2, you are allowed to pick three ADpaks (kits) from XLN Audio's extensive collection. You also get to choose three packs of MIDI grooves, with choices ranging from jazz to funk to prog rock, as well as three additional single kit pieces such as djembe, cajon, kick, snare, and more. Kudos to Cakewalk and XLN for giving Sonar purchasers a choice.

NEVER LEAVE WELL ENOUGH ALONE

After nearly three decades, Cakewalk continues to look for ways to make users' lives easier. This time around, the piano roll view (PRV) gets an update. A number of visual improvements make it easier to find and edit the details of a complex MIDI arrangement. Continuous controllers now display as blocks that extend to the next controller

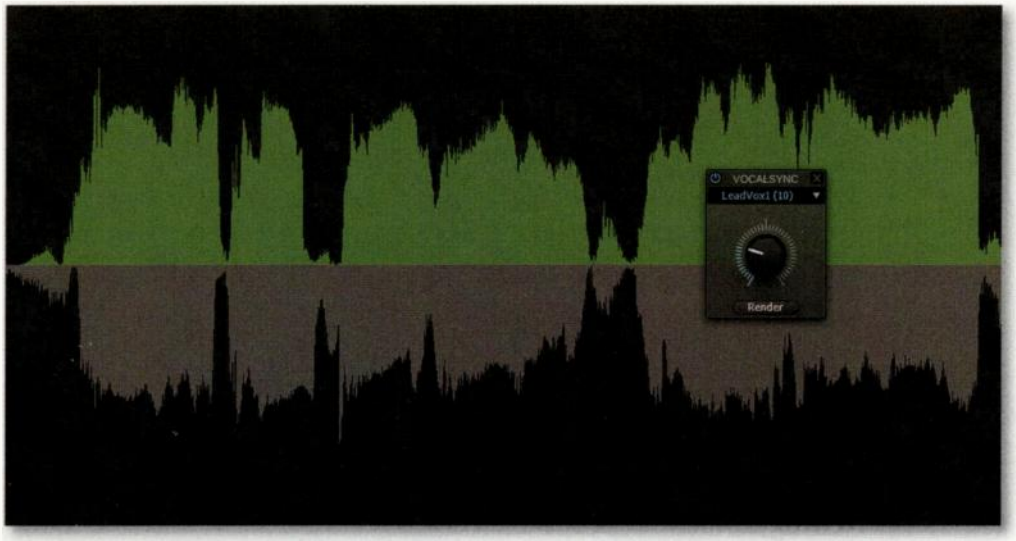


Fig. 3. VocalSync displays the guide track and dub (target) track together so you can determine the right amount of correction at a glance.

event, rather than as isolated thin stalks. In addition to displaying the current value of a control change message that has scrolled off screen, this configuration offers a more intuitive view of the way the values are changing. You can now opt to show multiple controllers in the PRV when the controller pane is hidden. Velocity lines are now thicker and easier to distinguish from each other when notes occur simultaneously, and you can edit them directly.

An interesting new behavior is the ability to stretch groups of notes. Select two or more notes, and while holding the Control key, drag the end of one of them with the Smart tool. Their durations and their relative spacing will stretch proportionally, much like time-stretching an audio clip. Do the same thing while holding Shift, and the notes will retain their start times and stretch to the *same* duration. When editing velocity, you can now scale the velocities of selected notes proportionally by holding Shift or use "anchored" velocity scaling to create V-shaped or mountain-shaped velocity curves.

Meanwhile, back in Track view, MIDI clips can be time-stretched using the Timing tool or by using either the Smart tool or Edit tool while holding the Control key. Stretch by dragging either the beginning or end of the clip; stretching is limited to a range between 25 and 400 percent, values that the Timing tool seems to inherit from its audio time-stretching function. With MIDI, of course, you can just stretch the clip repeatedly with no loss of audio quality.

Sonar now supports multiple VST3 event input buses, which is important for users of some large sample libraries. This configuration allows a single instance of an instrument—say, a large orchestral sampler—to use more than 16 MIDI input channels.

Longtime Sonar users may remember the Pattern Brush, which allowed you to choose a MIDI pattern from a library of patterns and "paint" the pattern into the track. The feature was dropped about the time of X1, but it's back with a vengeance in the form of the Pattern Tool, which allows you to select any MIDI notes and paint them into the Clips view or PRV. You can select a whole or partial MIDI clip in the Clips view, notes in the PRV, or a MIDI clip in the Browser to use as the pattern. The tool is context-sensitive, providing a selection function in the top half of a clip and the paint function in the bottom, so you don't have to keep switching tools. If you select and paint something you think you might use later, you can drag the resulting clip to the Browser for posterity.

Sonar now allows you to import and export Direct Stream Digital (DSD) files, and in the February update included support for a 352.8kHz sample rate. As a result, Sonar's DSD implementation is very similar to the only other commercially available DSD-capable DAW I am aware of. If you believe DSD is inherently superior to PCM, and if your music requires the flexibility of audio processing (EQ, compression, etc.), and if your audio interface supports either 352.8 kHz or 384 kHz (it probably doesn't), then Sonar is by far the most affordable and practical way to produce in DSD.

AUDIOSNAP REDUX

I've always thought AudioSnap was a great idea, and it seems to be finally living up to its potential. The big news here is an improved transient-detection algorithm that results in better tempo mapping, better quantizing, and better manual stretching. I broke out drum tracks that had confounded previous versions of AudioSnap and got immediately better results both in extracting tempo and quantizing a multi-miked kit. I zoomed in on some drum tracks and used Tab to Transient to move through the track and check how good the new detection algorithm really is: In fact, it's much improved.

Thus encouraged, I set about refining a drum performance that was recorded just a little too late at night. In an otherwise keeper take, the groove occasionally wavered just enough to irritate me, so I wanted to tempo-map the tune and then quantize certain phrases. I also wanted to layer a sample over the acoustic kick drum, so I needed a good tempo map and the ability to extract the kick track's groove accurately. The AudioSnap process has not changed from prior versions, although certain aspects of its interface have changed for the better. The first step was to select the kick clip and open AudioSnap. The AudioSnap window has a new color scheme that makes it easier to read, and transient markers are more consistent and clearer. Helpfully, the track view now switches automatically to Audio Transients.

I enabled Edit Clip Map and zoomed in to examine how accurately AudioSnap translated transients into tempo events. Many were dead on, but wherever the tempo drifted, the tempo markers drifted away from the transients they should have followed. This required some manual editing, which is not too surprising. As I worked my way through the clip, I held Control while dragging errant clip map markers into place, which adjusts only *subsequent* markers. It took a couple of passes to make all of the fixes—about 20 fixes in a five-minute song. That's more than I had hoped to see, but way better than manual tempo mapping.

AND THE BEAT GOES ON

The goodies from the first two updates are almost too numerous to list. If you're into loops, the package includes 150 bass loops in both REX and Groove Clip formats from Public Enemy's Brian Hardgroove. If sampled instruments are your thing, there's a Hardgroove Rapture expansion and a Les Paul Gold Top expansion for Dimension Pro. Additional plug-ins include Panipulator (sum, mono, flip channel, flip polarity), Phasor Constructor (a manually controlled phase shifter; no LFO), Boz Digital Labs' Bark of Dog (resonant highpass filter), Craig Anderton's Acoustic Piezo Amp Sim, Vox Tools (de-plosive, vibrato, automatic double-tracking, etc.), and 16 virtual custom amps.

Other additions include new plug-in chains and custom presets, a more flexible control bar, and a virtual onscreen MIDI keyboard. Import and export options now include Ogg Vorbis, RF64, and a variety of lesser-known formats. Just before press time, Cakewalk released another package of updates that includes virtual stomp boxes, synthetic impulse responses for REmatrix, a noise filter for VocalSync that helps when dealing with noisy dialogue, and enhancements to Mix Recall, drum maps, and the MIDI engine.

The new Sonar certainly demonstrates the upside of Cakewalk's promise to keep things interesting for its customers. If the company keeps up the pace and quality of its updates, it stands a pretty good chance of winning skeptics over to the membership model. ■

The largest 500 Series selection anywhere.

VINTAGE KING AUDIO

ELYSIA NVELOPE 500
Gain full control over attack and sustain to forge new sonic ground

SMART RESEARCH C1LA
Industry-standard 2-channel classic VCA British console compressor

TK AUDIO MB1 MINI BLENDER
Widen your sonic horizons with extremely clean, parallel processing power

SHADOW HILLS MONO OPTOGRAPH
Taking cues from its big brother, the fabled Mastering Compressor

RETRO DOUBLEWIDE
Single-channel tube compression amplifier

Signal has two pulse engines, each with two rhythmic modulation sources, as well as Macro sliders that are patch specific. Clicking on the main or secondary rhythm opens editors for the modulation source.

OUTPUT SOUNDS

Signal

SAMPLE-BASED INSTRUMENT FOR KONTAKT

BY MARTY CUTLER

STRENGTHS

Easy-to-learn interface. Deep programming. Great source sounds. Rhythms cover a wide dynamic range from tranquil to distorted and loud.

LIMITATIONS

No PDF documentation.

$199
outputsounds.com

There are plenty of synths that are driven by rhythmic components, but none is as varied and novel as Signal. Designed for Native Instruments Kontakt (and the free Kontakt Player 5.3.1), Signal offers pulses ranging from exceptionally subtle to aggressive and slamming, with plenty in between. A unique user interface, custom-tailored for each patch, makes controlling the instrument a breeze.

Unlike the majority of Kontakt libraries, Signal has you load a single instrument file (there are no multis) and access patches from an onboard directory. That makes accessing patches quicker than navigating through files in the Kontakt Browser, though it slows the initial loading of the instrument. Output advises you to perform a batch re-save in Kontakt, because that improves load time.

A Signal instrument combines up to two Pulse Engines, each with its own samples. Each Pulse Engine is divided into a main and secondary rhythm, and offers access to rhythm generators drawn from various modulation sources, including LFOs with unique shapes (Wave), step sequencers, a loop tool, and an arpeggiator.

Samples, called Sources here, are divided into two main categories: Instruments and Synths. Instruments comprise an assortment of keyboards, guitars, strings, and percussion that are not particularly meant to be played in their intended fashion. So if you're looking to eke a traditional electric piano or guitar part from these samples, look elsewhere.

The Synths category contains standard analog waveforms and sounds processed through granulation and other treatments. In general, the Synth Sources tend to have a bit more animation than the Instrument category, and would serve nicely as pads in some instances. You can tab between the two, and change and audition Sources at will; the new sample will not be assigned until you hit OK.

Output ups the ante by offering Tape Loop and Cinematic expansion packs, full of gorgeous and atmospheric patches. These are free when you purchase Signal.

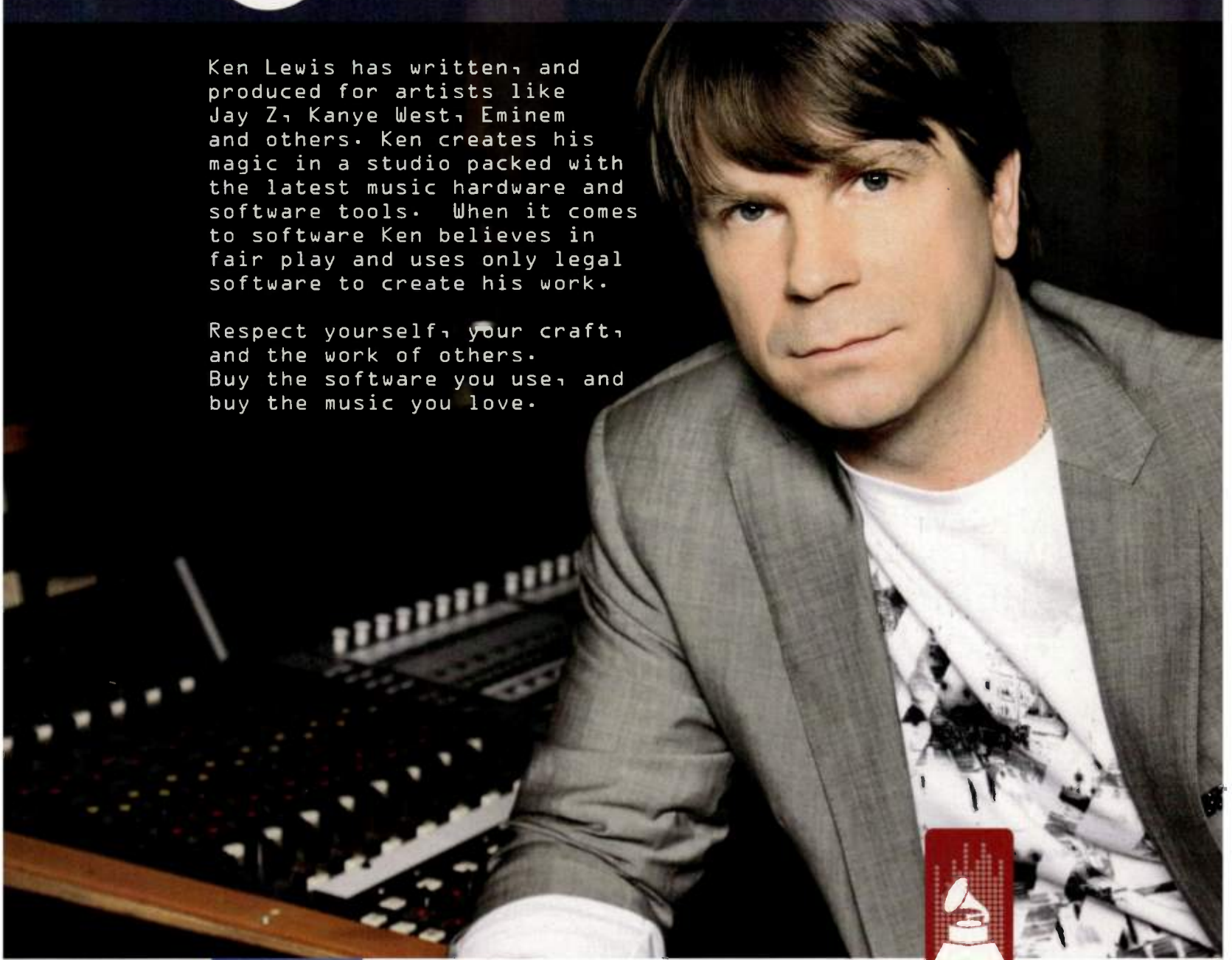
Some sounds work well as static instruments, so if you would like to hear a patch without all of the rhythmic madness, hit the Pulse Engine button. But the real fun begins with Signal's curved Macro sliders. The Macros are designed for real-time play, and MIDI Learn pays big dividends here. Macros have different functions for each patch, indicated by names like Long/Tight, More/Less, and Open/Closed.

The Advanced button reveals, among other things, ADSR controls for volume and pitch.

The only nit I would pick with Output is the absence of a PDF manual, as there are some things left unexplained, such as the meaning of the color-coded keyboard and some of the advanced settings and Macros. Output eschews documentation in favor of an online help menu, though it mostly covers nomenclature and not application. However, there are some very useful tutorial videos online.

With its powerful sound and ability to create engaging rhythms, Signal is a marvelous instrument that offers a wide range of expressive capabilities. Its elegant, easy-to-understand design encourages exploration, and its programmability is immense; if you want to put your own stamp on the instrument, grab your controller and go! ■

FAIR USE IS FAIR PLAY



Ken Lewis has written, and produced for artists like Jay Z, Kanye West, Eminem and others. Ken creates his magic in a studio packed with the latest music hardware and software tools. When it comes to software Ken believes in fair play and uses only legal software to create his work.

Respect yourself, your craft, and the work of others.
Buy the software you use, and buy the music you love.

BUY THE SOFTWARE YOU USE

www.imsta.org

Producers & Engineers Wing

International Music Software Trade Association
New York • Toronto • Hamburg • Tokyo
Tel: 416 789-6849 • Fax: 416 789-1667

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 & publications.

REVIEW

The Cloud Microphones 44-A is a phantom-powered ribbon mic that lets you alter its low-frequency response with the flick of a switch.

CLOUD MICROPHONES

44-A

AN ACTIVE RIBBON MIC WITH A SWITCHABLE RESPONSE CURVE

BY GINO ROBAIR

STRENGTHS

Phantom powered for use with low-cost preamps. Ability to reduce proximity effect using the Voice setting. Great sound quality. High-quality shockmount included.

LIMITATIONS

Nothing significant.

$1,899 street
cloudmicrophones.com

Active ribbon microphones have been a boon to the personal studio, particularly for musicians using audio-interface preamps that don't provide enough gain to amplify a passive ribbon mic adequately. Cloud Microphones has offered an active ribbon—the JRS-34—for years, along with a passive model, both of which follow the RCA design legacy.

The company recently released the 44-A, an active ribbon mic with a twist: It gives you the option of changing the transducer's low-frequency response.

The mic has a switch on the bottom indicating M and V settings: Music and Voice. The Music setting allows the mic's natural low-end boost to occur—in this case as much as 6 dB for frequencies below 300 Hz. The Voice setting gradually reduces low-end response, starting at about 250 Hz, by -10 dB at roughly 30 Hz. That's perfect for taming proximity effect when close-miking a singer. Fortunately, no noise is generated by switching between the two settings.

Top end remains mainly unchanged by the switch. The included frequency response chart shows a small presence boost around 5 kHz before a gradual dip to -10 dB by around 19 kHz. Yet the mic has a mellow, pleasing high-frequency response. And the 44-A has the same internal amp circuitry found in Cloudlifter, the "pre-preamp" Cloud Microphones developed for using passive-ribbon mics with low-cost interfaces.

The 44-A includes a handsome wooden box, a drawstring cover to protect against airborne materials when it's on the stand, and, most important, a Rycote custom-designed Cloud U-1 universal shockmount. The U-1 eschews elastic bands for a series of lyre-mounts that decouple the mic from stand vibration. Rarely does a mic include such a high-quality shockmount, but ribbon mics are sensitive to vibration, so it's essential. The 44-A also sports a swivel mount next to the switch, which can be used in a pinch, and an adequately vibration-isolated stand.

I worked with the mic over several weeks, using the preamps in my MOTU Traveler Mk3 and Millennia Media HV-37, to track male and female voices (spoken-word and singing), a bright Taylor acoustic guitar, guitar amps, percussion, and drums (as an overhead). Throughout the sessions, I appreciated having the voicing switch, which allowed me to hone in on solid tones and suggested some mic placements that I wouldn't have tried otherwise; for example, taking out the lows using the Voice setting in order to cheat the mic closer to a guitar amp to make a single-note melody sound smoother.

It's worth noting that, according to the manufacturer, the symmetrical nature of the 44-A's figure-8 pattern also enhances the directionality of the pickup. This not only provides deep null points, which are useful to reject sound outside of the polar pattern, but it also means that moving the sound source off axis even a little can significantly alter the timbre. I put this to good use to capture interesting sounds with the amps: marimba and acoustic guitar. And, of course, you can combine distance and off-axis positioning to dial-in the right sound with a vocalist.

The 44-A is by no means a budget mic, but this is definitely a case where you get what you pay for—a well-crafted ribbon transducer that offers enough versatility to cover a wide variety of recording situations. ■

PSP AUDIOWARE

PSP L'otary

DETAILED PLUG-IN SIMULATION OF A MIKED LESLIE CABINET

BY MIKE LEVINE

Fig. 1. PSP L'otary provides an accurate simulation of a miked Leslie cabinet. You can even dial in mechanical noise.

Accurately emulating the iconic sound of a Leslie rotating speaker in software is no easy feat. Not only does the developer have to model the sound and characteristics of the amplifier in the Leslie, but it has to model the effect of two separate speaker elements that rotate independently at changeable speeds. PSP Audioware took on the challenge and the result is PSP L'otary ($99), a plug-in that not only simulates a Leslie, but also re-creates how it sounds through a variety of miking configurations.

The plug-in runs in 32- or 64-bit mode on Mac and Windows and supports RTAS, VST, AAX, and Audio Units.

PSP L'otary is based on two classic Leslies, the 122 and 147. The GUI is split into three sections, with controls for the high-frequency Horn on top and the low-frequency Drum on the bottom. Controls are arranged in color-coded groups, so that it's easy to tell which knobs go with each function. The center section contains global controls, including an EQ with fixed Bottom, Low-Mid, Presence, and Top bands. Each band can be cut or boosted by 12 dB. The Mech knob adds sampled noise from both motors, as well as turbulence caused by the horns—useful if you're going for absolute authenticity of the Leslie experience.

Setup lets you select one of five mic-placement configurations (utilizing a stereo pair for the horn and one on the drum), based on standard Leslie miking schemes. An additional setting called Amp gives you a simulated DI feed from the Leslie's amplifier, bypassing all the spinning parts.

The Amplifier section features Input Level, Type (Tube, Solid [-state], and Thru), and Drive controls, allowing you to dial in overdrive and gain boost. The Ambience section controls the size and characteristics of the room where the Leslie is situated.

Horn and Drum sections each include Fast and Slow parameter knobs, which set the upper and lower limits of their spin speeds. Control the Horn and Drum together with the Speed Lever, a continuous control that goes from slow (Chorale) to fast (Tremolo), and anywhere in between. The speed of that transition is controlled by the Inertia knobs: Set them to change instantly when the Lever is moved to a different setting, or slowly ramp up or down. Speed, Inertia, and all of L'otary's parameters can be automated. Further options for sound shaping include controls for mic distance, preamp gain, and filtering (highpass on the Horn; lowpass on the Drum).

A Low CPU mode can be turned on in place of the higher-quality Brilliant mode. There are 16 presets, including a 147 and a 122 patch, and includes room for 15 more settings. I was a bit disappointed with the presets, which were too few and not very inspiring.

I compared PSP L'otary with the rotating speaker sections of several organ instruments. I'd listen to the complete internal sound, and then turn off the rotating speaker effect and insert PSP L'otary instead. Without fail, PSP L'otary sounded more realistic. It wasn't always as pleasing as the instrument's Leslie simulation—although it often sounded better—but it always sounded more like the real thing.

I also found the plug-in useful for processing guitars, vocals, synths, sampled electric pianos, and more. PSP L'otary is definitely the most authentic Leslie simulation I've ever heard. ■

Mike Levine is a musician, composer, and producer from the New York area.

STRENGTHS

Realistic Leslie behavior and sound. Mic choices. Tube and solid-state overdrive. Ability to alter room size. Four-band EQ. Reasonably priced.

LIMITATIONS

Preset selection is small and uninspired.

$99
pspaudioware.com

Fig. 1. The Singular Sound BeatBuddy, pictured here with the optional footswitch, exhibits a solid, professional build. The LCD screen is easy to read and the vertical bar moves across it to indicate tempo.

SINGULAR SOUND

BeatBuddy

A DEEP DIGITAL DRUMMER IN STOMPBOX FORM

BY MARTY CUTLER

Despite what its name suggests, Singular Sound BeatBuddy is more than a drum machine: It's a pedal that lets you access MIDI File songs, load WAV files for an associated kit, and trigger the kit pieces, just as any sequencer or drum machine might (albeit with fills, intros, outros, and accented hits selectable in real time). Yet, to think of the unit as a Standard MIDI File player with samples is also a gross oversimplification.

Marty Cutler still regrets the use of a Yamaha RX-11 drum machine on a country music gig.

STRENGTHS

Solid build. Great factory sounds and grooves. Remarkable deep programming and expressiveness. Easy to use. Imports user sounds and MIDI files. MIDI Sync plays well with others.

LIMITATIONS

None.

$299 street
mybeatbuddy.com

MORE ON THE FLOOR

BeatBuddy's build is superb and emanates a pro vibe, from its metal case and bright LCD to the solid feel of its buttons, pedal mechanism, and jack plates (see Figure 1). You activate fills and transitions by tapping or holding down the pedal. The display is color-coded to indicate whether you are on verses, choruses, fills, or transitions. Tempo is indicated by a shaded bar that steps across the display.

The pedal has three knobs: Volume, Drum Set, and Tempo, with the latter pair functioning as buttons. Turn the knob to select a drum set, then press the knob to confirm your choice: The transition is seamless.

Press the Tempo knob to access Projects, which are made up of MIDI Files and associated drum kits. The Tap button, shown in Figure 1 above, is flanked by menu navigation controls.

Pressing Drum Set and Tempo opens BeatBuddy's Settings window, where you can program the functions of the optional external footswitch ($49) or the main pedal, check your firmware version, restore factory settings, and more. I recommend getting the footswitch, so you don't have to stoop down to pause or change songs.

CHEER I/O

Connectivity surrounds the pedal. Two 1/4" inputs are on the right side and pass audio through the box, uncolored, to the output pair. In addition to the footswitch jack, there's an independent level control for the 3.5mm stereo headphone output, and a connector for the MIDI Sync cable that accompanies the unit in order to sync BeatBuddy with other clock-driven gadgets in your rig.

BeatBuddy accepts an SD card, which holds all the MIDI and sample data (supporting 16- and 24-bit WAV files) that is bundled into Projects. The pedal comes with a 4GB card loaded with 200 songs and 10 kits. The 4GB card should take you through plenty of gigs, but the pedal can accept SD cards of any size. However, it's the micro USB port, in conjunction with the BBManager software (Mac/Win), that transforms BeatBuddy into a versatile groove powerhouse.

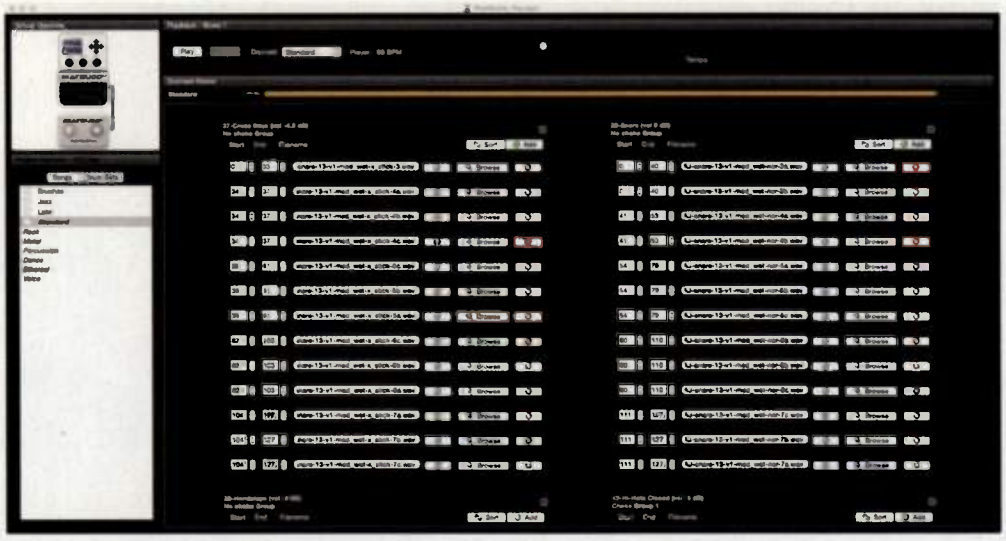


Fig 2. BBManager software is key to BeatBuddy's deep and expressive architecture. Note the velocity layers and round-robin samples in the snare drum.

YOURS FOR A SONG

BBManager loads the content of your SD card and, in doing so, reveals BeatBuddy's remarkable depth and the key to its realistic and musical performance capabilities. Round-robin articulations help the sample playback avoid the machine-gun effect, and a hefty amount of velocity layering of samples provide realistic dynamics (see Figure 2). I counted a dozen velocity-switched snares in the factory Standard kit.

The factory kits are a diverse and useful bunch, ranging from standard and jazz kits to brushes, human beatbox sounds, and analog drum machines, among others. They all sound terrific and lively. Adding your own samples or building your own kits is simple, and additional content will eventually be available from Singular Sound.

The songs are well-played, with natural-sounding grooves in a variety of styles. And, as with the drum kits, you can load your own MIDI Files and create your own content. There are tons of drum-oriented MIDI Files available online, and if you already own a sequencer, you can create your own or edit existing performances to taste. Factory settings conform the drum kits and songs to General MIDI Note assignments, though the editor will let you remap note numbers, too.

BEAT IT, BUDDY!

As it is, Singular Sound has a hit on its hands with what may be the simplest, most flexible, most compact, most elegant, and (apart from hiring a live drummer) the most musical means of working with digital drums and percussion for live accompaniment.

Offering the ability to add your own sounds and grooves, coupled with an impressive depth of expressive programming features in such a compact unit, puts BeatBuddy in a class of its own. Kudos! ■

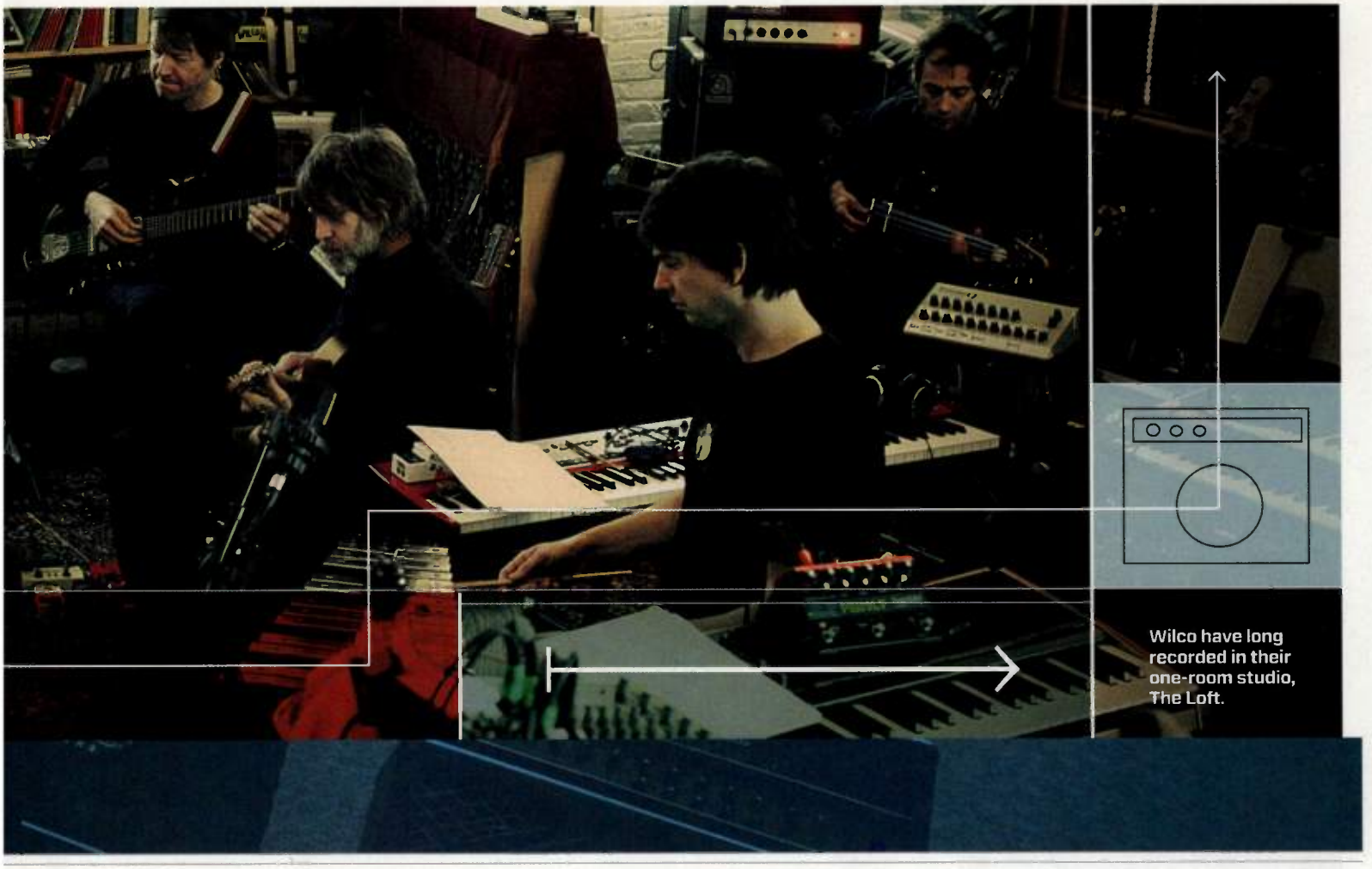
One-Room Recording

Capture the live energy of musicians performing together in a single recording/mixing space—while avoiding the pitfalls that can plague same-room sessions

BY STEVE LA CERRA

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

Many years ago I recorded a project with a band called Thick. As I recall, the drummer was renovating a mansion that belonged to his grandmother. At some point during the process, Grandma moved into the guesthouse and the band moved into the mansion to rehearse while the drummer was working on the reconstruction. They called me and asked if we could track the band's next CD at the mansion, using the rooms that were not covered with plaster and sawdust. It would turn out to be one of my most memorable recording experiences. Good friends, good food, and creating good music. Life doesn't get much better.



Wilco have long recorded in their one-room studio, The Loft.

The project was fairly ambitious: We had drums in the first-floor dining room, guitar amps in the bathroom with a Mesa/Boogie 4x12 in the tub (!), and a bass amp in a bedroom closet. We pooled our gear, created a control room in the attic, and ran a 16-channel snake down to the first floor near the drums. We ran lines for headphone mixes, and to facilitate visual communication between the drummer and bassist, we arranged large mirrors that allowed the drummer to see around a corner and up the stairs to the second-floor landing where the bass player was tethered to that amp in the bedroom closet.

Recording that project at the mansion gave us *time*, and that enabled everyone to be comfortable. We weren't stressed over the "nuts and bolts" of assembling the rig. Day one was strictly for setup, testing, and troubleshooting.

At the end of that day, we did a few rough recordings. There was no pressure or expectation of getting usable takes. After listening to the roughs, it was barbeque, beer, and a good night's sleep. The next day, we started tracking for real. On one or two occasions, the band struggled and we left it alone until the next day, when we could return fresh and rested. It was a lot of work, but the *feel* we captured in those recordings—of live musicians playing in a relaxed, familiar environment—was unmistakably amazing.

We had drums in the first-floor dining room, guitar amps in the bathroom with a Mesa/Boogie 4x12 in the tub (!), and a bass amp in a bedroom closet.

Your family may not want your band taking over their mansion, but there's a lot to be said for recording at home. Having a small home studio where you can do vocal overdubs, for example, can be a major stress reliever in the recording process. But what if you want to track your *entire band* at home, live? It can be done, with all of the musicians in the same room, where visual communication fosters that magical give and take that happens in a rhythm section. Some of your recording concerns are obvious (I'll mention them anyway), while others lurk under the radar.

WHAT'S IN THE CUPBOARD?

Let's say you have access to a space where you can set up your band "rehearsal style." (In fact, a rehearsal space or a garage can be a very good place to record.) The biggest question you'll face is, *do you really have the gear required to make a good recording*? We all have computers that run DAW software, and a good mic or two; however there are things to consider, such as the I/O capabilities of your audio interface. You'll probably need a minimum of 16 inputs to track a rhythm section. Can you record a great drum sound with four microphones? Sure, but maybe not with all of the instruments in the same room. Do you have the *right* microphones, plus cables and stands? Does your

Dealing with Ground Loops

Grounding issues arise when audio gear is grounded in multiple places. Here's an example: You plug a bass into a DI. The instrument cable has a ground, which is carried through the DI to the bass amp. The amp is plugged into an AC circuit on one side of the room, which is grounded. That DI also connects to the mic preamp in a mixer via XLR cable. The ground from the XLR cable is carried to the mixer, through to an outlet across the room on another AC circuit and then to another ground.

In theory, the mixer's ground should be at the same potential as the ground for the bass amp, but often they are not. As a result, current flows between them, producing a low-frequency (60Hz) hum (see Figure 1). The solution is removing one of the grounds, but it is unsafe to remove the ground lug (the round pin) from an AC cable. The safe way to solve this problem is by using the ground lift switch on the DI to break one of the audio ground connections (see Figure 2). The whole mess can often be avoided by feeding AC to the gear in a "star ground" manner, whereby all of the gear is ultimately plugged into one or a duplex pair of AC outlets by daisy-chaining power strips or rack power distributors. This ensures that all audio equipment shares a common ground.

Fortunately most modern audio gear uses little power, so you should be able to safely run the band and recording gear from a single 15- or 20-amp AC circuit.

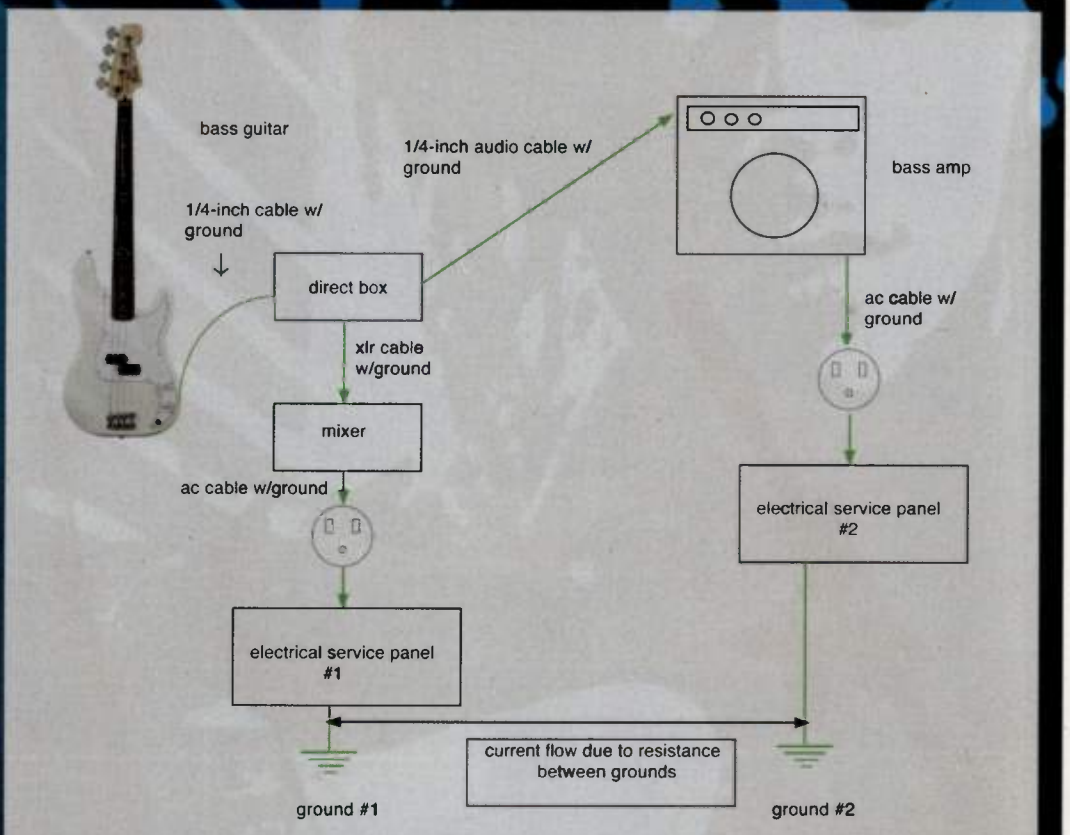


Fig. 1. When audio is grounded in two different places, there can be minuscule voltage differences between them (i.e. "ground" is not always 0 volts). Current will flow between the two grounds and leak into the audio signal, causing a loud hum.

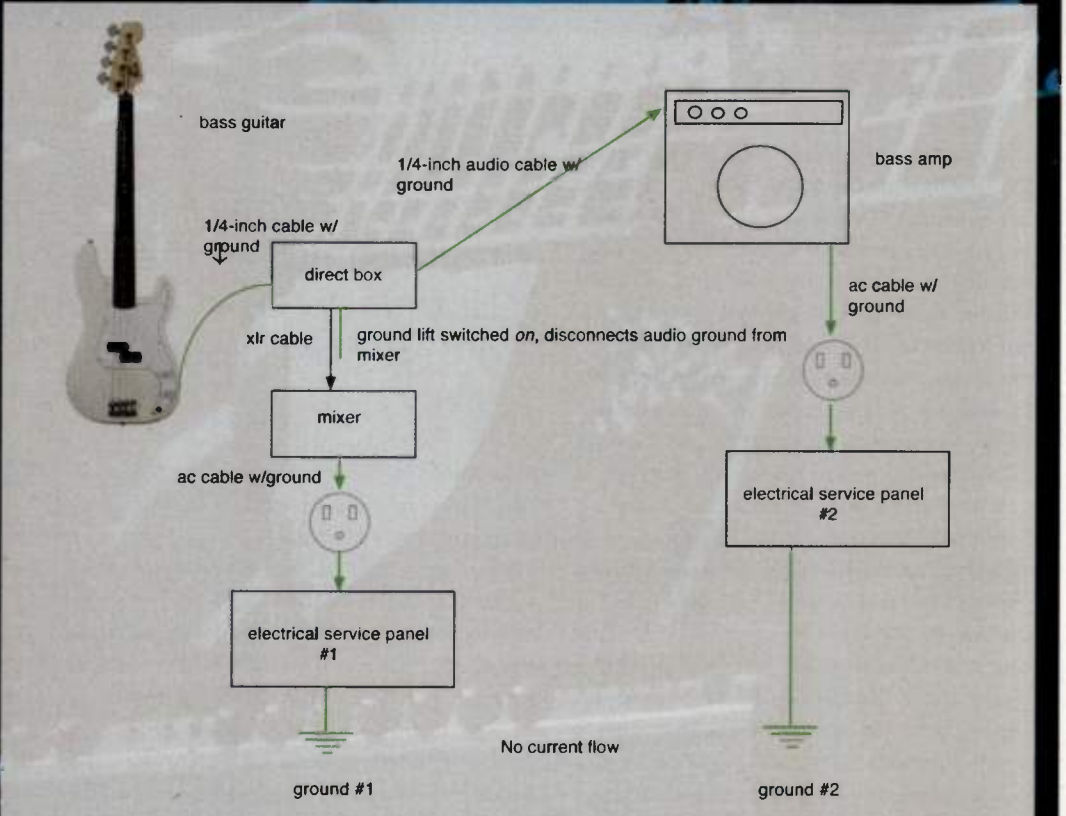


Fig. 2. Our bass amp and mixer are still grounded to the electrical system for safety, but the audio ground is interrupted by the direct box's ground lift switch. This eliminates the ground loop and the current flowing between the two grounds. Net result: no hum in the audio signal.

interface have the amount of outputs required to create multiple cue mixes? Is the band prepared to perform the songs, perhaps without hearing a reference vocal? In such a situation, a mixing console with an integrated FireWire or USB interface can solve a lot of problems, including providing a large number of preamps as well as multiple sends for headphone cue mixes.

EXPLORE THE SPACE

Isolating microphones from leakage is an important aspect of recording a live band. The less bleed from unwanted sounds into each mic, the more control you'll have in the mix process. Ideally, the drum mics would never pick up the bass or guitar amps, and vice-versa. As a result, consider distant miking to be a no-no. One way to achieve zero leakage between drums, electric guitar, and bass is to use amp simulators while recording. Notice I said *while recording*. Once you've got the performance down, you can reamp those tracks and go for the tone. Make sure to take DIs from the guitar and bass and record them to separate tracks. If that idea doesn't float your boat, you can purchase or build a small isolation box for a single speaker with a microphone mounted inside the box. Keyboards can also be recorded via DI, but remember—you'll need headphone mixes to hear these instruments, since there won't be amplifiers in the room. Add headphones, headphone extension cables, and a multi-output headphone amp to your shopping list.

There are ways to isolate guitar and bass amps even when they're in the same room as the drums. Clothes closets make great iso booths. Isolation can be improved by moving amps as far away as possible from the drums, facing them the opposite direction, and surrounding them with acoustic panels, couch cushions, or moving blankets. You'd be surprised at how much bleed a moving blanket can cut when draped over a kick drum or guitar amp and its microphone. Leakage itself is not such an evil thing, but it becomes a problem when mistakes need be fixed after the fact. You may find for example, that ghost notes of an old guitar solo remain in some of the drum mics. That's why it's important to...

A reflection baffle such as the one shown from sE Electronics can be very helpful in reducing bleed from sound sources located behind a microphone.

Aiming the rejection point of a microphone toward what you don't want is almost as important as pointing the front of that mic toward what you do want it to capture.

PAY ATTENTION TO YOUR MICROPHONE TECHNIQUE

Leakage is a relative thing. Its severity (or lack thereof) is related to the distance between a microphone and the intended source, distance between the mic and unwanted source(s), preamp gain, and orientation of the microphone itself. Obviously a Shure SM57 pushed within a few inches of a loud guitar amp suffers much less leakage than if it were placed three feet in front of the amp. But the other component in this equation is that—as you move the mic closer to the amp—you need less preamp gain, which in a manner of speaking "turns down" the room sound picked up by the mic. Keeping the mics close is relatively easy for guitar and bass amps and for most of the drum kit. Overhead microphones, however, present a challenge. You'll have to experiment to see how high you can place the overheads. Place them too high and they pick up everything; too low and the cymbals 'swish' every time they're hit. If you have access to acoustic panels or office dividers, they can help when placed in front of the drum kit. Or you can take the Peter Gabriel approach and tell the drummer that cymbals are not allowed.

As a general rule of thumb, it's probably a good idea to avoid using omnidirectional microphones because they can't discriminate against the sounds you *don't* want. Mics with cardioid and hyper- or supercardioid patterns are your friends in one sense and your enemies in another. Aiming the rejection point of a microphone toward what you *don't* want is almost as important as pointing the front of that mic toward what you *do* want it to capture. Example: You have a cardioid mic on the hi-hat. You want the front of that mic pointing toward the hi-hat cymbals. Have you looked at where the back of that mic is aimed? Point the

back of the mic (the point of maximum rejection) so that it's aimed toward the center of the room, or where the other musicians are set. Unfortunately many directional mics have a colored off-axis response, so the bleed can produce phase issues when combined with other microphones. Keep the mics close to the source to minimize this issue. If you have the luxury to experiment you may find that some microphones are more effective at rejecting leakage than others, even though they may have the same pickup pattern.


The Foo Fighters recorded *Wasting Light* in Dave Grohl's garage, on all-analog equipment.

Another issue to consider is whether to use dynamic or condenser microphones. The same crisp high-end response that we love about condenser mics also makes them more sensitive to background noise, a.k.a. bleed. Toms can benefit from the relatively reduced sensitivity of a dynamic mic such as a Sennheiser MD421, which is effective at reducing cymbal leakage as well as room noise.

STAND OVER THERE, PLEASE

When there is a vocalist in the room, be aware of the area behind him or her because reflections from the rear wall will bounce into the vocal microphone. Acoustic absorbers (gobos) can increase the level of isolation when placed around the singer. (I'm surprised by how often I see common office dividers headed for the dumpster. Rescue them.) Vocal microphone isolation can also be improved by using an acoustic isolator such as the sE Electronics Reflexion Filter. Don't be afraid to rearrange the furniture in someone's living room: Large, overstuffed sofas and chairs make pretty decent acoustic absorbers. Throw rugs or carpets reduce reflections and can help hide some of the cables that might otherwise trip you when you're trying to find your cell phone at 3am.

Perhaps the most challenging aspect of one-room recording is monitoring. Ideally we'd hear only what is coming through the microphones—not the ambient room noise—but there may be no point in using monitor speakers while the band is playing because A, you won't be able to hear them over the volume of the band anyway, and B, the monitor speakers will bleed into the microphones. One alternative is for the engineer to use headphones, preferably closed-back "muff"-type models that shut out external sound to some extent. Tried-and-true recording techniques will help you succeed when there is difficulty monitoring. I'll climb out on a limb and start sawing: If I have a good drummer on a decent drum kit and access to familiar microphones, I can make a very good recording without ever hearing the mics before I push Record. There's no reason that you can't turn off the monitors, record a take, and then play it back to listen to the results. It's more time consuming, but the whole point of a one-room project is doing it in a place where you can take your time...

Computer fan noise can be an issue when you're recording quiet passages. Computer isolation cabinets are nice but expensive; consider hiding the CPU under a coffee table and placing a moving blanket over it.

...AND DON'T GET THE POLICE INVOLVED

Now, some of the not-so-obvious considerations. You don't want the junkyard dog next door to bark and interfere with your recording. The dog's owner doesn't want your death metal band interfering with reruns of *Golden Girls*. Don't tick off the neighbors! This might mean working during daytime hours or ending at reasonable times in the early evening. Take a walk outside while the band is playing to get an idea of how loud they are. Open windows are probably not a good idea, but closing them brings ventilation issues. Air conditioning is a must during the summer, and air conditioners make noise. Turn off the AC during takes and turn it on between them. Ditto for steam heat, which can produce more hissing that a box full of snakes. Unfortunately, changes in temperature can cause guitars or basses to go out of tune, so check tuning before every take. Major appliances can create significant amounts of noise, so beware that noise from say, a washing machine, could ruin a take.

Mechanical noise is not the only issue related to household appliances. Some heavy appliances—especially those with motors—generate noise that can leak into electrical lines and infiltrate audio gear. To prevent such noise, keep the recording gear on a separate leg of the AC service and use AC line filters such as the Isobar from Tripp Lite.

Computer fan noise can be an issue when you're recording quiet passages. Computer isolation cabinets are nice, but expensive; consider hiding the CPU under a coffee table and placing a moving blanket over it.

AUDIBLE ARTIFACTS

Be aware of the affect that effects (pun intended) will have on your recordings. Suppose you want to compress the vocal mic during recording, which is generally not a bad idea. If you do so, you will promote leakage because when the vocal gets quiet and the compressor stops reducing gain, it will make the background noise (i.e. other instruments) appear louder. Getting rid of leakage might sound like a good reason to gate the kick, toms, or snare, but gating during the recording process is a slippery slope on which grace notes could be lost if the threshold is set too high. Save the processing for the mix.

The whole point of setting up to record at home in one room is so that you can be relaxed, interact with other musicians, and take your time in the process. A comfortable environment always makes better recordings. When musicians play in the same room, communication is easy and the feel is unmistakable. It could be the most fun you'll ever have recording. ■

Sam Ash®

WE ARE TECHNOLOGY

Samson Conspiracy MIDI Control Surface
$199.99

Pioneer XDJ-RX Rekordbox DJ System
*24 Payments of $63**

Korg ARP Odyssey Duophonic Analog Synth
*24 Payments of $42**

Focusrite Scarlett 18i20 USB Audio Interface
*24 Payments of $21**

Universal Audio Apollo 8
Thunderbolt 2 Audio Interface
*24 Payments of $50**

Focal Alpha 65
Active 2-Way Studio Monitor
*24 Payments of $17**

Dave Smith Instruments
TEMPEST Analog Drum Machine

Samson VR88
Velocity Ribbon Microphone
*24 Payments of $17**

AKG C314 Multi-Pattern
Condenser Microphone
*24 Payments of $30**

Neat Microphones
King Bee Condenser Microphone
*24 Payments of $15**

Roland JD-XI Analog Digital Crossover Synth
*24 Payments of $21**

Moog Music
Tolex Minimoog Voyager XL
*24 Payments of $230**

TASCAM CG-2000 Video Sync
Master Clock Generator
*24 Payments of $125**

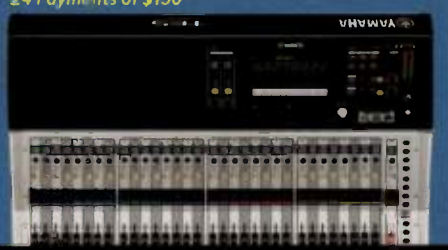
Allen & Heath Qu-Pac
32 Rack Mount Digital Mixer
*24 Payments of $63**

Roland R-26
Portable Recorder
*24 Payments of $17**

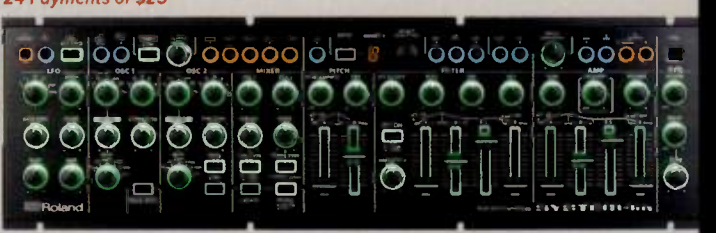
MOTU UltraLite AVB 18x18
USB AVB Audio Interface
*24 Payments of $28**

Akai Advance 49 Virtual Instrument
Player/MIDI Controller
*24 Payments of $21**

Yamaha TF5 32 Channel Digital Mixer
*24 Payments of $150**



Roland SYSTEM-1m Plug-Out Synthesizer
*24 Payments of $25**



Speak to one of our experts today **1-800-472-6274 • SamAsh.com**

SPECIAL FINANCING
0% INTEREST for 24 MONTHS

On purchases of $299 or more on select products from over 90 top brands when you use your Sam Ash credit card through 8/30/15.
**24 equal monthly payments required.*
Visit SamAsh.com for details

synchrony FINANCIAL

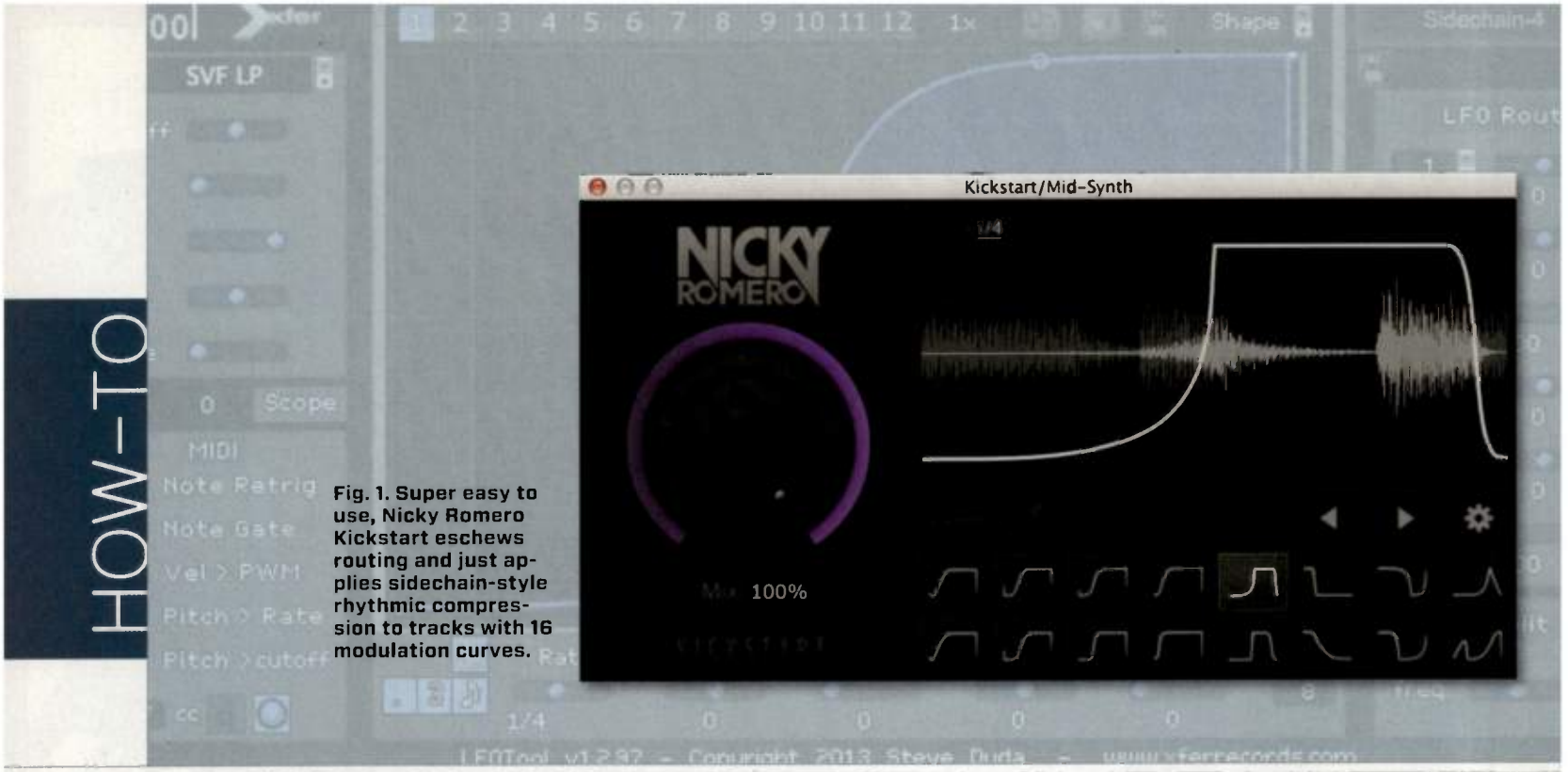


Fig. 1. Super easy to use, Nicky Romero Kickstart eschews routing and just applies sidechain-style rhythmic compression to tracks with 16 modulation curves.

Creative Uses for Sidechains

Get that dance music pump and other effects by triggering compressors and gates from the input of other tracks

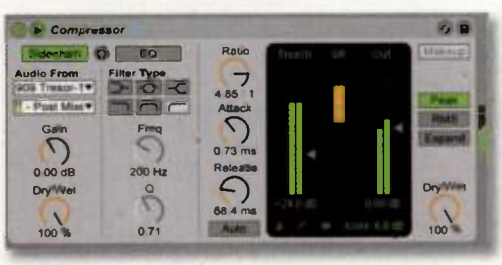
BY MARKKUS ROVITO

Sidechaining usually describes the practice of controlling the compressor on one track with the output of another. "Ducking" was one of sidechain compression's earliest uses: On live radio or TV, the announcer's voice would trigger a compressor on the music to attenuate the volume while the person spoke. A long release on the compressor would keep the music low during short pauses of the dialog. These days in pop music or other genres where the vocal sits up front in the mix, engineers may use a subtler version of this ducking, setting the compressor with a lower ratio and shorter release and perhaps compressing only midrange tracks that conflict with the vocal, rather than compressing the entire mix.

Most modern DAWs have compressor effects with sidechaining built in, but you may also want to look into some plug-ins that specialize in sidechain-style effects for electronic music, like Nicky Romero Kickstart ($15), Cableguys VolumeShaper 4 ($40), or Xfer LFO Tool ($49), which simulates sidechain compression and performs other effects.

Here are some other creative outlets for sidechaining, going from common to unusual.

Fig. 2. Live's stock Compressor on a bass group track with the sidechain input set to the kick drum. The Ratio is noticeable but not extreme, and the Attack is slightly open to allow some bass transients.



CLEAN UP BASS MUD

A common cross-genre use for sidechain compression attenuates the volume of your bass with the kick drum, so the two low-end elements don't conflict too much in the mix. Drop a compressor on the bass track or track group. You may have to send the kick track to a bus and then set the compressor's sidechain input to that bus. In other plug-ins, like Ableton Live's stock Compressor, just set Sidechain Audio From to your kick track (Fig. 2). Make sure the compressor's threshold is low enough for the kick to trigger it. You usually want a short attack and release on the compressor, so that the effect on the bass cleans up low-end mud, but is otherwise hardly noticeable. Lengthening the attack a bit allows more transients in the bass and may make it sound punchier.

THE PERFECT PUMP

Dance genres like filter disco and French house

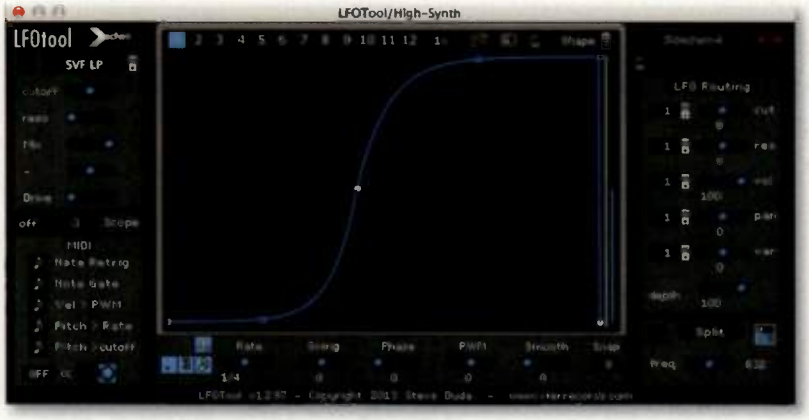


Fig. 3. Xfer LFOTool performs other effects like tremolo and auto-pan as well as sidechain-style compression, without the need for routing channels. This compression preset waveshape makes for some pretty serious pumping.

Fig. 4. Live's stock Gate on a looping bass patch, set to open on the sidechain input from the kick drum.

in the '90s and early 2000s popularized extreme pumping of the entire music mix (besides the kick) from sidechain compression, and today some amount of pumping in dance music and R&B is almost mandatory (Fig. 3). This is similar to the previous example, except this time put the sidechained compressor on a group track containing everything but your kick or drum group. Increase the compressor's ratio for more extreme pumping. A short compressor attack will make the effect sound sharper, while a slower attack will smooth it out. A too-short release may sound distorted, while a too-long release will erase the pump, so dial in something to taste in the middle.

SPLURGE ON EAR CANDY

You don't always have to trigger the compressor with a kick. Just like you can use sidechaining to clear up bass mud, you can also use it to settle frequency disputes in the mid- or high-range. Say you have a track with persistent synth pads or long, sustained strings, but you also have some SFX ear candy, a lead arpeggio, some woodwind flutters, etc. going on in the same frequency range. Put a compressor on the sustained sound, and set the sidechain input as the other track that's fighting for space in the mix.

UNLOCK THE GATES

Sidechaining is not just for compressors anymore. Many DAWs—such as Live 9—include noise gates with sidechain inputs for opening the gate, thus making the sidechain input add sound rather than scoop it away. One use for this would be to record a constant loop of a single low bass note—the root note of your song's key—put a gate on it, and use the kick drum as the sidechain input to open the gate (Fig. 4), giving the kick another layer of oomph. ■

Go mobile with your MOTU studio

Achieve unprecedented performance for your compact and mobile MOTU studio

The New MacBook
The future of the notebook

With the new MacBook, Apple set out to do the impossible: engineer a full-size experience into the lightest and most compact Mac notebook ever. That meant reimagining every element to make it not only lighter and thinner but also better. The result is more than just a new notebook. It's the future of the notebook. Engineered from the ground up for silent, efficient performance, it starts with a fifth-generation Intel Core M processor that runs on just 5 watts of power, made even more efficient by optimizations throughout OS X Yosemite. Together the processor and OS X sip so little energy that the system generates very little heat, so no fan is required to cool the computer. That means when your MacBook is working, you won't hear a thing, except your music.

MOTU Digital Performer Version 9

MOTU UltraLite AVB
Mobile recording with best-in-class analog

The latest in MOTU's best-selling, award-winning UltraLite interface series, the UltraLite AVB delivers 36 simultaneous audio channels (18 in plus 18 out), DSP mixing and effects, wireless control over wi-fi, AVB audio networking, and best-in-class analog audio quality for on-the-go mobile audio recording. The eight balanced analog outputs deliver a stunning 117 dB dynamic range.

Nektar Impact LX25
Compact 25-key MIDI controller

A Sweetwater best-seller, Nektar MIDI controllers deliver tight integration with Digital Performer and other DAWs, including transport control, track-selection and many other crucial features via pads, faders, encoders, buttons and full-size keys. Get ultimate hands-on control with the Nektar Impact LX25.

Value Added Reseller
Professional Audio

MOTU

Zynaptiq MORPH 2.0
Real-time structural audio morphing

MORPH 2.0 lets you take one sound and slowly change it into another sound. Create seamless morphing transitions, completely new hybrid sounds, physically improbable instruments, out-there robotic voicings, talkbox-like effects and a universe of unique and outrageous sounds. There's no limit to what you can do. Whether you are a sound designer for film or games, or a musician, producer, or remix artist, MORPH 2 lets you forge completely new content from existing audio in seconds.

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 performance in tight spaces. High SPL handling, ultra-smooth frequency response, and interchangeable polar patterns make this a must-have mic bundle. Includes two mic bodies and eight capsules in a custom case.

Mackie FreePlay
300W all-in-one mobile PA System

Take great sound with you with the Mackie FreePlay portable PA system with 8" low-frequency driver, 4-channel mixer, Bluetooth connectivity and battery/AC operation. Hook up a vocal mic and your acoustic-electric guitar, stream backing tracks from your laptop or smartphone via Bluetooth, and you're ready to perform with up to 10 hours of operation from eight D-cell batteries. Built-in feedback elimination makes sure you always sound great.

Sweetwater®
Music Instruments & Pro Audio

(800) 222-4700
www.sweetwater.com

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

PRODUCT SPOTLIGHT

Piano Recording - Your Music
Get Real Piano
Available Now
Get Real Piano is an online piano recording service. Uploaded midi piano files are custom rendered and recorded on an acoustic Yamaha Disklavier grand piano. The results are returned as hi-res audio files.

$200 per track
www.getrealpiano.com

TURN YOUR MIDI
PIANO TRACK
INTO THE REAL THING

• Custom midi rendering & recording •
• Real acoustic grand piano •

www.getrealpiano.com

HV-32P and HV-35P Mic Preamps
Millennia
Available Now
The critically acclaimed Millennia sound in their most affordable and portable packages yet. Hear the improvement in quality and clarity these high resolution preamps make with your music.

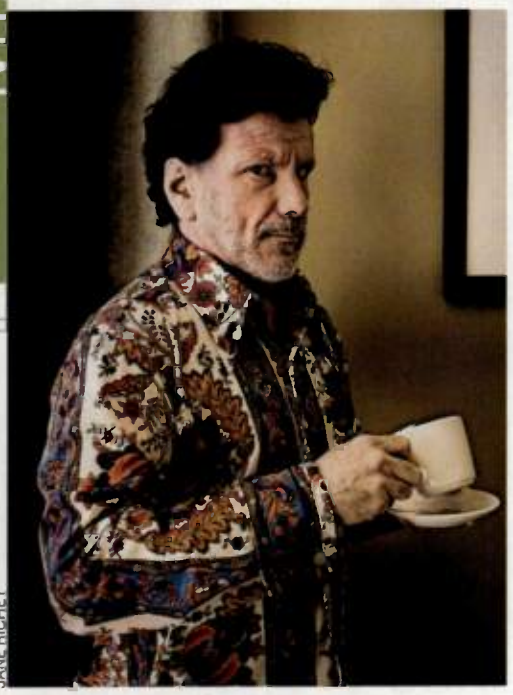
Street: $1079.99 HV-32P, $719.99 HV-35P
www.mil-media.com
sales@mil-media.com
(530) 647-0750

Strum GS-2 – Acoustic Guitar
Applied Acoustics Systems
Available Now
Strum GS-2 is your new session guitarist – it provides a collection of steel and nylon acoustic guitars, automatic chord voicing, strumming techniques, a MIDI riff library, and a complete multi-effect section. Producing guitar tracks has never been so simple

SRP: $199
www.applied-acoustics.com
888-441-8277

Mastering Audio

It's not about the gear; it's what you do with it



JANE RICHEY

BY GINO ROBAIR

It is said that to understand a subject fully, you must teach it. While I'm not implying that Bob Katz's understanding about music technology is lacking, I get the sense that he has wrestled with the topic to a much greater degree than he would've if he hadn't written about it.

Within the pages of the outstanding third edition of his book *Mastering Audio: The Art and the Science* (2014; Focal Press), Katz not only demystifies the subject of mastering in a logical, well-organized way, but he has created a resource that will be equally of interest to pros and beginners.

Although the first and second editions of the book were important surveys of the skills required to become a mastering engineer, the latest version has been greatly overhauled to reflect important changes in the field during the seven years since the second edition was published, such as the way music is consumed. For example, as high-quality streaming becomes the norm, the author describes how the loudness wars could end if loudness normalization is adopted by the media companies that deliver music. In fact, the chapter on the subject, as well as the subsequent ones, are invaluable.

START WITH A GREAT MIX

The biggest surprise to those unfamiliar with *Mastering Audio* may be that it isn't just for nascent mastering engineers. Rather, it examines topics that are important in every stage of the recording process, such as properly dealing with dynamics and monitoring, or understanding dither and jitter. Katz also delves into mixing and effects processing from the standpoint of the mastering engineer and the types of problems he or she typically encounters. Consequently, *Mastering Audio* should be mandatory reading for anyone making music in a personal studio.

Katz is not just cautionary about overusing EQ and compression; he gets into the theory of how we experience sound to explain why some techniques work and others don't—for example, using delays and taking advantage of the Haas Effect to add depth to a mix rather than soaking everything in reverb. The information is explained in a way that is easy to understand and is surprisingly fast paced.

In fact, the further I got into the book, the more I realized how useful it would be even for musicians who have no interest in recording themselves, but who want to understand enough about the science, technology, and lingo to know what to listen for when they're given a mix of their record, not to mention a master to sign off on.

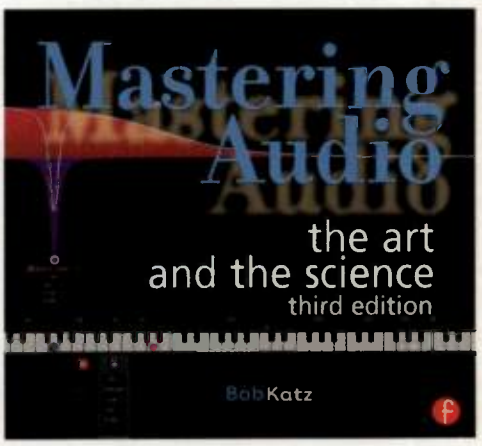
BEGINNER'S MIND

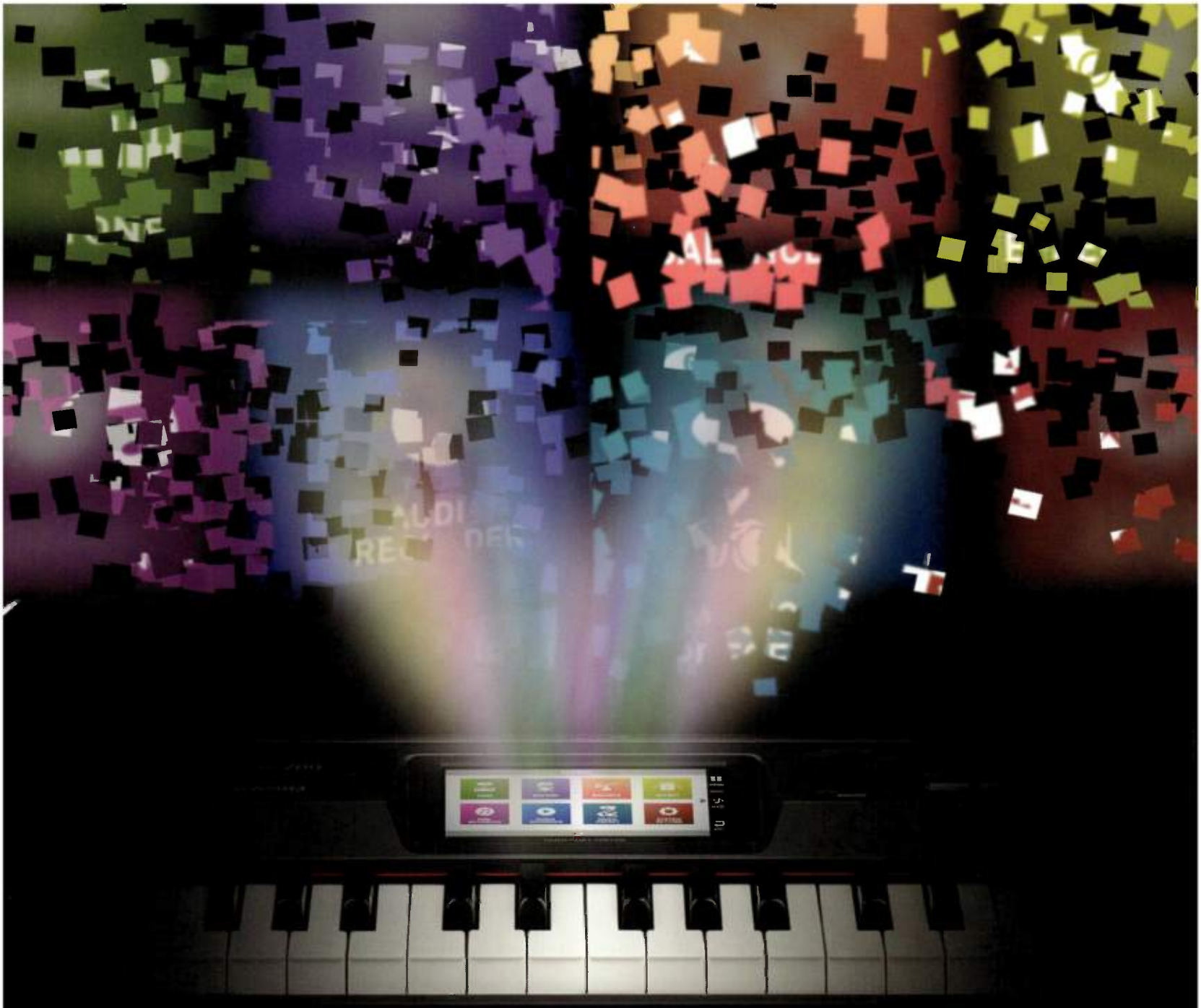
The greater lesson the book offers is that lifelong learning is important in our field, especially for those who want to continue making high-quality recordings. That means keeping abreast of the technological advances that are meaningful; that we can put to use in a practical way, rather than simply following what's trendy or au courant.

Katz points out early on in the book that the reader's focus should be on the skills, not gear acquisition: In many cases, it is not our tools that hold back the quality of our work but, rather, our lack of understanding as to what they do, as well as their potential. And it's too easy to get comfortable and set in our ways once we find something that works. Consequently, when a major disruption arrives in the form of a new technology, we tend to view it as a major hassle. But if the new paradigm means a measurable improvement in sound quality, it's worth the extra effort it takes to learn and internalize the skills required to work with it.

It should be no surprise that Katz, himself, regularly challenges his expectations to make sure that what he is hearing is as reliable as possible, to the point where he has embraced a particular technology that he disavowed in an earlier edition of the book. Who else but one of the masters in the business would admit that in print? (No spoilers here! Read for yourself to find out what he learned.)

All of this points to how instructive the book's title is. When viewed in the active sense, it says everything about what it means to be a musician or engineer in the 21st century: Achieving a full understanding of the art, science, and craft is a journey; it's about the process, rather than a single goal we can expect to achieve. ■





5.2" Color Touch Interface™

6 Speaker 40W Sound System

CGP-700

Compact Grand Piano

Experience the CGP-700 at Summer NAMM Booth #432

For more information visit:

CASIO


“The 16A brings sound quality to a whole new level”
André “Dré” Bowman
Grammy nominated Producer/Bassist/Music Director
Usher #UREXPERIENCE Tour Music Programmer
#UR XTOUR
16A
• Superb analog performance
• 1.4 ms round-trip latency thru Thunderbolt at 96 kHz
• DSP with mixing & effects
• Wireless control over wi-fi
• System expansion/networking
Learn more at motu.com/16a
16A
ANALOG IN
ANALOG OUT
OPTICAL
MOTU
96k
Int
IN
OUT
CLOCK
1248
8M
16A
24Ai
24Ao
MONITOR 8
112D
Need other I/O configurations?
See MOTU’s entire new line
of interfaces at motu.com.
AVB
THUNDERBOLT
USB
MOTU
motu.com