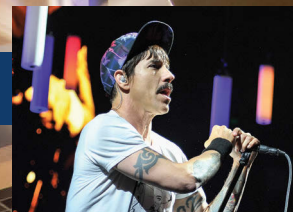


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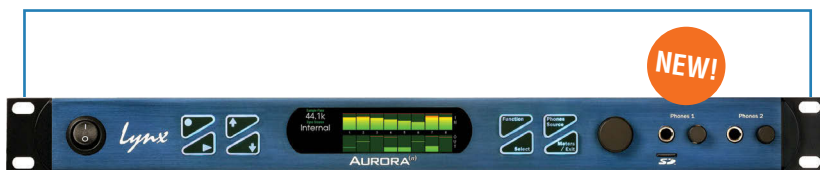


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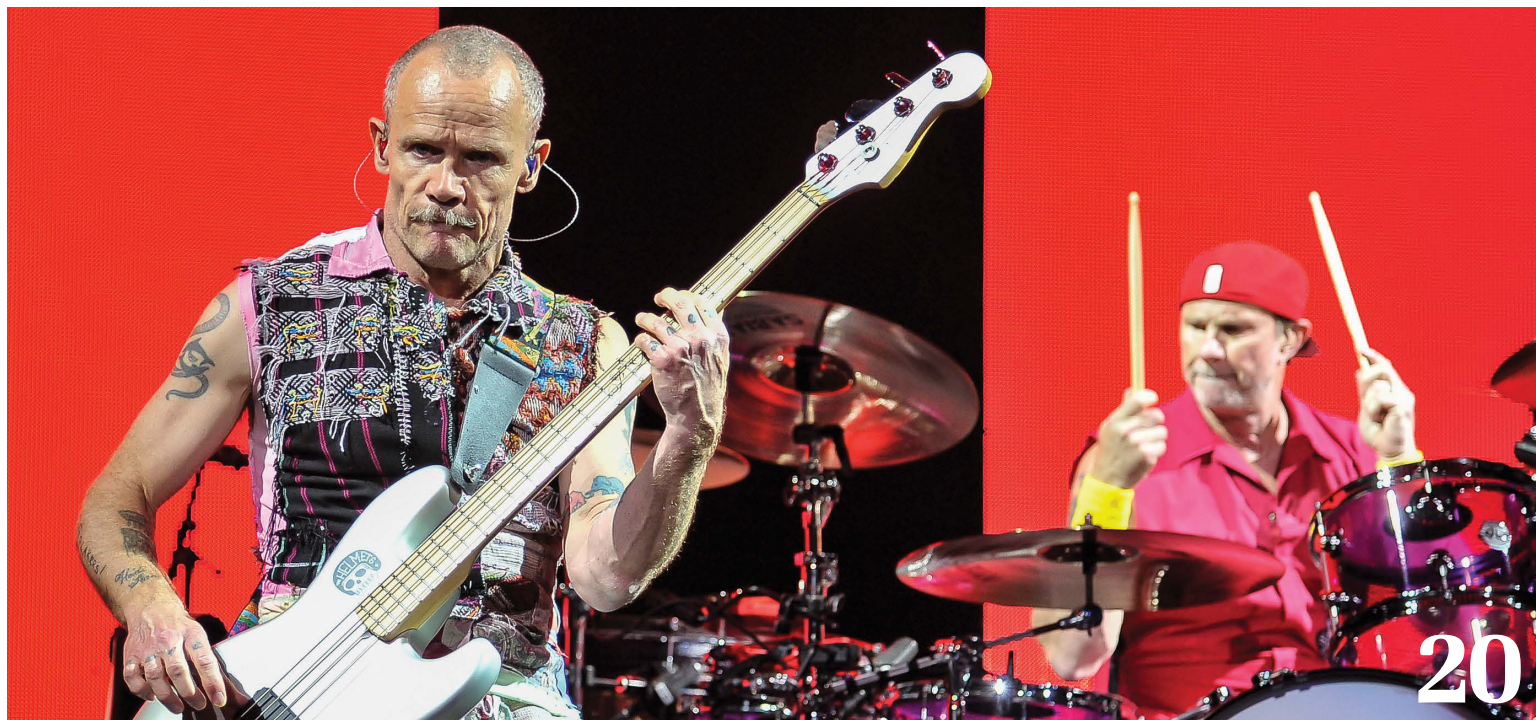
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**On the Cover:** The new NYC home of Joel Beckerman's Man Made Music was designed by Francis Manzella to inspire music creation and allow for recording and editing throughout the multiroom complex.

**Photo:** Mickey Alexander

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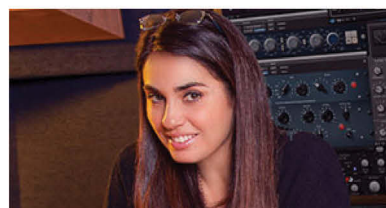


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## From the Editor

### THE IMPORTANCE OF JAMES B. LANSING

Last November, 70 years and one month after James B. Lansing left Altec Lansing and founded the James B. Lansing Company, Samsung announced its acquisition of Harman for \$8 billion. It was front-page news because that's a lot of money and a whole lot of companies, consumer and professional, including JBL. With those kinds of numbers and the attendant Wall Street commentary, it's easy to lose sight of the fact that this all started in a small machine shop on Fletcher Drive in Los Angeles.

Of course, nearly all major companies started out in the equivalent of a garage, a living room or a machine shop. But how many survive? How many remain vital, by continuing to grow, evolve, develop and change with the times? How many speaker manufacturers have come and gone since World War II? Many good companies fail for all the wrong reasons, some self-inflicted and others simply due to unfortunate timing or circumstances. Good companies that survive, however, usually have something core at their foundation, whether it's based in research and science or simply the company culture. JBL has had both, from the beginning.

It's hard to imagine a company still growing after 70 years when its founder was gone three years after the launch. That's a testament to the contributions of dozens and dozens of talented leaders, both in business and science, over the years. It's also a testament to the culture of innovation that Lansing established at the outset: one based on the science of new materials and methods, constantly looking to other industries to adopt technologies for sound. Alnico for magnets, titanium for drivers? Both originated in aerospace. Lansing saw the opportunities for playback.

He also established the principle that they were working on technologies, not necessarily products. This instigated the expansion from the company's roots in cinema to recording studios, home hi-fi, live sound, broadcast, automotive, lifestyle, immersive sound, system control and, soon, VR and augmented reality. Add to

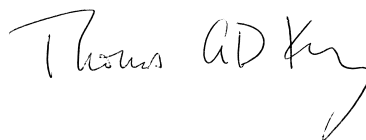
that the other Harman companies, like AKG, Crown, dbx, Soundcraft, and the cross-pollination in development began to extend throughout the industry.

On the studio monitor side, that cross-pollination fueled the development of the flagship M2 Reference Monitor and its sibling, the 7 Series, where the D2 driver was originally developed for sound reinforcement and the revolutionary waveguide has now been extended into consumer, lifestyle and other applications. Meanwhile, the M2 and 7 Series have found a home in post-production houses working with Immersive Sound.

In a sense, the company has now come full-circle. As Mark Gander, JBL Director of Technology, says, "All of us in professional audio owe a debt to cinema, and James B. Lansing was there at the start of talking pictures." Likewise, as Peter Chaikin, JBL's champion of studio monitors, says, "If you make the cinema guys happy, you can appeal to the music crowd, as well." A powered version of the 7 Series was announced at NAMM.

I've been to JBL's Northridge headquarters a number of times now, and at the risk of sounding cliché, it still feels something like the original machine shop on Fletcher. It's a heckuva lot bigger, for sure, and it includes four anechoic chambers, countless labs, small, medium and large 3D printers, speaker break-in rooms, endless offices, large warehouses, and research and testing going on everywhere.

This is the foundation. This is the legacy of James B. Lansing.



Tom Kenny  
Editor



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Co-Music Mixers John Harris (left) and Eric Schilling in the M3 Eclipse truck.

## Audio for the 2017 Grammy Awards

Watching the 59th annual Grammy Awards on TV, you'd have no idea the complexity of moving parts it takes to launch just the sound portion of the event, unless you've had a chance to take the backstage audio tour of music's biggest night.

Michael Abbott, the show's audio coordinator, said that they began on the Monday before the Sunday event, putting in the sound system; rehearsals began on Thursday with a crew of about 300. He said the specific challenge of this show is that many acts are using their own new technologies, and his job is to accommodate while ensuring the overall workflow of the show, in the house and for broadcast. "Right now, we're one foot firmly in the analog world, but we're now starting to put a couple of toes in the digital world," he said.

On Thursday co-broadcast music mixers John Harris and Eric Schilling—in two identical Music Mix Mobile (M3) trucks—began the process of mixing 22 performances, in 90-minute blocks. Every act shows up, and as they alternate on two stages between performances for expediency, the two mixers work a round robin.

"I'll get done with band A and the files get transferred to the other control room and I'll go over and continue to work on band A," Harris explains. "Meanwhile, Eric Schilling will sit down in here and start off with band B. By the time he's finished with that, I need to be done with band A and we'll reverse."

While much of the process has been established and in place for years, much of the technology, as Abbott alluded to, has changed. In 2016 M3 changed its consoles to Lawo MC56 MKII, 48 Fader systems; The M3 principals felt they needed a system geared more towards music-broadcast and Lawo was it—addressing more of M3's needs than the AVID systems they were previously using.

The trucks also each now house an M&K Professional 5.1 speaker system, consisting of three self-powered 2510Ps for L-C-R, two 1611P powered monitors for the rear surround channels, and two X12 M&K subwoofers; the system is controlled by a Meyer Galileo 616 processor.

The completed 5.1 audio mix goes into the Denali Summit truck, which is the Grammy broadcast epicenter where the director, assistant and all those calling the shots, sit. Broadcast mixer Tom Homes sits at a large Calrec Apollo console, where he combines the 5.1 music mix with production elements such as audience mics,

podium mics, walk-on and walk-off music, etc.

That mix gets married with the video and sent via fiber optic and satellite to CBS New York, then distributed to all the local affiliates.

More than 400 mics are used during the show—mostly Audio-Technica, Sennheiser or Shure, depending on artist and endorsement deals—complicating the management of house and stage wireless. There are 221 frequencies managed for all wireless equipment, including more than 60 wireless mics, 41 wireless ear monitors, 18 wireless guitars and the remainder of the frequencies used in production communication.

Harris says that he does a lot of the music shows, but he considers the Grammy Awards the grandfather of them all. "This is the most challenging one," he said. "There's no room for error."

—Robyn Flans



Anna Rossinelli sings into the new Digital 6000 wireless system

## Sennheiser Intros Digital 6000

Sennheiser held a rollout of its newest professional product, the Digital 6000 wireless microphone system, at its home in the Han-

nover district of Germany in late February. The two-day event included demonstrations of the 6000, an overview of the company by Daniel Sennheiser (grandson of the company's founder), a concert performance by Anna Rossinelli and her band, in which the 6000 system was employed, and a day at the main factory in nearby Wennebostal.

More affordable than the company's Digital 9000, which has claimed a significant market share in the high end broadcast market, the Digital 6000 is aimed at the theatrical, HOW, installed and smaller performance venue markets. The 6000 ships with two channels and accepts third-party devices. Its compression scheme allows access to a maximum of 146 channels. Eliminating intermodulation is a key aspect of the system.



The Digital 6000 series includes a 2-channel receiver; either a bodypack or handheld transmitter can be purchased along with a rack-mountable charging unit. A total of 17 different capsules can be purchased for use with the system. Engineers can dial frequencies in manually or use the automatic frequency setup function. The unit's frequency range (30-20k Hz) covers the audible spectrum, and the system's 3.0 millisecond latency should pose no real-world problems. An RJ-45 socket is dedicated to Audinate's Dante AoIP system.

The Digital 6000 is priced at \$3,500 per channel, putting it into a market slot, the company believes, that has not yet been addressed.

—Gary Eskow



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# Music

THE MAVERICKS  
By Barbara Schultz **12**

CLASSIC TRACK:  
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BEETHOVEN  
"PICTURES OF  
MATCHSTICK MEN"

By Barbara Schultz **16**



The Mavericks, from left: Drummer Paul Deakin, keyboardist Jerry Dale McFadden, singer/guitarist Raul Malo, guitarist Eddie Perez.

## THE MAVERICKS' BRAND NEW DAY

Live Sessions Fueled by Vinyl, Coffee and the Specter of Spector

By Barbara Schultz

**N**iko Bolas points out the big difference between casting musicians to support a solo artist and working with a band like The Mavericks. "Both can be fun," he says, "but think about the big bands: In the '40s, you had 35 guys on a bus jamming, 24 hours a day. No wonder they were so good. With the Mavericks, they do the show, they go to the dressing room, they get on a bus, they tell the same jokes, they get up the next day, they have breakfast, they hit another stage. Their communication is second to none. You get the sound of a band."

The Mavericks' latest release, *Brand New Day*,

is the third album Bolas has engineered and co-produced for the group, after meeting frontman Raul Malo in 2009. "I did a record for Lorrie Morgan; we did 40 pieces live in Nashville, and Raul showed up to sing a duet with her, and I was blown away," he recalls. "Mary Hogan at Concord, who I've been friends with forever, said, 'He's signed to Concord. You guys should meet.' We met up later at The Village; he was doing some prep on a record where he'd sung live with the London Philharmonic, and Mary wanted me to mix it."

When The Mavericks made *In Time* (Big Machine, 2013), their first album together after a ten-year hiatus, Malo asked Bolas to mix again.

"I told him, 'No,'" Bolas says. "I'll only mix it if I can record it.' If you're just mixing, it's already happened. The way I learned to make records—three years with Val Garay—the day you cut it is the day you're really mixing it. It all happens on their side of the window. If I can do that with a band, that's the greatest fun in the world. So I flew to Nashville, and we started."

*In Time* and the follow-up, *Mono*, were both Top 10 country records, and today's Mavericks—including founders Malo and drummer Paul Deakin, and longtime members Eddie Perez (guitars) and Jerry Dale McFadden (keyboards)—have been touring nonstop, enjoying a new round



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Photo: James O'Mara

of success with the Latin-meets-country band that originally formed in Miami in 1989. In 2016, the band released a concert album, *All Night Live, Vol. 1*—the first record on their own Mono Mundo label. When it came time to go into the studio to track *Brand New Day*, they had to carve out time between tour dates.

The album started in Nashville, in Blackbird Studio A. "It's just the best in the world to record a band like The Mavericks, because you can do everything live, including vocals," Bolas says. "Everything works, the line of sight is fantastic, the headphones are great, and everything you need—they have three of them.

"I'll often tell John [McBride, studio owner], 'The only things you have only one of are things that there is only one of. And that goes for instruments

as well as microphones. So if you have a whimsical idea and you want tubular bells, they have some. They're in storage right behind the second building."

To set up the date, Bolas went in the night before with a few interns and his assistant, Sean Badum, who "will know how to set everything up because we've done several records together," Bolas explains." Most of the interns are musicians, and we'll have them go out and jam on the instruments. In 30 minutes, we know all the mics are working and we have a balance."

The bandmembers' stations were arranged in a circle to ease communication. Bolas put up a Telefunken 251 for Malo, sent through the classic Neve 8078 console and either an LA2A or a Fairchild compressor/limiter. On keyboards—grand piano, B-3 and Wurlitzer—the engineer/producer says he sometimes used Sennheiser 421 on the low end and an AKG 452 on the high end, but more often he employed one or two 251s.

"I love mono pianos, so sometimes it's just one 251," he says. "But the real secret to the sound is to have Jerry Dale play it, move your head around until you hear everything, and put the microphone there."

On guitars, Bolas hangs another 251 about a foot away from Perez's cabinet. "You have to understand that part of the fun if you're at Blackbird is, you can use 251s on everything. I don't use equalizers. I just run that microphone to the Neve console, and then if we want it brighter, we move the microphone."

On Deakin's kit, Bolas says, "It's just three mics, the way I learned from Glyn [Johns]: 421s or 57s. But again, you're only as good as what's in front of the microphone. I've said this to people before: If I put Steve Jordan in

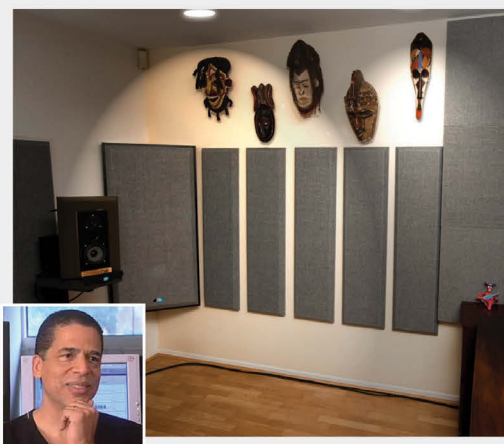
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~ **Butch Walker**

Engineer/Producer - Avril Lavigne, Fall Out Boy, Pink, Sevendust, Hot Hot Heat, Simple Plan, The Donnas.

***"I love the way the control and tracking rooms sound now... and so does everyone that records here!" ~ Butch Walker***



my closet with a Shure 57 and he's in a good mood, it's going to be a good drum sound, and everybody's going to want to know the dimensions of my closet. But they've missed the point."

(Note: The Mavericks' longtime bassist, Robert Reynolds, departed the band in 2015; electric and upright on this album were covered by Ed Friedland.)

On session days, Bolas says, "We'll have our coffee, hang out in the control room with a turntable, and play whatever vinyl they're into. We listen to old records, talk about the arrangement of the first tune, and go out and cut it."

Old records played an influential role in the sound of *Brand New Day*. A morning spent listening to Phil Spector productions, for example, inspired the sound of the title track.

"That track is damn near mono, and we put everything on that thing, including kettle drums and those tubular bells," Bolas says. "Deakin added tympani and a glockenspiel—all the things we heard on the vinyl we played that morning. It kept evolving until we realized, it's the Wall of Sound! Something I've learned over the years is, it's always easier to play an idea than it is to talk about it."

Tour dates took the band away from Blackbird, but they were able to carve out time while they were all in L.A. Bolas booked Studio A at Capitol, where he says they had a great time maximizing the room sound. The band also tried out some new microphones, as Dusty Wakeman of Mojave asked Bolas to field-test some new models.

"Dusty is an old-school engineer buddy of mine," Bolas says. "We did some songs, and I gave them a review of all the mics we used. I think the

Legendary engineer Al Schmitt stopped in during sessions in Capitol Studio A.

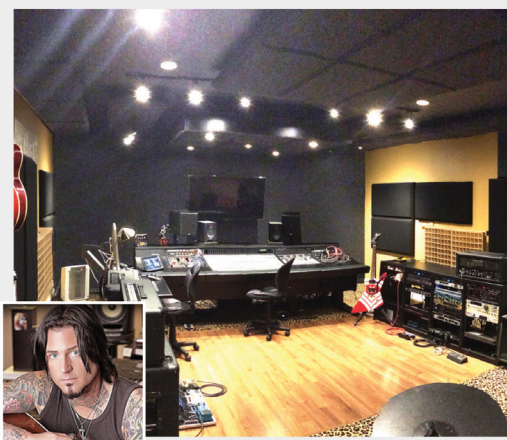


biggest winner was the M1000, which we used on Raul's vocal. It went through two sets of changes, and I think it really went from decent to excellent, to where Raul wants to buy one."

Bolas final-mixed the album in his studio, The Surf Shack (Ventura, Calif.), which is equipped with Pro Tools and ATC50 speakers. However, he's quick to point out that the great energy and rich sounds of the album really come from the rough mixes he worked up after live sessions.

"Most of the mixes started their life at the end of a session at Blackbird," he emphasizes. "I consider everybody's notes, and we'll overdub or make changes if we don't like a part, but the rule is, 'Don't lose sight of what you fell in love with on the day.' Turn the speakers up loud, and if it feels good, print it." ■

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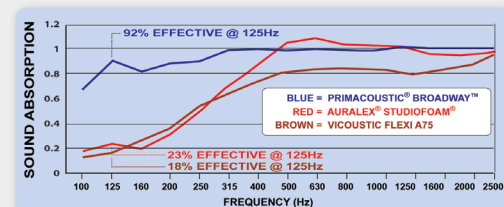


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~ Keb' Mo' - Grammy winner, roots-legend.

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# Classic Tracks

By Barbara Schultz



## **"PICTURES OF MATCHSTICK MEN"** Camper Van Beethoven

**C**amper Van Beethoven formed in the founding members' hometown of Redlands, Calif., but it was in their college days, at the University of California at Santa Cruz, that the band began to take off. Camper's amalgam of punk, ska, country, rock, and international trad folk sounds—all undercut by David Lowery's sardonic vocal tone—tapped into both of the main musical arteries of Norcal college life in the 1980s: Their music was adored by hippies and punks alike.

Camper released their first independent album, *Telephone Free Landslide Victory*, in 1985, including a song that quickly became a signature, the college radio hit "Take the Skinheads Bowling." Two more indie albums followed in 1986 (*II & III* and *Camper Van Beethoven*), accompanied by nonstop touring. Their live sets spanned not only their already extensive catalog of original music, but also some memorable covers, such as their country-folk version of The Clash's "White Riot," a sweetly faithful rendition of Ringo's "Photograph," and this month's Classic Track, an ingenious, freaked-out interpretation of the Status Quo's 1968 hit "Pictures of Matchstick Men."

"We were pretty good friends with the guys in a band called Spot 1019 at the time, and one of the songs they were playing was 'Pictures

of Matchstick Men,'" explains Camper bassist Victor Krummenacher. "I don't remember who, but somebody said, 'The violin would be great on that.' So we did our own cover, and there was just something about that pocket that worked well for our band."

The violin intro that replaces the Status Quo's original electric guitar part on "Matchstick Men" was developed by multi-instrumentalist Jonathan Segel, who had been in Camper since their earliest Santa Cruz days, and it sets up the wild but earthy, almost anthemic rock arrangement that the band had already realized by the time producer Dennis Herring saw them perform in L.A. at Al's Bar in 1987.

Herring had scored his first real hit as a producer in 1986 with Timbuk 3's "The Future's So Bright (I Gotta Wear Shades)." "Suddenly, I was a buzzy producer working out of my basement," Herring recalls. "People were telling me about bands I should do next, but I wasn't hearing anything I wanted to do."

"So, I talked to this guy at the *L.A. Weekly* named Craig Bell, who was really opinionated," Herring continues. "I asked him, 'Who should I go see?' He suggested some bands to me, but I hated all of them. Finally, one day he said, 'There's this band I hate. Since you seem to hate everything I like, you should probably go see them.' That was Camper. They blew me away."

The CVB membership had changed some during the band's first few years, before settling into the lineup of Krummenacher, Segel, frontman David Lowery, guitarist Greg Lisher and drummer Chris Pedersen. Herring and the band connected, and their new producer helped them nail a deal with Virgin Records. Then work began on their next album, *Our Beloved Revolutionary Sweetheart*, using a method that was somewhat... revolutionary for the '80s: They cut basics in Ocean Way, but did all the overdubs in Herring's basement studio, Dustbowl.

"All of our friends who were signed were going into big-name studios and under a lot of pressure to perform, but not being given a lot of say or influence in the process," Krummenacher says. "Looking back, we had a lot of leeway, working with Dennis at his little studio. There was a lot of experimentation and a lot of time. That really helped us."

Herring and the band considered putting "Pictures of Matchstick Men" on *Sweetheart*, but Herring felt that there was danger that their first major-label release could be hijacked by a catchy cover. He wanted the band to break through with their own songs, so "Matchstick Men" was tabled.

When it came time for the next album, *Key Lime Pie*, the band planned to work with Herring again, and Lowery told him he had a collection of songs written for a "dark folk record."

"At first, I groaned inside," Herring says. "I had Virgin telling me, 'Make the right rock record and they're going to blow up.' I thought, 'a dark folk record,' that's the opposite of what Virgin wants. But David played what he had, and it was all great."

"He goes, 'I'm psyched about this, but if you're not, I'll scrap these and write a bunch of rock songs, because I bet you money that's what Virgin



wants.' And I'm like, 'That is totally what Virgin wants, but I think we should do this.'"

Herring and the band used the same basic process for their *Key Lime Pie*, this time recording basics to a 24-track Studer machine in Capitol Studio B with the late, great engineer Csaba Petocz.

"I thought about David's music, and I didn't want there to be a sheen to it," Herring says. "Records in the '80s had a typical kind of EQ'd top end, and I thought that was going to be wrong. We had this low-midrange thing happening, and we didn't want to spoil it. So I told Csaba that he could not add any EQ above 1k."

"Csaba always thought I was crazy," Herring adds. "But he would enjoy these different rules I'd make. I worked with him a lot, especially in that era of alternative music. He told me it was like telling him to record music with one hand behind his back, but he accepted the challenge."

Because Petocz controlled equipment choices for the basics at Capitol, Herring has little memory of the gear, but Krummenacher recalls a few details: "I remember compression was frequently 1176s. They tried to get a fairly roomy sound. The drums had Neumann overheads and a combination of close and distant mics. All the amps were gobo'd, but they put them out beyond the band to get more room sound. I was direct, but they also miked my amp, which is the amp I still use today—a MESA Boogie Bass 400 with a Q15 cabinet."

Krummenacher recalls Lowery sang a scratch vocal to a Shure SM7, and the frontman's guitar went to a Roland JC 120 amp, while lead guitarist Lisher played through a Musicman R112.

There were two rounds of Capitol sessions: After capturing the original set of tracks that Lowery had auditioned for Herring, the producer began to worry about the label's reception, and the public's, if the album lacked an obvious single. So, he suggested late in the game that they add "Matchstick Men." There was only one problem: They were between violinists.

Segel had left Camper between the release of *Sweetheart* and the beginning of *Pie*. A Santa Cruz-based violinist named Don Lax had played on most of the *Pie* tracks, but he'd left after the first set of basics were done. So the band invited another musician they knew, Morgan Fichter of Harm Farm.

"[Krummenacher's side project] The Monks of Doom had played with Harm Farm quite a bit; they opened for us, and I knew Morgan," Krummenacher says. "She had fiddle chops that were nice, pretty accomplished. She had a good stage presence."

Fichter's performance of Segel's intro was one of the parts that was overdubbed in Herring's Amek/TAC Scorpion-equipped Dustbowl Studio. Herring doesn't recall exactly how he captured Fichter's instrument, but he thinks the mic was likely an AKG C414.

"Before working with Camper, I literally had never recorded violin before, so I just made it up," Herring recalls. "Let's see, violin can be kinda screechy, so I won't use an 87. Maybe a 57, or probably we use a 414, because that's going to give a little bit more loudness—curvy and pretty. That's how my mind works."

Lowery's final vocals were also overdubbed at Dustbowl: "I still have two Neumann U87s. One is stock, and one is Stephen Paul-modified to make the diaphragm thinner, so it was brighter. With David, that stock 87 worked great. He's got that weedy, nasally, heady sort of voice, and the 87 was good at finding a lot of his chest and tone."

As on *Sweetheart*, the overdub process allowed Herring and the band



Backstage at Santa Barbara County Bowl in 1989. Seated in front: David Lowery, left, and Victor Krummenacher. Rear, from left: Producer Dennis Herring, Chris Pedersen, Morgan Fichter, Greg Lisher, manager Jackson Haring.

the time to fine-tune their sounds meticulously. Then they took the project to Ray Parker Jr.'s Ameraycan Studio to mix on an SSL.

"I remember I was nervous about the cost of mixing to half-inch tape," Herring says. "Csaba told me Sony had just given him a DAT machine, and we decided to try it. We mixed the first song to half-inch and to DAT to compare, and I liked the way the DAT sounded better. The DAT added a kind of defined point of brightness that seemed good for that record at the end. So we mixed the whole record to DAT. I had queried Csaba quite a bit on the stability of the format, and it seemed like it was all good. When we were finished mixing, we took the DATs to mastering and it was a nightmare."

"We first went to Doug Sax's Mastering Lab, and they started playing the DATs, and none of them would play," Herring continues. "So Csaba suggested I go sort them out at MCA Mastering in the valley 'cause they were doing a lot of remastering of old stuff to CD; they had all that noise-and racket-elimination stuff sussed. So we went over there, and some stuff played, but some had dropouts—all kinds of errors. It was cold-sweat time: 'My record is all f—ked up, I spent all the money.' But we solved the problems one at a time, looking at the screen: 'There's a glitch. I can draw that wave differently. Oh look we don't have that glitch anymore!'"

Their musical rescue efforts paid off. "Pictures of Matchstick Men" became a Number One single on *Billboard's* Modern Rock chart, and Herring continued to build on the buzz; he went on to work on seminal records with Throwing Muses, Buddy Guy, Counting Crows and others.

Camper actually broke up after touring to support *Key Lime Pie*. Lowery co-founded Cracker and Sound of Music Studios (Richmond, Va.), and the others dug into their own music projects, day jobs and personal studio setups. Krummenacher became a graphic designer, and continued to play in various groups and as a solo artist. But over time, Camper became something more fluid, where bandmembers could come together in different configurations. They've recorded a few more albums, and they've toured occasionally, often on a double-bill with Cracker. In addition, once a year, the two bands, and all of the members' side projects and musical friends, gather in rural Pioneertown, Calif., for Cam-pout, their own mini music festival.

"Everyone in the band has a lot of gratitude that thirty-four years on, Camper Van Beethoven, for all intents, is still a core band," Krummenacher says. "If there's a certain group of people in the room, then it's definitely still Camper Van Beethoven." ■



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## RED HOT CHILI PEPPERS 'THE GETAWAY TOUR'



The Red Hot Chili Peppers—Anthony Kiedis, vocals; Flea, bass; Chad Smith, drums; and Josh Klinghoffer, guitar—brought The Getaway Tour to Oracle Arena in Oakland, Calif., in early March. Rat Sound of Camarillo, Calif., provided the complete production package.



"This is my first tour mixing the RHCP," says veteran **FOH engineer Sean "Sully" Sullivan**, center, with systems design and engineer Jim Lockyer, left, and systems engineer and P.A. tech Radek Lesa. "I replaced their longtime FOH engineer Dave Rat, who retired. We have two very different approaches to gear choices, as he was all analog and I am all digital. My point is to always use what you're comfortable with and what makes you confident to get the job done."

"I'm mixing the tour on the Avid S6L and using AAX DSP onboard plug-ins: Cranesong Phoenix (tape saturation on pretty much everything), McDSP Vintage Comp (parallel comp on drum bus), MCDSP 6050 Ultimate Channel strip (guitar, kick, snares, VX, toms, keys and bass guitar), McDSP ML4000 (Mix Bus), Plugin Alliance SPL Transient Designer (bass guitar, kick and snare), SPL Twin Tube (bass guitar), Maag 4 EQ (lead VX), Sonnox Sony Oxford Reverb (Drum FX, VX FX), Sonnox Suppressor (vocals), and SansAmp (hi-hats).

"I used to mix on the Profile, which had eight LED meters built in to the surface that I used for stereo group meters. The S6L has these, but they are tiny and not where I want them, so I had this rack built to house eight **Dorrough 280D** (inset), which are fed AES outs from a Stage64 at FOH. The source is my eight main groups."

"Outboard plug-ins are all Waves Soundgrid via Multitrack, connected via Avid MADI 192 and Waves MGB using two Extreme servers [one for backup], controlled by an Apple Mac Mini. I'm using onboard channel gates for all drums that are gated, and onboard compressors for vocal comps. Two Dolby Lake Processors for AES and Analog input redundancy drive the P.A."



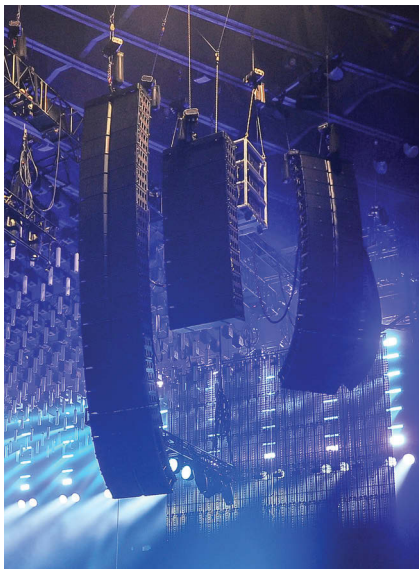




"I'm mixing monitors with a DiGiCo SD10," says **monitor engineer Mark Vanderwall**, left, pictured with **monitor tech Carl Popek**. "I don't use plug-ins. I prefer to do everything internal. For outboard gear I have one 8-channel Grace preamp as a line driver for selected inputs.

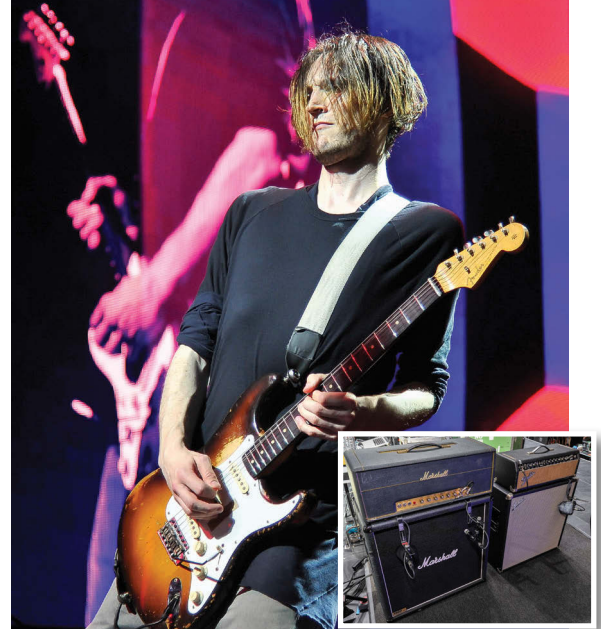
"We have Shure PSM-1000s for transmitting to the band's Future Sonic MG-6pro in-ears," he continues. "Live mixes are sidefills (4x) Arcs, (7) Rat Superwedges, (2) Rat L wedges, Rat Supersub, (2) drum Buttckickers and EAW 12-inch micro wedges all powered by (9) Powersoft X4s."

Anthony Kiedis sings into an Audix OM7, Flea into an AK OM-7, with an EV-967 for Josh Klinghoffer.



"Rat Sound from Camarillo, Calif., provides the FOH Control and Monitor Package for the whole world tour, and provides the P.A. system for all the U.S. dates. European tour dates were covered by High Lite Touring, Czech Republic," says systems engineer Jim Lockyer.

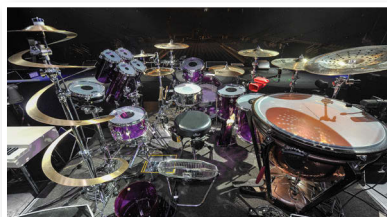
"The P.A. system consists of all L-Acoustics products," he continues. "Main hang is (16) K1 and (4) K2 per side; sub hang is (8) K1SB per side; side hang is (16) K2 per side; 270 hang is (15) Kara a side; Rat Cage is (24) LA-8 amps per side; ground amps are (3) LA-8 a side, (3) LA-12x; ground subs are (18) KS28, a total of 6-blocks-of-3 on end in cardioid. Front fills are (6) Kara; total wedges are Rat Sound SDW-22 4-way Active with 2x 12-inch, 1x 10-inch, 1x 2-inch (mid and high are concentric), powered by Powersoft X-4 amps."



**Guitarist Josh Klinghoffer** has a Marshall Major with 1960B, miked with Shure SM57 and Audix OM-7, Fender Tonemaster and Tonemaster 4x12, with an Audix D3. ISO cabinet has a Heil PR-30, and the amp simulator uses two Radial J48 DIs.



**Flea** uses six Gallien-Krueger 2001RB heads, six cabinets, with Shure SM98 on 10-inch and 2 DIs.



**Drummer Chad Smith's** kit has a Shure 91 and Audix D6 on kick; Shure SM57s on snare top and bottom; toms are Audio-Technica AE3000; timpani is AT-4050 (x3); snare, roto toms and Octabons are Shure SM98s; cowbell and wood block are Audix M-44, and overheads are KM-184s. Pictured above right: **Drum tech Chris Warren**.



## THE WOOD BROTHERS, SIMPLY LIVE

The unique folk-Americana-country-indefinable trio known as the Wood Brothers—Chris and Oliver Wood, and multi-instrumentalist Jano Rix—have embarked on a U.S. tour of clubs and theaters, with festivals and curve balls thrown in throughout the summer. Supported by Special Event Services in Nashville, the tour makes use of venue racks and stacks, carrying everything from source to driveline in a Sprinter van.

FOH engineer Daniel P. Ramirez carries a Midas Pro2c console with DL351 I/O, running IEMs from FOH. He makes use of the onboard effects package: Room, Hall, Delay, KT DN780, Tape Saturation, Multiband Compressor. The band occupies 29 input channels, including “Big Mic” (when the three huddle around a single mic, Ear Trumpet Labs Myrtle, for a couple of songs) and two ambient mics for the band’s IEMs.

“When I was coming up, I remember always being told that the most important thing you could do when you mix is to create as much separation as possible between all your sources,” Ramirez says. “With this band, I want everything to gel together and sound like it’s coming from a cohesive source.

“I build my drum sound around a Telefunken M82 on the kick and a pair of Telefunken M60-FETs directly over the snare in X-Y configuration,” he continues. “This is blended with an old EV 660 on snare top, Sennheiser E904 on snare bottom, a Shure SM57 on hi-hat, and a Sennheiser MD421 underneath the Pandiero.

“The bulk of the guitar sound is a Telefunken CU-29 Copperhead on Oliver Wood’s main guitar amp, a cheap 4-watt tube amp from the early 1960s with a 6-inch paper speaker. This gets mixed with a Sennheiser E906 on another funky old tube amp. I’m using 906s on the keyboard amp and bass amp, as well.



Photos: Todd Berkowitz



FOH engineer  
Daniel P. Ramirez

“Most of the acoustic bass sound comes through a David Gage Lifeline pickup run through Radial PZ-DIs. Depending on the mood of the segment, the 906 on the amp and a DPA 4099 near the f-hole might get mixed in. Electric bass is a combination

of the pickups direct into a Radial J48 and the 906 on the amp.

“For Jano Rix’s Shuitar, a guitar rigged up with all sorts of junk that is played as a percussion instrument, the main source is a K&K pickup through an active DI (KT DN100) that we run unpowered.

“At the risk of sounding cheesy, the greatest thing about this tour is being lucky enough to have a phenomenal band, touring crew, and support team to work with every day.” ■

## CHICANO BATMAN GOES OLD-SCHOOL

The energetic and unique soul/funk/Latin psychedelia sound of Chicano Batman, a four-piece from Los Angeles—Eduardo Arenas on bass guitar and vocals; Carlos Arévalo, guitar; Bardo Martinez, lead vocals, organ, guitar; and Gabriel Villa, drums, percussion—is best served live, as fans will attest on the band’s current concert hall tour, playing places like the Roxy in Hollywood and Fillmore West in San Francisco. Also, Coachella and Bonnaroo.

On this particular tour, it proved fortuitous that FOH engineer Jose Cruz, Jr., began his career in the studio. “We are working on replicating the amazing sound of CB’s most recent record, *Freedom Is Free*,” he says. “It was produced by Leon Michels at The Diamond Mine Studios in Queens, and was recorded live to an 8-track Studer tape machine using only old-school recording techniques and equipment. But we travel in a 15-passenger van, including all backline, so bringing a bunch of vintage equipment and ribbon mics wasn’t feasible.”

Most venues provide a decent console, Cruz reports, but he knew he needed something different. And he had little money and even less space. “We began looking into using DSP live, and I stumbled onto the Apollo



Photo: Todd Berkowitz

Chicano Batman  
performs at The  
Crocodile in Seattle,  
February 2017.

8p interface from Universal Audio, along with a bunch of their tape, compressor and EQ plug-ins,” Cruz says. “I patched them into our live console and re-created the signal paths that we used in the studio to get back some of that dirt, warmth and saturation that you just can’t get out of digital consoles. The Apollo with a Focusrite Pro 40 via ADAT, and I’m able to get 16 channels worth of processing. It seems like the best way to fit a studio’s worth of legendary gear in a four-rackspace unit.

“UAD’s API Vision Strips work great on my drums because of how punchy they sound, and how responsive the gates are,” he continues. “I use the Neve 1073 emulations on bass, guitars and organs for their girth and saturation, but use the Neve 88RS on vocals for their smoothness. I then follow the pres with compressors from their LA2A collection. I complete the chain by running each channel into an instance of UAD’s Studer A800 plug-in to get that little extra bit of warmth and tape compression.

“I would definitely describe the show as an active mix. They feed off each other’s energy, which means that whatever sound is coming out of the stage, the energy and vibe is there, and all I have to do is amplify it!” ■





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# On the Cover

By Barbara Schultz // Photos by Mickey Alexander and Francis Manzella

## MAN MADE MUSIC, NEW YORK CITY

Every Corner of Manhattan Facility Is Designed for Music Creation



Two views of Studio A. Below, from left, interior designer Dustin Malstrom, Man Made Music founder Joel Beckerman and architect/acoustician Francis Manzella.

Composer, producer and Man Made Music founder Joel Beckerman says that the transformation of his business, and the ideas behind the artfully designed, versatile studio complex on this month's cover, began eight years ago.

"At that time, a lot of people who were scoring for TV were starting to create libraries of music, where people took 10, 20, 30, 40, up to 100 tracks of music and developed almost a stock-photo way of working, but I was not that interested in that," Beckerman says. "Realizing that was a watershed moment."

Though Beckerman had already been growing

Man Made for more than 10 years at that point, he changed direction, taking his cue from an inspiring project. "I had worked on Anthony Bourdain's [Travel Channel program] *No Reservations*. For that, there was time and budget to bring in artists like the Jon Spencer Blues Explosion, and we produced them to create the show theme, while we created episodic themes and underscores for each episode. Each episode for that show was like a little movie, and we used music and sound to make it feel like a movie score. They also needed indigenous music from different countries around the world, and we didn't want to fake that.

"That show was an interesting hybrid for us

because we were sourcing music, and producing artists and creating original music at the same time," Beckerman continues. "That was eye-opening. It was an opportunity to step back and say, 'What are we best at, and how are we going to change with what the market is doing, but stay to a higher level of creativity and storytelling?' It was a big shift for us."

Man Made's response to this challenge was complex: They developed their approach of creating music/sound libraries that were specifically composed and designed for individual clients. In other words, rather than establish a Man Made Music stock library for purchase or license by mul-



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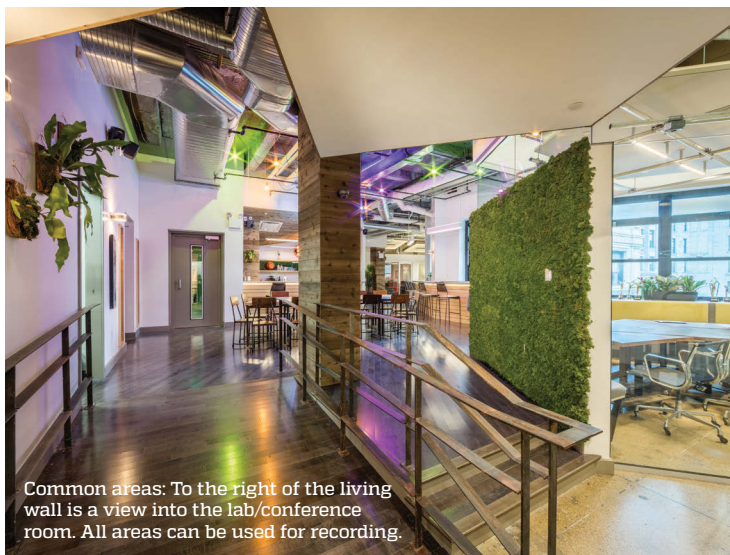
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Common areas: To the right of the living wall is a view into the lab/conference room. All areas can be used for recording.



Control Room B features an Avid D Command and Genelec 5.1 monitoring.

multiple users, they started to develop unique sets of musical elements for clients such as IMAX. Man Made not only composed music for the IMAX theatrical countdowns that are shown in theaters around the world, but also they compiled elements of that music into a custom library that they, or IMAX, can pull from to compose other related pieces of music.

Beckerman and his staff have also developed different ways of addressing shrinking schedules; they get involved in their long-form projects as early as possible, requesting scripts and storylines for feature films and episodic series, and beginning to develop musical ideas while picture is still being produced. They will also assign multiple groups of composers and recordists to work on narrow aspects of a broad project simultaneously.

Not surprisingly, this shift to multiple teams and increasingly individualized composing required staffing up and gearing up. Eight years ago, Beckerman led a staff of six people; today, Man Made is 32-strong. Eight years ago, the company was fairly comfortable in a one-studio office, and rented commercial studios when needed. Today, they're celebrating a year in their current four-studio complex.

"Man Made had been a client for years; we had done renovation work at their previous facilities, and they told us a couple years ago, 'We're going to reach a point where we'll need to move,'" says Fran Manzella of FM Design, which provided architectural, acoustical and interior design services for Man Made's expanded headquarters in Manhattan.

"We spent about 10 months searching for the right space," Manzella recalls. "The irony was, the building we ended up with was the first one we looked at."

The new home that they found is the top floor of a 20-story building, where Beckerman's company occupies about 10,000 square feet, and 2,600 square feet are sublet. The floor plan is shaped somewhat like a lower-case "h," where the curving bottom of the "h" houses Man Made's facilities, and the upper stem that is sublet is available if the business keeps growing.

Four studios offer different dimensions and functions: "A" can accommodate an orchestral session of up to 40 pieces. The B room, with its own control room and booth, also abuts the Studio A tracking room, offering flexible space planning. Rooms C and D are what Manzella would call "midsized premix rooms," with "C" wired to share access to Studio B's tracking space.

"In the two primary studios, it's the highest-end isolation we do, with completely decoupled floors and multilayered box-inside-a-box walls," Manzella explains. "They did not want to mess around with drum isolation and have issues with their neighbors. The people downstairs do video production. They've been in there for a year now with no problems,

so I guess we've passed that test."

Beckerman's vision for Man Made also included several producer/composers' writing rooms, designed for inside-the-box work and limited overdubs. Whereas the studios are equipped with Avid D Command controllers and Genelec monitoring, as well as a full complement of audio gear, the writing rooms are plug-and-play spaces for composers working in Logic and Pro Tools HDX, each with a dedicated soundproof booth.

"We also created an industrial-strength storage area network like video companies use; they're pushing much more data than we are, but we were thinking about how vital it was for us to have the ability to pick up a project, jump into another room, plug in and be able to pick up exactly where you left off," Beckerman says.

"A producer can walk into our Studio A, record a 20-piece string section, take a laptop into the kitchen, and plug in there and work off the same storage area network and be able to start working on editorial right away. So if someone wants to work in the kitchen and look out the window, they can do that. Or if they want to work in their office, they can work there. And then if they decide to do an overdub of a solo instrument, they can plug into one of the writer rooms where there's a booth where you could maybe fit three horn players. It's about the flexibility to plug and play these very large projects, and always be able to pick up where you left off."

The complicated infrastructure that connects all of these functions was realized by Manzella's frequent system integration specialist, Matt Marinelli of Coral Sound, through conversations with Beckerman as well as Man Made's chief engineer, Dennis Wall, and technology director, Brian Scherman. The modular nature of the spaces, and a carefully organized Outlook scheduling system, allow all of the creative types at Man Made to move a project through the studio's recording, mixing and intricate editorial processes.

Some of Man Made's latest projects include NBC's upcoming dance competition show *World of Dance*, starring Jennifer Lopez; the Lionsgate film *Cook-Off*, which Beckerman describes as being like "Best in Show meets the Food Network"; and virtual reality 3D Soundscape audio for NBC's 2016 Olympic coverage.

However, what elevates this facility even further, to something like a sonic playground, is the inventiveness that went into getting the most from every single space. "Joel said to me, 'I want there to be a surprise around every corner in this place. I want it to be creative and inspiring, and I want it to be fun,'" Manzella says.

So, in addition to the recording studios and composing rooms, con-



necting spaces and public spaces are designed to inspire. “In the Studio A environment, which is our largest studio with the largest control room and tracking room, there’s a pass-through which is really a vestibooth—a floating floor-isolated space that we can use for three woodwind players, for example,” Beckerman notes. “It’s a functional pass-through that’s isolated from the control room. That’s one small example.”

The largest examples of this approach are the facility’s café/creative lounge, and its laboratory/conference room. “The lab/conference room, which has a lot of glass so everybody can see into it, is where and they brainstorm and present to clients,” Manzella says. “The whole place is designed to present their musical and sonic branding ideas to their customers, so we wired the whole place up for 20-plus channel programmable immersive audio system featuring Genelec speakers and Dante-controlled surround, because many of their projects are environmental.”

By environmental, Manzella means that whole environments can be simulated, to demonstrate a movie theater or stadium experience, or even a healthcare environment: Man Made is developing, with hospitals like Memorial Sloan Kettering Cancer Center, ways of using sound design to help hospitals minimize alarm-fatigue and improve the sonic environment for patients and caregivers.

“When you talk about something like theme parks, or scoring music and sound for a giant stadium, or the VR work we do, you really can’t create or judge work effectively with two speakers or even 5.1 surround sound,” Beckerman says. “That’s not how people are experiencing it. They’re

experiencing it in massive, multiple-channel theatrical sound systems. Fran designed suspended cloud solutions that allow us to put up multiple speakers of a particular type and simulate that environment.”

“We also hooked up all of the LED lighting in the place to a DMX system, so they can program a light show along with a sound show. We’ve talked to customers about doing this kind of thing before, but we actually did it with Man Made,” Manzella says.

The architect is also quick to add that Man Made’s project involved close collaboration between his architectural/acoustical team and interior designer Dustin Malstrom of the coincidentally named firm reMADE. Malstrom also recruited the artisans who hand-built studio racks and other custom furniture. The two design pros collaborated on unique elements such as the living wall pictured on page 26, and the industrial but warm and artful look of the rooms.

Manzella doesn’t commonly get involved in interior design to this degree, and *Mix* doesn’t usually report on furniture design, but at Man Made, sonics and technology seem to be of a piece with the look and feel of the rooms.

“Fran and Dustin were an incredible team, and at the end they also did an amazing amount of work on value engineering,” says Beckerman. “Our expectations eventually blew up our budget, but they just fearlessly went in and they figured out how to get us all the benefits we needed.

“I don’t feel like we made any compromises, and if you see this place, you would probably be surprised when I tell you they may have saved us as much as 35 percent on the budget, through some really brilliant thinking.” ■

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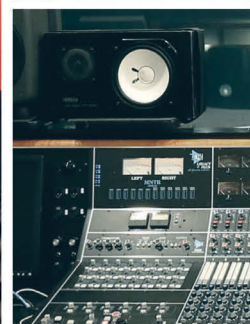
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# JBL: 70 YEARS OF STUDIO MONITORS

BY TOM KENNY

James B. Lansing, the namesake of JBL, deserves more credit as one of the true giants, even one of the original founders, of the professional audio industry. He was there as a young man at the birth of radio and sound reproduction, developing his earliest theories on magnets and voice coils. He was key to the development of the first standardized cinema playback system, developing the compression driver and coned woofer for the Shearer horn system, working with the likes of John Hilliard and Doug Shearer.

He took the concepts from that system and scaled it down to the iconic in the 1930s, originally intended as a monitor for the booth while re-recording and playing back films, but turning into the world's first studio monitor. While at Altec from 1940 to 1946, he helped to develop the 604, one of the longest-running standards in monitoring for all time. When he broke away in 1946 to establish the James B. Lansing Company, he released the D130, which found individual success as a full-range loudspeaker and later in musical production through a tie-in to Fender as a high-end option for the company's amps.

Although he died a year after the introduction of the D130, 69 years later his legacy lives on at JBL, and throughout Harman Pro. His spot on the Mount Rushmore of recording stands assured.

There were certainly others working on sound production and reproduction in parallel, and others who made important advances in the science and manufacturing. But nobody merged the science and the consumer sense quite like Lansing, whose efforts extended across markets, to the point that today JBL has a major foothold in studios, live sound, cinema, broadcast, hi-fi, lifestyle, automotive and control. The reach extends to anywhere there is sound.

"Lansing's real inventive genius was in terms of constantly applying new materials and methods to advance the state and capability of sound production and reproduction," says Mark Gander, a 40-year employee who has written patents, led marketing teams, served as VP and now is Director of Technology. "He said, 'We can do new voice coils, new magnets, new cones with an aluminum center dome to get more highs. All those kinds of advances."

"The first thing he did at JBL was to look at new magnet materials," he continues. "Following the war there was this new thing called alnico—aluminum, nickel, cobalt—which he learned of through the aerospace industry. Then, 'Let's make a speaker with a cast frame. A 4-inch voice coil. Let's use edge-wound ribbon wire. Let's use a shallow curvilinear cone. Let's put a thin duraluminum dome and attach to the voice coil transformer—those types of innovations went into the D130, and that's been the tradition that JBL engineers through the '50s, '60s, '70s and to



Mark Gander, left, and Peter Chaikin with JBL's 2005 GRAMMY Technical Achievement Award and Mix TEC Award.

the present day have followed on."

Later there were ferrite magnets, then neodymium. Engineers like Dr. Floyd Toole and George Augspurger led development teams, and the science pushed forward.

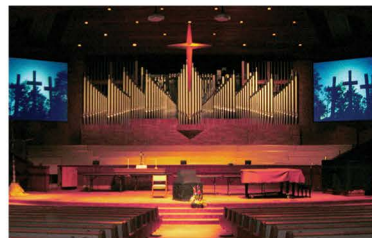
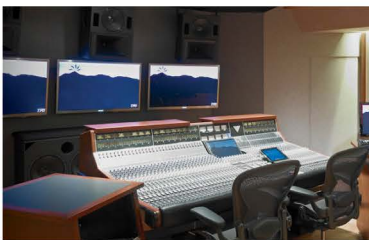
In the meantime, the other half of the innovation equation, the problem-solving and market-leading developments, were in play. JBL wasn't just making speakers on demand. They were making speaker technologies, and then listening to their customers. More output, less distortion, lighter weight, flat response, wider imaging, directivity—these were all needs in the market, whatever market. JBL responded.

In the 1960s, when Capitol Studios was looking to improve upon the Altec 604 for music recording, JBL developed the C50SM, which became the 4320. Soon after, the company brought out the 4310/11, with the original white cone, which became the first bookshelf-style monitor that would fit on a console-top.

In the late 1970s, the three-way and four-way 4350 was developed to meet the need for loud, but clear playback, with dual 15-inch woofers, later to be augmented with the purchase of UREI and their Time Aligned 813 in the early 1980s.

Admittedly, there were some gap years in the studio monitor market, particularly from the late 1990s into the 2000s, as the industry changed to more personal-based production spaces. But all the while, concurrent developments were made in live sound, broadcast, and cinema, taking advantage of cross-pollination within the development teams.





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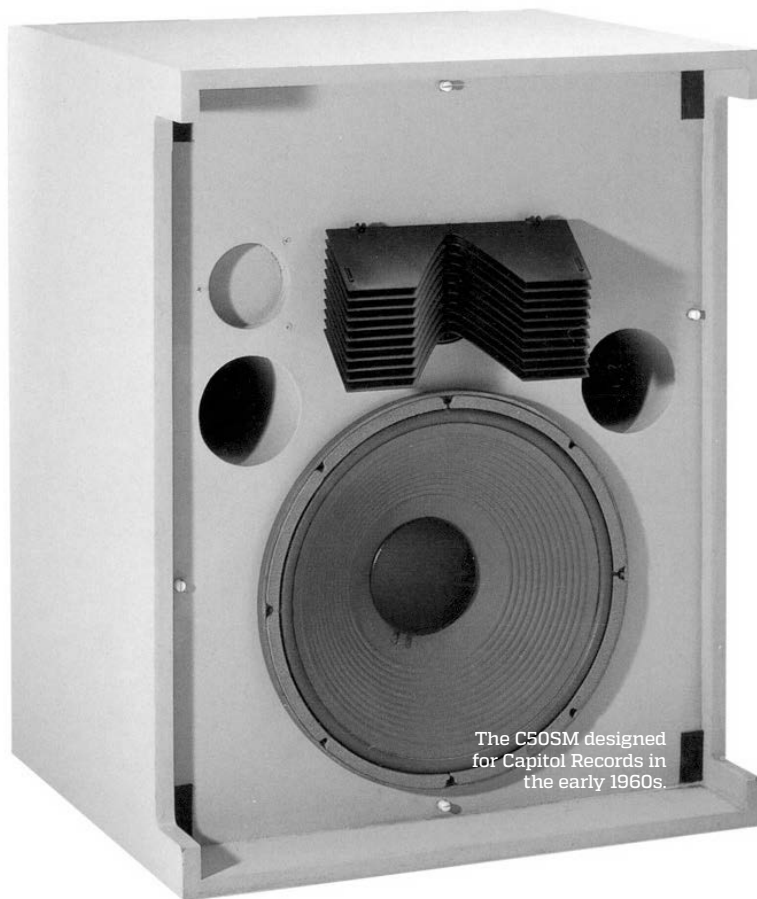
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# BugID

Pronounced [bug-eyed] — Established 1997





The C50SM designed for Capitol Records in the early 1960s.

“One of the things that differentiates is that there are a lot of commonalities in all these disciplines,” says Peter Chaikin, a 15-year employee and head of the studio monitor division. “We may produce a new high-frequency driver that is adopted by consumer lifestyle, or we may produce a woofer that is light and has high output, and the consumer team will take and say that while they don’t need the output, but they can get a little more power compression or low end. There are some real advantages in serving all these markets that our competitors just can’t do. Along with the scope and the scale at Harman.”

These elements of new materials and new methods, cross-pollination and listening to customers all came together in the rebirth of JBL’s primacy in the studio market, with the development of the M2 Reference Monitor and its companion 7 Series monitor, what Chaikin called “our space program. The D2 compression driver with its extremely high output came from developments for the live sound market, while the revolutionary waveguide developed by Charles Sprinkle has been adopted throughout the line.

Still, these things take time. On the first iteration they called in engineer/producer Frank Filipetti for a listen. Filipetti had first become a JBL proponent in the early 2000s, when Chaikin brought him a prototype 6300 Series to mix a Korn record, where he had a wide but not deep room and needed low end confidence. He mixed the record on them. When he was called in to JBL’s Northridge facility for a listen to the M2s, Filipetti shook his head and said, “Sorry, it’s missing something. Something in the clarity.”

Though disappointed, Chaikin and the team went back for refinements, incorporating the D2 and the new waveguide, and a year later, Filipetti was brought back in. “I put up a James Taylor track that I had mixed, and 10 seconds in, I looked at Peter and said, ‘You guys locked it! This is wonderful!’ The high end never changed as I walked in from about 20 feet away; you could hear top end from left to right, up close. I was blown away. It was the most remarkable speaker I’d ever heard.” Today, Filipetti owns a full-blown M2 5.1 system at his home mix facility, The Living Room.

The M2 and the 7 Series have found a home in Immersive Sound, bringing JBL back home to Cinema and Music and all things studio. The high output and small frame of the 7 Series has fit right into the changing market, where small to mid-sized rooms are becoming the norm, and translation is critical throughout the post-production chain, often in different facilities. Again, a response to customer demand and changing market. With new methods and materials. At the NAMM show, a powered version of the 7 Series was introduced to appeal to music producers and engineers.

For me it comes full circle,” says Chaikin. “If you’re creating content for the screen, and that content is going to the stage to be mixed, then you better make sure that in all these sound design, Foley, music composition and edit suites, you have to make sure that this all translates to the screen. If you solve the problem for the cinema guys, you’ve also solved the problem for the music.” ■



JBL 4300 Series, mid-1970s





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# HUGEsound, Salt Lake City

FROM COMPOSITION TO POST—FILM, TV, GAMES AND VR // BY MICHAEL HENEIN



Photo: Brian Tweede, Tweede Photography Studio

The core HUGEsound team, from left: Curt Rust, Facilities Manager; Michael Fox, Picture Editor, VP of Film and Television; Jennifer Sprague, Director of Production; Michael McDonough, Sound Designer, VP of Operations; Michael Greene, Senior Audio Engineer; Chance Thomas, Composer, VP of Music and Creative Development; Mark Nelson, Video Post Services.

Digital tools have democratized the workflows for audio/video production, presenting a new set of challenges to high-end post-production ventures: How does a new facility stand out in a highly competitive market, with so many players, large and small? And, how does one stand out when located hundreds of miles away from a major production hub like Los Angeles or New York?

The creators of HUGEsound in Salt Lake City were fully aware of the challenges going in, and they leveraged a unique confluence of resources, including access to strong local talent, the draw of Utah's natural beauty, modern audio/video post-production workflows, and versatile recording spaces to attract clients looking for world-class equipment, services and hospitality.

So in September 2016, a group of veteran media pros—Michael McDonough, MPSE, Sound Designer and VP of Operations; Chance Thomas, Composer, VP of Music and Creative Development; and Michael James Greene, Senior Audio Engineer—joined with local entrepreneur Gaylon Rust to transform an existing studio into a modern, multipurpose audio/video post-production facility. Completed in early 2017, HUGEsound was built to address local, regional and West Coast-based A/V productions alike, with 16,000-plus square feet of edit suites, studios and client amenities.

In addition to film, TV and gaming, the HUGEsound team is also targeting new production opportunities. "With VR and 360 video gaining traction, we're seeing a fantastic opportunity to expand our services to accommo-

date the needs of VR production," Thomas says. "Producing content for VR and 360 video is still new, so we're working closely with VR technology companies to perfect workflows for producing quality 3D audio, which is critical for VR immersion."

Recently, Thomas and McDonough created music and sound for the debut of The VOID, a location-based virtual reality company based in Linden, Utah, that develops "hyper-reality" experiences featuring one-to-one mapping of real-world props overlaid with rendered graphics on a head-mounted display. "It's the closest thing to the 'holodeck' I've experienced!" Thomas exclaims.

"Musically, Utah remains strongly committed to the highest standards of quality education, with Brigham Young University, and state universities alike, producing well-studied and talented musical performers," adds Greene, whose experience includes music recording for several albums, as well as film, TV, IMAX, and videogames. "The availability of top quality musicians helped establish the Utah Symphony, under the past leadership of preeminent conductor Maurice Abravanel, to be on par with top orchestras and symphonies."

"The Utah Symphony, as well as other local orchestras, become extremely valuable from a recording perspective," Thomas adds. "Decades of recording various musical styles for national productions has produced highly skilled sight-readers, making Utah-based musical talent attractive to composers who seek the very best musical recordings, like myself."

At the heart of HUGEsound's facility is the soundstage, a large room designed to accommodate recording and other types of projects. "We can handle everything from recording big band, small orchestras and choirs, in addition to large-scale VR setups, green-screen photo/video shoots, and motion tracking," Greene explains. "We're able to control the acoustics of the room by controlling how

live or dead we need—for example, pulling out the wrap-around curtain along the cyc walls of the space, in addition to using rugs, panels and diffusers to help us further control reflections in the room."

There was a soundstage in the facility they purchased, but some major



Photo: Brian Tweede, Tweede Photography Studio

Composer and HUGEsound co-founder Chance Thomas





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Softube Console 1 MKII Hardware and Software Mixer  
SOCNSOLE1MK2 | \$499.00



Auray Stylus Music/Microphone Stands  
AUIA300/440/500 | Set - \$597.00



Pittsburgh Lifeforms SV-1 Blackbox Desktop Analog Modular Synthesizer - Eurorack  
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Warm Audio WA-87 Multi-Pattern Condenser Microphone  
WA87 | \$599.00

## TIPS & TECHNIQUES

*From the Pros*

### 1 Rest Those Ears

When we listen to music, either recreationally or professionally, it's easy to forget that our ears can get tired, often fatigued to the point where they exhibit symptoms such as numbness, soreness, an inability to clearly hear frequencies, and so on. This is commonly referred to as ear fatigue, and it is often caused by listening to music at extremely loud volumes (95 dB and up) for a prolonged period. An effective way to prevent ear fatigue is to take occasional breaks to let your ears "reset" themselves; even allowing them to rest for 15 minutes in between listening sessions could go a long way to ensuring long-lasting ear health.

### 2 Use Short Delays for a Pseudo-Stereo Guitar Effect

How do you make that killer guitar take your just recorded sound fatter, without trying to double it by replaying it perfectly note for note? Simply use a short delay to create a nice pseudo-stereo effect to beef up your performance. First, create a new mono Aux track, pan it hard right, insert your favorite delay plug-in, and set the delay length to about 25ms. Next, pan the original guitar track hard left, and use an Aux send to buss the signal from the guitar track to the delay you just created. Make sure the level of the send is set to zero.

### 3 Record a Bass Drum with Dynamic & Condenser Microphones

Though it's certainly possible to get a nice bass drum sound by recording with one mic, the use of two microphones can often give you a fatter kick sound, and ultimately more sound-shaping possibilities when it comes time to mix. Start by placing a dynamic mic (Shure SM 57, for example) about 4" inside the kick drum. Next, position a large-diaphragm Condenser mic about 4" away from the front head, with the capsule facing the drum. Have the drummer, or whomever is available, play the kick drum at a slow and steady interval, and adjust the mics' positions in small steps until you hear a sound with which you're happy.

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design and construction was required to liven the space up. "Previously, there was a lot of mid-range absorption, which resulted in too short of a room tail; basically, the space was 'overly dead' in the upper-mid frequencies," Greene recalls. "We removed an entire wall of absorption, in addition to replacing many absorption panels with diffusion and deflector panels, especially along the walls." Greene and the team worked with Alan Howell at A&D Specialties, based in Idaho, to create custom diffusers and deflectors, made from maple, to help control reflections in a manner that added a nice "air" to the room.

As a multi-use soundstage, the room couldn't be "too live," especially for

sound, Greene sought a console that would support his tracking needs with straightforward workflow, which led him to the Neve Genesys Black console. "I was impressed with the functionality and sound of the Genesys," he says. "I found it to be unmatched for sound quality, workflow and speed."

The Genesys is fitted with 64 inputs, 32 1073 mic pre's, 16 1084 EQs, and 16 88R EQs to accommodate various styles of music projects. When more inputs are needed, the room is equipped with racks of select vintage preamps from API, Purple Audio and Daking, in addition to a plethora of outboard processors. The control room offers Augspurger mains with Dynaudio surrounds. For connectivity, the control room (and all rooms) are outfitted with Avid Nexus and Focusrite Rednet.

Though the breakdown isn't so simple, essentially Thomas concentrates on music while McDonough handles sound design. McDonough's professional career began when he was studying at BYU, where he worked on an NPR sci-fi radio show called *Bradbury 13*, which won a Peabody Award (presented by legendary sound designer Ben Burt, who reached out to McDonough as a fan; the two remain friends). He's also worked on gaming, TV and film projects, including several IMAX films and won an MPSE Golden Reel Award for his work on IMAX's *Island of the Sharks*.

McDonough, meanwhile, says that his approach to sound design is much like Bob Ross' approach to watercolor painting. "I like to start off with general washes of sounds, such as ambiences, to create an atmosphere," Greene says. "I then layer in sound effects, with Foley being the final component that adds detail, much like adding shadows to trees in a painting." His workflow is centered around Pro Tools with the D-Command control surface; Soundminer (helps to quickly pitch and spot SFX), and MIDI keyboard controller for triggering mapped samples using Avid's Structure plug-in.

HUGESound also features luxury client apartments, located conveniently next door, and offers professionally guided outdoor adventures, such as fly-fishing, horseback riding, snowmobiling and dogsledding. The team strives to create a homey, friendly atmosphere.

"You can wait in [L.A.] traffic or jump on a flight to Salt Lake!" remarks co-founder Thomas. "HUGESound offers everything you'd find in coastal-city facilities at lower rates than much of the competition." ■

Photo: Brian Tweede, Tweede Photography Studio



Senior Audio Engineer Mike Greene at the Neve Genesys

NAB BOOTH C9515

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# ADVANCED WIRELESS TECHNOLOGIES

BY STROTHER BULLINS

This month, we focus on advanced wireless technologies, encompassing everything from traditional UHF to 2.4 GHz digital systems, brand-new AoIP-ready configurations, app-enhanced functionalities, and ever-dropping price points. The manufacturers below all build superb wireless systems for an ever-broadening range of wireless audio users, whether working in live touring or TV/film production environments.



**AKG's** flagship DMS800 Reference Digital Wireless Microphone System is the successor to the company's well-received DMS700 V2, adding features such as 512-bit encryption and a 150MHz frequency range for worldwide touring flexibility. It offers both Dante and AES/

EBU digital audio outputs, and the DHT800 handheld transmitter has been upgraded so that its microphone heads are now exchangeable. Further, the DMS800's optional network remote control allows frequency coordination and monitoring of multichannel systems by PC software Audio Architect, Apple iPhone/iPad/iPod or Soundcraft Vi consoles.



to a proprietary modulation system allowing high channel density. Features include an end-to-end delay of 2 ms, crystal-clear OLED menu on both the transmitter and receiver with select-and-click displays for streamlined operation, and much more. Audio Ltd. offers a free app allowing main functions via smart devices.



**Audio-Technica's** System 10 PRO wireless system—a well-received 2.4GHz platform in a half-rack chassis with two receiver unit slots—has continued to grow. The company now offers two more 2.4GHz transmitters: the ATW-T1006 Boundary Microphone Transmitter and ATW-T1007 Microphone Desk Stand Transmitter, both of which are extremely useful tools in house-of-worship, corporate, theater and a wide range of installed audio environments. At NAMM in January, A-T showed these two new transmitters as part of new packaged configurations.

At NAMM in January, A-T showed these two new transmitters as part of new packaged configurations.



able in single- and dual-rack models. Common system features include one-touch autoscan searches; one-touch sync, transmitter to receiver; RF and AF indicators; high-contrast LCD displays; simplified menus; soft keys to control output levels, squelch, pilot, and lockout; choice of XLR or 1/4-inch outputs; and a wide selection of handheld, instrument, headworn and lavalier microphone options.



**Audix's** Performance Series of wireless products began shipping last summer and has received impressive reports from the field. Divided into two groups—the 40 Series and the 60 Series—both are avail-

German manufacturer **beyerdynamic** has introduced a new version of its 24-bit TG 1000 Wireless System, featuring its dual receiver equipped with a Dante network interface via RJ45 connector with status LEDs on its rear panel. Features include switching

bandwidth of 319 MHz in the UHF range (470-789 MHz); high-contrast OLED UI display; one-button navigation; proprietary Chameleon software; optional proprietary encryption; and an impressive 2.1ms transmitter-to-receiver total latency. Up to six dual receivers can be cascaded without the need for external antenna splitters. Range under optimal conditions can reach up to 984 feet.



included CADTone body pack includes Equitek E19 earworn and E29 lavalier microphones. In use, I found the WX3000 to be an intuitive and superb-sounding UHF wireless rig, especially considering its relatively low street price. Its metal-clad handheld transmitter feels especially well made to the touch and resembles handheld transmitters from systems costing hundreds more.

**Electro-Voice's** RE-2 PRO Wireless System is a blend of pro-grade features and affordability, featuring one-touch Auto-ClearScan and full programmability. Other features include Posi-phase diversity, over 28MHz



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operation, XLR mic/line level output, backlit LCD, and a unique "guitar-optimized" mode that is optimized for guitar. The WTU-2 is a compact metal bodypack for the RE-2 system, featuring selectable RF output power and rechargeable AA battery operation with optional BH-200 charger.

World-class wireless experts **Lectrosonics** has introduced version 4.0 firmware for its IFBR1a belt-pack receiver, adding new functionality in two distinct user interface modes: Scan mode, exhibiting the original behavior of the IFBR1a receiver where users can locate

and store up to five different IFB carrier frequencies; and Direct Entry mode, which takes away the scan capability and replaces it with the ability to program channels into the memories directly via push-button and hex switches. In Direct Entry mode, five additional channel memories are available for a total of ten.

IFBR1a users can identify the difference between a v4.0 IFBR1a in Scan Mode and a v2.4 IFBR1A by a burst of rapid LED blinks at power-on in the v4.0 version, indicating that the unit has two modes available.



**Line 6** has been doing 2.4 GHz digital wireless for quite some time now, finding enthusiastic customers in the DIY musician sector and gaining ground in pro applications, too. The company's XD-V Wireless Microphone Series is super-intuitive, sounds great,

and offers unique features such as built-in microphone modeling based on the industry's top 10 most popular live handhelds, with nine EQ filters for further flexibility. The XD-V system is configurable as a lavalier, headset or bodypack system.



U.S. distributor Avlex is now shipping **Mipro's** new ACT 2400 Series wireless system. The series includes both single- and dual-channel half-rack receivers with various transmitter options, all of which utilize the 2.4GHz ISM band and offer

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~ Brad Madix

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bleed and feedback."

~ Jim Warren

FOH: Radiohead, Arcade Fire, Nine Inch Nails, Peter Gabriel

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4-frequency FSK (frequency shift key) modulation circuitry, as well as a Frequency Hopping Spread Spectrum technology utilizing four frequencies for each channel in an adaptive tracking algorithm that is said to avoid interference from 2.4GHz products on channels 1, 6 and 11. The systems employ dual-tuner, true digital diversity reception and reportedly provide 12 compatible simultaneous channel operations at receiving distances up to 100 meters.

**Sennheiser's** buzzed-about Digital 6000 professional wireless microphone series is now shipping, notably featuring Sennheiser's Long Range transmission mode and proprietary audio codec from its flagship Digital 9000 series. The Digital 6000 is designed to be a flexible 2-channel wireless solution, allowing the use of existing accessory infrastructures. The series comprises a 2-channel receiver, the EM 6000, available with two different packages featuring a bodypack or a handheld transmitter, each with a 1U rack-mount 19-inch charging unit. The receiver's switching bandwidth of 244 MHz (470-714 MHz) is covered by three transmitter versions, and up to eight receiver units can be daisy-chained without the need for an additional antenna splitter. System latency is 3 ms.

Meanwhile, **Shure** continues to expand the reach of its Axient, QLX-D and ULX-D systems with further integration into Yamaha CL and QL series mixing consoles. In Yamaha's firmware version 4.1, users may monitor and control key features of Shure wireless systems from the mix position: discover connected wireless systems; identify and map each system to a desired input channel; monitor transmitter battery status, RF and audio signal level; and adjust receiver audio output level when Shure AXT400, QLXD4 or ULXD4 digital receivers

are connected to the same network as a Yamaha CL or QL series console. Further, with Axient wireless systems, transmitter input gain can be controlled remotely from the mixing console via ShowLink Access Point.

**Sony's** 2.4GHz DWZ-G30GB Digital Guitar Wireless System—which includes a small bodypack transmitter and a compact receiver, as well as a belt clip, AC adapter and ¼-inch cable—has proven a great (and affordable) wireless series with a lot of built-in appeal for musicians. Its ZRX-C30 receiver features ¼-inch Main Out and tuner outputs, XLR balanced output, RF Mode selector for narrow or wide operation, and a mini USB port for firmware updates. The ZTX-B01 bodypack features power/mute and channel-select buttons on its front panel, plus a small window displaying the currently running channel.



High-end wireless expert **Zaxcom** is now shipping its tiny ZMT3 Miniature Transmitter, which is just about as small as you will find in the industry (see photo). According to the company, a single 6MHz U.S. television channel can contain up to 60 channels of Zaxcom ZHD

wireless when used with a QRX300 receiver spaced 100 kHz, and, with ZHD's efficient modulation, it is capable of long transmission distance. The ZMT3 transmitters are available as 3.5 (518-614 MHz) and 3.6 (596-698 MHz). ■

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~ **Dave Natale**  
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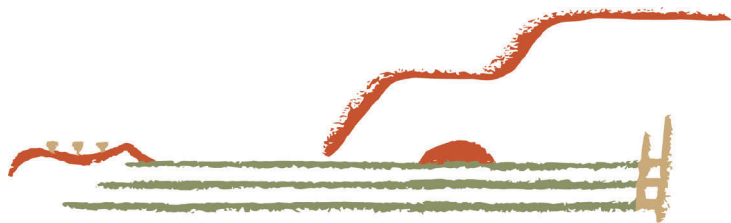
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# MIX REGIONAL: SOUTHWEST



## PLATINUM MUSIC AWARDS

### NEW MEXICO'S MUSICAL LEGENDS HONORED

*A decade ago, David Schwartz, one of Mix magazine's founding editors, moved to Santa Fe, N.M., where he found a rich music community, with an interest in preserving their history and traditions.*

Ten years ago, I got involved in the nonprofit New Mexico Music Commission via an old friend, Lee Berk, former chancellor of Berklee College of Music. My work with the Commission has led me to produce an event to honor the lifetime achievers in the state's music scene: The Platinum Music Awards tribute and variety show, to be held at the Lensic Performing Arts Center on July 21, was devised to shine a light on the state's musical pioneers and showcase the best of New Mexico's music scene across a variety of genres.

This year's honorees include multi-woodwind maestro, producer and radio personality Arlen Asher; Southwest Americana pioneers Bill and Bonnie Hearne; Norteño/Tex-Mex/rock 'n' roll stylist Alberto Nelson "Al Hurricane" Sanchez; Native American-rooted multi-instrumentalist Fernando Cellicion; and beloved music educator and longtime conductor of the Albuquerque Youth Symphony Program, Dr. Dale Kempter.

The Platinum Music Awards will also present its prestigious Lee Berk Award to Catherine Oppenheimer. A former professional dancer with the New York City Ballet, Oppenheimer co-founded the National Dance Institute of New Mexico, a statewide educational organization that serves nearly 10,000 children throughout the state. She was also the driving force in 2010 behind the creation of New Mexico School for the Arts, the state's first residential high school for the performing and visual arts.

Proceeds from the Awards event will benefit the New Mexico Music Commission's Music in School programs as well as the Solace Crisis Treatment Center, a nonprofit agency that provides support and services to traumatized individuals.

For more information on the Platinum Music Awards, visit [platinummusicawards.org](http://platinummusicawards.org). —David Schwartz



Bassist John Hayden and drummer Adam Wolin of Dirty Lingo with engineer/studio owner Scott Leader, who mixes on a Pro Tools HD system and Equator Q15 monitors.

### Brick Road Studio, Scottsdale, Ariz.

One day, engineer/producer Scott Leader walked into his studio and encountered strangers. "This was five years ago; I show up to work, and a bunch of people were like, 'Who are you?' I was thinking the same: 'Who are you?' The landlord had sold the building and didn't notify us. I had to move."

Leader found a space in North Scottsdale that had already been built out as a studio. "It was acoustically treated, with floating floors, the whole nine," Leader says. "The company that built it apparently used it for only two or three months [in 2005] and then moved to New York."

The owner of the abandoned facility had been planning to convert it to condominiums, but Leader convinced him that the expense of demolishing an existing studio would be greater and riskier than allowing Leader simply to move in. One week after being evicted, Leader had a new address.

"The studio is about half the size [of the previous studio]. However, we have four separate recording spaces," Leader says. "The old studio only had two: a giant room and a small room. This studio also has offices and a break room, which we didn't have at the old studio."

Leader prides himself on offering whatever services his music-production clients need. "We just finished an album with the Anglim Sisters," Leader explains. "They hired me to tighten up their songs, and I brought in a group of professionals to play with them, I coached them on their vocals, and I recorded, mixed and edited. We're one-stop shopping for musicians at any level."

"I would say 85 percent of what I do is music production, but we also do voiceover work," he continues. "We are right in the heart of where major events happen: the Barrett-Jackson Auctions, the Phoenix Open [golf tournament], and MLB spring training. When celebrities are here—professional athletes, announcers—companies want them to do a voice-over for a commercial. I've done a lot of work for ESPN, for example."

Leader also shares Brick Road with two other producers with more specific expertise. Keyboardist/vocalist Mark DeCozio mainly works with jazz artists, and Rashied Arekat specializes in songwriting and production.

"We each have our own clients, but we share the space and the expenses," Leader says. "Between the three of us, this place is always busy."





L to R: Mario Mendivil, Todd Chuba, Ray Herndon.

## BIG BUG SOUND, PHOENIX, ARIZ.

Robert Lang has owned and operated Big Bug Sound since 2002 and recently updated his acoustics with eight Auralex Sustain Pyramid diffuser panels in the tracking room ceiling.

The photo above is from Lang's session with local songwriter Trudy S. Hays, to record her song "I Want a Cowboy." "We made the demo a year ago, using only a drum machine, acoustic rhythm guitar and vocal, sung by local country artist Mary Hoffman," Lang says. "To create a full version of the song, I brought in Todd Chuba [drums], Mario Mendivil [bass] and Ray Herndon [guitars]. Todd and Mario are [my] go-to rhythm section for session work. Ray has recorded and toured for many years with Lyle Lovett and has been on the road with Don McLean." Lang produced and engineered the session.

"Capturing a drum kit accurately in a ten-by-twelve-foot room with eight-foot ceilings is challenging," Lang adds. "The diffuser panels have given a clear picture of the kit, with a simple four-mic setup." Lang's drum mics included an AKG D112 on kick and an Earthworks SR77 cardioid on the snare, "placed a few inches away from the side to let the sound develop a bit before hitting the capsule. An Earthworks QTC50 pair was used for overheads, and all four mics were connected to an Earthworks ZDT 1024 preamp. "The Earthworks mics and pre's give you exactly what you put into them—no coloration. I like that natural sound, especially now that the room is sounding so good."

## SESSIONS



Khloe, Kevin, and Kane Churko at The Hideout.

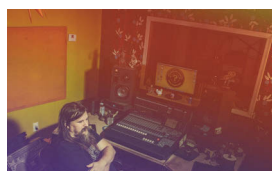
The Hideout, Henderson, Nev. The Carl Yanchar-designed, four-studio Hideout Recording is owned and operated by rock/metal producer and songwriter Kevin Churko, with help from his kids: engineer/producer Kane and studio manager Khloe. Kevin's clients include Five Finger Death Punch, In This Moment, Disturbed, Ozzy Osbourne, and others. Kane's recent credits include Papa Roach, Vamps, One Ok Rock, Art of Dying and others. The Hideout boasts three SSL consoles—a 96-channel Duality in Studio A, an XL 9000 K Series in B, and a Matrix in Studio C—while Studio D is a multi-use space for songwriters and producers.



Singer/guitarist Bob Russell

### LUNA RECORDING, TUCSON, ARIZ.

Halfway through his first album, musician Bob Russell (Alice Cooper, Michael Bruce) recorded guitar overdubs at Luna Recording. Luna also reports that the studio has added video/promotional services with the help of *Arizona Daily Star* videographer Aaron Yeagle.

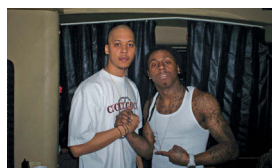


Jalipaz

### AUDIOCONFUSION, MESA, ARIZ.

Jalipaz—owner, engineer and producer at Audioconfusion—hosted Red Tank! for their sophomore album *Bio/Feedback*. Jalipaz also worked with Citrus Clouds on their full-length *Imagination* in late 2016; they were also back last month to record a single for a My Bloody Valentine tribute.

Other sessions at Audioconfusion include Diners and Okilly Dokilly.



Tiger Stylz (left) with Lil Wayne

### D.I. STUDIO, LAS VEGAS

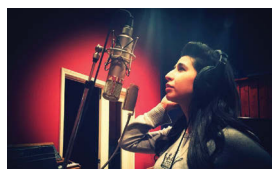
It was one year ago when recording and mastering engineer Mike Lavin and his business partner, engineer/producer Tiger Stylz, acquired D.I. Studio. The owners have added post-production audio services at the studio, and their recent post sessions have included work for Carnival Cruise Lines and Reflex Media, as well as Harvey Mason Jr.'s voiceover work for the animated movie *SING* and Mike Tyson's dialog for his Cartoon Network animated series.



Guitarist Billy Stokes

### ALLUSION STUDIOS, TUCSON, ARIZ.

Guitarist Billy Stokes recorded his rock album *Muscle & Blood* in Allusion Studios with producer/studio owner Jim Pavett, who reports that Stokes first envisioned a blues record, but when Pavett was able to bring in bassist Barry Sparks (Yngwie Malmsteen, Dokken, Ted Nugent), "Billy changed the format to a rock album in the likes of Rainbow and Black Country Communion." The album also featured appearances by guest guitarists Les Dudek, Pat Travers and Frank Marino, and vocals by Marc Storace of Swiss rock band Krokus.



Marisa Johnson

### TONE FACTORY, LAS VEGAS

Recent sessions at Tone Factory include Denny Laine's album *Valley of Dreams*, recorded and mixed by Vinnie Castaldo and set for release this summer; Castaldo also produced, recorded and mixed Marisa Johnson's single "Your Time. And at press time, London-based rockers Days Indoors were set to start working in Tone Factory on their new album.



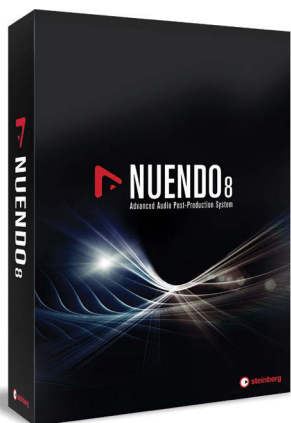
# Tech // new products



## RYCOTE BASEBALL FOAM WINDSCREEN

### Acoustically Transparent Noise Reducer

Rycote's Baseball (\$39.95) offers significantly increased performance over conventional foam windscreens and is fully compatible with Rycote's Lyre Shockmounts. It comes in two models: Baseball (19/20) for the DPA 4018, Sennheiser MKH 8050 and Schoeps CMC641; and Baseball (24/25) for the Sennheiser MKH 50. Each Baseball is made of a unique plastic and rubber mix. The end-cap helps secure the mic and provides an effective seal against wind.



## STEINBERG NUENDO 8 DAW

### Upgrade Centers on the Game Audio Toolset

Nuendo 8 from Steinberg focuses on a game audio toolset, bringing expedited workflows and new abilities in sound design. Game Audio Connect 2 provides an interactive music workflow by taking entire music compositions from Nuendo and handing these over to the Wwise video game engine, including audio, MIDI tracks, cycle and cue markers. Other features include the Sound Randomizer plug-in for instantly adjusting pitch, timbre, impact and timing, the virtual-analog Retrologue 2 synthesizer, HALion Sonic SE 3, more than 80 effects processors, plus a newly developed video engine that replaces the Quicktime-based engine.



## MAAG MAGNUM-K COMPRESSOR

### Single-Channel, Dual-Path Gain Reduction

The Maag Audio Magnum-K (\$2,395) is a single-channel unit offering two compressor sections titled Magnum Comp and K Comp, parallel EQ with LMF and Air Band plus a switchable soft limiter. The compressor is full-featured including input and output gain control, Ratio, Threshold, sidechain input with filter, Attack, Release, plus a switchable feedback or feed-forward option. The parallel stage offers makeup gain, and two units may be linked for stereo use.



## MXL CR20 MICROPHONE

### Dual-Personality Condenser

The MXL CR20 condenser microphone (\$149.95) is a fixed-cardioid pickup featuring a gold-sputtered diaphragm and an innovative tube emulation switch. At the flip of a switch, the sonic characteristics of the MXL CR20 change from crisp and clear with detailed high end to warm and balanced with a rich bottom end, similar to the tones of vintage tube microphones. The mic features a sleek black and chrome finish and includes a standard hard-mount mic stand adapter and microfiber cleaning cloth, and it comes in impact-resistant foam housed in a rugged hard-plastic case.

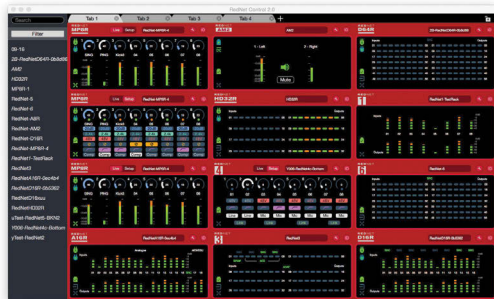


## BURL AUDIO BAD8 DAUGHTER CARD

### 8-Channel A-to-D for B80 and B16

Burl Audio's BAD8 card (\$2,699) for the B80 and B16 Mothership utilizes all class-A, discrete transistor circuitry and Burl's BX1 transformer-coupled input. The BAD8 benefits from the new form factor of the BX1 transformer, allowing for more channel density. Other features include the latest analog-to-digital conversion technology, operation at 24-bit/44.1k to 192 kHz, low latency and DSUB connectivity.





## FOCUSRITE REDNET CONTROL 2

### Improved Interface Offers Flexibility, Upgraded GUI

RedNet Control 2 from Focusrite (free download) offers upgraded remote control for products in the company's RedNet range of Dante-based audio-over-IP systems. Based on a web browser-like GUI, Control 2 is designed to handle any RedNet system up to 600 devices. Features include improved device monitoring, metering, and control through a GUI where devices are displayed graphically and can be dragged and dropped from a sidebar list into a grid on a tab. Each of up to 50 tabs can display up to 12 devices.



## JBL INTONATO 24 MONITOR SYSTEM

### Studio Monitor Management and Tuning

JBL Intonato 2 (\$2,999) offers complete control of JBL 7 Series and JBL M2 Master Reference studio monitors in stereo, surround and immersive audio production rooms. The 2U rackmount unit can calibrate and control systems of up to 24 speakers, including four subs, with customized recallable routing of up to 24 sources selected from 24 dedicated analog, 24 digital and 256 networked audio sources. A calibration microphone is included, along with an intuitive GUI for controlling Intonato 24 from Mac, Windows and a range of tablets.



## KEF LS50 WIRELESS MONITOR

### 192k/24-bit Signal Path, iOS/Android Control

The KEF LS50 monitor (\$2,199) with its coaxial-like Uni-Q driver offers high-end performance over a wireless connection. Features include constrained layer damping bracing, precision-made curved baffle and elliptical flexible sound port promising a wide, phase-correct sweet spot with reduced cabinet vibrations and resonance coloration. Inputs include 2.4GHz/5GHz dual-band Wi-Fi, Bluetooth 4.0 with the aptX codec, asynchronous USB Type B input, Toslink Optical and RCA line-level analog input. Also onboard is a 192kHz/24-bit signal path with two dedicated DACs per channel, a streaming preamplifier, and amplification in a bi-amp dual-mono configuration (200 + 30 watts per speaker). The dedicated app (iOS/Android) offers control for network setup, streaming and playback.



## CLOUD MICROPHONES CLOUDLIFTER ZI

### Interface Ups the Quality of Hi-Z Inputs

The Cloudlifter Zi (\$499) is targeted for use on electric guitars, basses, low-output piezo pickups used with acoustic guitars, or vintage electro-mechanical stage pianos employing a passive output. Tone-shaping features include variable input impedance from 150 ohms to 15k ohms, letting you load the Cinemag instrument transformer inside the Cloudlifter Zi to create a range of tonal variations. Also onboard is a three-position variable gain switch and variable highpass filtering that works in tandem with the variable impedance. The high-pass filter has a slope of 6dB per octave.



## EVENTIDE FISSION PLUG-IN

### Structural Effects Platform for Sonic Deconstruction

Eventide has released Fission (\$97), the first plug-in to feature its Structural Effects method for separating the transient and tonal components of a sound. Features include multi-effects for the transient and tonal sections, plus the ability to solo and mix the deconstructed audio. Fission comes with six effects for the transient component, including Delay, Tap Delay, Dynamics, Phaser, Reverb and Gate + EQ; and seven for the tonal component, including Delay, Compressor, EQ, Pitch, Chorus, Reverb and Tremolo.

# New Sound Reinforcement Products



## L-ACOUSTICS SYVA SPEAKER SYSTEMS

### High-Powered Loudspeakers for Flying and Pole Mount

Syva from L-Acoustics features six medium-frequency and three high-frequency speakers in a J-shaped progressive curvature format. The transducer arrangement, called segment source, produces an H/V 140° x 26° (+5/-21°) directivity pattern optimized for effective surface coverage and 115 feet (35m) of throw. Syva can be accompanied by the Syva Low high-power subwoofer or Syva Sub infra extension offering 142 dB max SPL. Its companion Syva Low enclosure features two K2-grade 12-inch drivers designed to provide low-frequency contour and extended bandwidth down to 40 Hz. Similarly, Syva Sub features one KS28-grade 12-inch driver to further extend the bandwidth of the system in the infrasound domain down to 27 Hz. One LA4X amplified controller can drive up to four Syva enclosures.



## NEXO GEO M10 LINE ARRAY

### High-Output System for Long-Throw Venues

The GEO M10 system from NEXO is twice as powerful as the GEO M6 compact line array launched two years ago. The system comes in two versions of the M10 cabinet, offering 12.5 and 25-degree of vertical dispersion. Both have 80/120-degree horizontal dispersion, which can be configured manually by removing the magnetic grille and adjusting the company's innovative flange fixing system. The sub-bass cabinet is the MSUB15. Weighing 79 pounds, the new sub is housed in either a sturdy touring package with steel grille or the installation version featuring a cloth grille.



## VUE AUDIOTECHNIK SYSTEMVUE 3.8.2 UPGRADE

### Dante Support, Expanded Library of Preloads, and More

VUE Audiotechnik's latest version of SystemVUE software directly addresses some of the most requested features from its user base. SystemVUE 3.8.20 (free download) delivers full Dante networking support, significantly expanded parametric EQ functionality, and a larger library of preloaded configurations addressing point source, line array systems and subwoofer arrays. Other features include expanded grouping options; improved device information, including software/hardware synchronization status, analog, AES/EBU and Dante fall-over capabilities; and expanded OS support for Windows 10 and iOS.



## MEE AUDIO M7 PRO DUAL-DRIVER IEMS

### Affordable Hybrid Design Offers Clarity and Detail

MEE's Audio M7 PRO IEM (\$149.99), is a universal-fit IEM featuring a dual-driver design combining a 10mm moving-coil subwoofer and a full-range balanced armature. Features include frequency response of 20 Hz to 20 kHz, an impedance of 50 ohms at 1k, replaceable cables with MMCX connectors and a spare cable with headset functionality. The M7s ship in a protective carrying case including four sets of silicone eartips, two sets of foam eartips, 1/4-inch (6.3mm) adapter and a shirt clip.



# SCAN. SYNC. PLAY!™

## Audix Performance Series Wireless

Whether you're a vocalist, musician, performer or presenter, the Audix Performance Series delivers the ease of setup and pure, accurate sound you've been waiting for in a wireless system. The simple *Scan* and *Sync* process takes you from set up to performance within seconds. Professional, durable and versatile, the Audix Performance Series offers multiple configurations for handheld, lavalier, headworn and instrument microphones.

Available in two performance levels, the Audix Performance Series provides quality and feature options at a price point that is unmatched in the market today. Learn more at [audixusa.com](http://audixusa.com).



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# Tech // reviews

## PRESONUS STUDIO LIVE AVB48AI MIX SYSTEM

Scalable, Networked Audio Using Wired or Wireless Control



The system consists of the CS18AI control surface, and RML32AI and RML16AI mixers.

A few years ago, the idea of affordable networked digital audio was a pipe dream, yet continuing advances in digital audio technology permit exactly that. The StudioLive AVB48AI Mix System from PreSonus offers the expandability and scalability of networked audio in a variety of configurations that can not only be managed using a hardware mix controller, but also by using a variety of wireless devices. The subject of this review is the StudioLive AVB48AI; several smaller, and one larger system configuration are also available.

The StudioLive AVB48AI Mix System consists of three main components: the StudioLive CS18AI control surface (\$1,699.95), and StudioLive RML32AI and RML16AI mixers (\$2,299.95 and \$1,499.95, respectively). The RMLs are essentially mixing consoles without a work surface and inherently require external control via the CS18AI or PreSonus UC Surface software for iOS, Mac or PC (the software is free of charge). Each RML has a front-panel USB port that accepts a memory stick, or a WiFi adapter. Using PreSonus' USB WiFi adapter and UC Surface software running on my iPad, I was able to wirelessly control one RML within minutes.

As you might gather from the model number, the RML32AI is a 32-in x 16-out system in a rackmount stage box. The front panel is home to the analog I/O, with the first 24 analog inputs employing XLR jacks and remaining eight as mic/line Combo jacks. All preamps are the company's recallable XMAX discrete, Class A type, designed for low noise, transparency and wide frequency response. Mix buses are output on 16 XLRs; separate XLR jacks with level controls are

provided for the Main L/R and Mono outputs.

Other front panel connections include an RCA stereo Tape Input, Stereo Phones output with volume control and Main or Cue output selector, 32 LED channel meters that can be switched to show phantom power status, and an All Mute button. On the rear panel are an S/PDIF output, two FireWire 800 ports, a CAT5 port for network control or AVB, and DB25 outputs that duplicate the 16 front-panel Mix outputs, facilitating connection of IEM transmitters. The RML16AI is identical save for the reduced number of inputs (16) and outputs (8).

Each RML's 64-bit DSP engine provides input trim, polarity reverse, HPF, dynamics (gate, comp and limiter), and 4-band parametric EQ for each input channel. All Mix outputs feature gate, compressor, limiter, 4-band parametric EQ, and a 31-band graphic EQ, though the Main L/R and Mono Bus lack the Gate. The 31-band graph has a "Draw" option, whereby you can use your finger to create an EQ curve..

### HARDWARE CONTROL

The CS18AI complements operation of the RMLs or functions as a DAW controller for PreSonus Studio One 3 or Capture software (though it wasn't the focus of this review, I tried the CS18AI with Capture and Studio One 3. Operation of both DAWs was enhanced using the CS18AI). It has two Combo and two TRS inputs, plus two analog outputs; when the CS18AI is situated at front-of-house, these jacks provide a convenient means to connect a talkback microphone, a stereo background music system, and perhaps another mic for house announcements. Two XLR outputs and a headphone jack route the Main, Solo or Cue Output. When using the CS18AI as a monitor mix controller, those outputs can feed cue wedges or IEM systems.

In addition to 16 motorized channel faders, the CS18AI includes a Master L/R fader and a "Flex" fader that is assigned to a Mix when that Mix is selected. This made it easy to mute a monitor send, or raise/lower the overall level of a mix while still having channel sends to that mix on the faders. Channel parameters are accessed by selecting a channel, then using the "Fat Channel" controls to access preamp, EQ, dynamics and aux send levels.





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The CS18AI can route two distinct types of information: control data or audio via AVB connection. To create a system where the CS18AI was used simply as a control surface, I connected it to a single RML using a CAT5 cable. This type of configuration (or using a standard Ethernet switch) does not support networked audio. That's where AVB comes into play. Connecting the CS18AI and an RML to an AVB network hub enables them to share audio (PreSonus recommends a MOTU AVB Hub). When I cued up a monitor Mix on the CS18AI, it routed that Mix from the RML through the surface and into my cue speaker. When using AVB, the control data lives happily on the network with the audio.

Adding another RML is where things get really interesting—but beware of jumping down the rabbit hole because very soon the question changes from, “What can this system do?” to, “What do you want this system to do?” It's possible to control two independent RMLs from a single CS18AI, selecting one of them at a time from the CS18AI's Mixer Control screen. But once the two RMLs were recognized on the network, the Cascade option became available, enabling me to create a single 48-in/16-out “system.”

Sorry, you don't get to augment the output capability, but the Mix outputs on the “slave” RML mirror the Mix outputs on the master RML. Setting up Cascade required a trip to the Mixer Cascading Reference Manual. Once I had it configured properly, the CS18AI displayed additional layers of audio inputs, numbered 33 to 48 (analog), plus another 16 inputs that could be sourced from the network or via FireWire. Working with a track act, you could have 48 analog inputs from the stage along with 16 prerecorded tracks

running from your DAW software.

If that doesn't blow up your skirt, you can connect a wireless router to the AVB. I used an iPad running UC and an iPhone running QMix-UC to control all 64 inputs(!). The CS18AI acts as a “master of permissions” for the wireless devices, allowing complete or limited control for an iPad, or iPhone. QMix-UC for iPhone supports PreSonus' Wheel of Me, whereby the user can be given a simple “more me” monitor mix, or can be allowed access over multiple channels, or even multiple mixes. Given access to multiple mixes on my iPhone, I could walk a stage while a band was playing and dial in the monitor mix for each musician. When setup was complete I could restrict permissions so that each musician controlled only their own mix.

## FX AND MORE

Incorporated into the RML mixers are four independent stereo effects engines, designated FXA, FXB, FXC and FXD. The first two are dedicated to reverb while the second two are dedicated to delay effects. There are no modulation or pitch effects. My favorites were the Plate Reverb and Large Hall (lovely for vocals) and the Small Hall for snare drum. There's no EQ on the FX return channels, and I missed that feature because I typically EQ my effects quite a bit, though I found the Filter Delay helpful in this regard for vocals. There's a bit of a glitch regarding the FX Returns in Cascade mode: effects sent from channels on the slave mixer cannot be muted, even though effects sent from channels on the master mixer can be muted. PreSonus is aware of this and has already implemented a fix that will be incorporated in the next RML firmware revision.

I checked the RML for compatibility as a FireWire interface with Digital Performer, Pro Tools and Reason, all of which easily recognized and communicated I/O options with the RMLs. Some of the networking set-up—particularly when adding a wireless router to the AVB router—was a bit challenging due to the variety of configurations that could be created and the IP address requirements for network communication. PreSonus offers plenty of documentation on its website and in the StudioLive Software Reference Manual to help facilitate the process. Once I had the networking sorted I could control the two RMLs using my MacBook, iPad, iPhone or the CS18AI—simultaneously, if necessary. If your future plans include Dante networking, the AVB interface card can be replaced with an optional Dante card.

Of course, all of this audio muscle would be useless if the RML32AI and RML16AI didn't sound good—and they do. The XMAX mic pre's are clean and quiet, the mix buses have plenty of headroom, and the EQ is useful. If you're using a laptop connected to an RML via FireWire, you also have options to run SMAART RTA or Spectragraph in the background while mixing.

All of the components seem to be robustly constructed yet maintain compact packaging. Add that to the scalability of the system and its ability to be controlled using a variety of wired or wireless controllers, and it's almost scary what the AVB48AI Mix System can do. ■

Steve La Cerra is a N.Y.-based live and studio engineer.

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## THREE VERSATILE, AFFORDABLE STUDIO MICS

Lauten LA-120, MXL DX-2, Lewitt LCT 640 TS

**E**ngineers crave variety in capturing a sound, so there is always room for more microphones. The three products reviewed here bring a wide range of specialties, features and uses. The Lauten LA-120 redefines “entry level” by packaging great-sounding, twin pencil condensers with swappable capsules for just \$349. The MXL DX-2 is a dual-capsule dynamic mic allowing you to precisely mix in, or out, both leakage and proximity effect at the mic for just \$149. And while the Lewitt LCT 640 TS has a higher price tag, it brings pattern and position control after the recording, plus a unique Clip History feature that is groundbreaking.

### LAUTEN LA-120

The Lauten LA-120 (\$349) comes as a pair in a well-made wooden box housing the mics, stand clips, foam end-cap pop filters, and a second, interchangeable capsule—one cardioid and the other omni. On the body of the mic are switches for a lowpass filter (10 kHz and 15 kHz) and a highpass filter (50 Hz and 150 Hz). New, and just released at NAMM are optional screw-on pads (\$79.99 a pair) offering -10dB of attenuation. Fitting between the capsule and body, the pads add just an inch to the total length of the mic. While the pads are an add-on, they will still fit in the wooden box if you tuck them neatly inside the foam pop-filters, which offers both protection and ready availability.

I first used the pair of LA-120s as utility percussion mics placed in an XY array in cardioid. The simple clips and slender body made it easy to place the mics quickly and accurately. I’ll often place an array of mics like this over a small table with a blanket on top where the percussionist can put various shakers, tambos, triangle, bells and other noise makers. This way, he or she can pick them up and play across the stereo field using a bunch of toys throughout the song. The LA-120s were wide open (no rolloff, no pad) and sounded great. They handled the jangly transients of the tambourine without the distortion and nasty edge that is apparent when using some condensers.

Next, I used the LA-120s in cardioid over a drum kit as a stereo pair, each mic measured at 3-feet, 4-inches from the center of the snare. I immediately appreciated the availability of the lowpass filter, as the mics are bright when flat—but not too bright for this application. I’ll usually add top to my overheads when tracking to bring out the cymbal attack and stick hits on toms and snare drum, but with the LA-120s I needed none. The top is smooth and not strident. The LA-120s paired with the Chandler REDD mic as a center overhead was perfect, as each shined in its strong points: the LA-120s for detail, and the REDD for beautiful tubey midrange.

Next I paired the LA-120s in XY pattern just in front of the sound hole of an acoustic guitar, again using the cardioid capsules. The array offered a nice presentation of the instrument and a beautiful stereo image. I swapped a single mic to the omni capsule and placed it at the sound hole pointing toward the tailpiece. I preferred this single-mic approach for this guitar, which was on the bright side. Pointing the capsule toward the tail rolled off some top end without having to engage the filters.

At this price and quality it’s hard to justify not having the Lauten LA-120s in your locker. They sound great, are easy to place, travel easily in a backpack and offer a range of features. I know of no other mic in this price range or size that gives you both high and lowpass filters, as well as exchangeable capsules, stand mounts and pop filters. What’s not to like?

### MXL DX-2

The MXL DX-2 (\$149) is a mic with a mission: It is specifically designed for use in both studio or live applications, for reproducing bass and guitar cabinets, kick drums, low toms or other high-SPL instruments. Its unique design lets the flat side point toward the source while the rounded back sports a crossfade knob, allowing fully variable mixing of the two sources at the output. The mic ships in a sturdy zipper bag with a well-made stand mount.

The two capsules inside the DX-2 are time-aligned behind the rigid metal grille; one capsule is cardioid and the other super-cardioid. Capsule 1, super-cardioid, sits at the middle of the mic, with the cardioid capsule about an inch away. When the mic is placed with the XLR facing up, the rotary control mixes 100 percent of Capsule 1 when it’s fully counter-clockwise, and Capsule 2 when fully clockwise. Twelve o’clock blends them 50-50. You can use the inherent nature of each capsule to boost bottom end or midrange and isolate the source. For example, the super-cardioid exhibits less leakage from the side (more source isolation) and greater proximity effect. The cardioid capsule is less directional and exhibits less proximity.







I used the DX-2 outside a kick drum paired with a Sennheiser e602 inside. While the DX-2's attack was great, even with the super-cardioid capsule fully in play there wasn't a lot of the booty I search for from an outside mic. After adding a lot of 50 Hz, and cutting 500 Hz to lose the inherent tubbiness from a kick, I still couldn't dig out what I needed. We quickly swapped

the mics, outside to in, but that wasn't the solution either. The DX-2, especially in super-cardioid mode, needs some air at the back to avoid overly accentuating the clicking of the transient peak.

The DX-2 worked much better on a bass and guitar cabinet. It's a simple matter to mount by pointing the flat side toward the speaker. Some live sound engineers just hang the mic from the top of the cabinet, letting it sit right on the grille cloth (some gaff tape on the cable as it passes over the amp is recommended to avoid slippage). The DX-2 is designed with this technique in mind—the flat side of the mic perfectly sits against the amp. For studio use, however, use the sturdy stand mount (included), which offers a better opportunity for tight and accurate placement.

Used to record a bass cabinet, the DX-2 sounded best when I dialed the mix knob to the super-cardioid position. On the other hand, on a guitar amp, I could dial back the low end and accentuate the mids by rotating clockwise. This greatly eliminated the need for EQ since I was EQ'ing at the mic without phase shift. For live use, you can use the mix feature to reduce stage spill from adjacent amps or other instruments by leaning more toward Capsule 1. Using capsule design to tailor your sound is nothing new, but having the ability to mix between two different capsules in a single mic is brilliant.

In addition to its affordable price, the DX-2 offers a wickedly simple way to tailor sound at the source without power, EQ or even moving the mic. At this price, you should have at least one, or more. The DX-2 is a new classic.

### LEWITT LCT 640 TS

Mics offering emulation and pattern control are all the rage now, with the Slate VMS and Townsend Labs Sphere L22 just coming to market. Earlier out of the gate and the most affordable of the group is the Lewitt LCT 640 TS phantom-powered condenser (\$899). It ships in a waterproof SKB case that houses the mic, a zipper bag, a well-made shock mount, magnetically mounted metal pop filter, foam pop filter, and a mini-XLR female to male XLR for the output of the back capsule.

The 640 TS features a 1-inch dual-diaphragm with pushbutton controls and lighted readouts for the highpass filter (0, 40, 80, 160 Hz), pad (0, -6, -12, -18 dB) and pattern switching (omni, wide cardioid, cardioid, super-cardioid, and figure-8). I immediately appreciated the lit controls, which give you instant confidence that the mic is receiving phantom power, a feature that can save a lot of time when troubleshooting.

The 640 TS takes itself beyond basic by offering three more modes accessed by pushing and holding the same three buttons used to access the previously mentioned pattern, pad and rolloff features. For example, by holding down the left button for two seconds, you can lock the pattern, pad

and rolloff so they can't be changed accidentally. Holding the right button for two seconds engages the Clip History feature. If the mic sees an overload any time after power-up, the logo will flash red and engage the pad feature for use. By holding the center button for two seconds, the mic enters Dual Output Mode, where all pattern lights go out, and the front and rear outputs are engaged for recording.

The rear output is accessed via the mini-XLR connector at the side of the mic. This is easier than it sounds; the included mini-connector is robust, and the cable easily wraps around the stand, which then runs to a second preamp. The two outputs are recorded to a stereo track in your DAW with both outputs panned the same. This allows you to manipulate the pattern and mic orientation later using the included Polarizer multichannel plug-in.

This is where you can really get your head around what polar patterns bring to a recording—by hearing and seeing the results instantly. Because the Polarizer is a Native plug-in, it can't be used during recording. Even with the trick of putting an AAX plug-in first in the chain (such as trim), the plug-in has over 2,000 samples of latency (at 48k) and can't be delay compensated live. So when recording, you can still hear the output, but you don't have the ability to audition polar patterns.

Once you stop recording and engage Delay Compensation, you can hear what the 640 and Polarizer plug-in brings to the game. For example, when I used the 640 TS as a room mic in Dual Output mode, I was able to completely change the orientation and pattern after the band went home. I placed the mic 16 feet back from the drum kit at the door of a live chamber in Blackbird's Studio A. This way I could use the Polarizer to bring out the chamber's deliciousness, or mix in the direct (front) of the mic pointing at the kit. How great this is can't be overstated. It will change how you work.

Placing mics properly in the first place is important, but in the heat of battle, you can't possibly audition the many combinations of pattern and position that the Polarizer software offers. Later, I used the 640 TS as an omni overhead about 4 feet over the center of the snare. The relatively tight placement gave me a drier front capsule sound; later, using the Polarizer, I could also open up the room (which had an 18-foot ceiling) by mixing in the back capsule closer to 100 percent. This, when mixed in with the stereo overheads, gave me an incredible range of close-to-room alternative mix options.

Next, I placed the 640 TS set in Dual Output mode in front of the sound hole on acoustic guitar. When recording acoustic, you're often fighting with the proximity of the mic to the instrument or position around the sound hole to avoid boominess. With the Polarizer plug-in you can dial back from cardioid to omni (or anywhere between) to instantly, and incrementally, reduce proximity effect.

The Lewitt LCT 640 TS is an affordable mic that you will use all the time. The Dual Output mode is so incredibly useful I can't see any reason not to engage it every time you record with the mic. When you have such a sonically excellent condenser like this under \$900 and then add in the unique feature set, you have to try it; what have you got to lose? ■





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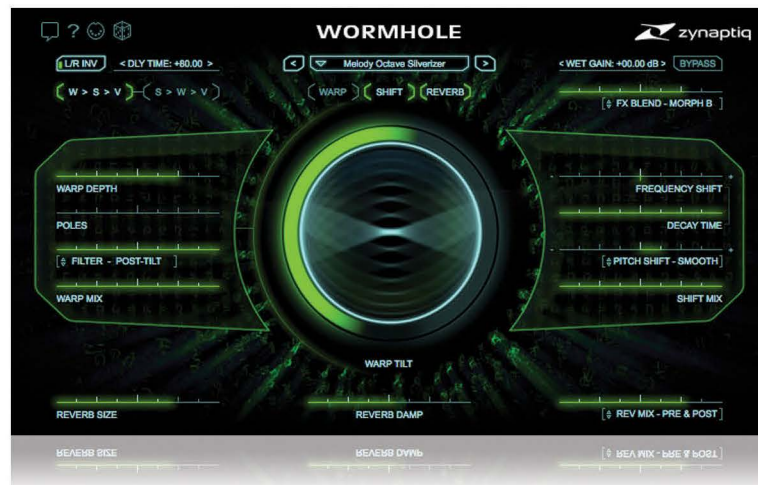




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## Losing Net Neutrality



By Kevin Becka

**T**he term “net neutrality” has been bandied about for years, but it still doesn’t get the attention it deserves and is often misunderstood. Simply put, it means that pipeline owners, aka telecoms, can’t charge us differently based on content, website, platform or attached equipment. For the past eight years, Washington has been onboard; in 2015 the FCC reclassified broadband access as a telecommunications service. But in January this quickly changed with the appointment of Ajit Pai as chairman of the Federal Communications Commission. Pai is a former Verizon attorney and has been an FCC commissioner since 2012, appointed by President Obama to the Republican Party position.

Just days after his promotion, Pai moved to roll back consumer protection regulations created during Obama’s presidency. He halted nine companies from providing low-income users with discounted high-speed net services and withdrew a proposal to open up the cable box market. Then on February 23, the FCC voted 2-1 to roll back enhanced net neutrality reporting requirements for smaller ISPs, essentially exempting them from giving consumers information on fees, service pricing and data caps. So, ISPs get free rein to operate as they’d like. For example, in 2015, AT&T was fined \$100 million for slowing down the data speeds of customers with unlimited data plans.

So, how does this affect consumers and content creators? First, it’s helpful to know who, and what, are the big dogs of Internet bandwidth. Sandvine.com reported this year that North American streaming audio and video accounts for 71% of evening traffic and expects this figure will reach 80% by 2020. It’s not hard to imagine that Netflix, YouTube, Amazon—the top three content providers—will become more expensive. How about sports? Could you as a consumer be charged more to watch the Super Bowl because it’s in demand? Sure! And what about online gaming and the VR industry, both time-sensitive, on-demand hungry applications that would cost more in a fast-lane vs. slow-lane world?

Some consumers relish this and love the idea of a prioritized Internet, arguing that not all Internet traffic is created equal. In regards to the FCC’s ban on paid prioritization, Tom Struble, a writer for techpolicy corner.org said, “As a consumer who regularly both plays competitive video games (mainly FIFA, but also some first-person shooters) and streams live video (mainly sports) on the Internet, this angers me.”

Struble also points out that “any claim that ‘equality’ is embedded into the Internet’s foundation is just patently false,” adding that many gamers, and game providers would be happier with a diamond lane for hire where they could play, and provide their games, with assured speed.

Likewise, software updates, email, instant messages and other like content is not time-sensitive and doesn’t merit prioritizing or sharing of the fast-lane. But sustained bitstreams like 911 calls, video chat or video streaming does, and already has a tech advantage. In fact, in early net development, DiffServ protocols were designed to provide differential treatment of bit traffic in real time, making the internet “smart.”

Even if you go for this, how about fast pipeline access in general? Last year, the National Digital Inclusion Alliance accused AT&T of ignoring low-income Cleveland neighborhoods making broadband upgrades in the area. So, income discrimination could be an indicator of the future of a closed internet. You can almost hear echoes of Utah Representative Jason Chaffetz’s iPhone vs. healthcare argument here.

How about our business? Like all of you, I hear great-sounding audio at work, and I would like to hear great-sounding audio as a consumer. At the recent NAMM show, the P&E Wing of the Recording Academy updated manufacturers and the press about its ongoing efforts, in conjunction with Consumer Technology Association and Digital Entertainment Group, in promoting production and delivery of hi-res audio. The presenter, DEG Senior Director Marc Finer, talked about the progress to promote and standardize Hi-Res Audio across all formats. At lunch prior, Phil Wagner, President of Focusrite/Novation, nailed it, saying we are “creating a new legacy” in urging engineers to choose higher sample rates (96k/24-bit) when they create new sessions in their DAWs.

The million-dollar question (literally) then becomes: when consumers choose to pay for Hi-Res content, will they also pay above and beyond the base fee when their ISP hits them with a surprise on their bill? We’ve all crossed our data caps at one time or another; it is a terrifying thing to see those numbers. The first thing you want to do is find out why and shut it down. Hi-Res then becomes a rich man’s toy, which limits broad appeal. How about downloads, which aren’t as time-sensitive, you say? At HD Tracks, DSD albums can go for \$29.99, and you need a player, and the same site has the score to La La Land at 44.1/24 for \$31.98, certainly high-priced and *not* Hi-Res (let’s confuse people shall we?).

Joni Mitchell said it best in “Big Yellow Taxi”: “Don’t it always seem to go that you don’t know what you’ve got till it’s gone.” The loss of net neutrality would eventually affect all consumers, putting them head-to-head against the Telecoms. The good news, if there is any, is that the FCC is like a cruise ship that is hard to turn around. If you’ve been following the wireless bandwidth debate and the incentive auction I described last month, you know what I mean. It may take a while, but affordable, streamable Hi-Res and specialized content isn’t the vision of Pai and the FCC; they cater to pipeline owners, not pipeline users. ■





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