

Trucks/Tedeschi in the Studio \* Live: Jeff Beck, Mumford & Sons Lonely Island



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AVID PRO TOOLS | HD NATIVE  
MACKIE MR5MK2  
UNIVERSAL AUDIO UAD-2 SATELLITE  
API THE CHANNEL STRIP  
BAG END INFRASUB-18 PRO, PMM-8

# STUDIO DESIGN

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- *State of the State: Who's Building What*
- *Acoustical Materials: Accuracy and Truth*

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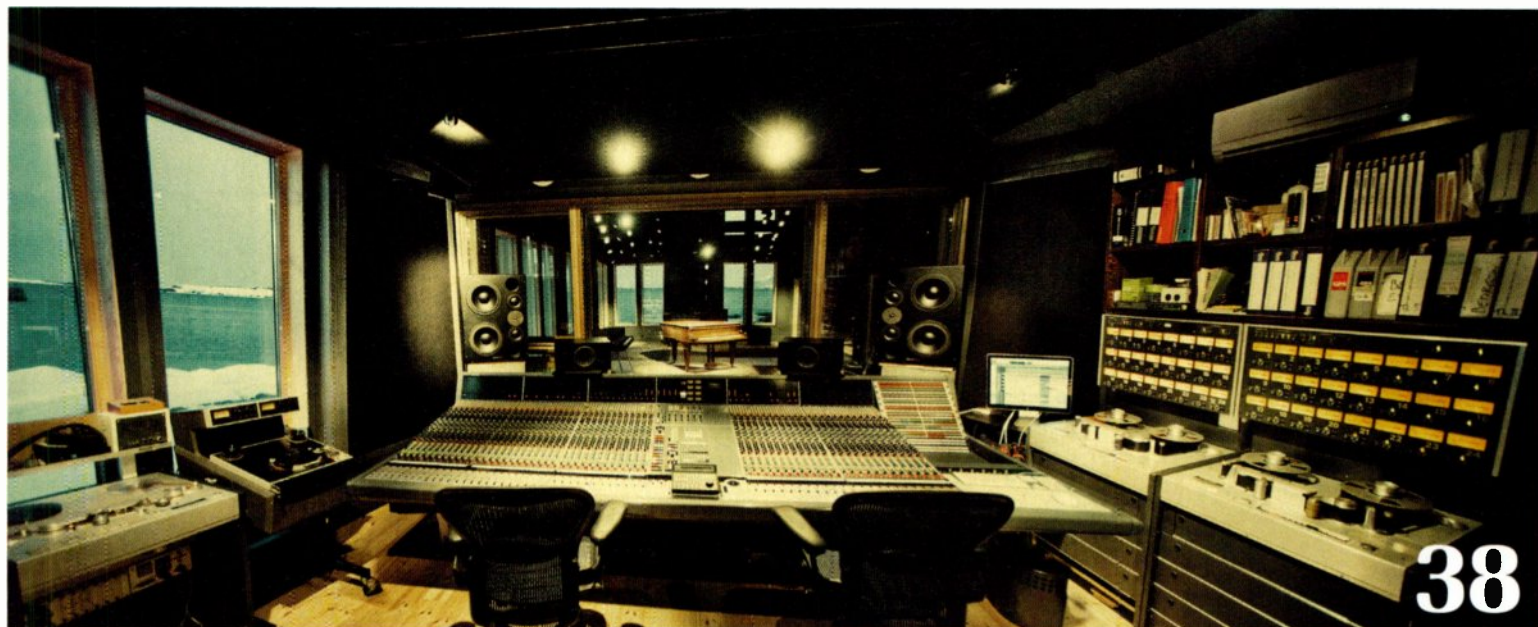
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The studio—whether a multi-room/multi-use space or a project room as an extension of the family home—is built for creativity. With proper acoustics comes accuracy. With proper workflow comes efficiency. With proper vibe comes the art.



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**On the Cover:** Jungle City Studios, a new three-room studio jewel in Chelsea, is the home base for owner/engineer Ann Mincieli. Designed by John Storyk and his WSDG team, it features an SSL Duality, Avid ICON, Euphonix System 5, Augspurger mains and unbeatable views of the Hudson River and Empire State Building, along with most of Manhattan. For more, go to page 12. **Photo:** Cheryl Fleming, cherphotos.com/architecture. **Inset Photo:** Dave Vann.

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## EMPIRE STATE OF MIND

**T**his was supposed to be a note about Mix. About how we have new owners in NewBay Media and a new design with a wider format. A new column by longtime tech editor Kevin Becka and a new position and focus on our Big Three: Music, Live and Sound for Picture. New energy. New approach. New. New. New. But then I got sidetracked by New York. Something is happening there. Right now.

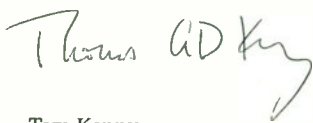
Look again at that cover. It's the world's most recognizable skyline in high-def—and it's from a tracking room! Jungle City Studios, on West 27th in the up-and-coming High Line district, is a gem, no question. It's a John Storyk design, owned and operated by engineer/producer Ann Mincieli, a born-and-bred New Yorker who has moved smoothly into her own digs and developed a forward-thinking studio model, all the while recording around the world and maintaining her association with the crazy-talented Alicia Keys. Mincieli is no newbie. She's worked in nearly every studio in town during the past 20 years, and she has an impeccable reputation within the tech and artist communities. She can take apart and modify an SSL console, and she can co-produce the multi-Platinum *Songs in A Minor*. She collects gear like a pack rat, and she studied advanced guitar with Carlos Alomar. She talks balanced power as easily as she does grace note slurs. She can make this work. The bookings are there. People want to be in the City again, and that's good news for the entire recording industry. New York has always been something of a bellwether.

There's no question that the New York recording community hit a rough patch in the past few years. The closings of Hit Factory in 2005, followed by Sony Studios, Right Track midtown and a number of others were highly publicized, and the death knell for the recording industry was sounded by the mainstream media. There's a maxim of journalism that says, "If it bleeds, it leads," and it's always easier to report on loss. But in the years following, not much has been written about all of the music still coming out of New York. Nothing about the wealth of musician-friendly studios in Brooklyn. Or the Grammy-magnet Stadium Red in Harlem, featured in this month's "Class of 2011." Or the efforts by Brian McKenna, Anthony Drootin, Vlado Meller, Glenn Swan and a host of other former Sony staffers to bring work back to the City. It seems, to paraphrase Mark Twain, rumors of studio deaths were greatly exaggerated.

Mincieli would be the first to say that she's not inventing anything. She's just trying to resurrect the notion that New York City is the destination, a world center of so much art and culture, music included. She pays homage to the Germano family for creating the modern New York recording community in and around Hit Factory, and she remains friendly with former CEO Troy, who helped kick-start the rebirth when he opened the two-room Germano Studios downtown in 2008. And we still have Avatar, Quad, the Cutting Room, Electric Lady, Clinton, Manhattan Center—it's not the heyday of the mid-'90s, but recording in New York is definitely on the upswing.

I had a good chat with longtime friend and consummate New Yorker Howard Sherman as we were putting together this issue. He said the energy is palpable. New buildings are going up, new businesses are opening, you can feel the buzz on the street. "I don't know who's paying for it," he said, "but there's stuff happening all around the city. Will Smith just bought a place on my block!"

Business cycles ebb and flow, entire industries reinvent themselves, and changes in the culture and in technology force many of us to re-examine the way we live and work. But if there's one sure thing, one guaranteed bet, it's that you can always count on New York City to find its own way, to come back stronger than ever.



Tom Kenny  
Editor

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BY DAVID SCHWARTZ, PENNY RIKER AND BILL LASKI

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The image shows two professional Shure KSM microphones mounted on boom arms in a recording studio. The microphones are silver and have a distinctive spider-like shock mount. The background is a wood-paneled wall, and a cello is visible in the lower left. The lighting is warm and focused on the microphones.

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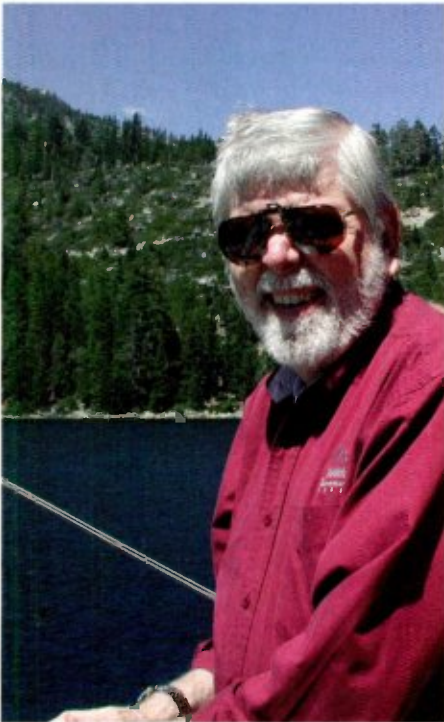
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# Current

**Recording and Mixing Techniques for Vocal Recording**  
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COMPILED BY SARAH BENZULY

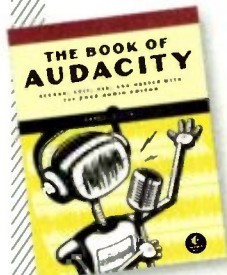
## LON BRANNIES, 1945-2011



Longtime Yamaha employee (27 years) and audio industry veteran Lon Brannies passed away on April 18 after a long illness. He was initially hired as a professional audio district manager covering the Southern U.S. and in 2007 as a consultant marketing manager. In 2008 he went back to college and earned a bachelor's degree in Business Marketing. Brannies spent 15 years as a sound and electronic systems contractor prior to joining Yamaha. Donations can be made in his memory to H.E.A.R. at [hearnet.com](http://hearnet.com).

## Save the Date

The 27th Annual Technical Excellence & Creativity (TEC) Awards will once again be held at the NAMM Show, on Friday January 20, 2012, in Anaheim, Calif. Find out more at [tecfoundation.com](http://tecfoundation.com).



—Carla Schroder, author of *The Book of Audacity*, courtesy [DigitalMusicNews.com](http://DigitalMusicNews.com)



## Behind the Scenes: Joe Barresi

Producer/mixer/engineer Joe Barresi (Tool, Queens of the Stone Age, The Melvins) and On the Mark Media release *Joe Barresi: Tracking Rock*, a behind-the-scenes HD video that takes you through his process of producing and tracking a song for alt rock band Zico Chain in his private studio, JHOC (Joe's House of Compression).

It also documents the signal chain of each instrument recorded and details the usage of Barresi's collection of amplifiers, cabinets and au-



dio processing gear. The complete Pro Tools session, OMF and raw audio tracks accompany the video for critical listening and analysis. Purchasers can email Barresi with any questions regarding the video or recording in general. \$95, [techbreakfast.com](http://techbreakfast.com). A subsequent release of Barresi mixing Zico Chain's song on his SSL 4000 console will be made available in Q3 of 2011. Discount pricing will be offered to purchasers of the tracking video.

“When you're shopping for audio gear and getting drawn into the 'higher specs and price tags are better!' zone, take a step back and reboot your mind. Take a deep breath, slow down and concentrate on learning how to get the best out of lower-end equipment. Because today's average digital audio gear is better than the top-of-the-line analog studio gear of yesteryear—with more accuracy, fidelity, wider dynamic range and less noise—it's a whole lot easier to record, mix, edit and apply effects. You won't have to fuss so much with learning how to use your equipment, and you can concentrate more on learning how to make good recordings with artistic and technical fidelity. In this chapter, we're going to turn a PC into a digital audio workstation and we won't break the bank to do it. We'll also look at portable digital recorders, which cram amazing fidelity and storage capacity into tiny devices and are endlessly useful in all kinds of circumstances.”

## Focusrite to Produce Select Audient Gear

The Focusrite Control 2802 dual-layer mixing console is the first product under this new agreement, whereby Focusrite will commence the production and sale of certain Audient product designs. The two companies will continue to work together on developing and delivering new designs.

The Control 2802 is a small-format recording console and DAW control surface. Dual Layer technology allows users to jump between analog mixing and DAW control. The 2802 integrates summing of 28 inputs, comprehensive monitoring, stereo master-bus compression and control over every major DAW. The Control 2802 will be available this month.



### Correction Log

The SE Electronics Voodoo VR1 and VR2 review's "Product Summary" (April 2011) should have read: PROS: Both mics ship in a sturdy wooden box and come with a simple stand mount, suspension shock-mount, and fabric sock to protect the ribbon element from environmental damage during setup. CONS: Quality, low-noise gain stage needed for VR1.

In that same issue's "Production Music Libraries" feature, the write-up for RoyaltyFreeMusic.com is actually for Royalty Free Music Library ([royaltyfreemusiclibrary.com](http://royaltyfreemusiclibrary.com)).

# talkback

Talk back to us at  
[mixeditorial@nbmedia.com](mailto:mixeditorial@nbmedia.com)  
or join the discussion at  
[mixonline.com/TalkBack](http://mixonline.com/TalkBack)

I'm relatively new to studio production/mixing. I only have about two years of solid involvement and previously did an entry-level music production course a few years back. I'm running Pro Tools 9 and Ableton Live 8 on an iMac, have some Waves plugins, Native Instruments Komplete 7, TL Audio Ivory 5051 Valve Comp, RME Fireface 400 and Genelec 8040As. I'm finding my final mixes need more separation and space, and I have been reading up on out-of-the-box analog summing. What options are going to be best and most cost-effective?

— MATT MELER

Matt,  
You're in luck because there are a lot of options in this category. Check out summing boxes from Dangerous Music, SPL, InnerTube Audio, AMS-

Neve, Boutique Audio/Inward Connections and Tube-Tech for some mid- to high-end options. You could also use the Mackie 1640i (\$1,499) console as a summing platform. You'd also get the preamps, EQ and other features the console offers. Check out Mix's "Tracking The Band" Webcast (available at [mixonline.com/webcasts](http://mixonline.com/webcasts)) for more info on that. I used it as a tracking and mixing platform, and for the money you can't beat it. The Radial Workhorse 5000 is a 500 Series module platform but also has a summing mixer built into it that is quite nice. It's affordable (\$1,399) and you'd get the benefit of being able to build your own portable recording/mixing rig using a wide range of 500 Series modules.

— KEVIN BECKA, MIX TECHNICAL EDITOR

Got a question? Email us at [mixeditorial@nbmedia.com](mailto:mixeditorial@nbmedia.com).

## SPARS Sound Bite

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SERVICES

SPARS newly elected Board members include Jessica Dally, Live Sound and Post Editor/Mixer, Los Angeles; Dave Hampton, engineer/educator/author, Los Angeles; Mark Rubel, Pogo Studio, Champaign, Ill.; Rick Senechal, Microsoft Studio, Redmond, Wash.; and Candace Stewart, EastWest Studios, Los Angeles. Re-elected to the Board were Trevor Fletcher, Hit Factory-Criteria Recording, Miami; Scott Phillips, Blackbird Studios, Nashville; Kevin Beeka, Conservatory of Recording Arts/Mix magazine, Tempe, Ariz.; and Sherri Tantleff, Full Sail University, Winter Park, Fla.

Members continuing on the Board are Kirk Imamura, Avatar Studios, New York City, who will be serving as the new president; Zoe Thrall, Studio at the Palms, Las Vegas; and Tony van Veen, Discmakers/CD Baby, Pennsauken, N.J.. Eric Johnson, Blazing Music + Sound (Raleigh, N.C.) moves to the position of immediate past president.

## MIXBLOGS

### TechTicker: Meet Hilo

Lynx Studio Technology today introduced the Hilo Reference A/D D/A Converter System. With the pristine, open, transparent audio quality for which Lynx is known, Hilo provides two channels of mastering quality analog-to-digital conversion, up to eight channels of digital to analog conversion, a secondary monitor output, and a world-class independent headphone amplifier in a compact half-rack size. A first for the pro converter market, Hilo's innovative 480x272 touchscreen provides a flexible and intuitive interface that can adapt to a particular application and be easily upgraded with enhancements and new features...

[blog.mixonline.com/mixblog](http://blog.mixonline.com/mixblog)

### MixSounds: Jon Pousette-Dart

Back in junior high school there were plenty of reasons to dislike Jon Pousette-Dart. Tall, blessed with Prince Valiant good looks, he had a gilded tenor and a smooth hand on the guitar. But he was confident, not arrogant, and when we rehearsed the theme to "Peter Gunn," or Santo and Johnny's "Sleep Walk," he flashed a winning smile. So we gave him a pass! [blog.mixonline.com/mixblog](http://blog.mixonline.com/mixblog)

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## Studio Unknown Update

How can studio owners keep up their daily routines and stay up to speed on the multiple changes taking place in the industry? That's where the studio consultant comes into play. Find out what these experts offer and why so many pros are choosing to take advantage their services.

[mixonline.com/studio\\_unknown](http://mixonline.com/studio_unknown)

## Cool Spin:

**Augustana's Augustana (Epic Records)**

### AUGUSTANA



I've been listening to this new album for a few weeks now and every time I pop it back into the CD player, it's like an old friend coming to visit. Frontman

Daniel Layus' tender vocals play nicely off of soaring tempos, easily sliding between a rockin' ballad and then into a more staccato-flavored beat. While vocals are sitting front and center in the mix, the stellar band (guitarist Chris Sachtleben, bassist Jared Palomar, drummer Justin South and keyboardist John Vincent) drives the album, one track at a time. And not surprising, as producer Jacquire King, the man behind Kings of Leon's breakthrough, *Only by the Night*, oversaw this project. Filled with rootsy-rock, Augustana's self-titled release is a beautifully drawn album.

Read more of this review and others at [mixonline.com/cool-spins](http://mixonline.com/cool-spins).

## SoundWorks Collection Update

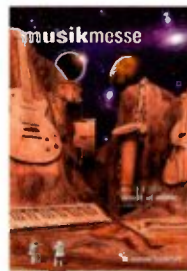


*The Lost Thing* is about a boy who discovers a bizarre-looking creature while out collecting bottle tops at the beach. He tries to find out who owns it or where it belongs, but is met with mute indifference from everyone else. For reasons

he does not explain, the boy empathizes with the creature and sets out to find a "place" for it.

Supervising sound editor/sound designer John Kassab discusses his work on this animation.

[mixonline.com/SoundWorksCollection](http://mixonline.com/SoundWorksCollection)



## Musikmesse 2011 Show Report

Frankfurt, Germany's Musikmesse (March 21-24, 2011) is a musician's Mecca that everyone in the music production industry should experience at least once in his/her lifetime. This year, my trip found me really focusing on the ProLight and

Sound areas of the show, while taking an occasional stroll into the vintage guitar room to look at some amazing instrument collections. As much fun as looking at old guitars is for me, my real joy was in learning about the amazing array of new products available for audio and music production. Go to [mixonline.com/musikmesse\\_2011](http://mixonline.com/musikmesse_2011) to read the show report and view product-demo videos.

## NAB 2011 Show Report

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The 2011 NAB Show (April 11-14, 2011) brought throngs of broadcast industry professionals from 151 countries to the Las Vegas Convention Center, where they could see and preview equipment on display from more than 1,500 exhibitors. According to the National Association of Broadcasters, this year's attendance showed an increase over the 2010 show; for the 2011 NAB Show, NAB reported 92,708 total registered attendees, while the 2010 NAB Show final attendance was 88,044. Pro audio exhibitors once again held court in the Central Hall, and according to NAB, nearly 14,000 NAB Show attendees are interested in pro audio. Go to [mixonline.com/nab\\_2011](http://mixonline.com/nab_2011) to read the full show report.

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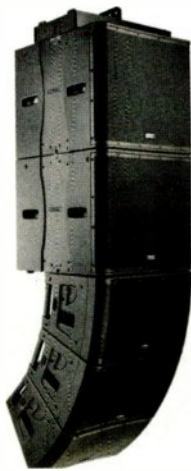
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World Radio History

# On the Cover

By Tom Kenny

## JUNGLE CITY STUDIOS, NEW YORK CITY

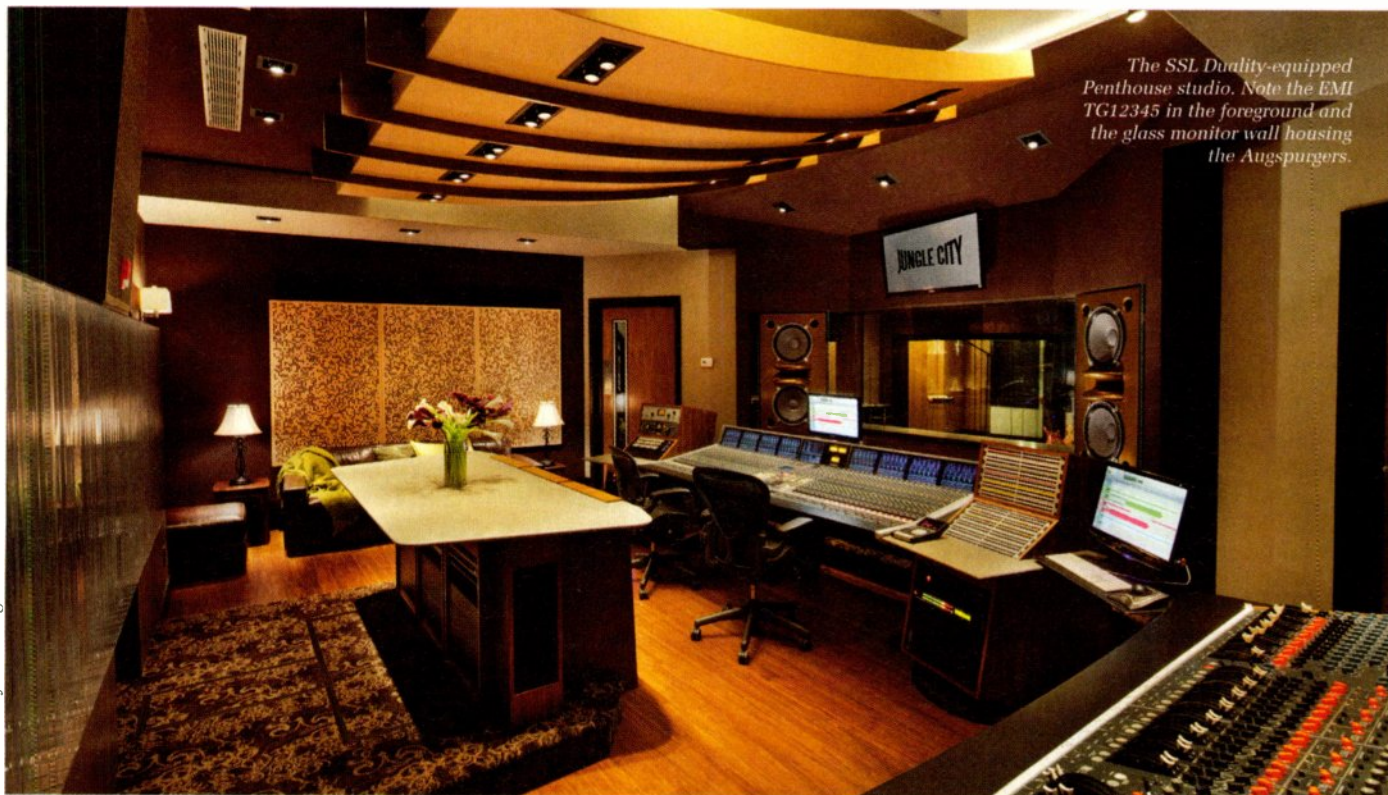


Photo: Cheryl Fleming

**W**e're taught from a very young age that hard work pays off, that if we practice, put in the hours and hone a skill, we will find success. Parents tell us this almost before we can talk, then teachers, Little League coaches, instructors of private music lessons. Then later we hear it from college professors, who tell us that with good grades we will get a good job, if we do the work and do it well, we will be rewarded.

Well, sometimes our parents are right, and nowhere is that more evident than on this month's cover, Jungle City Studios, opened in January of this year on West 27th Street in New York City's up-and-coming High Line district. It's owned and operated by engineer Ann Mincieli, who for more than 20 years

has been a fixture in the local recording community, assisting all around town, engineering big records and earning the respect of her peers across the country. She learned how to take apart an SSL and made modifications on a 9000 J Series when Quad got the first three. She has taken guitar lessons from Carlos Alomar and can deconstruct a fretboard. About a dozen years ago, she began working with Alicia Keys and was instrumental in building out The Oven Studios, where she became enamored of the design process. So she took up physics and acoustics. She's wanted her own place for a while, and now she has a real jewel.

"This is Annie's moment," says John Storyk, principal designer on the project and the head of Walters-Storyk Design Group. "She's

been doing this for 20 years and has world-class clients. She is a consummate professional, and she surrounds herself with real pros. Everywhere you turn, in every aspect of the studio, she has gone the full distance. To borrow a phrase from Buckminster Fuller, this studio is 'the bare maximum.' The studio is exactly what's required—architecturally, acoustically, electrically and creature comfort-wise—for her marketplace. No more, no less. But always just a little bit more."

"I really wanted to do something incredible for New York," Mincieli says. "I am from here, I do most of my work here, but I felt like New York had fallen a few notches over the past couple of years. This is where the music industry lives and breathes. This is the center

Photo: Randy Harris



Mincieli at the SSL Duality, with plenty of natural light over her shoulder.

of art and culture. I wanted to give the city a shot in the arm and remind everyone that. 'Hey, there is still a music community, there are still artists based out of here.' I believe Troy Germano and his family are a major reason there is a recording community in New York. They pushed us to be better. They were the example and they raised the bar. We want to raise it back up. The work is still there, and I'm getting incredible gigs."

Since January, Keys has been in, Beyonce and Kelly Clarkson, too. Bono stopped by to take a look and by all accounts loved it. A band flew in from Japan, indicating that New York can become a destination again. It's a studio with the style and service of what Mincieli calls a seven-star hotel, from the Louis Vitton fabric on the monitor wall in the Euphonix room, to the 2,400 square feet of rooftop space with panoramic views of Manhattan, to real silverware and table service. "I want it to be a Record Plant of the East Coast," Mincieli says. "You give the artists the service, and it pays off."

### WELCOME TO THE JUNGLE

Mincieli has plenty of A-list engineering credits, but it's her association with Keys, and the build-out of her The Oven Studios in Long Island in 2005, that led to Jungle City. It was the laboratory, the incubator for the design process, Storyk says. Building The Oven taught Mincieli that she, as an engineer, could bring a real perspective to the design as a whole, and not just the sound.

She knew from the beginning that she wanted multiple rooms and a north-south facing layout, with plenty of light. She looked at upward of 50

### DESIGN/BUILD

**Architect/Acoustician:** John Storyk  
**Construction:** Chris Harmaty  
**Interiors:** Beth Walters  
**Project Manager:** Josh Morris  
**Mechanical Engineering:** Marcy Ramos (40 years ago, Ramos did the mechanical with Storyk on Electric Lady)

spaces during the course of two years before signing off on 520 West 27th. It's a new building in a hot area of Manhattan, with galleries moving in, new restaurants and a luxury hotel set to open right next door. She has the top two floors, 10 and 11, and while the space is not huge, it can fit a full band and it feels much bigger thanks to the floor-to-ceiling windows. Still, at the 11th hour, it almost didn't happen.

"We had one serious structural issue," Storyk recalls. "Upon initial investigation, it appeared

that the floors couldn't handle the load required for isolated room construction. Fortunately, WSDG was able to re-engineer the pre-cast concrete planks between the floors, and then completely move a building stack that would have been right in the middle of the control room glass. Once we passed those hurdles, we were able to dig right into the design process."

The Penthouse Studio, pictured on this month's cover, is really a study in glass and working with energy. Thirty percent of the studio is glass, with views from the Empire State Building to the East and the Hudson River to the West. The monitor wall looking forward is all-glass, and the back wall of the control room has windows fronted by QRD custom plexiglas diffusers.

"I'm an architect first, so naturally I love glass," Storyk says. "Annie and I wanted to optimize all the spectacular views, and we viewed glass as an asset, not a liability. Although glass always reflects sound, it doesn't have to disturb sound. Given the geometry of the room, it was obvious that the east floor-to-ceiling studio wall would do the heavy lifting for the acoustical treatments [see cover image]. It looks like a pretty wall with LED lighting, but that wall is a sophisticated acoustical reflector/absorber with RPG microperforated panels. Once we had that, we could work with the glass wall, which had to be thick and non-resonating. If you think about it, every designer has to make non-vibrating glass

Photo: Cheryl Fleming



The Euphonix room with dual-15 Augspurgers and a Louis Vitton monitor wall



The 32-channel Avid ICON room, again with Augspurger mains and lots of light

Photo: Cheryl Fleming

for the control room window, so I just made 10 of them! If you look closely at the detail, they are essentially 12-foot-high control room windows with mullions between them.

“So now we have angled glass to one side, the east wall absorption, wood floors—this is a hip-hop studio at times, so where is the low-frequency energy going to go?” he continues. “Well, there’s only one surface left. Look up. All those little angled features that look decorative? They’re all tuned membrane absorbers, every one slightly different. We needed that room to work for a vocalist, a pianist, trumpet or sax. So it has to have some soul to it, some guts, some reverb. Our experience at Oven dictated that it couldn’t be a dead, dry room. Anybody who has been around high-ceilinged rooms that are reverberant but still need separation will tell you that the trick is not high-frequency absorption. The trick is to get the low-frequency reverb time to roll off. All the great rooms, going back to RCA Studios, have the low-frequency reverb time rolling off. A creative software program aided us in developing the optimum ceiling solution.”

All the best designers steal from themselves. Knowing that Mincieli wanted an open feel, he proposed a glass monitor wall between the Duality-equipped control room and the studio, something he had implemented in two studios previously and perfected at Jungle City. It appears the dual-15 Augspurger mains are floating, not in a box.

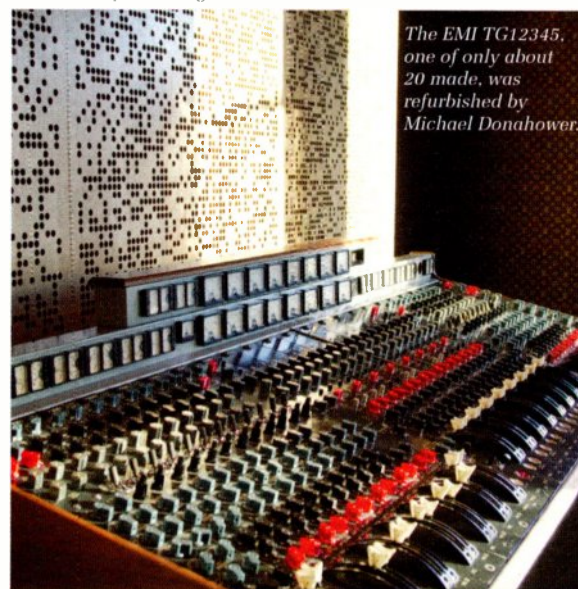
“There are a few tricks to get it right,” Storryk explains, without giving away his secrets. “First, you have to get the glass thickness correct. Then you have to figure out how to get power and wires in. And third—and this is what seems so obvious that it eluded me—the

glass plane, the flush plane to the speakers, has absolutely nothing to do with the isolation. That’s the trick. And it works.”

#### WAIT, THERE’S MORE

While the 11th-floor Penthouse is garnering the lion’s share of attention, having been featured in the *New York Times* and *Vanity Fair*, the 10th-floor studios, North and South, are crucial to the way Mincieli makes records and plans to evolve her business. Each is outfitted with Augspurger mains and 18-inch Aura subwoofers, tuned by Dirk Noy of WSDG, along with Mincieli, Dave Kutch and Tony Maserati. Each has Pro Tools and can be tied into the Penthouse or any of the common areas for recording. Each has Lavry converters and Antelope clocking. There is balanced, three-phase power throughout. Not a cable shows.

Photo: Cheryl Fleming



The EMI TG12345, one of only about 20 made, was refurbished by Michael Donahower.

“I wanted the rooms to have a lot of depth,” Mincieli says. “In the main room, I have an SSL Duality with a vintage EMI TG12345 console. In the North room, I have a 32-input ICON so you feel like you’re on a console, with a Chandler EMI summing mixer and every plug-in you can think of. Then I have the Euphonix [Fusion S5] room, which I bought at the perfect time, when Avid and Euphonix were merging. The work they did to develop the console from a HUI standpoint, with EuCon control, it was just perfect timing. It’s a very versatile desk. The files are 40-bit floating point. It’s a 96-input desk with the best EQs and compressors. And it can be a glorified controller or a real console. It’s a dope desk. I want to get post work, I want 5.1 work. I want everything.”

The level of detail and care that went into every decision, from the fabrics and décor selected in collaboration with WSDG co-principal/interior designer Beth Walters; to the inestimable contributions of WSDG project manager Joshua Morris and contractor Chris Harmaty of Audio Structures; to the equipment choices and workflow all reflect the retro-futuristic vibe Mincieli hopes to impart. It’s a little bit ’50s, a little bit ’70s, a little bit 2020. You get the feeling that she’s just getting started.

“Oh, definitely, this is just the beginning,” Mincieli says. “We’re going to maximize the Jungle brand. We’ll build one more room, and you’ll see a lot of the music community brought back through Jungle City Records. I want it to be like Motown. Motown reflects Motor City. I chose Jungle City for New York. I reach out to musicians all the time because I’m hiring them all the time! And I always have my ear to the ground. I have a good foundation of artists and people I engineer for, and I’ve always been part of helping them in many facets of the industry. New plugins, new samples, a record label, producing—I want to do it all. I want this studio to be about inspiration. I want to help inspire greatness.”

Tom Kenny is the editor of *Mix*.





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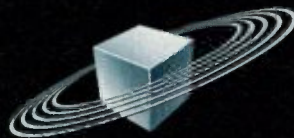
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# MUSIC



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NEW WEBCAST NOW ON DEMAND: TECHNIQUES FOR VOCAL RECORDING // VISIT MIXONLINE.COM/WEBCASTS FOR DETAILS

Mix engineer Jason Goldstein seated at Downtown Music Studios' 16-channel Neve 8014 console with Andy Samberg, Jorma Taccone and Akiva Schaffer



## THE LONELY ISLAND

Jason Goldstein Edits, Mixes *Turtleneck & Chain In the Box*

**A**nyone who has watched NBC's Saturday Night Live in recent years has seen "SNL Digital Shorts"—the wickedly satirical, off-the-wall, manic, edgy and often risqué hip-hop/R&B/pop music videos and conceptual pieces that humorously and mercilessly skewer pop culture. These videos are the creation of The Lonely Island (thelonelyisland.com), a comedic and musical trio comprising SNL actors and writers Andy Samberg, Akiva Schaffer and Jorma Taccone. In May 2011, the group released its second album,

*Turtleneck & Chain* (Universal Republic), which includes collaborations with Akon, Justin Timberlake, Snoop Dogg, Rihanna, Michael Bolton, Beck, Nicki Minaj and Santigold.

Samberg, Schaffer and Taccone produced and recorded tracks for *Turtleneck and Chain* individually and collectively in their own studio spaces, as well as in their offices at NBC's 30 Rock. When it came time to fine-tune, complete and mix the tracks, they found veteran freelance New York City-based mix engineer Jason Goldstein (jason

goldsteinmixer.com), whose track record in hip-hop and R&B (The Roots, Ludacris, Jay-Z) made a solid impression.

"I actually interviewed for the job in person," Goldstein

recalls. "The guys are very into their records and they know exactly what they want. Their main question was, 'How do you work?' Because of their [busy] schedules, it was important. They read about how I mix in the box and that intrigued them. Once VCAs and trim automation became available [in Pro Tools], I just jumped in. They contacted me at the end of October and we finished at the beginning of April." Goldstein works out of his home on a MacBook Pro laptop, and in commercial studios on Pro Tools HD and HD Native setups.



The Lonely Island Turtleneck & Chain

"I did all the editing and compiling of files, and arranging, pitching and tuning, as well as mix the record, and I did a number of vocal overdubs," Goldstein says. "They solicited beats from a number of producers. They rented a house in Southern California during the summer [of 2010] when SNL was on hiatus, and recorded the bulk of the record [using] Pro Tools LE 8 with varying interfaces. They had all these vocals against a 2-track. I had to reverse-engineer all the edits before I could start mixing. The whole record was recorded, edited and mixed in Pro Tools—either [Version] 8 LE, 9 HD or 9, with this Complete Production Toolkit 2, and on HD TDM, HD Native and laptop-based systems."

Goldstein and The Lonely Island often exchanged files in the cloud. "They would send

me emails or we'd have phone conversations about things that they wanted. I set up a Box.net account, an Internet drop-box, and they just accessed mixes as I threw them up and made comments. When they had to do additional vocals or as we got vocals from their guests, I gave them access to certain areas of the Website, they would upload the files and I'd grab them and put them into the mix. And it was really a very seamless way to do it."

For all in-person mixing sessions, Goldstein booked Downtown Music Studios in Lower Manhattan's SoHo neighborhood, which he calls his "go-to studio," bringing in sessions on a FireWire drive. "The ability to work out of your house is great, but I prefer being in a proper environment," Goldstein says. "[Downtown Music's chief engineer] Zach Hancock has done a phenomenal job with it. The vibe is awesome." They mixed in Studio A, which in January saw the installation of a 16-channel analog Neve 8014 console to go with its Pro Tools HD4 and HD Native setups. "Downtown has matched their rig to mine," Goldstein says. "Once I was able to open an entire session in my house [and] enter into that exact same session at Downtown, my world just became 100-percent creative."

**LINER NOTES**

**Executive Producers:**

Andy Samberg, Akiva Schaffer, Jorma Taccone

**Producers:**

Villanova, B-Sides, Knoc Down, DJ Frank E, Micahel Woods, Beck Hansen, DJ Nu-Mark, JMIKE, T Minus, Drew Campbell, Asa Taccone, CHOPS, Sean Maxvel, 6th Sense

**Mixing:**

Jason Goldstein except "Rocky" done by Nu-Mark and Ken Hitchcock

Goldstein says that Avid's release of Pro Tools 9 with the Complete Production Toolkit 2 expansion option was pivotal in refining his workflow for Turtleneck & Chain. "Until I was able to get my hands on Pro Tools 9, I was pretty limited because I had to use very low-latency plug-ins or I had to sit there with a calculator, and anything like that takes away from the creative process. I started [this project] working between LE and an HD4 rig. When Pro Tools 9 with the CPTK2 came out, I was able to work in any of those formats seamlessly."

**THE '8IN8' PROJECT**

From April 25-27, the Berklee College of Music and MIDEM, in association with Harvard University's Berkman Center and Business School, presented the "Rethink Music: Creativity, Commerce and Policy in the 21st Century" conference, which sought new models for creating and distributing music. One discussion panel—Amanda Palmer, Neil Gaiman, Ben Folds and Damian Kulash—challenged the norms of pop music production and distribution in the hours before their scheduled appearance. "All four of us are well known for using the Internet creatively," Palmer says. "I came up with the idea that we should do some non-traditional collaboration."



From left: Ben Folds, Amanda Palmer, Damian Kulash and Neil Gaiman

The four decided to write and record eight songs in eight hours—naming their collective 8in8 (partyontheinternet.com)—working on April 25 from 4 p.m. to midnight.

They decided to bring in a producer to oversee the project—Sean Slade, with whom Palmer had worked—and to complete the project in Mad Oak Studios (myspace.com/madoak) in Allston, Mass., with engineer Benjamin Grotto. "They have all sorts of fun, exciting toys, like Mellotrons and strange old organs," Palmer says. "I knew it was going to be much more of a playground. The engineers made sure that everything was ready to go."

8in8 asked their fans to submit lyrical ideas via Twitter; delivered a live Webcast of the entire session; set up album sales and distribution on Bandcamp.com at Rethink Music; and presented the results of their project at Rethink Music the following morning. In the end, 8in8 completed six songs in 12 hours. "Once we finished basic takes, [one] team would mix in the control [room] while we cranked on the next song. We listened to mixes to hear what we had done, but [not] to go back and fix anything. It was a fantastic test of everything I ever learned in a recording studio in the last 12 years because you had to trust your instincts."

**more online**



Read more about how this album came to life. [mixonline.com/june\\_11](http://mixonline.com/june_11) for more info.

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From left: Frank Rogers, Brad Paisley and Chris DuBois

## PAISLEY'S DEEP COUNTRY ROOTS

Brad Paisley's ninth studio album, *This Is Country Music*, is an homage to the genre he's loved since he started performing when he was 13. Taking samples from classic country hits, Paisley also brought together a fine set of musicians—such as reuniting Alabama's Randy Owen, Jeff Cook and Teddy Gentry, and singing alongside Marty Stuart, Carrie Underwood and Blake Shelton. Making the album a cohesive whole is Paisley's longtime producer, Frank Rogers.

"This album really evolved from the purchase of a pre-war Martin guitar," Rogers says. "Brad fell in love with it and started writing on it, and a lot of the album really revolved around the sound of that guitar."

They recorded to Pro Tools at The Castle (Franklin, Tenn.), with overdubs happening at Paisley and Rogers' home studios. The majority of the guest artists were recorded as overdubs. "We normally have Brad sing a scratch vocal and play a scratch guitar part when we cut a track," Rogers says. "Then as soon as we have the track recorded, he replays the acoustic part right then and we come back and do vocals later. We had a great guitar sound on the acoustic while we were cutting the first track, but as soon as we went to re-cut his part, we noticed that the sound was good, but not as special as it was. We realized part of the 'sauce' was to have the vocal mic on, so all of the acoustic guitars



were recorded with stereo close mics on the acoustic, and a Neumann 67 over it, pointed at Brad's mouth! As far as electric tones, we found out that the bathroom at Brad's house makes some really nice room sounds when we put his amp in the room next to it and left the door open."

## MUSIC WORKS NYC OPENS

Boutique recording spot Music Works NYC ([musicworksstudios.com](http://musicworksstudios.com)) was designed by Platinum-winning engineer/consultant Christos Tsantillis (50 Cent, Patti LaBelle, The Roots, Diddy) and built by Michigan-based custom studio builder Ken Capton (Eminem, Kid Rock). Geared for mixing, overdubs, voice-overs, sound design, film scoring, radio production and audio for music videos and audio books, the space offers Avid Pro Tools HD3 systems and Apple Logic Studio. The facility is the vision of Theberge Music Works founder Chris Theberge, founding member of Grammy-nominated contemporary jazz group Groove Collective.



Photo: Stewart OShields

## HAYNES TO TAPE

When Warren Haynes played "Save Me" for co-producer/mixer Gordie Johnson for the first time in a small rehearsal space in Manhattan, they knew they were on to something. Haynes first album in 18 years, *Man in Motion* (Stax Records),



which he co-produced, was recorded live to 2-inch tape at Willie Nelson's studio, Pedernales, outside of Austin. "I work out of that room so much I keep a toothbrush there," says

Johnson. "Warren and I share a love of vintage gear and Willie's studio is a treasure chest. We have a 24-channel Neve and 48-channel SSL G+ side-by-side in the control room, every fat vintage compressor you can name and the loveliest selection of microphones I've ever seen."

Inspired by the soul records he listened to as a kid, Haynes enlisted NOLA heavyweights Ian Neville, George Porter Jr. and Ruthie Foster, among others, tracking live in the studio. "Working with musicians of this skill level, you would be foolish not to record live," Johnson says. "Recording live off the floor to an analog medium puts the 'heat' on the band. All of Warren's solos went down on the bed track; even his guide vocals became the take to beat." They used 14-inch reels of 2-inch Quantegy 456 tape at 15 ips to minimize the changing of reels during takes.

Adds Haynes on the process: "We had a blast. We learned the songs in the studio, and when it felt like we were ready, we would start rolling tape. We were able to track all the songs in about six days, which is great when working with musicians of this caliber."

Visit [mixonline.com](http://mixonline.com) for more information about the sessions.



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**DownBeat** March 2010

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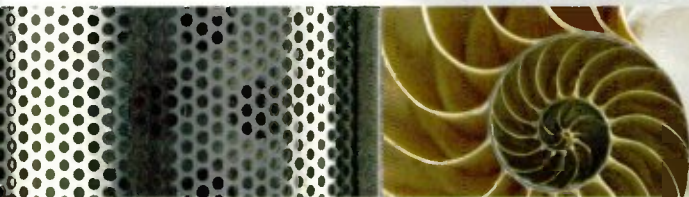
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**Recording** January 2011

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**Pro Audio Review** July 2010

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**Sound on Sound** August 2010

"The prices seem to define them as mid-level ribbons, but their performances clearly have them nipping at the heels of all the top-shelf ribbons."  
**Pro Sound News** August 2010

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# Classic Tracks

By Ron Skinner



## THE FIREBALLS

### “Sugar Shack”

**I**n August 1958, George Tomsco had a dilemma faced by many college students: What should he do with the rest of his life? He was the guitar player in the rock 'n' roll band The Fireballs, a name that came from the band performing Jerry Lee Lewis' "Great Balls of Fire" during a Raton, N.M., high-school talent show. One night while Tomsco was in his college dorm room listening to an acetate of his band, a fellow student walked by his room and asked who the band was. When the student found out it was Tomsco and The Fireballs, he said they were good and should go to Clovis, N.M., to record with Buddy Holly's producer, Norman Petty.

"When I heard that, I said, 'What!'" Tomsco remembers more than 50 years later. "I had no idea there was a recording studio in Clovis." He quickly phoned Petty, and after some persuasion, they set up an audition. "So I went back to school and I quit. I told the professors that I was going into the music business."

Fortunately for Tomsco and his band mates, the audition went well and Petty suggested they make an appointment to record their songs. The Fireballs were ready to go and asked if they could record right on the spot. Petty explained that it wasn't possible as he was already booked for recording sessions on Monday and Tuesday. Resolved to not blow their big break, The Fireballs convinced Petty to

record the songs on Wednesday. "I was thinking, 'Man, if this guy likes us, I don't want to leave town.'"

On the day of their first recording session, Tomsco walked into the studio and was shocked to find that someone was playing his brand-new guitar. "When we came back, we pulled up and there was a pink Cadillac out front. I walked in, looked through the window and somebody was standing with his foot on top of my amp playing my guitar. And I went to Norman, and asked, 'Who's that guy playing my guitar?' He looked through the window, and said, 'Oh, that's Buddy Holly.'" Petty pressed the studio talkback button and asked Holly to come and meet The Fireballs. Tomsco's anger at someone playing his guitar quickly disappeared as Holly walked into the control room. "That was the one and only time that we met Buddy and shook hands with him," Tomsco says. Little did The Fireballs know that in five short months, Holly's life would be cut short, and in the years to follow The Fireballs would become Holly's afterlife band, overdubbing instrumentation on nearly 50 recordings that Holly left unfinished.

On Wednesday, September 3, 1958, The Fireballs recorded their first single, the instrumental "Fireball," which was released in January 1959 by KAPP Records and picked by *Billboard* as the song to feature. From then on, The Fireballs would be known as an instrumental group. In the next year-and-a-half, The Fireballs would garner three Top 40 hits with "Torquay," "Bulldog" and "Quite a Party."

By 1963, the band had a change of direction, name and record label. With the addition of a new singer, the band became Jimmy Gilmer and The Fireballs. The name change was Petty's idea; he had a history of promoting one act under two names. For example, Petty had huge success when Holly would release singles under his own name, while at the same time, The Crickets did the same; both groups were comprised of exactly the same musicians. Petty knew that a simple name change could easily change the direction and the fortunes of a group.

## MUSIC EVENTS IN 1963

January 11: The Whisky a Go Go nightclub in L.A. opens.

March 5: In Camden, Tenn., country music superstar Patsy Cline is killed in a plane crash, along with Hawkshaw Hawkins, Cowboy Copas and Cline's manager/pilot Randy Hughes.

March 17: The Kinks form.

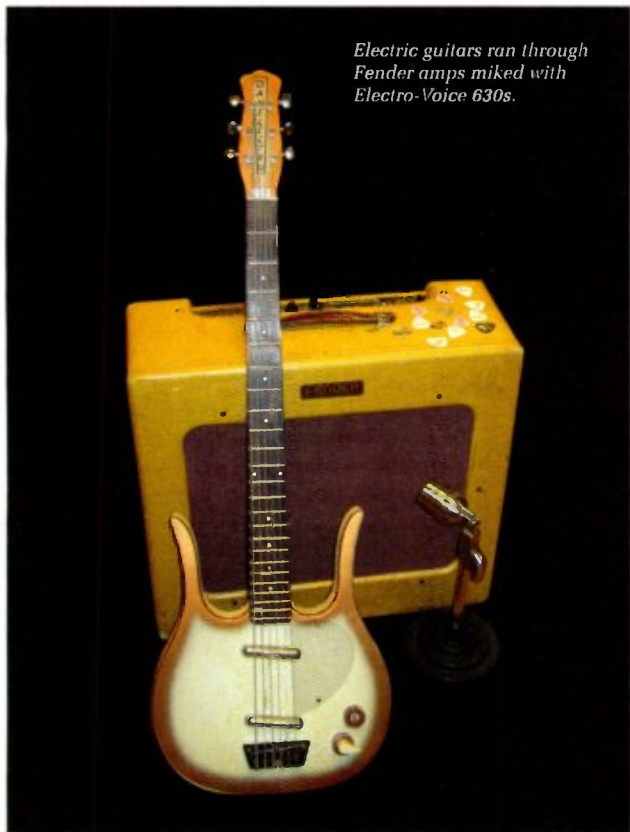
March 22: The Beatles release their first album, *Please Please Me*.

June 7: The Rolling Stones' first single, "Come On," is released in the UK and reaches #21.

Date Unknown: Coxsonne Dodd opens the first black-owned recording studio in Jamaica, Studio One.



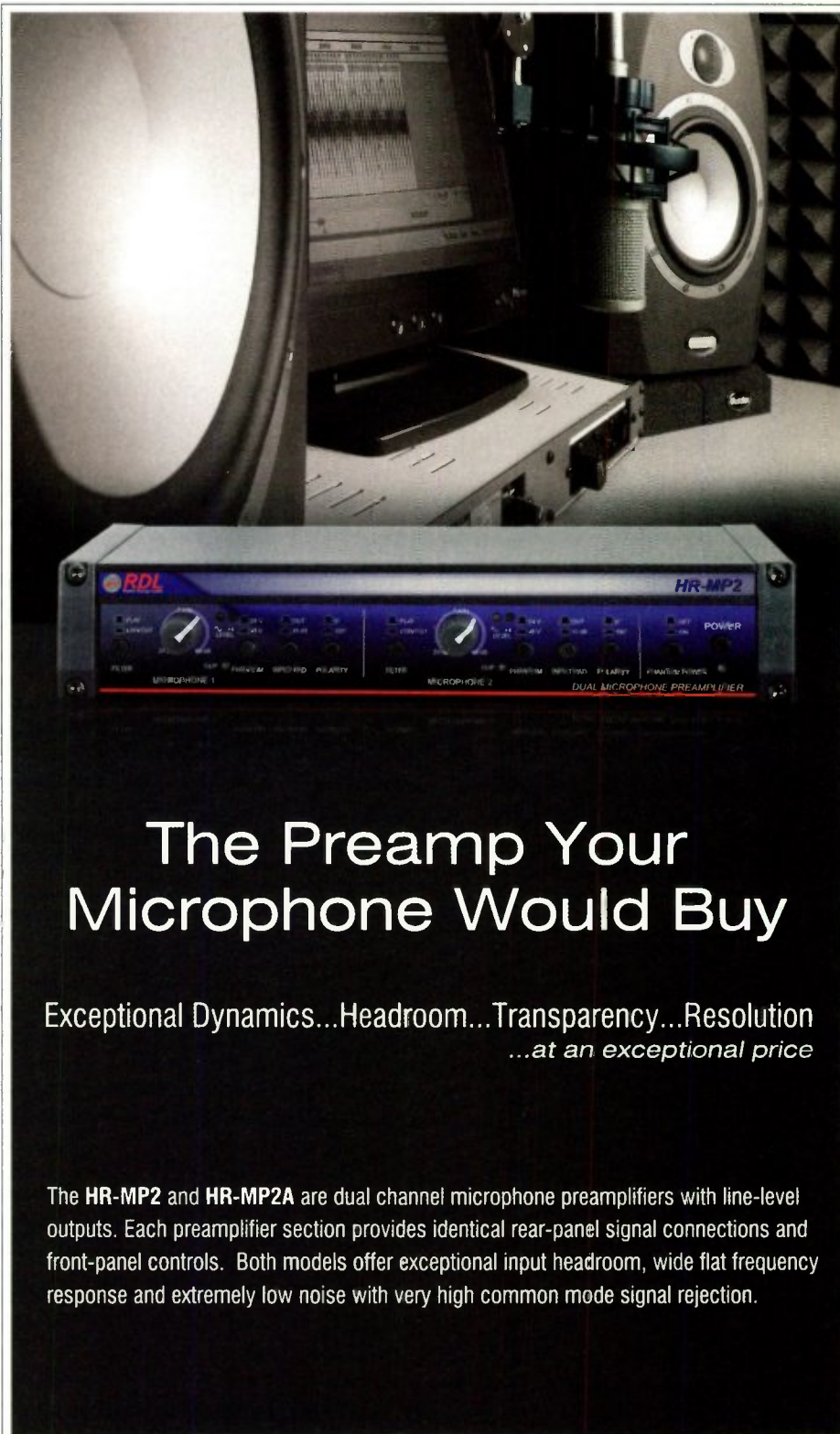
Electric guitars run through  
Fender amps miked with  
Electro-Voice 630s.



"Sugar Shack" was written by Lubbock, Texas, songwriter Keith McCormack in 1962. While living with his aunt Fay in Lubbock in 1962, McCormack began every day by trying to write a song. "Keith woke up one morning and started with this little 'Sugar Shack' thing, and his aunt Fay said, 'Keith, I really do like that song,'" explains Tomasco. In exchange for forgiving a \$40 debt with his aunt, McCormack shared song-writing credits for "Sugar Shack" with her.

McCormack brought the song to Petty, who gave the song to Jimmy Gilmer and The Fireballs. By the time the band recorded "Sugar Shack," they had spent four years in the studio with Petty and had hit on a groove. Recording in the tiny studio on West 7th Street in Clovis had changed little for the band. They set up in much the same way as they always did—all together in the main studio. Drums and bass were set up in makeshift iso booths surrounded by "drum walls," and small baffles were used to isolate guitar amplifiers. The vocals were often cut live with the band in the same room, but occasionally, either the vocalist or drummer would set up in the front waiting room, which doubled as an iso booth.

An Electro-Voice 630 had become the mic of choice for electric guitar, while a 630A was used for acoustic and rhythm guitars. For drums, an Altec M11 "Coke bottle" microphone was placed over the top of the kit, while an RCA 77B was most likely used for bass. The vocals were recorded with a



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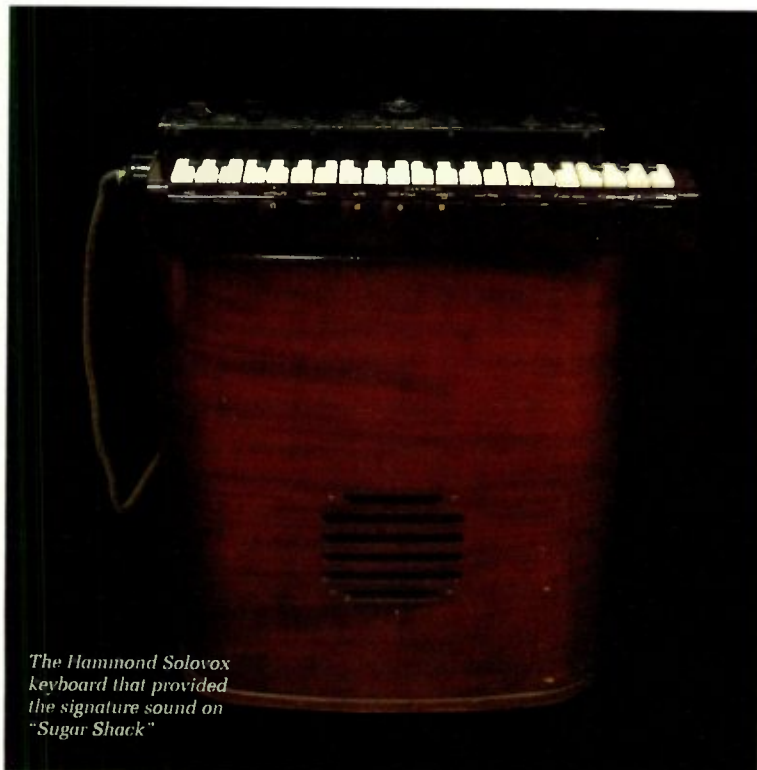
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— GEORGE TOMSCO

Telefunken U47. By this time, Petty had moved away from his 5-channel broadcast mixer, which was replaced with a custom Altec console containing three Altec 1567A mixers modified with sends to Petty's famed echo chamber. Other equipment included Altec 436C and Fairchild compressors, as well as a Pultec EQ. Monitoring was via Petty's trusty Altec 604 speakers.

The session for "Sugar Shack" was recorded on an Ampex 4-track recorder. Tomasco remembers the track layout being drums, acoustic bass and guitar in stereo on tracks 1

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and 2, with track 3 being reserved for Tomsco's overdub of his Danelectro baritone electric guitar and the fourth track for Gilmer's vocal. The instrument that provided the signature sound and melody was a Hammond Solovox keyboard. How this was recorded is still a mystery to Tomsco. "Maybe [Petty] even mixed the whole thing, and when it was being mixed and transferred to stereo, he might have put that in there at the same time—that's probably what happened."

When the band first heard the Hammond's sound, they thought Petty had ruined the recording. "We thought we were finished with it," Tomsco says. "We went off on the weekend and played a few gigs and came back, and Norman said, 'I wanna play something for you.' Whenever Norman said [that], he'd been messing with something." In truth, Petty had added the signature organ sound; when he played it for the band, they were furious. "We all thought, 'Oh no, he ruined our record; it just sounds terrible.' And he was just tickled pink with it and thought we were going to love it." While the band didn't approve of the Solovox melody, there was little they could do to change it. Petty had already moved on and the record was soon to be released. As the record climbed the charts, the band's feelings toward the Solovox organ began to change. "When the record finally came out, we kind of just had to stomach it. Then we got to the point where we accepted that it was on there, and then we were hearing it on the radio and we thought, 'I guess it's not too bad.' But then when it hit Number One, we were like 'That-a-boy, Norm, what a great idea.' And now I just don't know what 'Sugar Shack' would be like without that little signature thing. It would be so incomplete."

By the end of 1963, the single had sold 1.5 million copies and was declared the biggest-selling record of 1963 by *Billboard* magazine. When The Fireballs tried to follow up the success of "Sugar Shack" with the similar-sounding "Daisy Petal Pickin'" in 1964, the song stalled at Number 15. By this time, the British Invasion had hit America and groups like The Fireballs had a hard time competing with The Beatles and the Rolling Stones. "That year was a big change with The Beatles," Tomsco says.

"They sent us home talking to ourselves."

In 1968 another transformation was to hit the band when they returned to their original name, The Fireballs, and signed with Atco Records. While Gilmer was still the front man, the idea of simplifying their name and recording with a new energy and sound was all it took to bring the band back into the Top 20 with a pair of songs: "Bottle of Wine" and "Come On React." While "Sugar Shack" may not have stood the test of time as well as other top-selling songs of the era, it is hard to downplay the impact the song had on the record-buying public at the time. To put the song's success in perspective, the Number 2 record on the *Billboard* charts in 1963 was the Beach Boys' "Surfin' USA."

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# Live



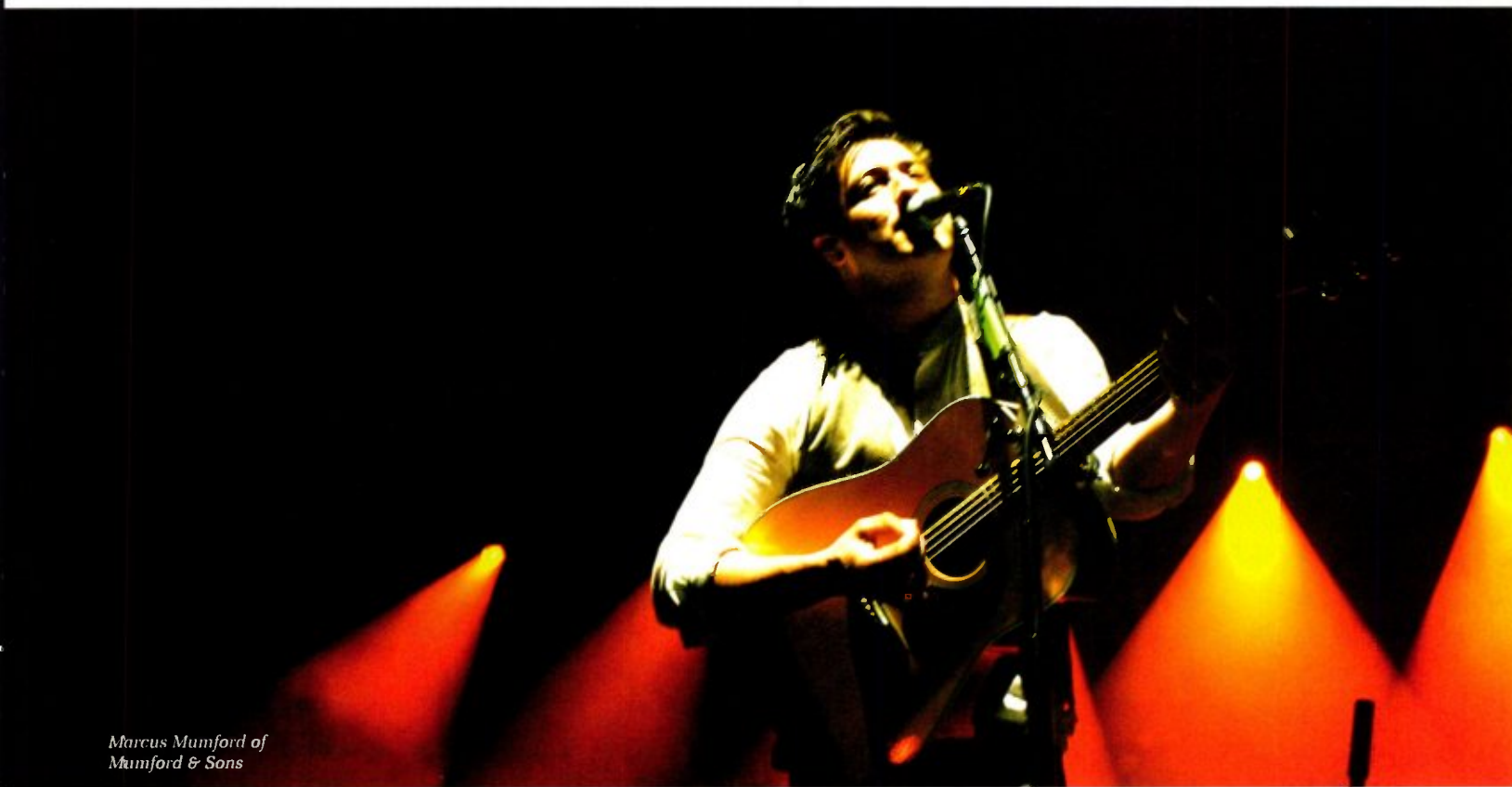
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Marcus Mumford of  
Mumford & Sons

## MUMFORD & SONS

### Good-Time Folk in a Festival Environment

**W**ith the exception of opening night, front-of-house engineers Chris Pollard (Mumford & Sons), Skotch Ralston (Edward Sharpe) and Mark Richards (Old Crow Medicine Show) literally get off an old-timey train, set up FOH compound and start the show. No soundchecks. No line checks. Just 20 minutes between each act. For the 6-date Railroad Revival tour, these engineers are sharing a common board—an Avid Profile 48-channel—with scenes set for each of their bands. No outboard pieces are to be seen; the engineers rely on onboard effects—just one

less thing to patch in with such a limited time frame. The majority of the gear—mics, wedges, etc.—is provided by Sound Image.

But little else is common from day to day; P.A. is hired locally. (At the Oakland, Calif., show, where *Mix* caught up with the start of the tour, a Martin Audio system was brought in by Delicate Productions, South San Francisco.) In addition to the Martin system, d&B J Line, L-Acoustics V-DOSC and Adamson rigs are seen on the rider.

“Due to the nature of touring on a train and late arrivals, we have been setting up the show as

if it were a festival,” says Pollard. “We load in the desk, line check and then we go straight into the gig. The first song is your soundcheck! Of course, we have the added power of using a digital desk: Each band has snapshots that allow us to control chosen parameters of channels and desk configurations. This gives us a lot of flexibility within the fixed patch. We put a lot of faith in the local P.A. providers who would set up the P.A. prior to our arrival; this experience has demonstrated just how this can make or break a gig.”

“It was a little crazy not having soundchecks, but we got lucky in that we would usually get a few minutes to line check and hear maybe one or two things before we started,” adds Richards. “For the most part, the biggest challenge was using a different P.A. most days. It was really up to the Mumford guys to check the P.A. before we got it there. I just dealt with what was handed to

From left: Mark Richards,  
Chris Pollard and Scott H. Ralson



me, but for the most part it was pretty close to what I would do. I work with our monitor engineer, Chris Davis, to make sure it's good on both sides of the speakers. We do a lot of work with polarity/phase and time alignment to help make that happen."

Fortunately, both engineers are working with true musicians and professionals. The bands' sets are tight and clean, with numerous performers onstage. Mumford & Sons' four main members are sporadically accompanied by guest musicians. The sets are infused with a folk-rock sensibility, lending an air of inspired creativity as each band takes more of a jam and groove direction. Headliners Mumford & Sons played the majority of their hits from their recent release, *Sigh No More*, as well as treated fans to a few songs from their upcoming album. And if the concertgoers' reactions are any barometer to an album's success, we'll be seeing Mumford & Sons accepting a Grammy next year.

Pollard says he attacks Mumford's mix as if it were a rock gig, even though it may appear

as a bluegrass show. "The instruments are compressed to give them more bite, the kick drum and bass need to be big and powerful to get the crowd going," he says. "The vocal harmonies need to be kept in line as they are such a big part of the sound. For this, I mix down to subgroups and use a stereo reverb to achieve an added sense of space."

Old Crow Medicine Show's music has more of an old-timey feel, complete with fiddle, harmonica and banjo. Richards' challenge comes in getting these instruments heard in loud situations. "Typically, our shows have really rowdy and loud crowds. I ride my VCA/DCA to bring the vocals down between verses, to keep not only the mix cleaner, but it also helps keep the front row of fans' yelling out of the mix, too. I also use EQ and HPFs to keep things out of the instrument mics that shouldn't be there while keep-

ing it tonally correct for the music." A Shure Beta 98 mikes the fiddle as he's not a fan of the sound of fiddle pickups. The open-back banjo has an SM57 in the back. "I've found over the years that it's the absolute best way to get the old-time sound," says Richards. "Since it's inside the back of the banjo, it keeps it isolated from the other instruments, so at loud stage volumes it's clean."

During each show, the engineers record their sets to Pro Tools and send those off to a mix engineer; at press time, it is unknown what will become of these mixes, but perhaps we'll see a live CD come to market.

## BACKSTAGE PASS

### Sound Company:

Sound Image

### FOH Engineers:

Chris Pollard, Mark Richards

### Monitor Engineers:

Curt Jenkins, Joel Gregg, Chris Davis

### P.A.:

Martin Audio

### FOH Console:

Avid Profile

### Monitor Console:

Avid Profile

# SOUND FOR 'WHITE NOISE'

New musical *White Noise* follows a top-selling music producer who, according to the show's producers, "stirs up an explosive cocktail of shock and spin with a touch of controversy to package talented artists into blockbuster stars." Sound designer Garth Helm and associate designer/programmer Brian Hsieh have packed an amazing amount of technology into what Helm likes to call "the biggest little show ever."

A Midas PRO9 console is used for primary mixing duties, augmented by a backstage PRO3 for monitors, both supplied by Sound Associates Inc. "In the theater world, we're very cue-based," Hsieh says. "For *White Noise*, we have 100-plus scenes programmed into the



PRO9. Almost every scene carries MIDI commands to at least seven devices, with links and follows. We're able to take any number of the 24 wireless channels and put them on the VCAs needed for that scene. And every line is a fader move, and every scene changes the layout of the VCAs. We're constantly on the VCAs."

The biggest challenge for the audio team was designing a system that would handle the show's huge I/O requirements. The production uses 88 input channels at FOH and 48 at monitors. On the output side, there are 35 individual mix outputs from FOH and 24 from monitors. A Klark-Teknik DN9696 high-resolution audio recorder captures the musical performances. "Our game plan is to create a live-performance soundtrack CD," says Helm. "It's a great recorder and integrates seamlessly into the Midas network. We're capturing each input individually during the performances, and then we will take them to a recording studio to mix and edit."

"We're using three Cat-5 cables to pass a total of 144 channels of audio back and forth between the front-of-house and monitor systems. The PRO3 is the source for all the monitor mixes, which include IEMs and wedge mixes for the band, plus various stage foldback speakers. Those mixes are static so there's no need for an active monitor engineer for the show."

## more online



Watch the band arrive by train to San Pedro, Calif., the second date of the tour. Visit [mixonline.com/june.11](http://mixonline.com/june.11) for more info.

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## FIXIT | CAGE THE ELEPHANT MONITOR ENGINEER JAY RIGBY

All of the guys have wedges in front of them, but the guys who wear ears use them for kick drum and that kind of thing. I like having them on individual controls [on the DiGiCo SD8] so when I'm switching between the two, it's not blasting out of the wedges. Funny thing, too, but the guys have noticed! At rehearsals in Nashville, the first time I mixed the band on the SD8—the first day, right off the bat—the one guitar player looked over to me, and said, "Something's different." His words were that it sounded a lot more open and a lot more natural compared to what it sounded like before. And that was before he knew that we had switched consoles! I've been able to lay the console out in pretty much any way I want to. I can have on one bank the lead singer's vocal, right next to his reverb, right next to his mix—all right next to each other. I've got it set up like that, with everything on one page. I don't have to switch between banks so it's really straightforward. I hope to start using snapshots. I didn't get enough time to play around, but that's definitely something I want to look into for the next run.



### U2 360 SETS RECORD

U2's 360 tour officially became the most successful tour to date when they played a sold-out show at Morumbi Stadium in Sao Paulo. Past record-holders Rolling Stones' "Bigger Bang" tour grossed \$554 million from 2005 through 2007. With a scant few shows left before the tour wraps up in Canada on July 30, the U2 mega-tour is forecast to surpass \$700 million in final ticket sales.



U2 manager Paul McGuinness told *Billboard* magazine, "That dollar figure for the gross looks enormous! Of course, I can't tell you what the net is, but I can tell you that the band spent enormous sums on production for their audience. Fans all over the world agree that a ticket to U2 '360' is good

value for money. We're really proud of this tour and this achievement is great news, coming as we head back into North America."

Want to find out the production end behind this top-selling tour? Head over to [mixonline](http://mixonline.com) and read tech editor Kevin Becka's "Tour Profile" from the beginning of the tour.

## LONDON BRIDGE AMPS IT UP

New London live music venue Under the Bridge installed a record number of 66 QSC PL3 amplifiers (23 PL380, 31 PL340 and 12 PL325) and a custom-engineered EAW P.A. for its 600-capacity space. Under the Bridge's new interior was created by Jim Cafarelli of House of Blues fame, while turnkey technology design and installation was submitted by XL Video's Ian Woodall and Andrew Fregley of Matrix 9.

At the recent ProLight + Sound show, the team charged EAW's Kenton Forsythe with developing a custom KF740 with additional drivers. Featuring four phase-aligned 10-inch woofers (double the complement found in the KF730), the new KF740 remains lightweight and compact while also incorporating two 8-inch horn-loaded cones and two 1.4-inch exit, 2.5-inch horn-loaded voice-coil compression drivers. These have been designed into a flown L/C/R system (4+2+4) to take account of the venue's extreme width. Low-frequency extension is provided by six EAW SB1000 subs on individual sends under the stage apron. Main system stage-right outfills are provided by four KF730 elements, with additional KF695s covering the stairs on stage-left. EAW KF850/SB330s provide stage fills (upstage and downstage).



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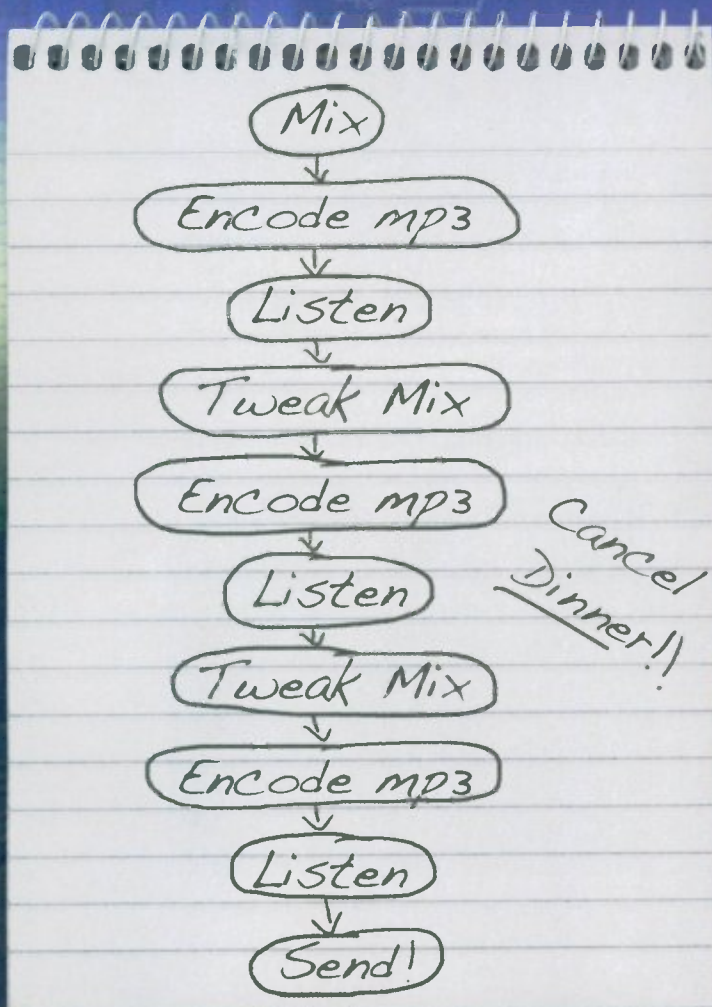
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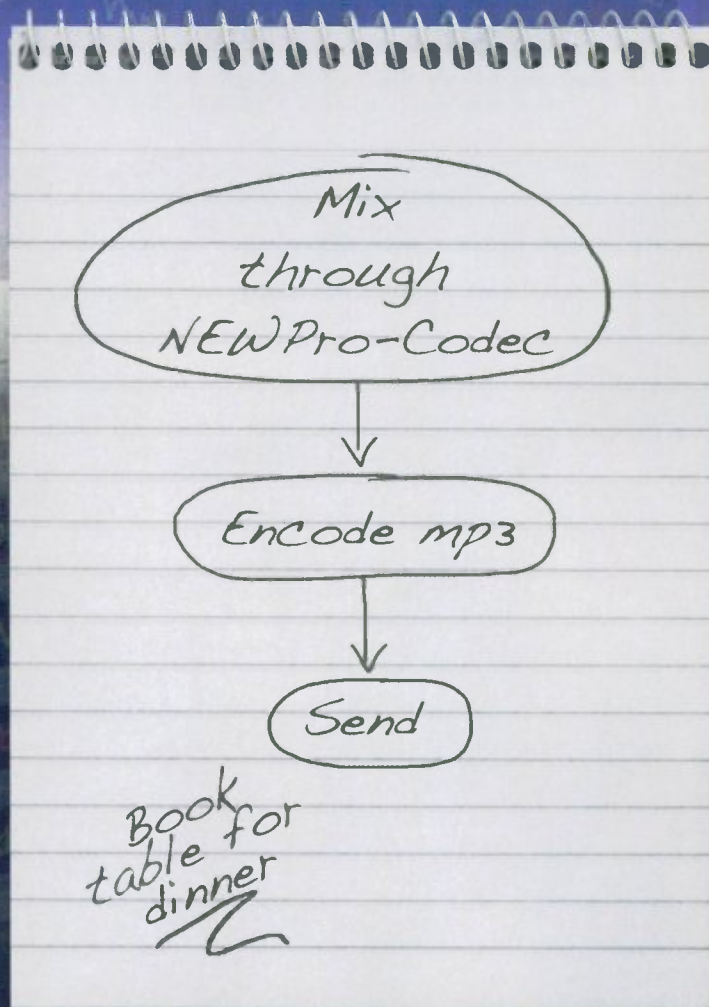


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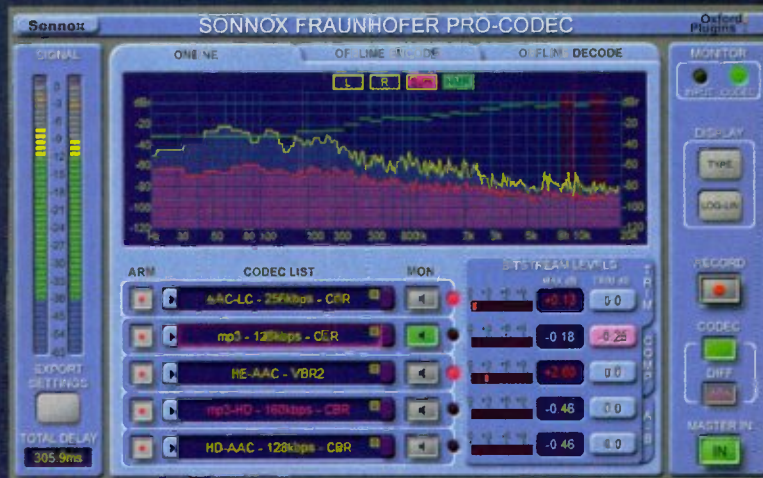
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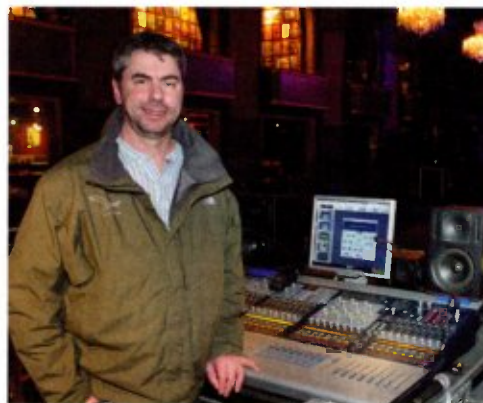
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## JEFF BECK AND IMELDA MAY BAND



Under the “Rock ‘n’ Roll Party” concert line, legendary guitarist Jeff Beck and the Imelda May Band performed “How High the Moon” at the 2010 Grammy Awards, as well as at a tribute for Les Paul in New York City. Mix met up with the Schubert Systems—provided tour at their final stop at San Francisco’s Fillmore Auditorium.



Front-of-house engineer/recording engineer **Ben Findlay** mixes on an Avid Profile console. In the studio, he uses a Sony Oxford digital board and wanted to use the same EQ and dynamics algorithms for the live shows. “This naturally led to us using the [Avid] console, as they had implemented the use of TDM plug-ins in the [Avid VENUE] D-Show system and we were able to use what were then known as Sony Oxford [now Sonnox] plug-ins to process the shows,” Findlay says. “Around two years later, I was supplied with a Profile control surface, and found it a much easier environment to operate in. I am a fan of having a lot of faders at hand. It makes mixing more like playing an instrument. It’s a system that works very well for Jeff and Imelda’s show.”

To tune the house P.A., Findlay’s tablet (right) is an iPad running VNC linked to the Avid Profile via Airport Express. “When I get to the venue, I ask the system tech to give me as many zones as they can,” Findlay says. “All my matrix outputs have Sonnox GML EQs across them. I tune the main hang from FOH, then I walk in front of the stage and blend the front-fills and any out-fills with the main hang. Then I will go upstairs and listen and, if possible, tune the balcony hang. The great thing about using the iPad is that you can react in real time to what you are hearing.”



As far as effects, Findlay employs onboard processing for drums, horns, keys and guest guitarists. Drums also take Avid Smack followed by Sonnox Inflator. A Bomb Factory LA-2 emulator and a Sonnox EQ are used on all vocals except for May, who has a Sonnox EQ, a McDSP MC2000 compressor and then a Sonnox Inflator on her pipes. Beck’s guitar takes a Sonnox EQ that is usually bypassed and a McDSP MC2000. “In some venues and through some P.A. systems, the guitar can become a little shrill, so I use it for containing that, but most of the time that is bypassed, too,” Findlay says.



Beck's wedges are Marshall and a d&b Audiotechnik M2 (below, right). He's driving the Marshalls with a separate Marshall head. "It really helps on this run to provide Jeff with a low-profile direct source of his guitar without drowning out Imelda's vocal onstage," Hartman says. His footpedal gear comprises two B.I.S. Boxes, a Strymon BlueSky reverberator effects pedal, Strymon Brigadier dBucket delay pedal, H&K Rotosphere and a Snarling Dogs Addicted to Wah footpedal.

May has two d&b Audiotechnik M4 monitors. Hartman uses two L-Acoustics ARCs and a dV sub per side for sidefills and two ARCs as a mono-fill mix for May on the downstage edge, firing directly at her to give just a little more coverage as it competes with the volume of Beck's guitar.



Guitarist Darrel Higham uses two Peavey Delta Blues amps miked with an Audix i5. He uses a Danelectro Reel Echo footpedal. He sings through an Audix OM7.



Drum/bass tech Andy McLaughlin (inset) says of Steve Rush-ton's kit miking: Shure Beta 52 (kick drum) and SM57 (snare bot-tom); and Audix i5 (snare top), ADX 51s (hi-hat, ride), SCX 25As (overheads) and D4s (toms). He sings through Audix OM7s.



The horn section is, from left, Dave Prise-man (trumpet miked with an Audix OM7), John Scarpulla (saxo-phone, Shure Beta 52A) and Chris Karlick (baritone sax, Electro-Voice RE20).

May sings through a Beyerdynamic M88. "When she opens up her voice," Findlay says, "she has a lot of energy between 1.5 and 3 kHz, and this mic helps to subdue that."



Bassist Al Gare (up-right – and electric) uses an Ampeg SVT 4 Pro and two Ampeg Classic amps.



Monitor engineer Shon Hartman mans a Midas Pro 6 with a Klark Teknik DN9331 Helix Rapide graphic controller. On-board, he's employing a KT DN780 digital reverb—no out-board gear for this run.

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## 'THE TREE OF LIFE'

### Sound Design for Terrence Malick's Cosmic Family Drama

By Blair Jackson

**P**ity the poor journalist who has to write an article about a Terrence Malick film before it's released. The notoriously publicity-shy director isn't talking, the official synopsis is tantalizing but sketchy, the actors are purposefully vague in interviews and the one authorized trailer is frustratingly enigmatic. When we reach supervising sound editor/sound designer/mixer Craig Berkey and co-supervising sound editor/sound designer Erik Aadahl in late

April to talk about *The Tree of Life*, they're both extremely careful not to reveal any plot points. So we sort of talk around the story and instead get into some of the particulars of how the film's soundtrack was put together and Malick's always intriguing work methods.

Generally speaking, the film is about 11-year-old Jack O'Brien, eldest of three boys in a family in the Midwest in the 1950s. O'Brien's father, played by Brad Pitt, is domineering and "oppres-

sive" (in Pitt's words); the mother (Jessica Chastain) is kind, "grace incarnate," Pitt says. The push-and-pull of those two opposite parental personalities, along with certain events, shape young O'Brien's psyche in profound ways, and the film also depicts the child as an emotionally scarred adult (Sean Penn). But, as is typical with Malick's films, there is much more going on here than meets the eye. Indeed, as Pitt mentions, the film also contains a "micro-story of the cosmos, from the beginning of the cosmos to the death of the cosmos." There is a long passage near the beginning that—through stunning images, music and some FX—presents a history of the universe, from the Big Bang through the development of life on Earth. All of Malick's previous films are filled with radiant and sometimes ominous images of nature and outdoor expanses, which he lingers upon like a *plein air* painter at an easel. This



one takes it further, to the edges of the galaxy, (perhaps) to show the mystical interconnectedness of all things great and small in the universe, and our place within that infinitely complex web. As Aadahl notes, "Everyone who sees this film is going to have a different interpretation."

The cosmic evolution sequence was one of the most challenging in the film for Berkey and Aadahl, and also among the first they worked on three years ago. (Malick is famous for working at his own unhurried pace.) "There are a lot of images there that were shot without sound, so it was a big challenge to do that creatively," Berkey says during a break from working on *X-Men: First Class*. "It's not 'you see a waterfall, you hear a waterfall.' Things wash from one image to the other. There are underwater shots, shots from space, places where it isn't really possible to record. In that sequence, there's a big hand-off between music and FX going on that's really interesting."

"All the sounds we used were natural, but there are some creatures in there that obviously don't exist today that we had to come up with some sounds for." CGI dinosaurs in a Terrence Malick film? Yes! "They had a natural-history research department that would give us information about the structure of the skull and maybe

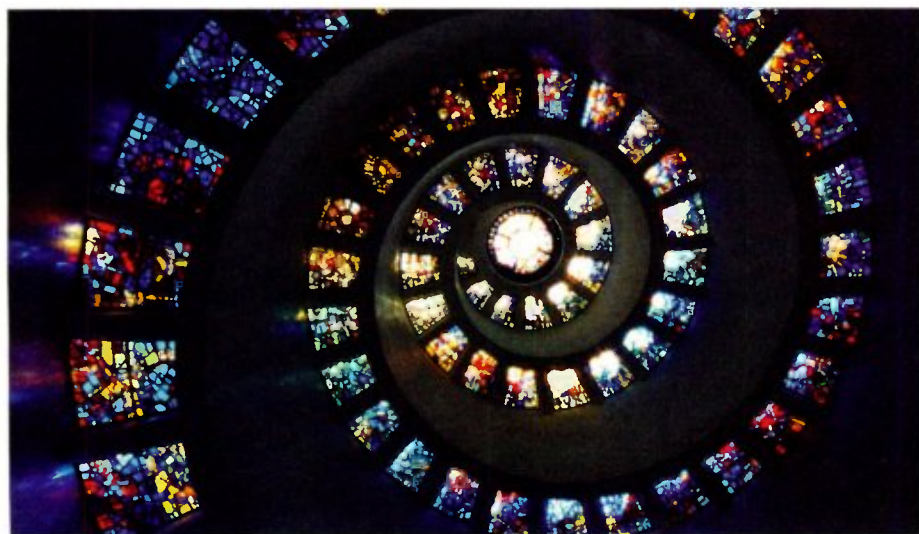
the makeup of the skin and coloring—a lot of information we could use to relate it to some animal today to get a starting point. What kind of birds would be in that kind of forest scene at that time? We had to find different types of birds these creatures related to so we worked with some library sounds for that and then changed them to try to relate them to the size of the creature or make it sound a little more interesting or just different than the modern version." Or as Aadahl puts it, "We got to reverse-engineer these species."

Aadahl supplemented library material with original recordings, including some insect and frog sounds captured on an expedition to the jungles of Cambodia. "One night," he says from the stage where he was working on *Transformers: Dark of the Moon*, "I found this little pond with some clicker frogs chirping away, and through sheer luck I found myself positioned between two of them with my little stereo X/Y right in the middle of them, so I got this amazing image of these two little frogs talking to each other. After about 10 minutes, I looked up from the rig and saw this little jungle cat sitting right next to me, hanging out. He must've been curious about what I was doing." Aadahl used a Sound Devices 722 recorder and an Audio-Technica 825 in that instance. He also had a Neumann 191 on the trip, "but it was kind of rainy those days and the 825 is almost indestructible."

Another sound design element in that sequence, and which appears elsewhere in the film, is what Aadahl calls "cosmic breath." "I recorded

myself breathing and took that sound into Pro Tools and manipulated it to get this feeling that you don't perceive so much as an actual physical sound as much as a conceptual thing. There's a tonal rumble that weaves in and out, with silence in between. Hearing it, you wouldn't know what it was necessarily, but subconsciously there is that feeling of a timeless energy cycling." Malick later dubbed it "the sound of eternal silence."

The more "conventional" parts of the film—the ones with actors—also provided many occasions for interesting and unusual sound design. Berkey notes, "Terry likes the sound to be impressionistic sometimes. Typically, you can sync in some footsteps and a room tone and make it all sound real, but what happens if you don't? What does the viewer think when things are a bit 'off'? Like playing a scene where you're inside a house and most of the Foley sounds are taken out, but the crickets outside are really, really loud—there's a continuous bed of crickets and there's a voice-





From left: re-recording mixer Chris Scarabosio, sound editor Joel Dougherty, mix tech Jared Marshall and supervising sound editor/re-recording mixer Craig Berkey

The Beam [which has piano wire strung across a metal frame and is amplified to create unearthly tones]. It took us forever to get the feeling right. Do we need to play [the FX] really loud to justify why we wouldn't hear [the phone call], or should we play it sort of subtly, and then it's even weirder because why don't I hear him? You can do it endless ways."

There is copious experimentation with sounds and mixing approaches on Malick's films. Berkey says, "You just have to be willing to explore. He has us go on a journey, on purpose, to discover things. He doesn't always know the destination, but he knows when we get there whether he likes it or not. In a lot of the film work we do, we're trying to achieve something we know—you have sounds of things you see on screen and you're trying to communicate that. In a film like this, you're trying to achieve things you don't know, and you don't know how to get there and you don't even necessarily know when you're there so you can get lost. You do know, though, when you achieve something and you feel it: 'Oh, that's really interesting!' That's what Terry's looking for. We spent many weeks on the mixing stage playing with sounds and trying different things so that later we had a better sense of where to go with [the mix]."

The pacing and editing of Malick's films also have an enor-

over on top of that, so it almost makes you look at that scene as if you're floating above it rather than cut-to-cut.

"There's a scene in the first reel," Berkey continues, "where there's a close-up of a character talking on the phone, he then walks away toward a running airplane. In a conventional movie, you would hear the dialog up front, he'd walk away, you'd hear his footsteps, there's a plane in the background, you'd hear the plane engine. There might be some music playing. But we did it differently. We don't have the dialog playing, even though he's talking right on camera. Instead, most of the sound is the airplane and this weird instrument called



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Co-supervising sound editor/sound designer Erik Aadahl

There are easier, shorter and better-paying gigs than Malick films, but it seems as though nearly everyone who works with him—from actors to sound crew—love sharing in his utterly unique vision. The process is almost as important as the final result—how will this five, seven or even 9-hour cut ever become a manageable film? That's what everyone finds out together, collaboratively. Aadahl notes, "Everybody in the room is asked about everything. Terry's smart enough to know that someone might have an idea he would never think of. So let's put it all on the table and see what happens."

Blair Jackson is Mix's executive editor.

mous impact on the sound design because, in a sense, he often composes scenes in longer thoughts than most filmmakers. Aadahl comments, "You have the space and time in the film to actually create emotions that aren't just on and off in two seconds, where you can really build these feelings—and very simply sometimes, maybe with the right lonely wind sound or the right distant single bird in the forest. Each of these sounds has an innate evocative essence that triggers something emotionally. Terry's films give the audience the space to feel things on their own and not just have a nonstop pop score telling them what to feel and invasive picture editing telling them where to look every second."

Originally, the final mix for *The Tree of Life* was scheduled for January 2010, with Berkey mixing FX and Chris Scarabosio handling dialog and music (which combines original score by Alexander Desplat with pieces by Mahler, Berlioz, Zbigniew Preisner and others). Working on the three-position Avid ICON on Stage B at Audio Head—the historic Samuel Goldwyn Sound Studios now owned by Picture Head—the duo mixed for a couple of weeks, broke off for a period to accommodate some picture changes, then came back together briefly before Scarabosio had to leave for another mixing commitment. At that point, Berkey took on responsibility for the full mix and by July it was finished and print-mastered. Except that Malick wanted more changes, including shortening the final run time to two hours and 15 minutes. This time, Berkey was unavailable, so Jeremy Peirson took over for the final touchups. (Joel Dougherty—who does everything from sound editing to conforming to scheduling to making sure everything is working at the mix—was the only member of the sound team to work on the film from beginning to end.)

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# A COLLECTION OF THIS YEAR'S HOTTEST NEW STUDIOS

Each June, we canvas the studio scene to find the hottest new facilities to open in the past year. This year's survey brought in more than 50 great rooms, making for some very tough decisions. Here, then, are the top 20 studios to come online since June 2010. For a look at all submissions and more detailed descriptions, go to [mixonline.com](http://mixonline.com) for an extended photo gallery.



Photos: Fredjenry

## ↑ Ocean Sound Recordings (Giske, Norway)

**Date Opened:** February 2011

**Designer/Acoustician:** Ric Vaughan Audio Designs

**Console:** Neve VR60 with Flying Faders

**Monitors:** Dynaudio M3s with Chord SPA 1032 mono blocks, ProAc Studio 100

**At-a-Glance:** "The design criteria was to build an ambient room with controllable acoustics," says Vaughan. "The control room is an even natural space so there is good imaging frequency response, no matter where you sit."







## ↓ Red Door Studio (Murfreesboro, Tenn.)

**Date Opened:** January 2011

**Designer:** studio bau:ton

**Acoustician:** Carl Tatz Design

**Console:** Yamaha DM2000

**Monitors:** CTD Dual PhantomFocus System: pair of custom TEC:ton Engineering mains with double 15-inch TAD woofers and Sony compression drivers; multiple Bryston 7B amps; Event Opal near-fields

**At-a-Glance:** Middle Tennessee State University professor and Grammy-winning producer/engineer John Merchant's new space houses a large control room where he will teach advanced master classes. Other features include massive bass trappings in walls and soffits, diffusive stone-front monitor wall and louvered monitor ceiling.

Photo: Lou Johnson



## Media Right Productions → (New York City)

**Date Opened:** January 2011

**Designer/Acoustician:** Joe Salvatto

**Consoles:** Vintage Neve discrete 40-channel console featuring 33114s (40), Euphonix System 5

**Monitors:** Barefoot

**At-a-Glance:** This new 15,000-square-foot studio environment was built for composer/producer Doug Maxwell and a select clientele. It also serves as a teaching facility where Visionary Media, a charity founded by Maxwell, trains and employs blind musicians and audio professionals.



Photo: Diana Lynn Ring, DiLynnRing.com

## Stonewall Studio (Cantonment, Fla.)

**Date Opened:** January 2011  
**Designer/Acoustician:** Jeff Hedback  
**Console:** Euphonix MC Mix, MC Control (3)  
**Monitors:** Blue Sky System One 2.1  
**At-a-Glance:** This private-use facility features a control room that uses hallway spaces and membrane characteristics of wallboard systems to balance isolation and an accurate LF response. Shown: live room.



Photo: Amanda Myers



Photo: James F. Wilson

## Wire Road Studios (Houston)

**Date Opened:** March 2011  
**Designer/Acoustician:** Russ Berger Design Group  
**Consoles:** Euphonix DSP S5 Fusion 40-fader, Avid C|24  
**Monitors:** ATC SCM200ASL, SCM150ASL, SCM0.1/15 Pro, SCM25A Pros; Focal Twin6 Be near-fields  
**At-a-Glance:** This 5,000-square-foot, ground-up, two-story facility features Control Rooms A and B that share a central machine room. Studio C on the second floor serves as a video-editing studio. Control A looks onto a live room with 18-foot ceilings and two iso booths. Control B has a production iso booth.

## audiomachine (Burbank, Calif.)

**Date Opened:** January 2010  
**Designer/Acoustician:** Steven Klein's Sound Control Room  
**Console:** 32-channel Rupert Neve Designs  
**Monitors:** Barefoot MM27  
**At-a-Glance:** Private facility for composer/producer/

owner Paul Dinletir. Composer's workstation is also the primary mix position in all of the rooms. "Critical monitoring at all volume levels with room for guests and the ability to conduct meetings were the fundamental control room requirements," says Klein. "I designed the front part for proper ratios and widened the rear of the room. The result is an accurate control room with a spacious living room

feel. Adding to the comfort of the back of the room is the absence of boundary walls and bottom-end anomalies that normally occur in a more traditional design."



Photos: Steven Klein



Photo: L.P. Swist

## ← Eastman East Wing Media Production Suite (Part of Eastman School of Music; University of Rochester, N.Y.)

**Date Opened:** December 2010

**Designer/Acoustician:** Lawrence P. Swist Designs

**Console:** Euphonix System 5

**Monitors:** Guzauski-Swist GS-3a 5.1 monitor system

**At-a-Glance:** "This new 5.1 control room was designed as the audio hub [connection via MADI] for all the major venues within the Eastman facility," says Swist. "Accurate monitoring capabilities were paramount in the design because of the amount of live multi-channel mixdown required for distance learning sessions, Internet distribution, live broadcast and/or general archiving purposes."

## Clearstory Sound (Los Angeles) →

**Date Opened:** April 2010

**Designer/Acoustician:** Peter Grueneisen, nonzero\architecture

**DAW:** Pro Tools HD Accel

**Monitors:** Dynaudio BM15 passive mid-fields with Bryston amps, PSB Stratus Gold mid-fields, numerous near-fields

**At-a-Glance:** Private recording/mixing/mastering space for engineer John Rodd incorporates numerous windows to give an airy feel. Hidden Helmholtz resonators, membrane-faced bass traps and effective soundproofing throughout. The ceiling joists, hidden diffusors and high-performance/full-spectrum acoustic absorption all work to create effective diffusion and absorption.



Photo: John Rodd and Andrew Nikkel

## ↓ Laser Pacific Theater 3 (Hollywood)

**Date Opened:** February 2011

**Designer/Acoustician:** Hanson Hsu of Delta H Design

**Processor:** Dolby CP650

**Monitors:** M&K 7.1 Surround Sound

**At-a-Glance:** Theater 3 will host screenings and audio/video post, including color timing and digital intermediate work.



Photo: Hanson Hsu

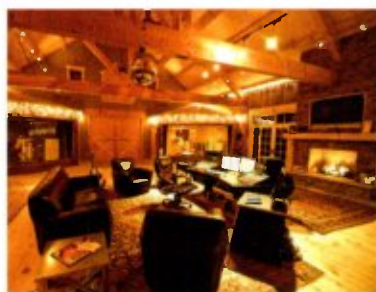


Photo: Zachary West

## ← Gasoline Studios (Franklin, Tenn.)

**Date Opened:** September 2010

**Designer:** Joe West (owner)

**Acoustician:** Gregg Vizza, Vizza Acoustics

**Console:** API 3124

**Monitors:** Mackie HR824s, Yamaha NS-10s

**At-a-Glance:** Songwriter/producer Joe West's private studio is located in a 40x60-foot timber-frame barn that has visually pleasing massive timber trusses and a 30-foot ceiling. "I've spent my life in control rooms using talkbacks and distant iso booths filled with amplifiers and musicians," says West. "The mission statement for Gasoline was to keep everyone together—artist, musicians, engineer and producer connecting with the same energy in one creative space."

## Forward Mastering (Rome) →

**Date Opened:** December 2010

**Designer/Acoustician:**

Francis Manzella Design Ltd.

**Console:** Maselec MTC-2

**Monitors:** ProAc 4

**At-a-Glance:** Extension of longtime full-service, multi-room Forward Studios, this mastering space provides full-band bass absorption, broadband diffusion and a reflection-free monitoring position.



Photo: Francis Manzella

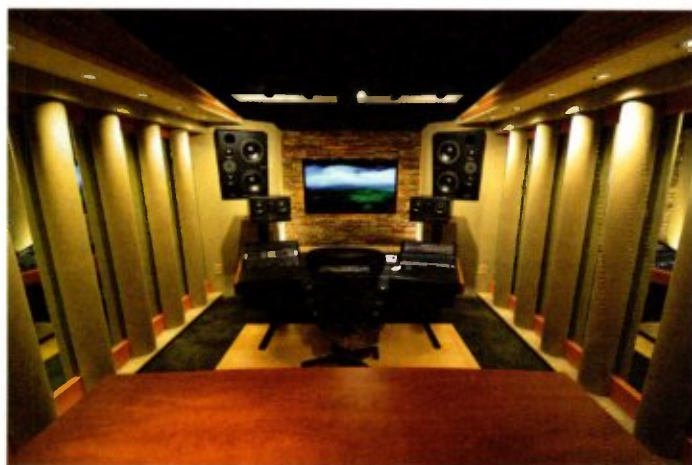


Photo: Lou Johnson

## ← The Blue Grotto (Nashville)

**Date Opened:** April 2011

**Designer/Acoustician:** Carl Tatz Design

**DAW:** Pro Tools HD6

**Monitors:** Carl Tatz Design Dual Phantom-Focus System 4, Dynaudio M3 and M1s, and Bryston amps

**At-a-Glance:** Built for South African engineer/producer Sean Spence as his new personal studio. Windows were not possible in the control room, so CTD mirrored acoustic lens modules were installed to widen the room acoustically and visually.

## ↓ Mill Pond Music Studio (Portsmouth, N.H.)

**Date Opened:** March 2011

**Designer/Acoustician:**

Lou Clark of Sonic-Space

**Console:** CAD Maxcon

**Monitors:** Dynaudio

**At-a-Glance:** Producer James Prendergast's facility is built into an old mill building and is designed as a mix and recording space. Spacious control room features custom rear-wall diffusers designed/built by Hal-lowell, and iso booth and live room built by Eric Pearce. The live room is a floating-floor design with three walls of diffusing elements that also act as bass traps.



Photos: Tim Gaudreau

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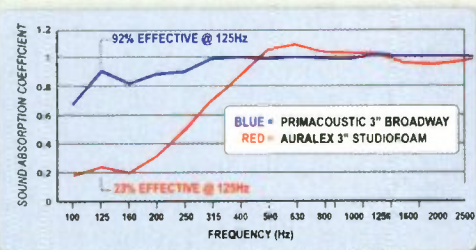


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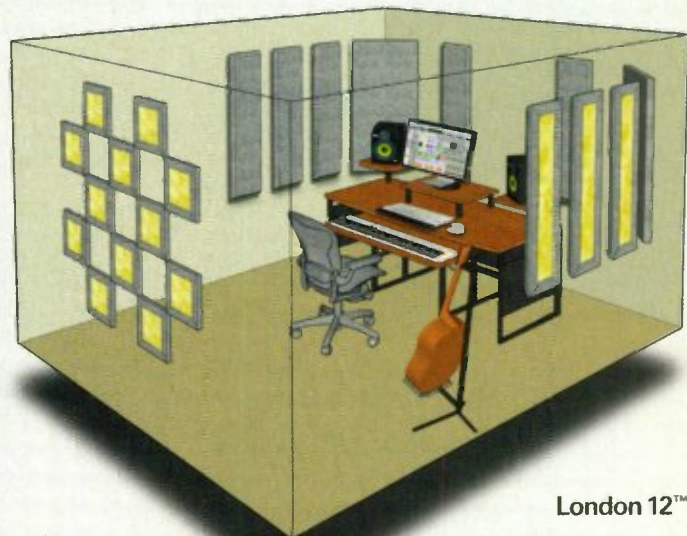


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## Pianella (Malibu, Calif.) →

**Date Opened:** November 2010

**Designer:** Gary L. Williamson AIA, John J. Kurlander

**Acoustician:** Jay Kaufman of Kaufman & Associates

**Console:** Avid D-Command

**Monitors:** Meyer Sound Acheron 7.1 theatrical monitoring

**At-a-Glance:** This stand-alone, 3,800-square-foot building houses

Marco Beltrami's private scoring stage and separate writing studio. The main

stage is designed to handle up to 40

players. As the work is mostly for film

scoring, the control room is more consistent with a

theatrical dubbing stage. "The facility has been de-

signed to exceed NC15, even during high winds or

rain," says Kaufman. "The main stage with its 28-foot

vaulted ceilings and 2.3-second RT60 produces a

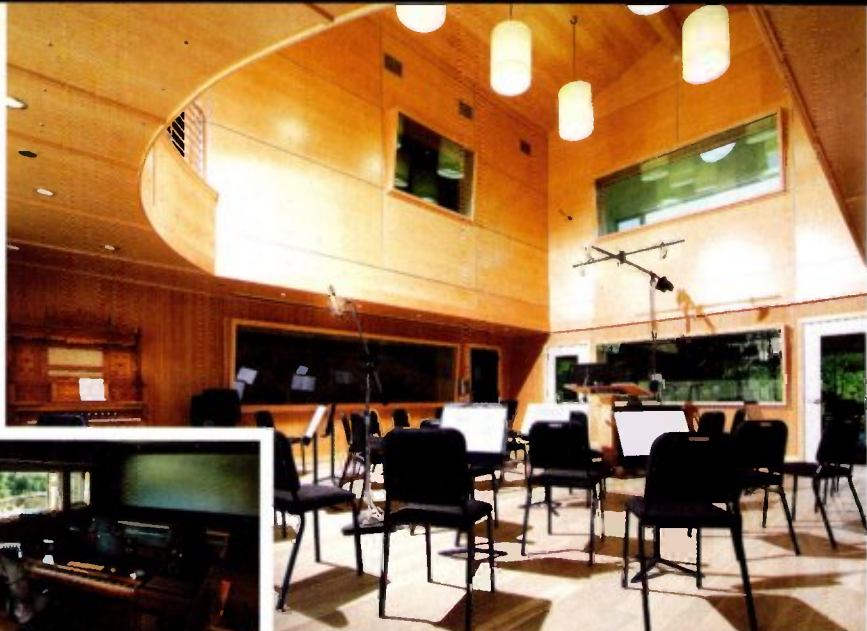
beautifully warm yet detailed soundfield. The control

room has a very even reverberant field and translates

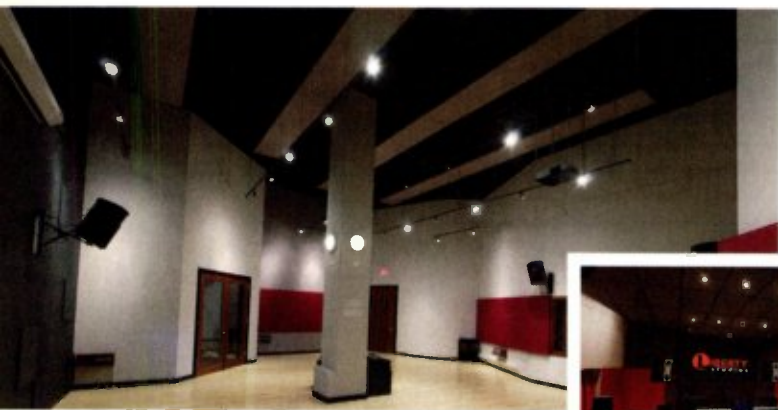
perfectly to the dubbing theater. *Soul Surfer*, *Scream*

*4* and *The Thing* have all been scored and mixed in

the previous four months."



Photos: BPRS Architecture Photography



Photos: Pilchner Schoustal/Rob Waymen

## ↑ Liberty Studios Toronto, Ontario)

**Date Opened:** February 2011

**Designer/Acoustician:** Pilchner Schoustal International Inc.

**Console:** Avid ICON

**Monitors:** ADAM A6x

**At-a-Glance:** Control room is optimized for stereo, 5.1 and 7.1. Live room features three iso booths and high ceilings.

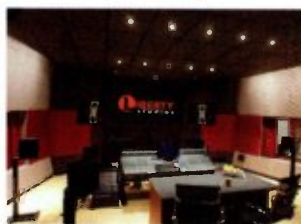


Photo: Jonathan Decola

## → Stadium Red (New York City)

**Date Opened:** September 2010

**Designer/Acoustician:** Frank Comentale

**Consoles:** SSL 48-channel G+ (Studio A), SSL AWS 900 (Studio B), Sony Baby Oxford (Mastering Suite)

**Monitors:** George Augspurger mains, Eggelston Savoy mid-fields, Yamaha NS-10s, B&W 7.1 surrounds (Studio A); George Augspurger mains, Genelec and NS-10 (Studio B); Legacy Audio HDs (Mastering Suite)

**At-a-Glance:** Studio A is a complete renovation and is 7.1 surround-capable using a custom-built Dangerous Monitor ST setup. Studio B offers a vocal booth, but no glass. Communication between the control room and vocal booth uses a video chat system.

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## Blade Studios (Shreveport, La.) →

**Date Opened:** April 2011

**Designer/Acoustician:** Russ Berger Design Group

**Consoles:** SSL Duality SE (Studio A), Avid ICON D-Control ES (Studio B)

**Monitors:** Custom Ocean Way HR2, ADAM S3XH and S3HV, Yamaha NS-10s (Studio A); Custom Ocean Way HR2, ADAM S3XH and S3HV (Studio B)

**At-a-Glance:** Starting on the ground floor of the BioSpace One building, the design team removed more than 1,000 tons of dirt from the foundation to achieve the maximum height possible in all the studios, which were then constructed on floating slabs.



Photos: Shelby Taylor, Taylor Designs



Photo: Drew Raison

## ← Philly Sound Studios (Philadelphia)

**Date Opened:** September 2010

**Designer:** Drew Raison, Mariano Mattei

**Acoustician:** Raison

**Console:** Neve V55 48-input

**Monitors:** Genelec 1038A and KRK E8B Expose

**At-a-Glance:** Built in a 90-year-old stone church, the facility features a 25-foot cathedral ceiling and holds up to 200 when used as a live performance venue. The ceilings, geometric bracing and a hardwood floor combine to offer flexible acoustics.

## ↓ World Harmony Studios (Upstate N.Y.)

**Date Opened:** April 2011

**Designer/Acoustician:** John Storyk of Walters-Storyk Design Group

**Console:** SSL AWS924 hybrid console

**Monitors:** ADAM S4X-V mains

**At-a-Glance:** The 2,500-square-foot destination studio (set on a 300-acre horse farm/vineyard) is built into a three-story, 4,500-square-foot red-wood lodge and includes a custom-built live/screening room, control room and two iso rooms. The mains are floated within custom glass walls to improve visibility between control room and live rooms.



Photo: Kelly Strenmel

## ↓ Sherpa Studios (Saint Louis)

**Date Opened:** March 2011

**Designer/Acoustician:** Pilchner Schoustal

**Console:** Rupert Neve Designs 5088 with 25 Portico Modules

**Monitors:** ATC 110, Tannoy Ellipse 8, Yamaha NS-10

**At-a-Glance:** The control room is optimized for surround formats, stereo, 5.1 and 7.1, and offers large floor-to-ceiling windows to the recording spaces. The live room features partition iso booth with Nanawall door system. There is a separate iso booth to the left of the control room.



Photo: Ashley Giesecking



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DESIGN



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# form&function

Top Studio Designers Buck Trends

*By Barbara Schultz*

Tastes and technology evolve, but the principles of acoustics remain the same.

Another immutable reality: "Sooner or later, you need some kind of facility to create content," as 40-plus-year studio designer John Storyk says. And though the music recording industry has never seen stranger times, there seems to be no end of public demand for "content."

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Many of the most established studio design firms have adapted to shifts in their business by finding niches where they fit, expanding their services or both. We reached out to a handful of designers to find out what they're working on now, what they're excited about, even how they feel about the way *Mix* covers their industry.

Our panel includes respected designer, acoustician, monitor designer, musician and producer Chris Pelonis (pelonissound.com); busy designer/acoustician and Zero Reflection Acoustics® developer Hanson Hsu (deltah-design.com); renowned architect/designer Peter Grueneisen (nonzeroarchitecture.com); and the president of the Walters-Storyk Design Group, John Storyk (wsdg.com).

**W**

e'd like to understand where the work is now designers. Please list a few current projects.

**Pelonis:** I've had an ongoing relationship with Sony Computer Entertainment America, who do all the PlayStation titles; I've done 45 or 50 studios for them. I just finished a 1,500-square-foot facility in Ashland, Oregon, for a guy who added onto his house. I'm working on another one in Fullerton, [Calif.]—two control rooms, a couple of live spaces. I also do nightclubs and theaters and high-end home theaters.

**Hsu:** There's been a diverse stream of projects for years now: A 7-room facility for Universal Mastering (Hollywood); a private composer's studio (L.A. Westside); 20,000 square feet of architectural/interior/acoustical design for Laser Pacific (Hollywood), including three theaters; Westlake Audio Studio C (Hollywood); Pagewood Sound (Sydney); Serenity Studio B (Hollywood) in the Music Grinder Building; and Masque Entertainment's (Sante Fe, N.M.) 24,000-square-foot post facility featuring ZR Acoustics and 3-D CGI. Our clientele is diverse by nature.

**Grueneisen:** We've been working with Dreamworks for quite some time; they have a project under construction now. Another aspect of our business is composers. We did a home studio for A.R. Rahman, who won the Oscar for *Slumdog Millionaire* and another for Steve Jablonsky; he did all the *Transformers* movies, as well as *Desperate Housewives*.



We're still doing a lot for Remote Control and Hans Zimmer, too.

**Storyk:** For the past few years, much to our surprise, we have been very busy. Typically, we are managing between 35 and 40 projects in one phase or another: design, pre-construction or construction. These projects range from major audio education complexes like the \$6-plus-million NYU Steinhardt Center in Greenwich Village, to much smaller facilities like World Harmony Studios in upstate N.Y. and large destination or urban recording studios such as the new multi-million-dollar Jungle City on New York's High Line.

**What do you feel your business offers that keeps the work coming?**

**Pelonis:** When I finished the first round of studios for PlayStation, the guy who runs the creative department and one of his engineers mixed a piece in one of my rooms, and he came out with a big smile, and said, "I just mixed something in four hours that would have taken me three-and-a-half days, and it's the best mix I've ever done." These guys come in early and they leave late. An acoustical workspace has enhanced their lives and they get more work done. If we do something right, it's about the performances and the happiness of the people.

**Hsu:** Quality of product driven by a deep love of audio, turnkey design/build projects and ZR Acoustics. Studios with reproducible, excellent acoustical performance and enervating architecture/interiors develop a life and reputation of their own. We find that quality of work and word of mouth continue to be the strongest advocates.

**Grueneisen:** One asset is we've started doing



740 Sound Design (L.A.) was designed by Peter Grueneisen (above) of studio bau:ton and nonzeroarchitecture, and features an Avid CL24 and a Genelec 5.1 surround sound system. Studio photo courtesy: Juergen Nogai.



*John Storyk of Walters-Storyk Design Group designed Northern Lights Post (New York City). "With barely 330 square feet for the entire studio," Storyk says, "the 5.1 room's sound quality is extraordinary."*

more design/build projects where we are basically acting as the designer and architect, and a lot of times we transition into the actual delivery of the whole construction. The whole recession has affected construction in general, but I think overall the way things have developed to where we are now in terms of offering really turnkey projects puts us at a good point.

**Storyk:** Diversity is one of the things that's worked well for us. If somebody had told me 10 years ago, "This is what's going to happen: You're going to have five different offices, including Europe, South American and Miami, and you're going to [take on] other design fields such as home theaters, conference rooms, architectural acoustics, isolation acoustics and A/V systems design, and, oh, by the way still doing recording studios—a few thousand of them—I would not have guessed that. But that is what happened to us, and when one end of our business sank a little bit, another part would pop up. As a company, we are very fortunate and appreciative of this.

#### How do you design for smaller spaces?

**Pelonis:** I'm having to get clever about how to fit a lot of stuff into one space, and that's where really accurate, detailed design work is paramount. You've got to know that when you open the door, you're still going to pass code and you're not going to walk into a desk. You need to really get involved in furniture and equipment location and placement, and I do a lot of custom desk design because off-the-shelf stuff often doesn't fit certain purposes.

**Hsu:** After careful scientific study of the physical and psychoacoustic challenges inherent to studio design, we identified the roots of the acoustical issues and removed them via the design process. ZR Acoustics has solved the small room issue: 10 feet by 4 feet or 100 feet by 140 feet sound the same. Every dimensionally challenged project we design performs superbly using ZR.

**Grueneisen:** From a physical point of view, designing small spaces gets easier over time. It's complicated technologically, but from a physical standpoint, equipment becomes smaller and disappears into a computer more, so that's a huge advantage that allows us to be more free with the environment than we were when we had to work around huge consoles and other pieces of equipment.

**Storyk:** A number of years ago, we recognized a shift toward smaller studios and we saw that equipment was growing less expensive. We witnessed the evolution of the "project studio" (as we used to call it) into the norm in our industry, essentially the democratization of the audio production community. As a global company, when we saw this happening, we determined that we needed to create scalability in our designs and in our deliverables to accommodate this brave new world. Although not instantly obtainable, we ultimately figured out how to do that, of course with the help of great digital tools in architectural and acoustical design, prediction and document production. I can't tell you how many calls I get that start off, "Oh, this project is probably too small for you." And I have to say, "Wait a second, that might not be true." And 30 minutes later, we're still talking!

Has competition become more fierce in your business with new players entering the game?

**Pelonis:** Competition might not be the right word to use in terms of how I feel about people out there who are doing it well, like Francis Manzella, who I have a lot of respect for, or Pilchner Schoustal—there's another company that studies the science of acoustics, and they're also musicians and engineers. Or Russ Berger or Vincent van Haaff. The thing that concerns me is, anybody can make a Website look amazing and make it look like they're the ultimate system designer or acoustician or whatever. If somebody gets a job and they're really

good, I feel good about that. If somebody gets a job who's not very qualified, that makes me feel like maybe I didn't do a good enough job to promote understanding of our industry.

**Hsu:** Competition is healthy. It's inspiring and energizing to see what everyone's doing—to be reminded that there are many ways to solve a problem. Increased competition demands greater ingenuity from all of us. Education and critical listening help to limit subjective hyperbole, while in the end the field of acoustics benefits, evolving in classic Darwinistic fashion to the demands of the consumer.

**Grueneisen:** One distinction between us and our competitors is we are architects who do buildings, not just studios. Studios are our specialty, but we look at the building as a whole, which automatically gives you a longer view than a competitor who is just building a room. We focus on timeless issues like what makes a space comfortable, whether it's a studio or a living room or an office or a concert hall.

**Storyk:** I'm honored to be in this industry. I'm a member of a very exciting community. I see other studio designers and acousticians at shows and throughout the year. We often share ideas. Another way we actually meet is through the manufacturers, who, as you think about it, are the conduits for our designs. It is the manufacturers that are the ones that often take our ideas and convert them into products.

How important are visual aesthetics in studio design, and how do you think *Mix's* "Class of" feature affects readers perception of your field?

**Pelonis:** I'm always happy to make things look really great. When I did Jeff Bridges' studio, I worked

#### more online



Read more from these interviewed designers. Visit [mixonline.com/june.2011](http://mixonline.com/june.2011).



The stone-wall design of the Chris Pelonis-designed Archon Studios

with his interior designer who had just finished Jack Nicholson's place. But at the same time, just the other night, I was in the studio where Michael McDonald and Robben Ford were recording. It's in a converted guesthouse, and it feels like a funky bungalow. The control room is part of the kitchen, and somehow he manages to make it really work acoustically. This is what I grew up in—somebody's funky garage or back bedroom or barn, where musicians would all get together. There's something very comfortable and creative about those kinds of spaces as opposed to things that look like a new hotel lobby in a casino. It's all driven by what the client is looking for.

**Hsu:** With studios, acoustics is paramount. That being said, it's well documented that psychologically, everything sounds better when it looks better. Acoustics, architecture and interiors are inexorably tied together. A comfort-

able, vibey environment that feels good enhances the creative process. Twenty years ago, we did a 5.1 "A/B" blind-listening test using the same soundtrack but two different video aspect ratios. One hundred percent of the subjects said the wider video had better audio imaging and clarity. *Mix* is a print magazine. The nature of the beast is that no one can hear what a picture of a studio sounds like. We aim for all our projects to be aurally and visually stunning. At the end of the day, we're pleased that our clients are delighted with our work.

**Grueneisen:** We always look at the visual aesthetics of a room as part of the architecture, rather than just the interior design. We take a comprehensive approach that doesn't depend on fashion, but is more a function of the client's needs and the philosophy of the project as a whole. The "Class of..." feature is always a valuable tool for readers to evaluate what they like, and we welcome input based on visual examples. Each project has to develop from its own internal logic, and the final look needs to come from many sources, including the client's preferences for finishes, colors, textures, lighting, et cetera.

**Storyk:** Aesthetics are as critical an element of studio design as acoustics. The look and feel of a creative environment can't help but make a significant impact on an artist's performance. We have always taken as much pride in the way our studios look as in how they sound. We have also made a point of having the best possible photos to illustrate our work and enhance our ability to educate people about their options. We have been rewarded for this commitment by literally dozens of covers in *Mix* and other major publications. Being selected for the "Class Of" is a welcome reflection of our peer's appreciation of our work.

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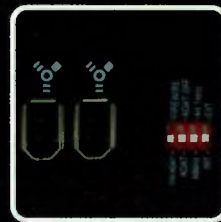
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# SUSAN TEDESCHI AND DEREK TRUCKS

By Blair Jackson

## NEW BAND, NEW STUDIO, NEW ALBUM FOR ROCKIN' COUPLE

The formation of the Tedeschi Trucks Band marks the union of two formidable talents: 40-year-old Susan Tedeschi, one of this country's finest blues/roots singers and songwriters for the past 15-plus years; and 32-year-old Derek Trucks, who has been writing great tunes and laying down some of the most wickedly soulful slide-guitar licks ever since he was 14—in his own band, as a member of the revitalized Allman Brothers and even touring in Eric Clapton's group for a spell. The two share so many of the same

musical loves and influences—old gospel, rock, blues, jazz, classic soul and R&B—it seems only natural that they would play together in a band. Of course, it helps that they have been married to each other for a decade and have two children, ages 9 and 6. Through the years, they've played together on numerous occasions, on each others' albums, sitting in with their respective bands and touring jointly in the "Soul Stew Revival." Still, starting the new group was a big step for these veteran yet youthful road warriors.



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World Radio History

**A**fter putting their self-named bands on ice near the end of 2009, Trucks and Tedeschi began the long process of forming their new group, a big and bold 11-piece ensemble. There are a few familiar faces—holdovers from Trucks' groups include keyboardist/flutist Kofi Burbridge and singer Mike Mattison, and long-time Allman Brothers bassist Oteil Burbridge. (Derek and Oteil will keep playing with the Allmans, who only tour sporadically.) From Tedeschi's band comes drummer Tyler Greenwell. Second drummer J.J. Johnson was in John Mayer's band for a few years, and singer Mark Rivers comes from New York's gospel music world. Then there's the potent horn section: Tenor sax man Kebbi Williams has played with John Legend and many others; trombonist Saunders Sermons is a New York cat whose diverse credits include the likes of Jay-Z, 50 Cent and Diddy, but also various jazz outings; and New Orleans trumpeter Maurice Brown is a distinguished jazz player who has fronted his own group.

During the same period Trucks and Tedeschi were putting together their new band, they were also co-writing a passel of original songs with a whole bunch of different folks in and outside the band, and, with an eye toward making their first album—the just-released *Revelator*—built a recording studio from scratch on the back part of their lovely 3-acre spread in Jacksonville, Fla., where Trucks is from and much of his family still lives.

#### BIRTH OF A STUDIO

"When I got the Clapton gig," Trucks says, "I was on the road so much, and because we have kids, it really hit me that I wanted to be home more. Originally, I just wanted to build a rehearsal space so I wouldn't have to go somewhere else. I mentioned it to Bobby Tis, who at that time was my monitor engineer and guitar tech, and he said, 'You know, my dad is in studio design and I sort of grew up around that. Before you build it, let me look at the plans and I'll send it to my dad and maybe we can turn it into more of a recording studio.' When I got the plans back, it was this world-class studio!" [Laughs]

Tis' father, who goes by Bob, is an engineer, studio tech and designer who worked at Foghat's Long Island, N.Y., studio, Boogie Hotel; at Bearsville in the '80s; and spent 12 years as tech director at Sterling Sound in Manhattan. "Dad's a master of AutoCAD and drafting," says Tis, who played in bands growing up and eventually moved into recording and live sound himself. "We spent a lot of time [in New York] together drawing up what the studio would be like, and he also came down to Jacksonville a few times. Derek took a real leap of faith building this studio. I think he was kind of blown away by the idea."

Trucks says, "It went from a crude sketch on a legal pad to more than I'd imagined. I wanted it to feel warm and homey—sort of the Bearsville barn idea—

and to have a playing room big enough that we could all set up and play and record live. Once we realized it was going to be two stories, we figured we should also have a nice listening room or lounge upstairs where we could chill and listen to what we've done."

The main recording room is 25 by 32, with RPG Diffusors and Owens Corning 703 acoustic panels "near the top of the room to give it a sort of live, juke-y sound," Tis says. "It doesn't have a slap, but it's rich. When you stand there and just talk, your voice sounds amplified, so it's got a nice live vibe." The control room is equipped with a vintage Neve 8048 console (which contains 32 Neve 1081 pre's), Genelec 1037 mains, ADAM A8X near-fields and scads of analog outboard gear. "Derek is definitely into the vintage thing," says Tis, who has been instrumental in acquiring old and new pieces for the studio, which Trucks has dubbed Swamp Raga; the guitarist is an aficionado and player of Indian classical music.

#### WORKING THE SONGS

Demos for the new album ranged from full-on group performances recorded at the new studio by Tis to more intimate performances with just Trucks and Tedeschi strumming acoustic guitars. Once they had a substantial body of songs together and a record deal in place—with Sony Masterworks—the much-in-demand producer/engineer/mixer Jim Scott (Wilco, Chili Peppers, Santana, Dixie Chicks, et al) was brought in to helm the album sessions at the studio.



*Most of Derek Trucks' guitar sound came from a Sennheiser 421 and a Neuman 87 combination.*

"On my first trip down there to see the studio and work on the songs and get things together," says Scott, who has his own studio/mix room just north of L.A., "I said to them, 'This is great, this is fantastic!' They even have the same console I have. But I said, 'Where's Sue going to be? Where does she sing?' 'Well, sometimes in the hallway, sometimes after the fact standing in the control room.' I said, 'Why don't we build a big, beautiful isolation booth that fits into the main room and it's got windows and doors and really make a Sue World? Derek jumped right on it and within a month, when I got back there to start the record, they had built a beautiful room for Sue. That was really, really helpful because now she has her own [10x10] space with her guitars and her amps and a computer and all the stuff she needed. It was great to have her be in the game when the tracks were going down because she's so important to the group's sound, and when she sings great, the band plays great." Scott co-produced with bandleader Trucks and co-engineered with Tis, who was thrilled to be working with a pro of Scott's caliber.

With Tedeschi ensconced in her room, the rest of the band set up around the booth—save for the horns, which were recorded separately in part because the other eight pieces maxed out the available inputs. "The drummers were facing each other across the room, maybe 15 feet apart, and I just did a traditional rock 'n' roll miking setup and let that fly," Scott says. "The piano was basically right next to one of the drummers and we threw some blankets over it and put up an old-school baffle in front of it to knock down some of the leakage. We were able to isolate the [Leslie] organ cabinet around the corner in [a stairwell]. We were able to isolate the bass cabinet, and for Derek we were able to make an old-school baffle situation." Most of the gobos were custom-built by Tis and Trucks' brother, David, who helps out in many capacities around the studio.

# More Than a Console

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"There was leakage all over the place," Scott continues, "but when everyone plays great and everything is going to go on the record and you're not going to change your mind later, leakage is not a problem. It was tracked 95-percent live. The horns were overdubbed [as a section], some of the guitar solos were overdubbed, but it was still a huge band going down."

Tedeschi's smoky, sexy, tender and soulful vocals were captured with a Telefunken U47 she favors, through a Neve 1081 pre/EQ in the console and an 1176 compressor. "She's got such a great voice," Scott enthuses. "You really don't want to mess with it." As for Trucks' guitar, Tis says, "Most of the guitar sound is a [Sennheiser] 421 and a [Neumann] 87 on the cone [of the amp] or a [Shure] 57 and an 87. I always cut with a room,



Though known mostly as a singer, Susan Tedeschi is also a fine guitarist.

too: Royer 121s or the [Royer] SF-24 stereo ribbon." Tis also had low room mics—RCA 77s—about six feet in front of each kick drum, "and the opposite drummer sounded great in the other guy's room mic, giving the sound a nice dimension."

Scott mixed the Pro Tools sessions to analog half-inch through his Neve back in California, broadcasting his work live to Trucks, Tedeschi and Tis in the Florida studio through a Pro Tools plug-in called Source Live. "It's real time, full-bandwidth and much quicker than uploading to a Website or FTP or sending MP3s," Scott says.

Revelator is sure to please Trucks and Tedeschi's ardent fanbases. The 12 original songs beautifully showcase Tedeschi's power and range as they move from ballads to rave-ups to rockin' numbers. Trucks' playing is economical but still intense and filled with passion. And the band as a whole is a wonderful, well-oiled machine with chops galore and lots of personality. Besides being a tremendous artistic triumph, the recording project also succeeded in one of its main objectives—keeping Tedeschi and Trucks close to home. They built kid hang-out time into their schedule whenever possible, and when they couldn't, Trucks has so much family in the area there were always willing sitters available. "From the time I was 11 or 12 years old, I've been on the road non-stop," Trucks says. "So just to be home at all is so refreshing. Having the kids around and sleeping in our own bed was a nice bonus. This is a good way for us to make records."

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The Focusrite Control 2802 with Dual Layer Control – combining a superb analog console with powerful digital workstation control and fader automation, for the very best of both worlds.

Eight Class A mic pres and ultra-wide-bandwidth signal path for superb performance. A fully-featured master section. Latency-free monitoring and up to 32 mix inputs. 100mm long-throw motorised faders.



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Ethernet-based DAW control surface. Full transport controls. Instant flip between mix and control modes. Your favourite music software is always at your fingertips – without leaving the console.



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Focusrite's Control 2802 is both a small-format analog recording/mixing console and a DAW control surface in one. Eight smooth Class A mic preamps and an ultra-low-distortion extended-bandwidth audio path deliver the very best performance. Eight long-throw motorised faders, 24 mix channels and up to 32 mix bus inputs deliver maximum flexibility for tracking or mixing. There's a stereo bus compressor featuring parallel compression, a fully-featured master section and unrivalled routing capabilities.

At the same time, Control 2802's fully-featured Ethernet-based DAW control surface handles plug-ins, auxes, automation and more. The faders function in both analog and digital layers. Clear DAW feedback lets you manage channels without leaving the console: ten meters read channel input, output or DAW returns.

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## CONTROL 2802

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World Radio History



Arcade Fire—no stranger to Coachella. This is the band's third appearance at the festival.

# COACHELL



# THREE CHANNELS, TRIPLE YOUR FUN

By Sarah Benzaly

IF YOU COULDN'T JET DOWN TO SOUTHERN CALIFORNIA FOR THE ANNUAL COACHELLA FESTIVAL, SITTING IN FRONT OF YOUR COMPUTER MAY HAVE BEEN THE NEXT-BEST THING. DURING THE THREE-DAY EVENT, NEARLY 4 MILLION VIEWS WERE RECORDED ON THE YOUTUBE COACHELLA STREAMING PAGE, WHICH HOSTED THREE SEPARATE CHANNELS.

# 42011

Post-event, the numbers are just as staggering: Just a week after the show wrapped, Mumford & Sons had 134,000 views, Whiz Kaleefa 75,000. The day The National videos were posted, it had, only after a few hours, 14,000 views. Long engagement times, speared on by high-quality audio and video.

Handling the audio and video streaming production was Hank Neuberger and his Springboard Productions. This is his fifth year working with Coachella promoter Golden Voice; he's been working festivals since 2006, beginning with Lollapalooza. At this year's Coachella (April 15-17, 2011), he led a crew of 100, which included Guy Charbonneau of Le Mobile and Chris Shepard of American Mobile.



All performance photos and engineer shot are credited to Dave Vann.

*Cee-Lo Green and backing band performing for an exuberant crowd at Coachella 2011*



“We’re shooting on four of the stages, almost every performance on the four main stages,” Neuberger says. “We also have multitrack audio recording for all four stages. Then we have a central video world where we have our directors working for each stage. Then our master control room, where we are producing nine hours of live content from the festival, every day, times three channels. This is the second year we’ve done that [three channels], but not every festival has done that. We did more than 60 bands, including the headliners—Kings of Leon, Arcade Fire, Kanye

West and other major groups like the Black Keys and The Strokes—those were all live live.”

During the festival, there were always two bands playing on separate stages, sometimes all three stages going at once. On the YouTube site, fans could choose which band to view or sample, as well as listen to artist interviews. For those segments, Neuberger had three ENG crews working onsite doing interviews that were immediately edited and put into the Webcast. Some notable interview subjects included Paul McCartney, Arcade Fire, Lauryn Hill, Usher and many more.

#### THE AUDIO COMPONENT

In festivals, especially at Coachella where there are eight, nine or sometimes 10 bands playing on a single stage in one day, it moves pretty quickly. Fortunately, Neuberger had a stellar crew to help deliver audio. At the first stage was Charbonneau in his Le Mobile truck with its Neve 8060. On the second stage was Shepard engineering in his American Mobile truck, which hosts a Pro Tools system. At the third stage was a Flypack from Le Mobile, engineered by Guy Charbonneau’s son, Ian Charbonneau (who is also a veteran of

*The members of Interpol played the first night of the show. Far-right: Lauryn Hill’s involvement included a live performance and exclusive interview.*





## Snake Newton Mixes Duran Duran

While Neuberger and crew were busy creating the audio and video mixes for the stream, those fans at the show were treated to a great-sounding set from Duran Duran, courtesy front-of-house engineer Snake Newton (below).



Eighth Day Sound supplied the Avid Profile for the festival. Newton had five DSP HDXs with his HD3 system; outboard gear included two TC Electronic dB Max units—one of the mix and one on the lead vocal. Newton mostly relied on onboard effects, including Waves Live, and plug-ins from Sonnox, Crare Song and TC Electronic.

While Snake didn't have an opportunity to sound-check with the band, he was already familiar with the festival's L-Acoustics K1 system. "I've had many months of experience mixing on it, mostly in arenas but some outdoor [events]," he says. "It is my favorite large-scale system. The K1 is very 'true,' so I wasn't worried in the slightest [about not having soundcheck]."

Newton miked vocalists with a Shure Beta 58, while a smattering of Sennheiser, AKG and Audio-Technica models dotted the rest of the instruments onstage. "I like to choose the mic for the job and not be limited by an endorsement," Newton says.

When asked if he has a different mixing style for the band when they hit the festival stage as opposed to their arena run, he replies, "Duran Duran's sound varies so much from song to song and era to era that everything is programmed to change from song to song. I have over 60 songs programmed into the console. The only things untouched by the automation is the kick and bass guitar and the lead vocal; everything else is in the snapshot. It doesn't really change in a festival situation.

"Coachella was fun for me," he continues. "It was an important gig for the band as they wanted to prove that they are a force still to be reckoned with musically. Their new album [All You Need Is Now] stands up really well, even in this day and age. Both band and crew really enjoyed the experience."

the Coachella mixes). Finally, at the fourth stage was a Flypack from American Mobile with Steve Weeder engineering.

"Since [the festival] moves quickly, I need people who are festival veterans and great mixers, and I've been fortunate to have them here at Coachella," Neuberger enthuses.

But before a single stream is created, Neuberger is acutely aware that there can be a misconception that audio will lag behind video, there will be dropouts, etc. To ensure he's sending out the highest-quality stream (in the case of Coachella, it was at 24/48), their testing starts the day before the festival. "We do a clap test to dial in audio and video sync on each stage before we go on the air, and we check it every day," he explains. "We consider that one of our key tests: from stage to Master Control [Neuberger's domain, where all of the stages are being recorded], all the way through our tech services partner and encoding partner to YouTube. And typically on a festival, I'll do a fax-through with a full satellite uplink to the platform partner on the afternoon before the festival starts. I'll have an A2 onstage doing a clap test that my directors are looking at on camera so we can listen to it and guarantee the sync all the way through to our platform partner at the end of the line."

With all systems go the day of show, the real test comes once the band takes the stage. "We always get as a safety the front-of-house [mix] and we make sure we grab that at their feed to the drive lines so that no band can accidentally

interrupt it," Neuberger explains. "Rarely but occasionally for a headliner's mix, they have a reference they'd like for us to use because they have a lot of audio production in their set. So on occasion, we'll use the front-of-house mix and add audience, but 90 percent of the shows we're capturing the multitrack audio and our mixers are creating a custom mix with audience for the broadcast. Everybody's mixing on the fly. We get a good mix quickly; we might get a line check if we're lucky, and then the band walks out and they start to play."



The Coachella YouTube stream allowed fans to choose from three different channels.



Conor Oberst  
of Bright Eyes

Taking a hybrid approach to the mix—part broadcast mixing, part live sound mixing—Neuberger's main focus as soon as the band hits the first note is how quickly the engineers can get an excellent balance dialed in, especially with bands those engineers are not intimately familiar with.

As soon as the mix is up and running, the feed is sent to Master Control. All performances are recorded with the video line cut in the live mix and EVS in the Trio Video trucks. "We recorded on their Elvis, which is the nickname for the EVS.



Duran Duran's vocal mics were Shure Beta 58s.

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We are extensively using EVS in this truck and this production, but my Webcast director then calls up the band I've scheduled and either puts it on the line for one of those channels: live live or if it's been slightly time-shifted, he can call it up. Audio is already married to the line cut at that time; there's no sweetening at that point."



One of the many views from the Coachella YouTube streaming channel

**SENDING TO THE WORLD**

The next link in the chain is tech services partner AEG-Digital Media, which Neuberger says did an incredible job of encoding. AEG-Digital Media's video player was embedded in the YouTube channel and easily supported the three-channel experience.

"And then the final link is this year, for the first year, we were able to have a platform partner of YouTube," Neuberger says. "YouTube is the expert in full-motion video; that's where people come for full-motion video. They were great partners and they were right there in my truck all weekend so we could work interactively as things changed, schedules needed to be modified: they were a great partner."

Also important is the technology advances both companies have contributed to this emerging trend. While Neuberger may be sending out high-res audio, some viewers may be hearing it in less-than-ideal situations. Fortunately, YouTube and AEG-Digital Media have solutions to ensure that each stream is heard in its most pristine

View From FOH

## Brent Rawlings Mixes Kings of Leon

Rawlings manned a Midas XL8 board during Coachella, saying that he keeps the board as analog as possible. "Only my effects and mutes are automated, and the occasional pan. All the effects are in the console, hence the automation of delay



and reverb times."

Rawlings was able to do a line check and soundcheck at the festival, and his previous knowledge of the L-Acoustics K1 array helped in those hurried times. "My style of mixing the Kings is simple," he says. "It's a rock band: Everything even with the vocal top. I crank the solos. The festival is kind of a freebie because there's no walls or ceilings to reflect the sound, which makes my job a little easier."

shape. These things are all doing a dynamic adaptive screening and they're able now to diagnostically

The members of Kings of Leon



check the end-user's broadband, pipeline speed and speed of their computer processor. The video player dynamically adapts to what the end-user can accommodate. So if you've got a great broadband piped into your house and a top-tier computer, you're going to get the highest quality. If you're on a dial-up with a 9-year-old laptop, it automatically throttles down. Unlike a year or two ago, the end-user doesn't have to do anything.

"The technology has changed and I think finally, with Coachella 2011, we have been able to deliver a rich, musically rewarding experience that we could all envision in 2006, but the signal path wasn't there," he continues. "It's been improving. We received this year a number of compliments about the audio quality. So we know the audio and video was received by the end-user in a high-quality fashion. The number of viewers plus the engagement time tells me that people found it rewarding, and I think we've finally crossed a major bridge in being able to deliver a technically satisfying experience.

"I've been increasingly pleased with the quality and fidelity that comes out online when I'm

working with such top-tiered encoding partners and platform partners. I've been really pleased with the final audio. I specifically sat in the truck when Guy was mixing Kings of Leon and it sounded great. We've finally got ourselves into a space with strategic partners. My Springboard Productions company, which has done more than 20 festivals, we understand how to make this work in a festival context, which moves so quickly. There's no soundcheck; there's barely a line check. For video and audio, this is moving incredibly quickly."

# Your Eyes Won't Believe Your Ears

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Photo By Brian A Petersen

"I've tried several monitors this size in my set-up. The Model 42 far exceeded all the others.

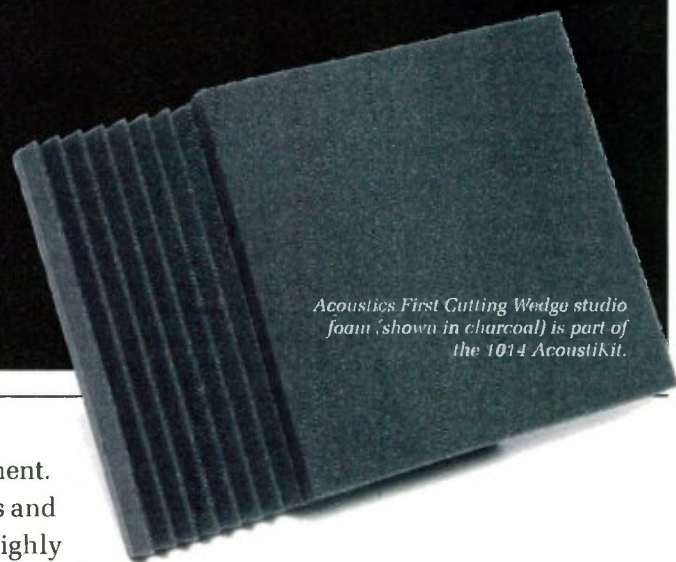
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# ACOUSTICAL MATERIALS TO GO

The Latest Treatments Offer Solutions For Many Types of Facilities



*Acoustics First Cutting Wedge studio foam (shown in charcoal) is part of the 1014 AcoustiKit.*

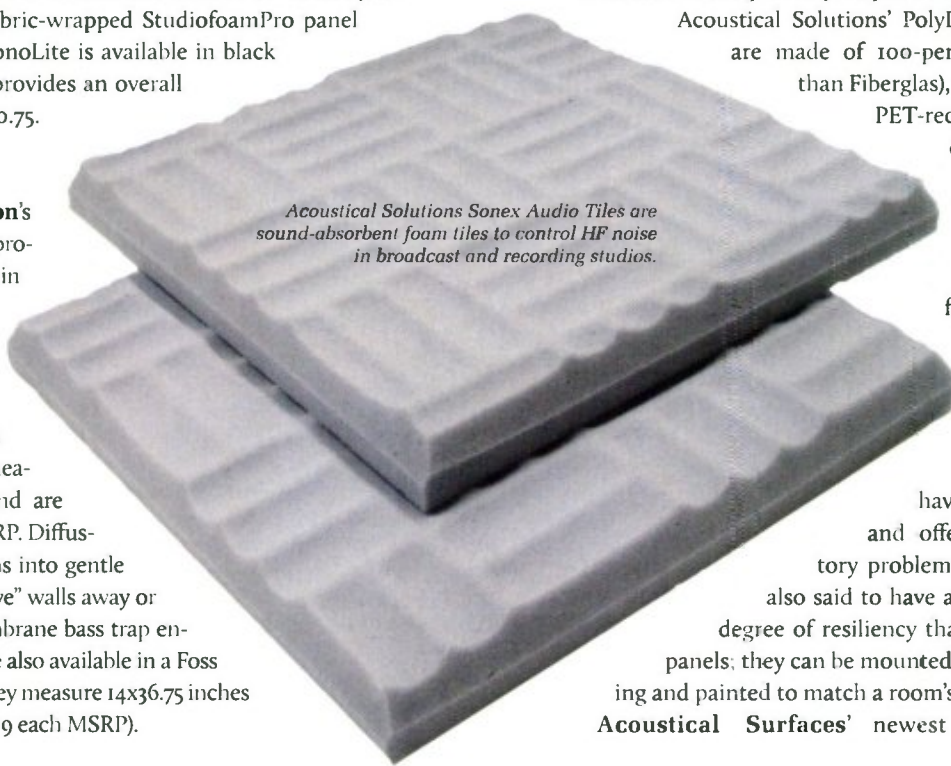
**A** cornerstone of any great studio design is its acoustical treatment. While the best option is to build the treatments into the walls and ceilings, manufacturers continue to design and develop highly effective products for easy installation that can address myriad acoustical issues in a variety of commercial and personal studio spaces. This month, *Mix* looks at the latest product offerings, including foam, panels, isolation products and complete treatment kits (bass traps, diffusors, tiles).

## FOAM

At the 2011 NAB Show, **Auralex Acoustics** ([auralex.com](http://auralex.com)) introduced its Studiofoam Pro panels (\$29.99 per panel) wrapped in the company's SonoLite fabric; this product reaches out to smaller and affiliate broadcast production facilities. SonoLite is a fabric-wrapped StudiofoamPro panel that measures 2x2 feet x 1 inch. SonoLite is available in black or beige with squared edges, and provides an overall Noise Coefficient Rating (NRC) of 0.75.

## PANELS

**Acoustic Sciences Corporation's** ([acousticsscience.com](http://acousticsscience.com)) Wall Panels provide treble absorption with built-in reflectors. They can be used for primary and secondary sidewall reflection control, or paired with diffusors for home theaters. Wall Panels are available in a Foss finish with three choices of color; they measure 14x36.75x2 inches (190 Hz) and are packaged 12 per box at \$119 each MSRP. Diffuser Panels turn hard-treble reflections into gentle ambience. They can be used to "move" walls away or enhance surround effects. The membrane bass trap enhances dynamics. Diffuser panels are also available in a Foss finish with three choices of color. They measure 14x36.75 inches (40 Hz); six are included per box (\$229 each MSRP).



*Acoustical Solutions Sonex Audio Tiles are sound-absorbent foam tiles to control HF noise in broadcast and recording studios.*

**Acoustical Solutions** ([acousticalsolutions.com](http://acousticalsolutions.com)) has an exclusive agreement with Pinta Acoustic to sell Sonex Audio Tiles (\$60 MSRP), which are sound-absorbent foam tiles designed to control HF noise in broadcast and recording studios. They come in a 1x1-foot x 1-inch size to treat exact points of reflection. Sonex Audio Tiles are Class-1 fire-rated and 100-percent fiber-free for safe installation. They are available with beveled edges, and come in both gray and white. They are also available in a unique sculpted pattern or flat-face finish.

Acoustical Solutions' PolyPhon acoustical panels are made of 100-percent polyester (rather than Fiberglas), comprising 60-percent PET-recycled fiber and 40-percent PET-virgin fiber. The company says they are 100-percent recyclable, have an NRC of 0.75, and are free of formaldehyde, with no odor or risk of skin irritation. PolyPhon panels are also Class-A fire-rated, dust free, have no binding agents and offer no risk of respiratory problems. PolyPhon panels are also said to have a higher tackability and degree of resiliency than traditional Fiberglas panels; they can be mounted without a fabric covering and painted to match a room's wall color.

**Acoustical Surfaces'** newest Acoustic Geometry

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**Hans Zimmer**

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- Two mic pres, stereo AES/EBU on board
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"I used scope to run all the incredible synths that are available for the platform for many years now. From pads to fx, there is never a lack of options. Killer Stuff!"  
 Tom Keane (Writer/Producer for Patti La Belle, Chicago, Chaka Kahn, Celine Dion, and now Anita Baker)

"I love the unlimited routing capabilities of the Scope Software, whether live recording or Mixing out of my computer to outboard analog gear and back into the computer. Whatever you can imagine you can patch through the Scope Mixer and routing modules... Working 64 bit Scope is Awesome!"  
 William Goldstein (Scored over 50 film and TV projects including Fame, The Miracle Worker, Twilight Zone.)



Keep the spaghetti off of the floor

\* Third party devices available from: Brainworx, SPL, Algorithmix, SpaceF, and Digital Audio Soft



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## WUNDER CM7 FET

The U47 FET is legendary for obtaining larger-than-life kick and bass tracks as well as thick and full vocals. For the first time, Wunder has re-issued this classic design to compliment their CM7 and CM7 GT series.



## BAE DMP DESKTOP MIC PREAMP

The DMP is a desktop version of the 1073MP. It shares a similar preamp and the same Carnhill (St. Ives) transformers as the 1073 and 1084.



## PURPLE AUDIO MC77 LIMITING AMPLIFIER

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## RUPERT NEVE DESIGNS PORTICO 517

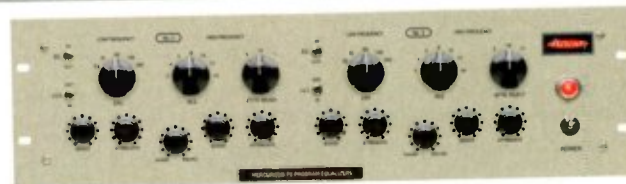
Designed by Mr. Rupert Neve, the Portico 517 provides world-class, transformer-coupled preamp, compressor and DI circuitry with Vari-phase, Silk and DI/mic blending capabilities in a 500 Series model.



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## NEW! MERCURY EQ-P2 DUAL MONO PROGRAM EQUALIZER

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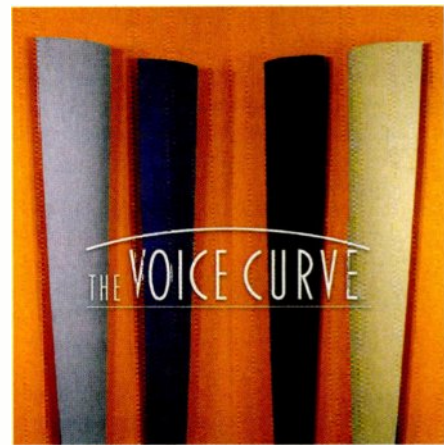
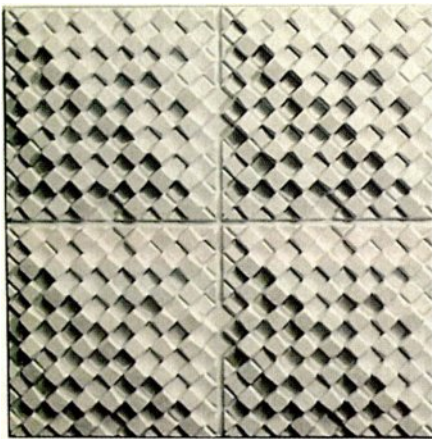
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From left: Acoustics First Model F Art Diffuser, GretchKen Industries GK Professional Model Sound Isolation Booth and Acoustical Surfaces Voice Curve cylindrical diffuser

(acousticgeometry.com) offering is the Voice Curve, a cylindrical diffuser designed to enhance the sounds of voices, promising better speech recognition and articulation. It features an asymmetric (tapered) vertical profile for diffusing critical voice-articulation frequencies, recycled cotton sound-absorption backfill, and two-point mounting brackets for easy wall and ceiling placement. The Voice Curve diffuser measures 48x9.25x4.5 inches (Hx-WxD), is available in many fabric choices and includes mounting hardware.

Aurelex's (aurelex.com) Sustain Bamboo Sound Diffuser Series is made from 100-percent bamboo and comprises the WavePrism, WaveLens, QuadraTec, Peak Pyramid Diffuser and KeyPacs. The WavePrism eliminates flutter echoes and other acoustical anomalies without removing acoustical energy from the space. Its closed-box design configuration disperses sound evenly. The WavePrism is sized to drop into a suspended ceiling grid or can be wall-mounted using mechanical fasteners. WaveLens' open-boxed design scatters and redirects acoustical energy, and can create a "large sound" in a small room, as well as optimize existing absorption panels. The QuadraTec's tiered design offers excellent scattering properties, resulting in a warm, musical character to the dispersed sound. The nested pair offers two diffusion tools that, when used together, can result in a more spacious feel in any room. The lightweight design allows QuadraTec diffusers to be placed in suspended ceiling grids or attached to wall surfaces with mechanical fasteners.

Aurelex's Peak Pyramid Diffuser is optimized to provide high-quality sound diffusion while doubling as an effective bass trap when filled with absorptive material. These lightweight, sturdy, pyramid-shaped diffusers are sized to be easily dropped into a suspended ceiling grid or installed onto wall surfaces using mechanical fasteners. Aurelex designed

KeyPacs to be mounted to the face of absorptive panels, such as the company's ProPanels or Studiofoam, and to tune existing absorption treatment to be more effective in the low and midrange while not killing off the higher frequencies for a more acoustically balanced space. KeyPacs are available in three configurations: 9 Hole, Bubble and Star.

RPG Diffuser's (rpginc.com) FlutterFree-T is a wooden plank made of acoustical hardwood molding designed to diffuse sound and control flutter echoes in studio applications. It uses RPG's patented technique called "Aperiodic Modulation of a Single, Optimized, Asymmetric Base Shape," and features a folded-well configuration at the junction of two planks. FlutterFree-T converts rooms with flat parallel surfaces into functional spaces with good speech intelligibility, sound quality and a natural, comfortable ambience, as well as expand flutter-control finish treatment options beyond fabric-upholstered surfaces.

## ISOLATION PRODUCTS

Aurelex's MudGuard is the newest member of the company's ISO Series to help isolate monitors, amps, microphones and stands from hard surfaces and sound reflections. Aurelex recommends MudGuard for voice-over booths, radio applications, ENG trucks and on-set ADR. It features the company's Studiofoam sound-absorbing acoustical foam to reduce excessive room ambience and off-axis sound. It mounts easily to most microphone stands and clips, and has an adjustable height. Included hardware allows the mic to be moved closer to the MudGuard for a more controlled sound; moving the mic away from the MudGuard can achieve a more open sound.

GretchKen Industries (gretchken.com) has introduced the GK Professional Model Sound Isolation Booth. It offers the same features as the GK Standard Model (choice in acoustic fabric, a 1x2-foot window in the door, ventilation system with a low noise fan, silent fluorescent lights, wall-to-wall 2-inch-thick convoluted acoustic foam interior and free custom features) while adding a plush fabric interior. With the Professional Model, 2-inch-thick flat acoustic foam is wrapped in a choice of acoustic fabric.

GretchKen also offers Deluxe and Double Deluxe upgrade

Aurelex Studiofoam Pro panels are wrapped in the company's SonoLite fabric.





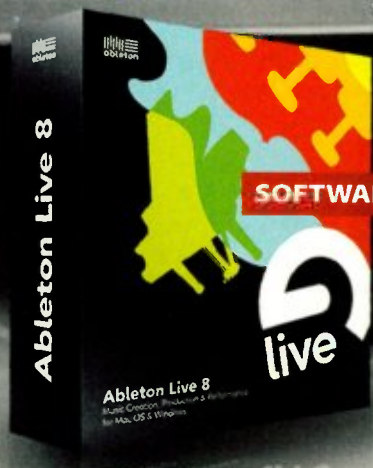
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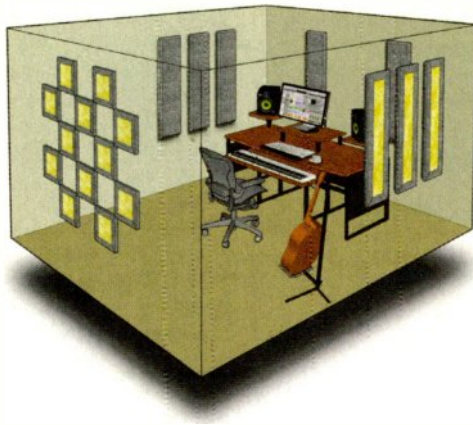
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From left: RealTraps MegaTrap corner bass trap, and Primacoustic London 10 room kit. Below: RealTraps Diffusor is a bass trap and QRD diffuser in one.

options for its full line of sound isolation booths. The Deluxe upgrade adds the company's SoundBlocker1 Mass-Loaded Vinyl Barrier (1 pound per square foot) to each panel, while the Double Deluxe adds SoundBlocker2 Mass-Loaded Vinyl Barrier (2 pounds per square foot) to each panel. The Sound Booth panels are manufactured as a composite of five different layers of materials in five different densities; the Deluxe and Double Deluxe upgrades offer a sixth layer of density for maximum sound reduction in a single-walled booth.

**RealTraps** ([realtraps.com](http://realtraps.com)) is offering a new version of its MegaTrap corner bass trap, which has a new membrane material and a higher-density fill for greater bass absorption. MegaTraps are nearly three feet wide to be effective to below 40 Hz. They are designed for studio live rooms and control rooms as modular units measuring two feet tall; they can be stacked up to 12 feet without permanent mounting or wall damage. MegaTraps blend into a room and are available in white, wheat (off-white), gray or black. An optional rigid top made of 1/4-inch-thick Masonite is available where a shorter stack (one or two MegaTraps) will serve as a corner table, counter surface or speaker stand.

The RealTraps Diffusor marries a high-performance bass trap with a genuine QRD diffusor deep enough to diffuse down to low-midrange frequencies. The RealTraps Diffusor can be placed on a wall like a picture or hung from a ceiling using supplied hardware. It can also be mounted on an optional stand or placed atop a 2x2-foot MondoTrap for additional bass trapping in the wall-floor corner. The RealTraps Diffusor is offered in white or black. The "far" version has diffusion wells six inches deep and is recommended for rooms where the rear wall is at least six feet behind the listener's ears. For smaller rooms where the listener is closer to the rear wall, the "near" model has wells measuring three inches deep, and the bass trap portion is correspondingly thicker.

#### COMPLETE TREATMENT KITS

Acoustic Sciences Corporation's SmartTrap Full Rounds family of products can be easily mixed and matched for a clean, uniform organized look. Full Rounds are the basic building block, providing full-range absorption and treble diffusion in a corner-loaded bass trap. Full Rounds come in a Foss finish with three choices of colors and three available sizes: 11x36.75 inches



(90 Hz, two per box at \$338 each MSRP); 13x36.75 inches (70 Hz, two per box at \$389 each MSRP); and 16x36.75 inches (55 Hz, one per box at \$488 MSRP). Half Rounds work on open walls and ceilings where Full-Rounds won't fit. Half Rounds also come in a Foss finish with three color choices. They measure 11x36.75 inches (90 Hz), with four in a box for \$289 MSRP.

Acoustic Geometry's Curve System comprises diffusers, absorbers and corner traps. The Curve Diffusor offers an improved version of the classic polycylindrical designs used in recording, broadcast, and film studios since the 1930s. In addition to minimizing flat-surface reflection problems by broadly and evenly scattering sound energy, the Curve Diffusor also acts as a diaphragmatic mid-bass absorber and includes a built-in mass-loaded vinyl (MLV) membrane low-bass trap, diffusing mid- to high frequencies and controlling low frequencies. Three stock Diffusor widths integrate perfectly with two matching models, the Curve Absorber (mid- to high-frequency absorption) and the Curve Corner Trap (a Curve Diffusor with an additional corner bass trap).

From **Acoustics First** ([acousticsfirst.com](http://acousticsfirst.com)), the 1014 AcustiKit provides the necessary acoustical treatments for a studio control room or a critical-listening environment with dimensions up to 10 feet wide x 14 feet deep. This package contains Cutting Wedge studio foam for the front wall and first-reflection points. The 1x1-foot blade design allows users to create an anechoic pattern or an aesthetically tailored pattern. The Bermuda Triangle Traps provide broadband absorption and prevent bass buildup in room corners. Acoustics First states that this is the only kit to include the patented Model F Art Diffusers.

**MSR** ([msr-inc.com](http://msr-inc.com)) introduces a new line of acoustical tuning solutions for home cinemas, media spaces and 2-channel music environments. Dimension4 features four systems—Sonata, Symphony, Melody and Concerto—designed with an exclusive combination of absorbers, diffusers and bass. Cloud panels control the detrimental vertical ceiling reflections, and diffusers enhance sonic immersion. Bass traps eliminate muddy room resonances for a tighter and punchier bass. Each system offers a variety of configurations to accommodate all room sizes. Sonata (\$4,500 to \$14,500 MSRP, depending on configuration) and Symphony (\$7,350 to \$19,700 MSRP, de-




*GretchKen GK Standard Model*

pending on configuration) are performance-quality tuning systems best suited for more complex rooms with fabric dress, while Melody (\$1,250 to \$4,900 MSRP, depending on size configuration) and Concerto (\$6,680 to \$15,500 MSRP, depending on configuration) are two architectural-quality systems comprising surface-mounted panels and components that are architecturally shaped and designed for rooms where aesthetics are as important as sound performance.

Based on the original London 12 Studio-in-a-box, **Primacoustic** ([primacoustic.com](http://primacoustic.com)) has developed three new London room kits incorporating Primacoustic Broadway panels. All Broadway panels are made from premium 6-pound glass wool. Edges are resin treated and the surfaces are encapsulated in micromesh. The panels are then covered in a durable acoustic fabric and offered in a choice of three colors. Broadway panels are further tested to meet stringent Class-1/A requirements for safe use in commercial buildings. Each London kit comes with hanging hardware, screws and wall anchors.

The London 8 includes the fundamental tools required to treat a home recording studio for \$199, and allows for expansion with more Primacoustic panels. The London 10 room kit increases the panel count for more control and adapts to larger spaces, such as a project studio, game audio facility or post-production suite. The London 16 is designed for larger rooms, assembled from 38 high-performance Broadway panels, promising even absorption throughout the audio range to ensure that mixes translate better from room to room or when listening in the car. Broadway panels are also Class-1 fire-rated for safe use in residential and commercial buildings. The London 16 comes with 12 Control Columns measuring 12x48x2 inches to control primary reflections; six Broadband Absorbers measuring 24x48x2 inches for LF bass control; and 24 Scatter Blocks measuring 12x12x1 inches that introduce soft diffusion while also reducing flutter echo.

*Matt Gallagher is Mix's assistant editor.*



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# Tech // new products



## LYNX HILO CONVERTER

### Hear Me, Touch Me

Lynx Studio Technology ([lynxstudio.com](http://lynxstudio.com)) has released the Hilo (\$TBA), a desktop converter promising pristine, open, transparent audio quality. Features include two channels of mastering-quality A/D conversion, up to eight channels of D/A conversion, a secondary monitor output and an independent headphone amplifier. In an industry first, Hilo's 480x272 touchscreen provides a flexible and intuitive interface that can adapt to a particular application and can be easily upgraded with enhancements and new features. Initial front panel controls support extensive signal routing and mixing, sample rate selection, clock source options, levels, metering and diagnostic features.



## SOFTUBE CLASSIC CHANNEL PLUG-INS

### Valv-ety Goodness

Softube's ([softube.com](http://softube.com)) ME 1B midrange equalizer plug-in, a clone of Tube-Tech's classic midrange EQ, joins the Softube/Tube-Tech CL 1B compressor and PE 1C "Pultec" equalizer to round out a collection of sound-sculpting tools. All three are available as a specially priced bundle called the Tube-Tech Classic Channel. With a street price of \$99.99, the collection offers a healthy 30-percent discount over purchasing each separately, and contains all three Softube Tube-Tech products both as separate plug-ins and combined into a single, powerful channel strip. Supported formats include Mac or PC, VST/VST3/AU/RTAS.



## SONIVOX BIG BANG DRUMS

### Percussive Fixer-Upper

SONiVOX ([sonivoxmi.com](http://sonivoxmi.com)) Big Bang Universal Drums (\$149.99) is a virtual instrument for Mac and PC featuring a deeply sampled custom-made SJC drum kit played both with sticks and brushes, as well as two different snare drums and two bass drum beaters for flexibility in most musical contexts. All programs are multi-velocity and multi-take round-robin for the utmost in realism. The MIDI Learn and Save Function offers compatibility with any MIDI controller.



Other features include independent zone (per-drum) tempo-synched variable resolution roll/retrigger mode and eight user-assignable stereo outputs and effects buses with onboard EQ, and tempo-sync delay. Available for Mac stand-alone, RTAS, VST and AU-compatible, plus PC stand-alone, RTAS and VST-compatible.



## DACS MICAMP 500 PREAMP

### True and Blue

Boasting operational equivalence to its pristine MicAmp2 preamp, the DACS ([dacs-audio.com](http://dacs-audio.com)) MicAmp 500 (\$1,122) promises ultra-realistic sound, combining clarity, punch and remarkable detail in a 500 Series rack unit. Features include switches for 48V phantom power and polarity, gain control in 12 dB steps from a minimum 20dB gain up to 64 dB, trim control with 8 dB of additional gain, bass roll-off switch operating at two frequencies (30 Hz and 80 Hz) and a 3-LED confidence meter.

## SSL X-PANDA

### Versatile Mixer

X-Panda (\$3,199) is SSL's (solidstatellogic.com) new small-format, 24-channel analog mixer aimed at project studio owners, offering a versatile feature set and compact frame. X-Panda can be used for tracking (using external mic preamps) or master mix summing. X-Panda provides eight mono channels (each with main and alt inputs, giving 16 mono inputs) and four stereo channels. All channels feature an input level trim with a center detent at unity gain, tri-color signal-indicator LEDs, polarity invert, an insert and a direct channel output (which can be switched post-fader). In addition, each channel has a stereo cue section with dedicated level and pan controls.



## FOCUSRITE REDNET 5

### Wait For It...

Not promised this year but newsworthy nonetheless, RedNet 5 (\$750) is the latest addition to the RedNet family of networked audio interfaces from Focusrite (focusrite.com). Connecting to a Pro Tools HD system via DigiLink, RedNet 5 allows the user to use the low-latency performance of the Pro Tools HD cards alongside RedNet's audio interfaces. RedNet boasts excellent sound quality with a dynamic range of 120 dB throughout the system. Coupled with its scalable architecture—which communicates using superfast, rock-solid Gigabit Ethernet technology—it allows studio users to add the full benefits of RedNet to their Pro Tools HD system.



## DRAWMER HQ-R, HQ-B

### Precision Pair

Designed to work with the company's HQ Precision preamp/DAC, Drawmer's HQ-r is a wired remote controller that can drive single or multiple HQ units simultaneously, while the HQ-b is a remotely controllable HQ module that lacks the front panel controls of the original device, and is designed exclusively for control via the new HQ Remote. The HQ Remote adds a mono/stereo switch, user-defined volume level presets, a digital master volume display, and Mute and "intelligent" (level-dependent) dim controls. The new remote can also act as a master volume controller for multiple linked HQ units, permitting the creation of a 5.1 surround master volume control system that incorporates all of the benefits of Drawmer's high-quality preamp and D/A conversion technology.



## VOXENGO DEFT COMPRESSOR PLUG-IN

### Up a Notch

Voxengo (voxengo.com) Deft Compressor (\$79.95) is an audio track and bus compressor plug-in for professional audio production applications, available in AU and VST plug-in formats for Mac OS X. Version 1.3 features a new oversampling filter type "Min-phase/Lin-phase" switch, global "Auto-Oversampling Level" 1x (off) option, and a bevy of fixes from previous versions. The characteristic feature of this compressor is its ability to produce "slim-" and "slick"-sounding compression, with an intelligibility enhancement effect achieved because the compressor's timing function closely resembles the S-curve on both attack and release stages. Other features include auto-makeup gain, key signal filtering, internal channel routing, channel grouping and more.

# New Sound Reinforcement Products

## BEYERDYNAMIC TOUR GEAR

### A Mic for Any Stage

beyerdynamic's (beyerdynamic.com) new Tour Gear mic line includes 25 different models for live performance, divided into four categories: the entry-level TG 30 series, TG 50 (vocals, instruments, drums, headsets, lavalier), next level up TG 70 and the top-class TG 90 (TGV90r ribbon, TG V96c true condenser). Each mic features Sound Channeling Technology, in which the company's acoustic experts have created acoustic labyrinths with special geometries that provide optimized sound channeling. They influence the sound and model the polar pattern by using precisely tuned delay lines and attenuation pads.



## RENKUS- HEINZ IC2

### Hang It High

The IC2 (IC Squared) from Renkus-Heinz (renkus-heinz.com) is a high-powered, medium-format digitally steerable loudspeaker system designed for theater and club installations. Features include integrated digital beam steering with high-power output, built-in amplification and RHAON network control. Four 8-inch low-frequency Neodymium transducers and 1-inch Titanium Nitride-coated HF drivers offer high SPL point-source performance while providing individual steering control of each driver. Each IC2 two-way 8-inch module delivers articulate musicality and powerful punch, and can be used stand-alone, as a small groundstack or as a flown array of up to 20 cabinets.

## SOUNDCRAFT VM2

### Plays Nice With AKG Mics

Engineers can now monitor the status of any Harman HiQnet-compatible AKG radio mic directly from the Soundcraft Vi Series console surface, courtesy of VM2 (Vistronics Microphone Monitoring). VM2 provides real-time visual displays of battery life, RF status, mic muting and internal clipping directly on a channel strip on the Vistronics™ screen. Users simply plug in the mics, patch them to the related console channels, and that's it. Users can identify the relevant mic receiver in the rack by pressing the Locate button, causing the receiver front panel display to flash. VM2 will be available for all Soundcraft Vi Series consoles in Version 4.5 software, including Vi1, Vi2, Vi4 and Vi6. Compatible AKG wireless mic systems are WMS 4000, WMS 4500 and DMS 700 (optional HUB 4000Q HiQnet Ethernet interface required).



display to flash. VM2 will be available for all Soundcraft Vi Series consoles in Version 4.5 software, including Vi1, Vi2, Vi4 and Vi6. Compatible AKG wireless mic systems are WMS 4000, WMS 4500 and DMS 700 (optional HUB 4000Q HiQnet Ethernet interface required).

## WAVES SOUNDGRID COMPACT SYSTEM

### Plug-In Control for Yamaha Boards

Waves' (waves.com) SoundGrid Compact System (\$1,100) includes everything Yamaha users need to process their live performances using Waves plug-ins, as well as the tools to capture their performances into a DAW. Users can process up to 16 live audio channels using up to 40 plug-ins in real time with super-low latency; record MultiRack-processed tracks in real time direct to a DAW in the same computer, pre- or post-processing (or both, for maximum flexibility); and adjust their plug-ins, racks and console settings without having the band onstage. Hardware components include the SoundGrid Compact Server, the WSG-Y16 mini-YGDAI I/O card, a Network Switch, iLok USB key and CAT-6 network cables. Plug-ins include MultiRack plug-in host application, Renaissance Reverb, Renaissance EQ, Renaissance Axx, Renaissance Bass and H-Delay.



# Chuck Leavell

Keyboardist for the Rolling Stones  
for over 28 years. Songwriter.  
Solo artist. Musical director.  
Music Hall of Fame inductee  
and environmentalist.

Eric Clapton, George Harrison,  
The Allman Brothers, Gov't  
Mule, and the Black Crowes  
choose Chuck Leavell.

And Chuck chooses  
Sterling microphones.

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shown: Sterling ST63 Class A Tube microphone

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World Radio History



# Tech // reviews

## AVID PRO TOOLS|HD NATIVE WITH HD OMNI

Redesigned Interface Offers Low Latency, HD Performance



*The Pro Tools|HD Native PCIe card can be purchased by itself or in a hardware I/O bundle.*

**T**here is no question that Pro Tools 9 has been one of the most significant releases of the popular software to date. Long-standing barriers have been broken down, ushering in a new era. Opening up to third-party hardware and unlocking features like the timecode ruler, automatic delay compensation and DigiTranslator in all tiers of the software has, indeed, invited a new school of users. Now, with the release of Pro Tools|HD Native, Avid offers a new and affordable way to use its high-end I/O, including the HD Omni (reviewed here), while promising super-low latency. Pro Tools|HD Native can be purchased with just the PCIe card and software, or as a bundle. (Various bundle pricing at [Avid.com](http://Avid.com).)

### LATENT TENDENCIES

What many native DAW users, especially those using USB or FireWire interfaces, don't realize is that Pro Tools|HD does a much better job of managing latency than most other DAWs. Anyone who has ever crashed and burned while tracking vocals because the artist couldn't get over the weird delay in the headphones knows what I'm talking about.

The A/D converters in most devices, at best, work only slightly slower than real time. From there, the USB and FireWire buses fail to be the speediest protocols to deliver data, and when you add in the other passengers riding that same line, transit becomes even slower. Once that data gets to your computer, it has to talk to an audio

driver, which will address the data in a way that is meaningful to audio software running within your operating system. This seems to be one of the most substantial lags, considering that the same processor is dealing with audio, graphics, video, network transmissions and anything else that's happening in the OS. In some systems, audio will take a back seat to other processes to accommodate, for example, a networked transmission from your control surface. Finally, there's the one factor we can control—the playback buffer—which, depending on the size of your session, can be set to a wide range of durations. A safety offset ensures that even if the buffer is overrun, the DAC, which also slows things down, can perform correctly.



## LICKING LATENCY

Avid has addressed I/O latency in Pro Tools|HD Native with three levels of defense. The primary means is simple: Keep your buffers low, do nothing differently than you would on a typical HD system, and everything will be okay. Bumping up the buffers beyond 64 samples on a 24-bit/48kHz Pro Tools session was rarely necessary. I opened up a 5.1 mix for a 16-minute short film. The session used 147 voices, more than 100 tracks, dozens of plug-ins and automation, not to mention the compressed video clip. I kept backing off settings in the playback engine to see how low I could go. With H/W Buffer Size set to a mere 32 samples, running four processors at 85-percent CPU usage, I could still keep my disk buffer at the lowest setting and play back without error. On top of that, I was able to overdub a vocal; due to the scaled-back settings in the playback engine, no noticeable latency was incurred in the headphones. Shocking!

Next, I opened up a 24-bit/44.1kHz music mix, with the intent to overdub an electric guitar solo. This was a session with high-delay-inducing Drumagog plug-ins running alongside a dense mix incorporating other plug-in processors. Stir in the necessary delay-compensation engine, and a bigger buffer became a bit more necessary. Even when increasing the buffer to 256 samples, I was really surprised with how unnoticeable the latency remained. Conversely, a 256 sample buffer on a Pro Tools system running off of the CoreAudio driver is uncomfortably apparent. Due to the low latency of the PCIe-based HD Native architecture streaming through its dedicated audio driver, even a vocal mic recorded in a session buffered at 512 samples fell just shy of that awkward latent feeling. I even tracked a vocalist who had complained about delay in the cans in the past, kicked the buffer up to 1,024 samples just to see what would happen, and she really didn't hear a delay until I made her listen for it.

Avid's second solution is the inclusion of a software mixer incorporated into the Hardware Setups window. To me, this is a baby-step in the right di-

rection. I have an M-Audio Fast Track Ultra. It has a similar software mixer available through the Mac System Preferences window. Using this device with Pro Tools M-Powered 7 and beyond, I could go to the Hardware Setups window in Pro Tools for a link to that software mixer. The only difference between that and what is offered in HD Native is that rather than linking to a different window, the mixer lives "inside" the Pro Tools software. If it were found in the Mix window, even as a pulldown tab like the "Tracks" or "Groups" on the left, that would be far more practical. It is a very practical way to manage zero-latency monitoring, as proven by countless devices that use this solution. But you're always taking a trip to the Hardware Setups, which has no quick key to access it, and paging over to the fourth tab in that window is cumbersome.

## LOW-LATENCY MONITORING PATH

One concern of low-latency workflow comes into play when performing punches. If an artist is listening directly to the input of the track in which they are recording, usually that track is muted to avoid hearing the latent double. If the track is muted, they can't hear playback up to the point of the punch. Though there are workarounds to this, Avid attempts to afford a more elegant solution to this problem, dubbed the "LLM Path" for Low-Latency Monitoring. This provides a way to toggle a track between playback and zero-latency input monitoring automatically at the point of a punch.

Deeply integrated into the DAW, this is an option that requires defining a hardware output path to be dedicated to this function in the I/O Setups window. From there, an input-ready track's output is routed exclusively to that path, at which point the entire operation of that track is redefined. While other tracks will be buffered and delay-compensated according to the Playback Engine settings, tracks in LLM mode avoid any buffering before output. When other playback tracks are sent via aux sends to the Cue path dedicated to LLM, they are pre-buffered and playback is relatively synchronized to the LLM track being recorded. This way, the artist hears all of the bed tracks playing normally, and hears their own overdub mixed with those tracks free of delay.

Using this function with the new HD Omni, I had mixed feelings. An annoying stipulation was that LLM couldn't be configured if surround paths existed in the I/O setups. The other concern you may face is that there is only one LLM path configurable; you can provide one zero-latency monitor path for your artist(s).

## PRODUCT SUMMARY

**COMPANY:** Avid  
**PRODUCT:** Pro Tools|HD Native  
**WEBSITE:** Avid.com  
**PRICE:** HD Native Core + HD OMNI Bundle, \$5,995 Street

**PROS:** Incredibly low latency. Great-sounding hardware.

**CONS:** Ergonomics of low-latency settings and hardware downmixing could be improved.

This left little to complain about for me, as the HD Omni only has one headphone jack and is designed to accommodate this feature quite harmoniously. Near the control room level/headphone level control is a Cue button, which accesses a path set up in the I/O Setups specifically designed to be an artist headphone mix. When designating this as the LLM path, it's easy to feed the artist the latency-compensated mix at the touch of a button. The awkward part is that a track in LLM mode cannot also feed the main control room output path. As a result, while the artist hears an LLM mix through the headphones, you must also create an aux input to monitor his/her input signal through the buffered, delay-compensated mixer feeding the control room output. It was bearable, but I found it a bit clunky.

As the LLM track is not passing through the Pro Tools mixer, the artist cannot monitor plug-ins inserted on the record-enabled track, supposedly. I found that plug-ins on the LLM track reflected a bypassed status, but still passed their processing through to the CUE output. Ultimately, it seems that LLM was designed as a solution to be used in a pinch when a giant sluggish session needs a last-minute overdub. Fortunately, that was the case because until I really got the hang of it, I found it to present more confusion than convenience.

## THE HD OMNI

Altogether, the HD Omni was an impres-

more online



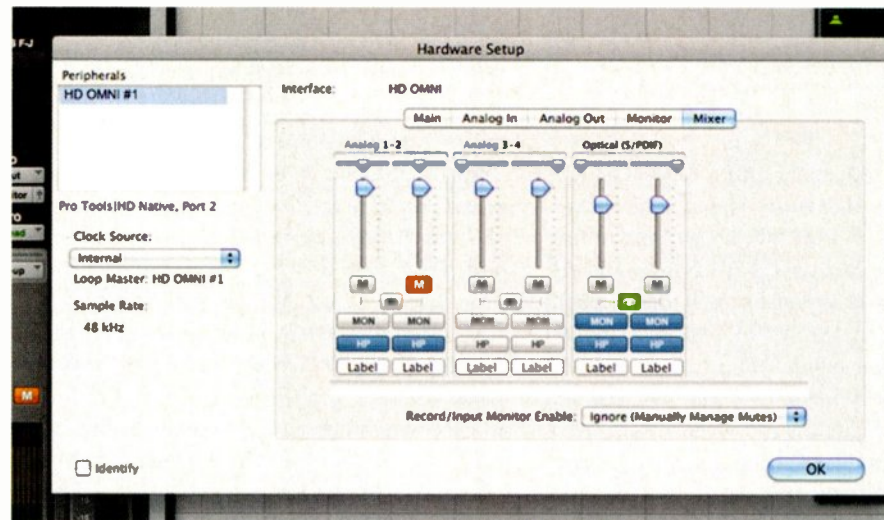
Download a Pro Tools session file. Visit [mixonline.com/june\\_11](http://mixonline.com/june_11) for more info.



sive, new direction for HD hardware design. In general, the overall sound of the ADC and DAC are leap-and-bound improvements from the early 96 I/O and 192 I/O. There is a much greater sense of realism there than I'm used to hearing with Avid hardware, suggesting a much greater accuracy in clocking. The inputs' analog technology also surpassed the expectations put into place by devices like the C|24. There is a bit more color than seen before, most evident in a fatter bottom end but without compromised detail in the top. The instrument inputs exhibit the same analog technology as the Eleven Rack. Properly structuring input impedance to make a guitar truly sound like it's plugged into an amp when feeding an emulator plug-in is rarely executed with the authenticity I heard here. I also really dug the input limiter settings. Either a soft clip or soft-knee limiter are selectable pre-digital conversion, allowing for your choice of a more transparent clip protection or a more aggressive and musical, analog smack. Both sounded great for their individual purposes.

The monitoring section performed all of the needs of a stereo control room admirably. Its function as a surround monitor controller, on the other hand, was a bit disappointing. Pleasant features included output calibration settings like individual output trims for each speaker, settings to designate hardware outputs as +10dBu feeds direct to powered monitors or +24dBu line-level outputs to other devices, and an SPL-based display. Front panel metering displayed the output order designated by your routing configuration. Management of settings available through Hardware Setups could also be accessed through the front panel when using the hardware in the absence of Pro Tools.

Downmixing provided little user control, however. I'm still unclear as to what is happening if a fold-down setting is applied to a 5.1 output downmixed to stereo. The term "fold down," in my experience, usually implies matrix encoding, and based on my tests it seems that this might be what's happening as the phase relationship of the surrounds summed to the fronts seemed altered. I'd appreciate some mention of specifics in the documentation. Avid suggests purchasing software such as Ney-



rinck SoundCode downmixer. I find it interesting that Neyrinck has provided Avid with a SoundCode Stereo downmix plug-in that is included in the CPTK2, and that plug-in is exclusive to that package. Given that Pro Tools 9 with CPTK2 is supposed to be one step down from HD Native, it seems that this plug-in would be included with HD Native or the HD Omni. Instead, a similar, but more fully featured version can be purchased separately from Neyrinck for \$350.

Finally, the entire design suggests that this is a device meant to be right in front of the engineer, who is critically listening to their monitors. It's also pretty apparent that the design accounts for a singer being nearby when cutting vocals with a mic and headphones plugged into the front panel jack. Neither of these goals seem hardly practical in the presence of the overwhelming fan noise exuded by the HD Omni. Even with headphones on, it drones and whirs at a very apparent loudness level. Many vocals I tracked in the same room as the HD Omni were unusable because of the noise. The included literature states that the device must stay cool and to avoid racking it, use a solution where the sides are covered. This is an issue that should be addressed.

### IS THIS THE END OF HD?

While many are looking at Pro Tools|HD Native as an admission of defeat, or a first step toward studios stepping down from HD systems, I hardly see it as that. Full-blown HD systems will continue to be the

backbone of the film mixing and high-end recording industries with no foreseeable end in sight. Meanwhile, it's clear that Avid realizes that stripping features wasn't keeping people buying Pro Tools|HD, it was just forcing them to turn to other pieces of software. In between, there have always been rock-solid professionals who appreciate the role of HD systems and have continued to buy them for the right reasons. When looking for a powerful system that can be trusted day in and out, providing plenty of I/O and low latency, Pro Tools|HD has always been a no-brainer. Pro Tools|HD Native recognizes that with the powerful computers of today, this same level of reliability can be accomplished at a lower overall cost by maintaining what is really important and removing what is not. The PCIe-based throughput, employing a proprietary audio driver, gets the job done with or without the additional DSP provided by traditional HD core cards. The end result is that the prestige of Pro Tools|HD is now more affordable than before.

*Brandon Hickey is a freelance engineer and audio educator.*

### TRY THIS

First route the output of all tracks to a 5.1 aux called "5.1 Mix Bus." The output of this aux should feed another 5.1 aux called "5.1 Out," which will feed your main output. Mult the output of "5.1 Mix Bus" to a 5.1 aux called "Downmixer." On this track, insert the Trim plug-in, which will be your downmixing control. "Downmixer" will feed six 5.1 auxes called "L," "C," "R," "LFE," "Ls" and "Rs." On each, insert a Trim plug-in and cut all outputs but the one for which the track is named. Create a stereo aux input called "Lo Ro Out" and route it to your main 5.1 output path. Feed the L, Ls, C and LFE to the left input of the aux. Feed the R, Rs, C and LFE to the right input. "5.1 Out" is your main mix, "LoRo Out" is your downmix.

## UNIVERSAL AUDIO UAD-2 SATELLITE

Plug-In Accelerator Offers  
UAD-2 Plugs Over FireWire

**T**he ranks of external hardware plug-in accelerators have thinned since SSL went Native-only with its Duetto plug-ins in February 2011 and Waves stopped making its APA32 and APA44 units. Still, Universal Audio has been chugging away, developing a wide array of options for those wanting access to its UAD-2 plug-ins, which are only accessible on the company's proprietary hardware. Universal Audio's latest effort in this regard was released at NAMM in January 2011 as part of the UAD-2 Satellite Duo and Quad accelerators. The Quad unit is under the microscope in this review, which I ran on a Mac 2.26GHz Intel Core 2 Duo 13-inch laptop with 4 GB of RAM running Mac OS 10.6.7.

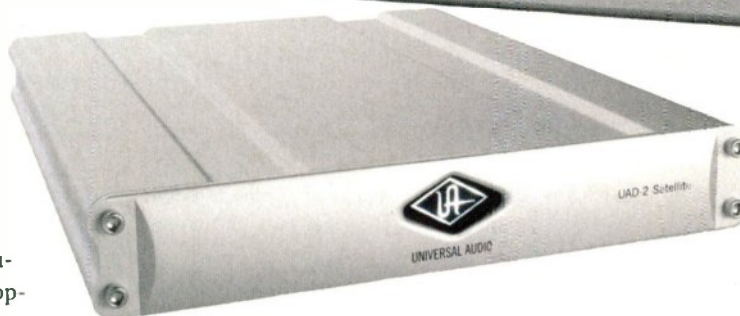
What's new about the Satellite platform is the ability to open up the UAD-2 plugs to FireWire 800- and 400-equipped Intel-based iMacs, MacBook Pros and Mac minis. The units are powered by two or four SHARC processors, allowing a whole new group of desktop users access to a large range of processors without taxing internal RAM, which then can be used for other plug-ins outside the UAD-2 family.

### START ME UP!

With purchase, you get the UAD-2 Satellite enclosure, which looks very much like an external hard drive, and the Analog Classics plug-in bundle offering the LA-2A and 1176LN/SE compressors, Pultec EQP-1A EQ and RealVerb Pro plug-ins. The unit works with a range of DAWs with support for AU, VST and RTAS formats. From there, you can use the included \$50 voucher to purchase new plug-ins from the sizable UAD library.

Out of the box, the UAD-2 couldn't be easier to hook up. Just FireWire into your host computer, and you're ready download your plug-ins and host software from the included disc, and then authorize your system via Universal Audio's Website.

The UAD Meter and Control Panel is one of the system's best



*The UAD-2 Satellite comes in 2- or 4-chip versions.*

features. It offers a wealth of valuable info to configure your system, check your resources, keep track of your plug-in licenses and get help if needed. Under the System Info tab, you can view your Satellite hardware and see the DSP percentage used per chip, the amount of latency, current software version, check for updates and more. The Plug-Ins tab is where all your licenses are listed, while the Configuration tab gives you access to some high-level tweaks for setting up your DAW. The Help screen offers a UAD Registration and Authorization FAQ, UAD voucher and Plug-In Purchase FAQ, a user manual, the ability to contact support via email, a link to the Support page, access to your my.audio account and a UA Webzine.

Even when the info gets deep, you can get a high-level heads-up by rolling over each section, which reveals a complete explanation of the feature in the INFO box at the bottom of the window. I used this feature with Pro Tools more than once when I needed to fine-tune my system.

### THE SOUNDS

I can't possibly get into each available plug-in in UAD-2 land, so I'm going to touch on the high points of my experience here. I happened to be mixing a daunting 80-plus-track song at the time and quickly ate up a lot of processing. For compression and general track warming, I fell in love with the Fatso Jr. The interface can be confusing at first, but a quick trip to Empirical Labs' Website got my head around it quickly. It is very good at adding degrees of warmth to challenged tracks. In this case, I had a poorly recorded sax track that also happened to be the lead instru-

The UAD Link light shows connection status and sits with two FW800 and one FW400 ports on the back of the unit.



ment in my mix. I used the Fatso just for warmth and then the Fairchild 670 emulation to tame the transients and bring it nicely into the mix.

I had equally good results with the Trident A-Range EQ, dbx 160 compressor and EMT reverbs on a variety of instruments. The EMT 140 plate quickly became one of my favorites. I was able to download the UAD 5.9 software update just before pen-

## PRODUCT SUMMARY

**COMPANY:** Universal Audio

**PRODUCT:** UAD-2 Satellite Quad

**PROS:** Plug-in emulations sound great. FireWire 800 offers up to 77 stereo plug-ins at 44.1.

**CONS:** The UAD-2 Link LED is on the back of the unit. Occasional lost connection with Satellite when jumping sessions.

**WEBSITE:** [uaudio.com](http://uaudio.com)

**PRICE:** \$1,499 (Quad) with \$50 voucher toward future plug-in purchases

**SYSTEM REQUIREMENTS:** Intel-based Mac, OS 10.6.4 Snow Leopard, FireWire 800 or 400

ning this review and had a chance to play with the new Lexicon 224 reverb. It is excellent, and there are some great presets written by top engineers who have used the 224 for many years. This brings up the point I love most about the UAD-2 hardware emulations: The company is not afraid to make it a challenge to use the processors; these aren't dumbed-down versions. You can go as deep as you want on your own, which is exactly like the hardware. A one-knob world is a boring world. However, if you want a good starting point, there are great presets for every plug-in to help you get your feet wet. One size fits every user, advanced or not.

The only problem I had when using the system is an occasional disconnect between Pro Tools and the UAD-2 Satellite. Diagnosis is easy using the Link LED placed—unfortunately on the back of the unit. I was sharing the FW800 bus with a hard drive so that could have been part of the issue. Nonetheless, it was easy to fix by pulling and re-seating the FireWire cable to the Satellite.

## I'M IN ORBIT

Using Satellite Quad was nothing short of an epiphany with regard to what can be mixed natively on a laptop. If you've ever tried to survive with internal RAM alone, you quickly realize it's a dead end;

you need TDM or one of the existing UAD cards in your tower to pull it off.

Before Satellite, the best you could get is the Solo/Laptop card (one chip) on a 17-inch Mac laptop. Now you can get up to four chips on any FireWire-capable, Intel-based Mac laptop, iMac, MacBook Pro or Mac mini.

This is an exponential bonus in power and flexibility.

And I haven't even touched on how great the plug-ins sound. Los Angeles-based engineer David Rideau put it best when I told him how excited I was about the UAD-2 processors. He said, "Even if I bring up a plug-in and it's not what I'm looking for, they still sound great." He's right. The range of hardware emulations are broad, intelligently presented with accurate GUIs and just the right amount of upgrades to take it into the digital realm. If you want to extend your creative reach and make yourself a better mixer, especially on a laptop, UAD-2 Satellite is your next best step.

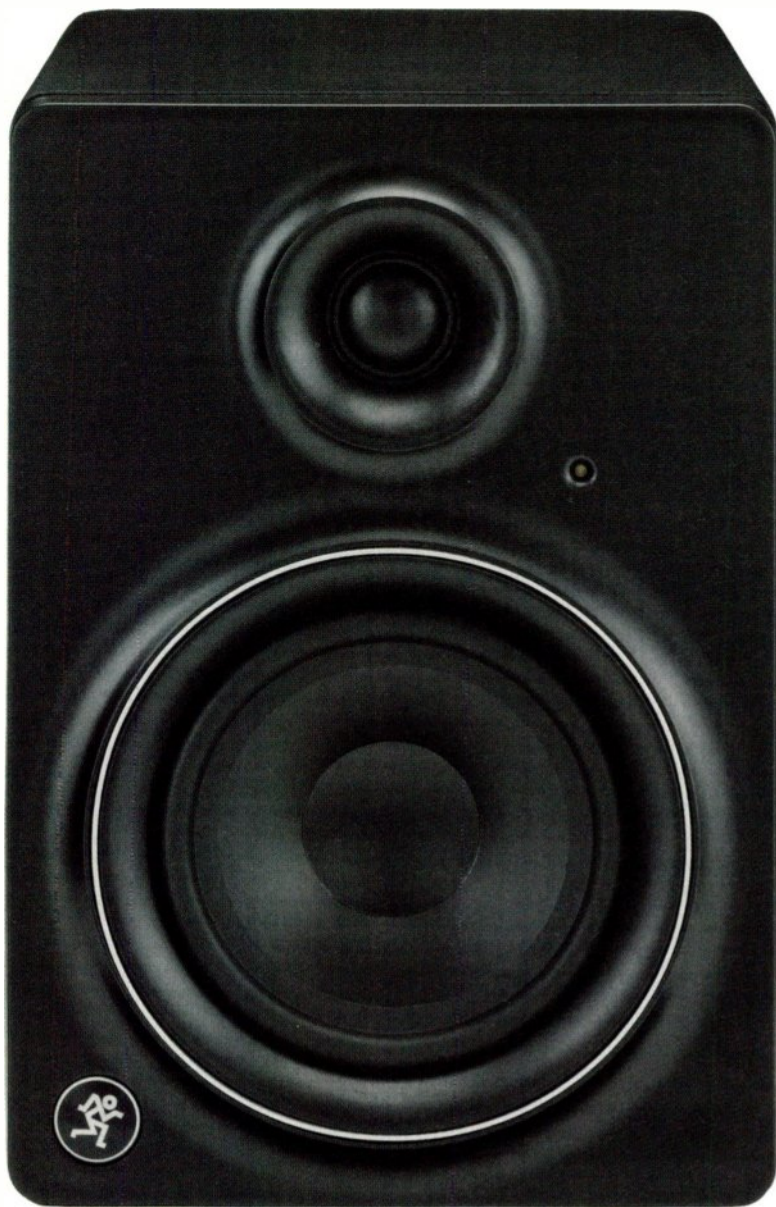
*Kevin Becka is Mix's technical editor.*

## TRY THIS

When EQ'ing and compressing vocals, use two EQs: one before and one after the compressor. Remove any offensive frequencies such as a too-big bottom end or spikey sibilance before you compress, and then add any needed sweetening frequencies after the compressor. This way, the compressor is not responding to frequencies that won't be in the final product.

# MACKIE MR5MK2 ACTIVE STUDIO MONITOR

Affordable Near-Fields Strike Performance Gold



*The Mackie MR5mk2's diminutive size belies its huge sound.*

**F**orget everything you might have known about the original Mackie MR5 studio monitor (introduced in 2008). The new MR5mk2 is a whole other ballgame. Among the many design changes, the updated two-way, bi-amplified monitor shows off an all-new silk-dome tweeter and polypropylene woofer. A revamped baffle and eye-catching waveguides contribute to improved imaging and depth. The bass response has been extended, and they can get louder, too, if you want. What's more, the price has been chopped down to only \$199.99 each (MSRP), making these impressive performers veritable trailblazers in their price range.

## SMALL FOOTPRINT

The MR5mk2 tips the scale at a reassuring 14.3 pounds, fairly hefty for a monitor measuring only 11.5x7.8x10.6 (HxWxD) inches. The 1-inch tweeter is ferrofluid-cooled to reduce power compression and is driven by a neodymium magnet that diminishes distortion. The 5.25-inch woofer employs an inverted dust cap for smoother response. There's nothing too unusual here except that each driver is ensconced in a molded waveguide with a moon-crater profile; the circular lip extends forward beyond the baffle, reducing diffraction that would otherwise compromise imaging. It looks très cool!

All corners and edges are rounded laterally, but not toward the front and back baffles. An elegant white LED on the front baffle lights when you apply power to the monitor. The power switch is located on the rear of the matte-black, 5/8-inch-thick MDF cabinet, along with an oval bass-reflex port, IEC power receptacle (for the detachable 6-foot AC cord) and a generous helping of input connectors and controls.

Balanced XLR and 1/4-inch TRS connectors and unbalanced RCA jacks are provided for line-level

input. (You should connect only one input at a time.) The TRS jacks can also accept unbalanced signals, making interfacing a snap.

The continuously variable input-attenuator control is designed to accept a +4dBu signal when set to full-clockwise position. This rotary control completely mutes the monitor when turned fully counterclockwise. The knob is detented only at the noon position. It's very tiny (only 1/4-inch in diameter) and its intermediate positions aren't delineated with hash marks. That makes precise matching setups very difficult to achieve using anything other than the detented or maximum setting, especially in dim lighting conditions (as the knob is black).

Two three-way switches activate onboard shelving filters. The high-shelving filter has -2, 0 and +2dB settings and a 5kHz corner frequency, whereas the low-shelving filter offers a 2 or 4dB boost below 100 Hz or unchanged (0dB) response.

### THE INSIDE STORY

The MR5mk2's internally braced cabinet has open-cell foam inside to absorb internal reflections and help damp standing waves. It's also magnetically shielded.

The woofer's amplifier provides up to 55 watts of continuous power. The tweeter's amp is rated at 30W continuous. Both amps are Class-A/B and provide active protection circuitry. While they are the same amps as those used in the original MR5, they've been re-voiced to match the mk2's new drivers. The crossover frequency has been lowered to 3 kHz from 4 kHz in the original MR5.

The speakers have internal fuses to prevent damage from excessive levels, and the drivers' amplifiers automatically and independently shut down if they get too hot. A highpass filter is situated before the woofer's amplifier to prevent over-excursion; it provides 12dB/octave roll-off below 50 Hz. The resulting frequency response is 50-20k Hz,

±2 dB—phenomenal for such a small monitor. The maximum output level per pair is 116dB SPL at 1 meter—loud enough to dry your hair!

### MONITORING THE SITUATION

I placed a pair of MR5mk2s on Primacoustic Recoil Stabilizers to decouple them from the shelves of my Omnirax Mixstation (console furniture with sidecar racks for outboard gear), upon which they were situated. Behind the monitors, an

## PRODUCT SUMMARY

**COMPANY:** Mackie  
**PRODUCT:** MR5mk2  
**WEBSITE:** mackie.com  
**PRICE:** \$199.99 MSRP each

**PROS:** Huge sound for the size. Excellent imaging, transient response, depth and bass extension. Not fatiguing. Plenty loud. Ground-breaking price.

**CONS:** Slightly pronounced and tubby upper-bass range. No bass-cut filter setting. Inferior trim control.

ASC Attack Wall (a modular array of tube traps) tightened up the impulse response in my tuned control room, which is meticulously treated with additional acoustic products.

I listened to a variety of country, folk, alternative and pop-rock mixes that I was intimately familiar with. With all its built-in filters nulled, I was instantly impressed by the sound of Mackie's new monitors. The MR5mk2 doesn't strive to be a proxy for a consumer playback system by providing a window into the midrange band like the Yamaha NS-10M and Avantone MixCube, for example. Instead, it as-

pires to produce the more full-bandwidth and balanced sound expected from much larger monitors. And it mostly succeeds. Reproduction in the upper-bass range was slightly exaggerated and flabby (probably due to the ported design), but much less so than with most other near-fields I've heard mounted on shelves. That deviation aside, these monitors sounded fantastic—so good, in fact, that one could consider using them as a main reference with the addition of a carefully matched subwoofer. Listening to one of my mixes, a sampled sine-wave bass disappeared when playing a low F note (44 Hz) but was clearly heard and in good balance on a higher B-flat (58 Hz).

Imaging, depth and transient response were all outstanding. I was very impressed with how detailed—yet sweet and smooth—the high-frequency range sounded. These monitors won't fatigue your ears during long sessions unless you crank 'em up.

I wish the low-shelving filter could cut bass response. The monitors already put out plenty of mid-bass with their filters nulled and cabinets acoustically decoupled. I can imagine that suboptimal placement near a wall or corner would push the bass balance out of whack without an attenuating filter. Some users may also bemoan that the XLR connectors don't latch.

But give me a break! We're talking monitors that sell for around \$300 a pair on the street. I've never heard monitors that sound this good for such a miserly price. Throw in all the connectivity, built-in filters and protection circuitry, and it's hard to reckon how Mackie can offer these babies for so little dough. Attention, bargain hunters looking for a big sound in a small package: The MR5mk2 should be first on your shopping list.

Mix contributing editor Michael Cooper ([myspace.com/michaelcooperrecording](http://myspace.com/michaelcooperrecording)) is the owner of Michael Cooper Recording in Sisters, Ore.

## TRY THIS

If you set your near-field monitors directly on shelves or a meter bridge, you won't hear their full potential. Place your monitors on acoustic decouplers to smooth their bass response, tighten up imaging and preserve transients. The best acoustic decouplers I've used (by far) are Primacoustic Recoil Stabilizers. If you're on a tight budget, Auralex MoPADs provide decent performance for a pittance.

If you have no budget, place your monitors on mouse pads to mitigate a ratty sound.



# BAG END INFRASUB-18 PRO, PMM-8 MONITORS

Turnkey, Time-Aligned® System Offers Stellar, Full-Range Sound



*All of Bag End's monitors use Ed Long's Time Align principles of design.*

**F**rom longtime speaker manufacturer Bag End comes a new package designed for a variety of mixing, mastering and reference applications: the InfraSub-18 PRO and PMM-8 powered monitors. Designed to work as an integrated, self-powered turnkey system, this combination of workhorse speakers offers a host of useful features with loads of solid power and crisp detail.

## FROM THE GROUND UP

The InfraSub-18 PRO is the big brother to the original InfraSub-12, which I reviewed in *Mix* May 2004, and subsequently purchased. The InfraSub-18 PRO has all of the same basic features of the InfraSub-12; it's a self-powered sub with an 18-inch cone loudspeaker in a sealed enclosure, using the same preamp and power amp as the InfraSub-12 PRO (500 watts), with an extended operating frequency down to 8 Hz. The amplifier also includes a built-in INFRAdual integrator providing a flat response down to 8 Hz, well below the audible range of human hearing. In many cases, one feels it as much as hears it. Like its smaller sib, the InfraSub-18 PRO is a seamless, smooth performer, with power to spare for the lowest part of the listening spectrum.

Included with the unit is the Status monitor, a handy visual cue device—connected via its own XLR cable to the back of the

cabinet—to show “on” status, as well as dynamic filter threshold, should you push it hard enough. (Again, there's power to spare; I rarely drove my test unit beyond the green “on” status indicator.)

Designed to work as the bedrock for a 2.1 or 5.1 system, the InfraSub-18 features a “passthrough” automatic crossover/LFE feed to connect from a console to the upper PMM8 speakers. Simply connect L and R, or LRC, Ls/Rs cables to the rear XLR male connectors, and then connect another set of XLRs out to the PMM8s (or other powered speakers of your choice).

Level for the InfraSub-18 is set via two rotary pots on the

rear, and a variety of other useful functions (polarity, -10dB attenuation, etc.) are also provided.

## PMM-8 TIME ALIGN™ POWERED SPEAKERS

The PMM-8s are the crown jewels of the system, featuring a single coaxial driver with separate 8-inch mid and 1.75-inch aluminum-compression HF drivers, passively crossing over at 2.9 kHz. This self-powered (rated at 150W nominal, 600W peak), time-aligned unit has XLR inputs (from the InfraSub-18 or directly from a console output with similar connectors) and a dedicated Neutrik Speakon AC power connector. (A very smart precaution; there's never a possibility of plugging the wrong cable into the wrong socket!)

Additional features include front panel rocker switches for power, polarity reverse (brilliant idea!) and a 3-position EQ level switch for near-field/final (brightest, for listening to finished material from a distance), NFM™/Original (least-bright setting;

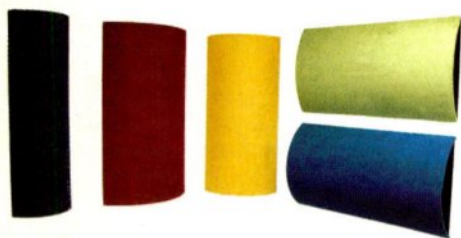
## TRY THIS

With so many “back to vinyl” enthusiasts these days, mixes are coming full circle and must translate properly for today's many formats: CD, LP, MP3, etc. One simple trick to keep mixes tight and exciting—yet under control—is summing bass frequencies below 120 Hz to 200 Hz to mono. (I prefer 120 Hz; it's a good compromise when working with either format and helps build a solid sonic foundation.) A good subwoofer will always let you know what's happening down there in those critical freqs. Keeping it all under control—by summing to mono below 120 to 200 Hz—will make your vinyl-cutting friends happy and keep your CDs sounding rock-solid.

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### PRODUCT SUMMARY

**COMPANY:** Bag End

**PRODUCT:** InfraSub-18 PRO and PMM-8 monitors

**WEBSITE:** [bagend.com](http://bagend.com)

**PRICE:** InfraSub-18 PRO, \$2,130; PMM-8, \$4,360 (pair), \$2,180 (each)

**PROS:** Sonically superior. PMM-8s sound "big" for their size.

**CONS:** InfraSub-18 PRO's size may be an issue for some rooms.

no boost or attenuation of the material) and MFM™/Final and Distant/Original (medium brightness/middle setting). The subtle but important 1.5dB shift in HF levels hinge at 5 kHz make a clear difference, depending on your sitting position, work habits and overall speaker placement. There's a tuned oval port on the bottom front of the cabinet, normally hidden by the detachable (and all but sonically transparent) black grille cloth. The PMM-8s roll off fairly quickly below 100 Hz, which mates very nicely with either the InfraSub-12 or -18.

All of Bag End's monitors use Ed Long's Time Align principles of design, which include physically lining up the drivers and adjusting driver and crossover delays. When a system is aligned, the fundamental and overtone timing is the same at the listening position as they are at the input of the monitor.

### POWER TO SPARE/ROOM TO WORK

After a quick setup, the system came together flawlessly, with nothing more than minimal tweaking and physical adjustment for best listening angles and height. Starting with the default settings for the InfraSub-18 and the PMM-8s, I was up and running almost as quickly as I got them out of their boxes. The PMM-8s provided a rock-solid mono dead-center image right from the start, and stereo imaging was superb. At times, it felt like the normal L/R boundaries were pushed beyond the physical limits of the boxes themselves; a very nice experience. I haven't listened to true Time-Aligned devices in quite a while (anyone remember the UREIs?), and my experience with the PMM-8s was quite startling—in a very good way. As some passages got louder, the soundstage seemed to expand right along with it.

Response time was impressively fast for percussive instruments, while string and wind instruments were creamy and smooth. Imaging for piano, guitar and even flute was stable and vivid. From solo jazz and classical vocalists to pipe organs to full orchestral mixes, the system



never sagged or sounded clipped. With the extended range of the InfraSub-18 (and seemingly endless bass), I found nothing to complain about, except for perhaps a little exaggeration in the low mids on certain male voice-over recordings (which could have been the listening space itself). Most importantly, low-end response was smooth and effortless; never any hot spots or uneven results.

This past fall and winter season had me working on a wide range of projects, including live jazz mixes for NPR broadcasts, radio production voice-overs, full concert choir productions for DVD soundtracks, pipe organ recitals from the Kimmel Center in Philadelphia, and several CD remixing and mastering projects.

Having the luxury of a few months to really work with this system, there was time to compare production mixes with my other setups, including a pair of Lipinski L-505s (with its own InfraSub-12) and another listening-room system with Focal M8s and a consumer/generic sub. Many times, the PMM-8s surprised me with a little extra definition here, a little more detail on the reverbs there, and a wide, diffuse soundstage for live recording mixes. They more than held their own against my tried-and-true everyday-use power tools, proving to be a vital "second listen" for many critical mixes.

### THE LOW DOWN

Mixing and mastering engineers require accurate, transportable mixes that don't change depending on the format or delivery systems. Playback systems can't lie, and they can't crap out when pushed hard. For soundtracks, broadcasts, general mixing, final mastering and more, the InfraSub-18 and PMM-8s is one complete package that delivers clean, clear, non-fatiguing results.

I don't work without a subwoofer. The point isn't to rattle the walls, but just to know what's going on down there. Far too many professional recordings still contain thumps and footfalls, buses going by and even the occasional subway rumble. Having spent a large part of this past decade successfully mixing with the InfraSub-12, I found that the InfraSub-18 (paired with the PMM-8s) delivers more of the same: reliable, accurate extended bass response matched with a superb pair of near-field speakers.

What was most impressive was how quickly this system sets up and sounds fantastic before any tweaking. If you've never worked with a true Time-Aligned™ system, this seamless pairing is worth a listen. The cost is comparable to most other similarly sized and powered systems, and if you're considering investing a system upgrade, the extra features make the InfraSub-18 and PMM-8s a serious consideration.

*Joe Hannigan is owner and chief engineer of Delaware-based Weston Sound.*

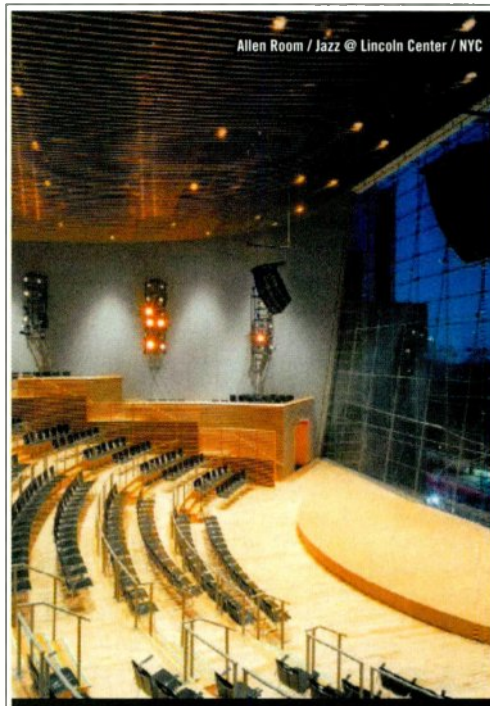


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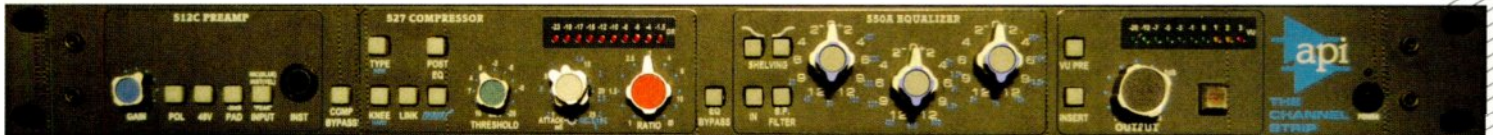
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## API THE CHANNEL STRIP

500 Series Pre, EQ, Compressor in a Rack



**T**here has been an incredible surge producing 500 Series devices during the past few years. Recognizing this, API has released The Channel Strip (TCS), which combines three of API's 500 Series processors in a rackmount package with a dedicated power supply, API 325 line amplifier and comprehensive I/O. The front panel mirrors its default signal flow. From left to right, there's a 512C microphone preamp, 527 compressor, 550A EQ and 325 output. Anyone familiar with these units has a jump on learning TCS, but there are differences. The 512C's input meter is in the output section and may be switched to show signal level post-preamp or post-master output. Individual bypass is provided for the compressor and EQ sections, and the compressor may be switched pre- or post-EQ. The compressor lacks the dedicated output gain control of the modular 527, instead employing auto-gain-makeup. The line output stage includes a master mute switch (very handy), the aforementioned meter switch, a large rotary fader and an insert switch. All switches are backlit, making them very easy to read.

The insert switch hints at TCS' routing capabilities, which become clear with a look at the 11 rear panel I/O jacks, including an XLR mic input, TRS line input and XLR "channel out." Additional (balanced) TRS jacks are for preamp out, first effect I/O, second effect I/O, compressor sidechain and link, and insert return. (Editor's note: The reason that API labels these jacks "first effect" and "second effect" is because the position of EQ and compressor in the signal path may be swapped via the front panel switch. The default is that the EQ uses the first effect jacks and the compressor uses the second effect jacks. When the compressor is switched post-EQ, the compressor uses the second effect jacks and the EQ uses the first effect jacks.) These jacks enable simultaneous use of the mic pre, compressor and equalizer as discrete devices. Because all outputs are half-normaled to the subsequent stages, you can tap and split the output at any point in the path

without disturbing signal flow to the next stage. The insert return jack facilitates incorporating an external device into the channel by patching "second effect out" to the external device and output of the external device to insert return. This path is inactive until the front panel Insert button is engaged. Initially, I thought this was overkill: TCS provides everything you might possibly need, so why insert another effect? Nevertheless, I inserted a channel of my UREI 1178 for a lead vocal and the sonic result was pretty sexy.

I used TCS on a multitude of sources with excellent results. The 512C and 550A equalizer modules sound fabulous. The 512C preamp is clean (until you decide to push it), had enough gain for my RCA 44BX and Shure 330 ribbon mics and—though I wouldn't call it transparent—allows mic character to come through. Recording an acoustic guitar with a Neumann KM84 was perfection; the sound was balanced across the instrument's frequency range, detailed and present yet smooth, with a controlled low end. Substituting a Cascade Fathead II ribbon mic for the KM84 produced a classic euphoric guitar sound: warm and full with a mellow top end.

Combined with a Sennheiser MD421 on rack tom, TCS captured plenty of tone from the shell and a nice attack. The meter switching came in handy for driving the input into distortion, adding a bit of edge to the tom. After setting input gain, I switched the meter back to output to check the level being fed to my DAW

and adjusted the output fader accordingly. Used with a Soundelux U195 as a mono overhead/room mic on a drum kit for an alt-rock track, TCS killed it. Setting the 527 to a fast attack, medium release and 3:1 ratio caused the kick and snare to pop, and the hi-hat to pump in a musical manner.

The Old and New compression settings use feed-back and feed-forward gain reduction, respectively. The New setting produces less color in the lower-mids and a slightly less-aggressive low end. At higher compression ratios, any lost high end can be restored

### PRODUCT SUMMARY

**COMPANY:** Automated Processes Inc.  
**PRODUCT:** The Channel Strip  
**WEBSITE:** [apiaudio.com](http://apiaudio.com)  
**PRICE:** \$2,995

**PROS:** Great sound, modules patch access to individual modules.

**CONS:** Not output gain control on the 527 compressor.

## TRY THIS

The Channel Strip (TCS) and Neumann KM84 make a great team for recording acoustic guitar. Place the KM84 (or other small-diaphragm condenser mic) approximately 12 inches from the 12th fret, angled roughly 15 degrees toward the sound hole.

Set TCS' HF EQ to Peak mode and add a 2dB boost at 12.5 kHz.

The mid- and LF EQ controls can remain flat. Dial in the ratio at 2.5:1, the attack and release to 12 o'clock and engage the Knee switch. Set the preamp gain so that when the meter is set to VU Pre, the guitar level peaks between -3 and -1. Decrease the threshold control until you see 1.5 to 4 dB of gain reduction and enjoy a beautiful guitar sound.

with a mild HF boost (2 to 4 dB) on the 550A.

My one gripe is in regard to the 527's substitution of auto-gain makeup for the output level control present in the 500 Series module. The auto-gain can add too much makeup gain. For example, with all buttons out, raising the ratio resulted in excessive gain makeup, but when the knee was set to Hard, this was less exaggerated. Engaging Type, Knee and Thrust; cranking the

threshold down; the ratio up; and setting attack and release to their fastest, the auto-gain is way too high. The master output fader comes in handy to tame the output level, but I'd have preferred manual control for output level of the compressor. (I do have another minor gripe: Under certain lighting conditions, the blue markings are impossible to read.) At low ratio and high threshold settings, compression can be very subtle, but at lower thresholds and higher ratios, the 527 easily accomplishes aggressive compression (and pumping if you so desire).

The 550A equalizer may be my favorite EQ of all time. It always sounds musical, and even with a large boost or cut doesn't exhibit the weird phase shift characteristic of lesser EQs. Adding 2 dB at 600 Hz and 2 dB at 10 kHz on a male vocal in a pop/rock track created just the right finish, enabling it to cut through the mix without raising the fader. A few dB of high end accentuates the smack of a kick drum without making it stick out of the mix. The high-frequency EQ points (20, 16 and 12.5 kHz) are wonderful for adding shimmer to acoustic guitar. Add a few dB of 16 kHz on a snare drum, and you can practically taste the coating on the head.

On bass, the TCS DI delivered a tight, solid bottom and a subtly more-aggressive tone than a standard DI. Adding a boost at 100 Hz and a few dB of compression produced a great rock bass sound. The combination of 550 and 527 on synth bass is ridiculous (good), producing bottom that can shake the rafters with a nasty upper-mid growl from the EQ.

API has another hit on its hands with The Channel Strip. Its extensive routing capabilities allow simultaneous use of the mic pre for recording while the 527 and 550A process separate signals. This works flawlessly and adds a lot of versatility to the unit. The sound and circuitry is tried and true, the format is convenient without giving up any of the strengths of individual modules, and it's a no-brainer for anyone looking for a money channel. If you're familiar with the component processors, you will not be disappointed.

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**Annotations:**

- Engineer's headphone** (points to TB MIC)
- Talkback mic "One more time with feeling!"** (points to TB MIC)
- Aux in #1** (points to Aux 1)
- Aux in #2** (points to Aux 2)
- Analogue summing** (points to Mix)
- Mix 4 stereo stems: Aux #1, Aux #2, Aux #3, plus the Stereo cue input** (points to Mix)
- Monitor Select** (points to Monitor Select)
- Alternate speakers** (points to ALT SPE)
- Eliminate Latency** (points to Cue Mix Level)
- Cue mix master level** (points to Cue Mix Level)
- Passive Stepped Attenuator** (points to Cue Mix Level)
- Stereo cue input mixes with Aux #3 = "More me" in the cans** (points to Cue Mix Level)
- Talkback level and switch** (points to Talkback Level)

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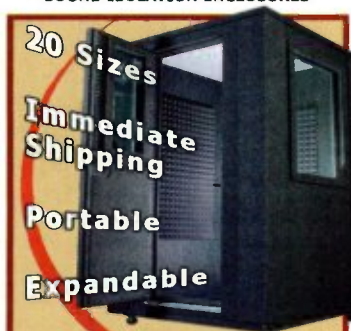
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## IT'S ALL ABOUT TRUST



By Kevin Becka

**A**s I was learning the craft of engineering, I was fortunate enough to assist some of the best ears in the business, which gave me a rare opportunity to see and hear what they trusted. They all trusted their ears. That comes from working with great gear and putting in your 10,000 hours. (Google “Malcolm Gladwell’s *Outliers*.”) Their gear choices and techniques intrigued me, providing me with something I could quantify and immediately put into my own bag of tricks.

For instance, Mick Guzauski trusted Eventide’s SP2016 reverb as his main go-to box for room ambience and longer ‘verbs for drums and vocals. He had two and used them on every mix. Engineer Terry Christian relied on Shure SM81s in a spaced pair over a drum kit and also used a Neumann U47 FET on kick drum (both pads in). Terry always got great drum tracks no matter who was playing. Erik Zobler had an outboard SSL bus compressor that he used on every mix. I remember we once A/B’d a Neve 33609 with the SSL unit, and after some tweaking Erik had it sounding so close to the SSL it was a draw (great ears). Humberto Gatica believed in a “golden” chain of outboard gear for lead vocals, including a GML 8200 EQ. He also preferred automating mutes rather than using gates for cleaning up unwanted audio between kick and snare hits, always making for challenging (and chop-building) moments for the assistant, as he usually trusted that to the “second.”

With trust in mind, my design for this new column is to inform you about new technologies and techniques, interesting and provocative viewpoints, and industry trends. What’s been rocking my world recently is a powerful and portable laptop mixing rig I’ve been putting together. I’ve been working at this for more than two years now, a lifetime in the computer world, but only in the past eight months have all the pieces fallen into place. Last year, Apple released new MacBook laptops that offered FireWire 800 across the line, even on the 13-inch models. I bought one with 2.26GHz Intel Core 2 Duo processors and upped the RAM to 4 gigs.

At AES last November, Avid released Pro Tools 9 with its near-TDM feature set; that brought the DAW into place. The ability to operate Pro Tools natively with delay compensation was key to my setup. I added the Complete Production Toolkit 2, which brings surround mixing to Pro Tools, adding 192 voices at 44.1, 96 voices at 96 kHz and 48 voices at 192 kHz. Avid also bought Euphonix last year and eventually made Pro Tools 9 a EuCon-compatible DAW. So for control I’m using the Euphonix MC Control, which works at poten-



tial 12-bit resolution. This is a major experiential and workflow shift from MIDI resolution and HUI-based surfaces. Mouse mixing sucks!

Then at Winter NAMM in Anaheim this year, Universal Audio unveiled the UAD-2 Satellite Quad FireWire DSP Accelerator. Apart from some UA originals, the plug-ins are modeled on coveted processors like the Fairchild 670 compressor, dbx 160 compressor, Manley Massive Passive EQ, Fatso Jr. compressor/tape simulator, Trident A-Range EQ, EMT 250 reverb and many more. Opening the list of plug-ins on an insert is like a trip down memory lane. And they sound great.

The weak link out of the computer is the audio output, which is fine for casual listening but not up to pro audio(phile) standards. After some research, I opted for the Benchmark DAC-1 USB. It’s the latest version of the company’s D/A converter and offers AES/S/PDIF, optical and USB inputs, along with balanced line outs and its high-current HPA2 headphone amp. The clock is phenomenal, and the difference it brought to the output is huge. The stereo image is tangibly wider, the bottom end is bigger and it unveils incredible detail in reverb tails and other low-volume mix elements.

For playback, I have Focal CMS40 monitors. I don’t have a large space and didn’t want to overpower the room and amplify all the acoustical ugliness. The CMS40s sound great at low volume, and if I need to crank them, they’ll get plenty loud. My final “gut-check” monitoring source is a pair of Sennheiser HD800 headphones, which are the best I’ve heard. They are brutally honest, and I’d bet a paycheck that they’re telling me the truth. I’m also lucky to have some great rooms near my office that I can reference along the way.

Although this rig does have occasional hiccups when the accelerator hits the floor, it’s a start. (Come on Thunderbolt!) The rig sounds fantastic and has built a lot of confidence in my workflow and increased my ability to work in different environments. These are the kinds of things I trust.

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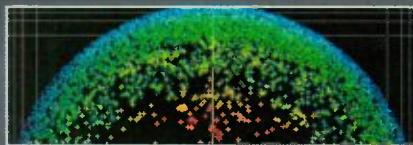


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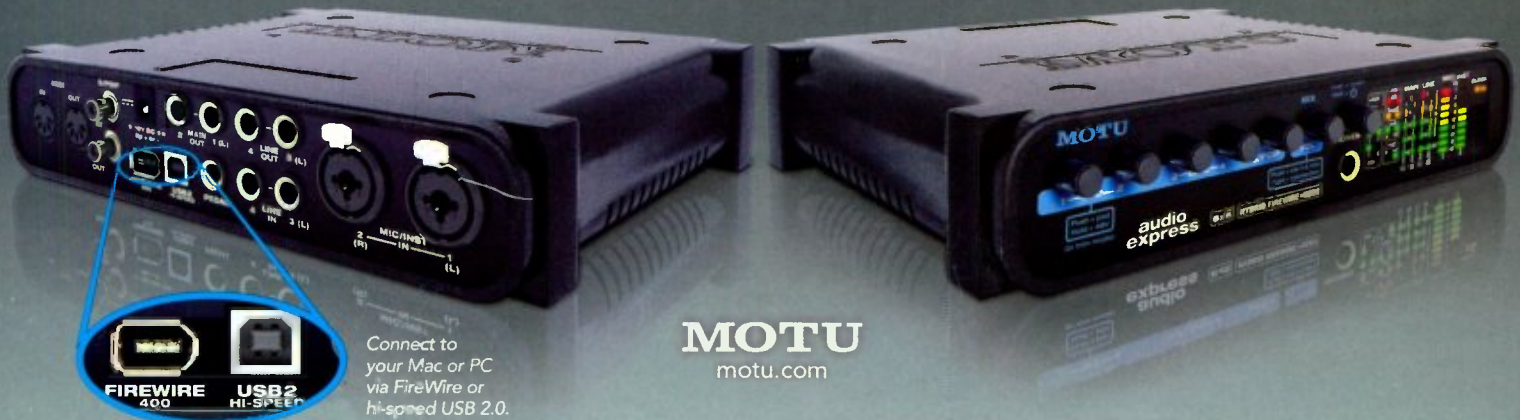


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