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MIX

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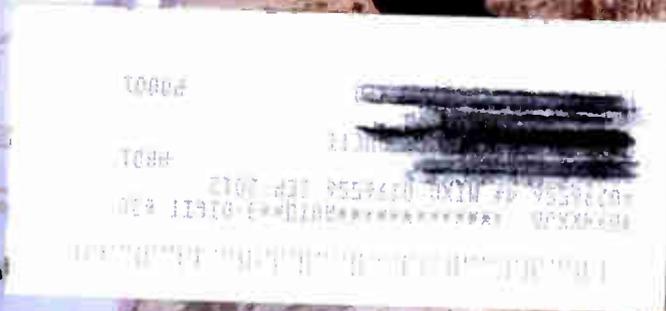
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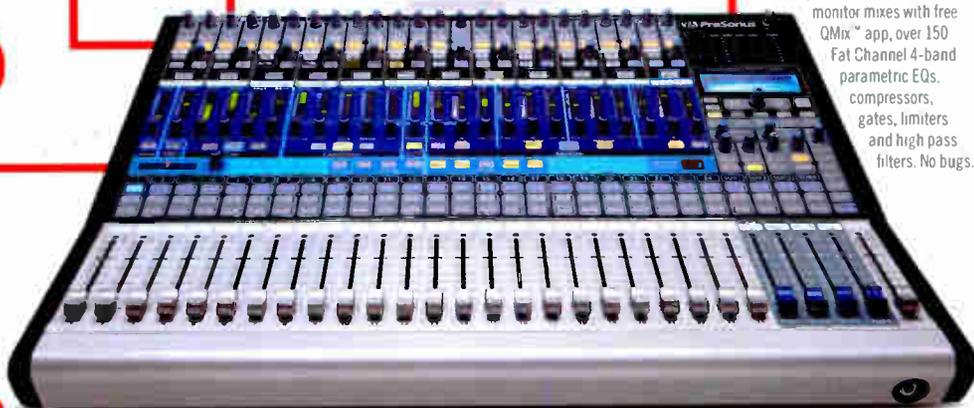
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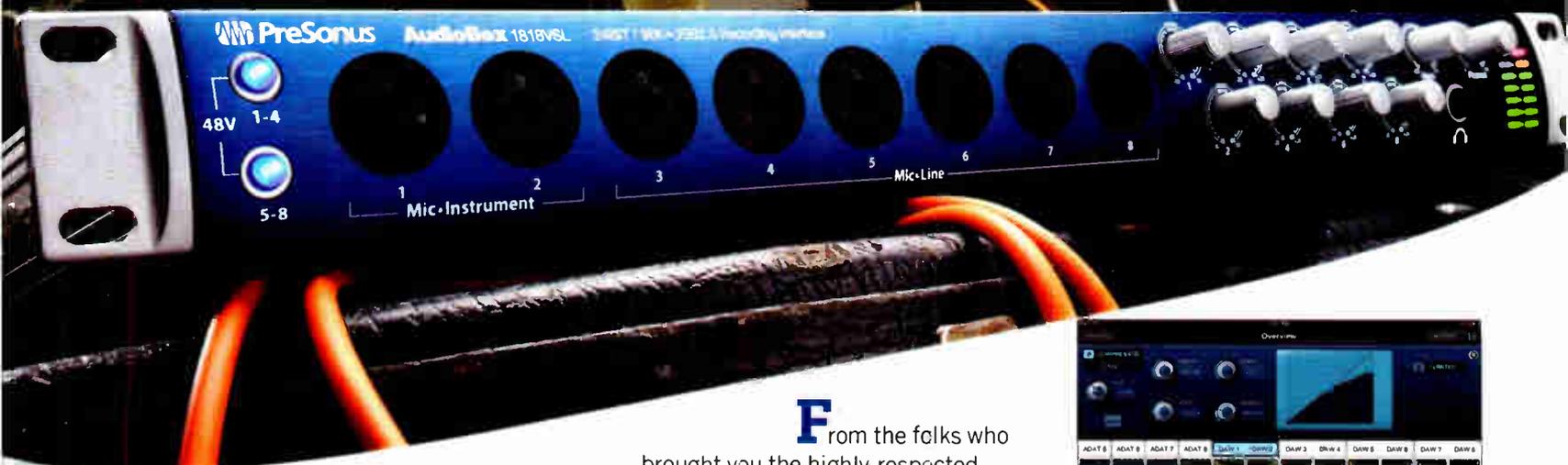


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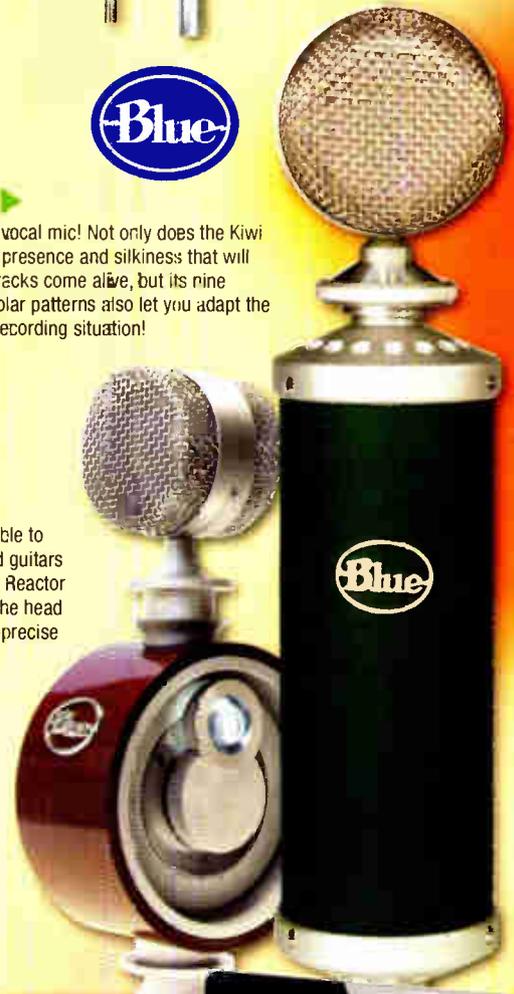


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THE ULTIMATE MENTOR

I first met David Hewitt at the New York AES Convention in 1989. He was a perennial TEC Awards nominee for Remote Recording Engineer, and this was my first year as stage manager. So I knew the names of all the potential winners. I didn't necessarily know what they did, but I soon learned. I learned that David was a big part of the sound of my youth. He worked on tracks for *Running on Empty* and he recorded *Live Rust!* He worked on Simon and Garfunkel in Central Park and Rodney Dangerfield *No Respect*. Bruce *Springsteen Live 1975-85* and records by Kiss, Yes, the Stones and so many, many more. He provided the broadcast music at countless Academy Awards. Discog him and you'll see.

I first met Ryan Hewitt, David's son, at the New York AES in 2011. I walked into a midnight dinner to see Chris and Amy from CLASP and was introduced. Again, I knew the name but had never met. He'd engineered the Peppers' *Stadium Arcadium* and the Avett Brothers' *I and Love and You*, two of my favorite semi-recent records. We drank beer and ate food and told stories, sharing many mutual acquaintances, promising to reconnect. That's him on the cover, second from the left.

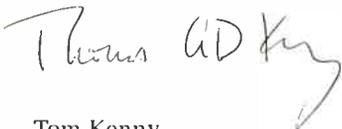
"I must've been 12 or 13 when I first went on the road with my dad," Ryan recalls. "It was a Bon Jovi concert, I think. That's when I first got paid. My first album credit was Tesla *Five Man Acoustical Jam!* Remember them?" Throughout his teens he polished wheels, ran for food, wrapped cables, packed the truck. Eighteen-hour days were common. But that's where he learned how to behave, he says. Where he learned the etiquette of production that he carries through to this day.

"The biggest thing my dad taught me was the work ethic," Ryan says. "Get the job done at all costs. Dive into things for the long haul. And be ready for anything. When you are on a live remote, there is not a lot of room for experimentation. You have to move fast and you have to get sounds fast. You go to your consistent tools and you make decisions. You prepare for any possible contingency. And you work with a crew, as part of a team."

Ryan moved on to runner and assistant at Sony Studios in New York, where he learned from the likes of Michael Brauer, Bob Power and many others. Then a stint for SSL in L.A., then getting back in the game as an assistant engineer at Cello, working with acclaimed producer Jim Scott. "That was such a great experience," Ryan recalls. "Jim is the absolute best. He taught me the vibe, how to trust what I know, and to always work hard. He always had extra stuff set up in case someone happened to show up. Be ready for anything and go with the flow. And he got me gigs!"

Ryan Hewitt was lucky, he would be the first to admit, but he also knows that he works extremely hard, has paid his dues and has been ready when doors opened. He came of age in the recording industry at the very tail end of the apprentice-runner-assistant model, and he had great mentors. He learned that you do whatever it takes. He learned how to be an engineer, not a console jockey.

Today David Hewitt, an eight-time TEC Awards winner and 2006 TEC Hall of Fame inductee, splits time between his home in the countryside of Pennsylvania and studio work at SST in New York City, the first time he's been a stationary engineer. He works on jazz projects with comrade in arms Sam Berkow, and he continues to tutor young engineers who come through the doors. They still talk, Ryan says, about once a week.



Tom Kenny
Editor

EDITORIAL

EDITOR Tom Kenny tkenny@nbmedia.com
SENIOR EDITOR Blair Jackson blair@blairjackson.com
TECHNICAL EDITOR Kevin Becka kbecka@earthlink.net
MANAGING EDITOR Lori Kennedy lkennedy@nbmedia.com
ASSISTANT EDITOR Matt Gallagher mgallagher@nbmedia.com
FILM SOUND EDITOR Larry Blake swelltone@aol.com
SOUND REINFORCEMENT EDITOR Steve La Cerra
CONSULTING EDITOR Paul D. Lehrman lehrman@pan.com
CONTRIBUTING EDITORS George Petersen Barbara Schultz
Michael Cooper Eddie Ciletti Gary Eskow Barry Rudolph Matt Hurwitz

ADVERTISING

SENIOR ACCOUNT EXECUTIVE, WESTERN REGION
Janis Crowley jcrowley@nbmedia.com
EUROPE/EASTERN SALES DIRECTOR
Paul Leifer pleifer@media-sales.net
SPECIALTY SALES ASSOCIATE
Doug Aulsejo dausejo@nbmedia.com

ART & PRODUCTION

ART DIRECTOR Todd Berkowitz tberkowitz@nbmedia.com
PHOTOGRAPHY Steve Jennings
PRODUCTION MANAGER Heather Tatrow htatrow@nbmedia.com

CIRCULATION

GROUP DIRECTOR, AUDIENCE DEVELOPMENT Meg Estevez

NEWBAY MEDIA AUDIO GROUP

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LIST RENTAL: Lauren Marchese lmarchese@meritdirect.com



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BY DAVID SCHWARTZ, PENNY RIKER AND BILL LASKI

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On the Cover: The Avett Brothers, with engineer Ryan Hewitt, outside the Laurel Canyon home where they were shooting a video for the September 11 release of *The Carpenter*. Photo: David Goggin.

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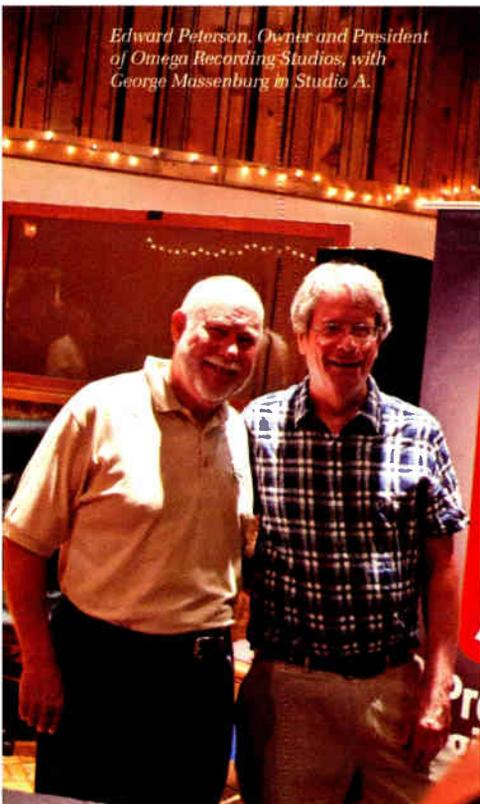
Current

COMPILED BY THE MIX EDITORS

Omega Studios Hosts P&E Wing

On July 12, the P&E Wing and The Recording Academy, Washington D.C. Chapter, presented an evening with George Massenburg at Omega Recording Studios in Rockville, Md. Massenburg, the inventor of the parametric equalizer and currently an associate professor of sound recording at Schulich School of Music at McGill University, is a Grammy and Technical Grammy Award-winning producer/engineer whose credits include Linda Ronstadt, Earth Wind & Fire and Little Feat. His presentation, titled "Adapting to Sustaining Technology Without Selling Your Soul," delved into the transformative nature of music listening and asserted that the music industry is entering a new period where increased bandwidth and other innovations open the door for new appreciation of excellence in audio.

For more on Omega Studios, turn to Page 29.



Edward Peterson, Owner and President of Omega Recording Studios, with George Massenburg in Studio A.

Photo: Cephas Jackson

George Martin on DVD

While the phrase "Produced by George Martin" is most often found in people's music libraries on Beatles records, fans of those albums may want to pick up the new DVD of the same name from Eagle Rock Entertainment. Originally premiered in 2011 on the BBC's Arena series, the documentary by filmmaker Francis Hanly walks viewers through the producer's life, from his youth in a poor Cockney area of London, to his service in the Royal Navy's Fleet Air Arm in World War II, to his education at London's Guildhall School of music, and on through his career in music as pop music's most celebrated and accomplished producer.

Told in the first person by Martin—and including sit-down interviews with his son, producer Giles Martin, Michael Palin, Paul McCartney and Ringo Starr—the producer shares rarely heard stories about his entrance into the record business in 1950 through an unexpected letter inviting him to interview at Abbey Road Studios at EMI ("I'd never heard of either of them"), production of quirky comedy records by The Goons, Peter Sellers and Rolf Harris, his eventual taking over of the Parlophone label in 1955, and signing of The Beatles in 1962.

The Beatle era, of course, is discussed at length, illustrated by stories from Martin, McCartney and



when he couldn't hear the 12k test tone a technician was using to align a tape machine. Bonus content includes more complete interview sessions with son Giles and Palin, plus additional interviews with producers Rick Rubin, T Bone Burnett and Ken Scott who, at a young age, engineered portions of The Beatles' White Album in 1968.

Martin, though no longer actively producing, clearly has never forgotten what's at the core of his calling. While flipping through a book of paintings by Edgar Degas, he notes, "Degas said, 'Drawing is not what one sees, but what one must make others see.' In a way, that's what we do in sound. Recording is not what one hears, but one what must make others hear."

Potluck Audio Conference Returns to Arizona

After a five-year hiatus, the Potluck Audio Conference (potluckconference.com) made a successful return to the Hilton El Conquistador Resort in Tucson, Ariz. The conference drew more than 400 attendees who sat in on seven main panels and visited more than 50 pro audio companies that exhibited at the event. The two-day gathering offered independent recording studio owners, engineers and producers from across the country an opportunity to share knowledge in a relaxed environment. "The event has a unique vibe," says *Mix* technical editor Kevin Becka, who attended the conference. "For the visitors and exhibitors, it's more of a networking show than a buying/selling show. It was great way to get up to speed on the latest gear while keeping a finger on the pulse of our business."



Panelists for the Art & Science of Mixing panel: Maria Rice, Mitch Easter, Craig Schumacher (moderator), J.J. Blair, Fen Ikner, and Dusty Wakeman

Photo: G. Elliott

Pyramid Adds 11.2 Meyer Cinema System

Pyramid Studios, San Francisco (pyramid.com), one of the country's leading game audio production companies and a center for training and tutorial programs, has renovated Studio A to accompany the installation of an 11.2 Meyer Cinema Surround System. Installed by Dennis Stearns and tuned by Bob Hodas, the system comprises three Acheron Studio Screen Channel Loudspeakers, eight HMS-10 cinema surround loudspeakers, two x-800C high-power cinema subwoofers and two Galileo 408 loudspeaker management systems.

Pyramid's Studio A is San Francisco's largest surround mix room and dubbing stage and uses a Mac Pro Eight Core Tower and an Avid 16-channel HD/IO interface running the latest versions of Pro Tools 10, Logic Pro, Ableton Live and Reason. An HP gaming PC has been added for playback of video game builds and real-time interactive mixing. The control surface is an Avid D-Command with X-Mon and surround panner. All of Pyramid's studios have extensive plug-in architectures and server-fed access to both custom music and sound effects libraries as well as libraries from East/West, Project SAM, Vienna Symphonic and many more.



SPARS Sound Bite

How I Got the "Picture"

By Eric Johnson

A few days ago, I intentionally drove past what once was AL&M (Audio Light & Music), the music store that I used to walk to almost two miles (one way) from the North Carolina State University campus in Raleigh to play with audio gear and browse through magazines on the music industry. It was at AL&M that I came across my very first issue of *Mix* back in 1985, and it literally changed my life.



At the time I was studying architecture, though I dreamed of/fantasized about a career in music. At the time I thought that would mean packing up and moving to New York or L.A. to make records (they were actually called records back then). What I discovered in the pages of *Mix* was that there were careers in the industry providing, among other things, sound for picture. The phrase sound for picture means very different things in 2012 than it did back in 1985. This week alone here at Trailblazer Studios, we are mixing several television shows that will air as early as next week, working on music and sound effects for an iPad game, putting the final touches on a Web video for a major car manufacturer, and mixing an independent film...all without leaving little old Raleigh, N.C.!

Through my role with SPARS over the years, I've had the pleasure of speaking with a number of students and professionals who even in 2012 aren't fully aware of the possibilities for careers providing music and sound for film, television, video games, corporate videos and emerging platforms such as smart phones and tablets. I'm guessing this issue of *Mix* will provide some new insights on the topic and I encourage you to attend AES, a SPARS Summit, a Recording Academy event, or explore online to learn more about the new world of possible music and sound careers providing sound for...picture.

Eric Johnson is the immediate past-president of SPARS and executive producer of Music + Sound at Trailblazer Studios (trailblazerstudios.com).

MIXBLOGS



TechTicker

Vocal Smoothing: Part 2 - In Part 1 of my vocal smoothing feature, I outlined the initial steps you can take to make a lead vocal track sound smooth, understandable and natural. Once I apply the plug-ins and get my hardware sounding great, I move on to automation to put the finishing touches on the track.

blog.mixonline.com/mixblog/category/techticker



Robair Report

Dave Hampton has worked with and designed studios for Prince, Lady Gaga, Herbie Hancock, Justin Timberlake and Babyface (among many others). He has a few things to say about studio etiquette.

blog.mixonline.com/mixblog/category/robair_report



Ask Eddie

Being Green: Recycling Audio Gear - What to do with an aging, digitally-controlled analog console? That was the question posed to the recording department at the Minneapolis Media Institute (MMI), former home of FLYTE TYME studios, where Jimmy Jam and Terry Lewis made their home for nearly 20 years.

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Cool Spin:

Aimee Mann:
Charmer (SuperEgo)



When a brilliant songwriter and singer like Aimee Mann decides to make sort of a pop record, you know it's going to be cool. This artist has a poet's way with words and a

purely beautiful melodic sense; meanwhile, she and her producer/bandmate Paul Bryan also have the deep musical knowledge and critical distance to play with musical influences like toys. So, *Charmer* is lyrically populated with suspicious characters and dysfunctional relationships, but sonically, it's as playful as it is powerful, with masterful references to sounds from '70s and '80s pop and rock records.

>>mixonline.com/cool-spins



SoundWorks Collection Update

Midi Matilda, Love & The Movies

The SoundWorks Collection recently featured San Francisco indie electro-pop band Midi Matilda and their latest music video for *Love & The Movies*, which once again lives up to the creativity and catchiness analogous to their preceding videos. Complete with dancing in the dark and performing on a flatbed through the fields of Vacaville, the video has all of the ingredients to be the hit of the summer. Recorded by Different Fur Studios engineer Patrick Brown, *Love & The Movies* is a heartbreaking-yet-addictive song that has already accumulated 10,000 views.

>>mixonline.com/post/features/video_soundworks_collection

PopMark Media Update



Stewart Adam of Creative Audio Works

It has been said that "Interns make the world go 'round.'" Whether it is picking up a lunch order or helping run a session, interns can play vital roles in helping studios run efficiently and take pressure off of studio owners. At the same time, internships help provide students with valuable educational and real world experience. Barron Recording Studios (Houston, Texas) is one studio that is taking real-world opportunities to a whole level. In addition to everyday tasks that every intern must endure, the studio offers qualified interns the chance to run and record vocal sessions with actual clients who are charged a discounted rate, creating a win-win scenario. In the upcoming installment of "Confessions of a Small Working Studio," we'll find out how this setup benefits the studio, the intern and the client—and what every studio owner should keep in mind if they plan to put this model into practice.

>>mixonline.com/studio_unknown

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DWIGHT YOAKAM

Country Rocker Delivers Fruits of His Labor With *3 Pears*

By Barbara Schultz

Dwight Yoakam has had dozens of hit records, but what's maybe more impressive is the way he's managed to cruise up the mainstream but never lose credibility as an authentic country artist. He's as likely to win a pile of Americana Music Association awards for his new album *3 Pears* (Warner Bros.) as he is to take home trophies from the CMAs, and he'd deserve them all: *3 Pears* is gritty enough for the Outlaw crowd and bright enough for radio. Musically and sonically, it's a thing of beauty.

This album marks Yoakam's major-label return, and his first album of original songs since 2005, but some of the material dates back even further. "Track one ["Take Hold of My Hand"], I had the basic chorus and opening laying around unfinished for 20 years," Yoakam says. "Kid Rock and I had threatened to do something together, and he asked me to come out to his place. I happened to find this thing, and I went, 'I haven't thought about that in years!'"

The record includes other high-profile collaborations: "Never Alright" was co-written with

Ashley Monroe (lately of Pistol Annies), and the first two tracks to be recorded for the album—"A Heart Like Mine" and "Missing Heart"—were co-produced by Beck. That pair were tracked with the help of engineers Cole Marsden Greif Neill, Cassidy Turbin and Darrell Thorp.

"After that we started some tracking with Joe Chiccatelli at EastWest," Yoakam explains, "but Joe's schedule didn't allow him to complete the album, so Joe recommended Marc DeSisto, and Marc stayed with me till the album got finished."

DeSisto (marcdesisto.com), whose credits



include stellar work for Chris Isaak, Robin Trower and U2 to name a few, took over the Pro Tools 24/96 rig at EastWest, which is where they developed one of the updated and defining sounds of the record:

"This album was maybe the first time in my career that I played electric rhythm [guitar]," Yoakam says. "We were fighting a little bit with the sound, though, and at one point, we looked up and Marc had these Coles ribbon mics for ambience in the room. Marc said, 'we could pull those,' and I remembered that in some of the *Recording the Beatles* pictures, they're using those mics."

"Dwight was playing a Casino guitar into a [hot-rodded] Vox AC30 amp or a Fender Super Reverb," DeSisto recalls. "We agreed to try the Coles on the Vox, and I put it up, right in the center of the cone, maybe about four inches away. This was one of the experiences I know I'll always remember with an artist, because he hit a chord, and instantly said, 'Oh my God, that's it. Don't touch it.' That became the guitar sound on the entire album."

Some sounds, however, you don't mess with: "Dwight's vocal chain was always a U 47 into a Telefunken V76 tube pre that Dwight owns—that shows up and it's the first thing I patch in—and I always use a Pultec and a

Fairchild on the bus because as I'm recording it, I like to ride the vocal."

Tracking happened in fits and starts over a nine-month period, so EastWest was not always available when the band was. One track was recorded at Sunset Sound, one at Paramount, and a handful were done at Henson Studios, where DeSisto was a longtime staff engineer.

"Marc knew where everything was hidden up in the old storage attic as far as old analog equipment," Yoakam says. "He'd rummage around, and we'd come back from dinner and he'd go, 'They've got a Cooper Time Cube. We gotta use this.'"

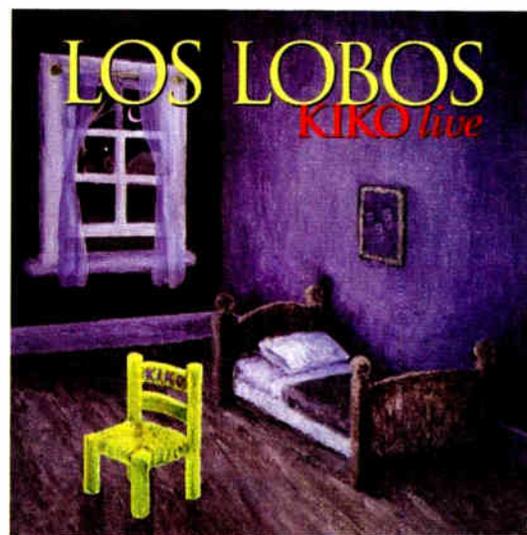
The Cooper Time Cube actually became one of the album's secret weapons. "It's basically a hose in a box, from the early '60s," DeSisto says. "It was used as a kind of pre-delay, which is not very long, but it makes a whooshing, booming sound that's like nothing else. When we did overdubs on 'Missing Heart,' we were looking for an effect, and I remembered as a kid listening to 'Bridge Over Troubled Water,' and later finding out that the engineer [Roy Halee] was hitting the plate with his hands to make that big boom. So we asked the assistant, Kevin Mills, who's also a drummer, to hit the Cooper; that boom on the record is him hitting the Cooper into a plate or chamber."

All ideas were welcome on *3 Pears*; Yoakam says this project was one of his most collaborative, with sounds and arrangements growing from give and take in the studio. "'Waterfall' is a great example," he says. "We were at Paramount, and I showed [the players] the song. We kept trying different things, and then Jonathan Clark on bass did a little choked kind of gliss—just a two-note thing like a pulse—and I said, 'That's cool, stay on it.' That became the bed of the verse."

"Then Mitch [Marine] did something that was very tribal on the drums, and I said, 'Hey, we stole a little bit from The Beatles, let's steal more. Let's put towels over the drums—go beyond dead with the drum sound. So we covered the drums. Then I stopped playing guitar and instinctively thought, I need to just sing it with those two. That led to a wonderful happy magic garden to explore. By the second verse there's an organ pad that Brian Whelan's playing—really a growl—and then on the B section, he comes in with kind of a lullaby piano answer. When it comes to arrangements, I always have some kind of plan, but you never know until the day. It helps to have musicians who are capable enough to let go of the orthodox approach." ■

LOS LOBOS REVISIT KIKO

There is Los Lobos before *Kiko*, and Los Lobos after *Kiko*. Their groundbreaking 1992 album, produced by Mitchell Froom and engineered by Tchad Blake, changed the group's sound and image forever—it announced that this band was seriously creative. In 2006, the group celebrated their most-loved album with a series of shows where they reinterpreted *Kiko* live from start to finish, the mature band bringing new depth to every song. Now, on the 20th anniversary of *Kiko*, Shout! Factory has released a superb DVD and CD



of Los Lobos performing *Kiko* at the House of Blues in San Diego, as well as a remastered version of the original album with bonus tracks.

The show was recorded to Pro Tools by John Falzarano and Jeff Mayo in the Studio on Wheels MU3 remote truck, which is equipped with a 72-input API console. Inside the House of Blues, Mark Johnson—who helped engineer Los Lobos' *The Town and the City*—and Lawrence Shapiro handled the video end from a position near front of house, directing 11 cameras. "We had mapped out every detail in advance, so we knew who was playing what and when someone was soloing, and made sure we had coverage," Johnson says. "We were really fortunate that we got such a great performance from the band."

Later, Johnson and Andy Smith mixed the project on a vintage Neve 8078 (modified for surround) at Threshold Media in L.A. "Andy is one of the most meticulous mixers I've ever met," Johnson comments, "and it was really important to us that the live album hold up to the original, which is so amazing."

—Blair Jackson

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ANTIBALAS: BIG AFROBEAT SOUND

Daptone label owner Gabe Roth is a former member of Afrobeat group Antibalas. He says that his recent work engineering, producing and releasing the group's eponymous album "brings things full-circle. I was in the trenches with those guys in the beginning, touring with them as a guitar player, working in the studio with them, producing them, and about 10 years ago we made a record at Daptone Studios (New York City), where we made this album. A lot of us have been making music together for 12 or 15 years."

Roth says the recording process for this vibrant, funky band is "heavily front-loaded," meaning a lot of effort goes into nailing down arrangements and good instrument sounds, getting live keeper tracks during tracking, and leaving little to fix in the mix. He packed the entire group into his studio, putting horns (and sometimes vocals) in an iso booth while the rest of the musicians fill up the approximately 300-square-foot studio. "Getting the sounds right with that much volume in the room definitely takes some fiddling about," Roth says. "I use baffling, and try to use as few mics as possible to keep things from getting too weird."

The engineer/producer tracked Antibalas to an 8-track Ampex 440

machine. His console is a Trident 65. "I don't use a lot of outboard gear," he says, "but I do have some Purple Audio pre's and Tube-Tech EQs that I really like: the PE1C and ME1B." Roth has a mirror-image studio setup in another studio in Riverside, Calif., where he mixed the album. "I tend to do a lot of EQ'ing when I'm recording and, hopefully, less when I'm mixing," he says. "Most of the sounds on the record are what's on the tape. If you put up the 8-track and put the faders up, the recording is not far from what's on the record."

—Barbara Schultz



Photo: Marina Abadjeff

KATHY MATTEA'S CALLING ME HOME

Kentucky-born novelist Barbara Kingsolver wrote an essay for the notes to Kathy Mattea's latest album, *Calling Me Home* (Sugar Hill). A friend and fan of Mattea's, Kingsolver describes the ways this collection of Appalachian songs illuminates the connection between mountain people and the land. With tunes by Hazel Dickens, Jean Ritchie, Laurie Lewis and others, the music is rich, emotional, with deep roots. It's a powerful follow-up to *Coal*, Mattea's previous release, which also explored issues surrounding the resource that both supports and destroys the livelihood of Appalachians.

"*Coal* was such a beautiful record, and we talked about signing her to Sugar Hill then," says Grammy-winner Gary Paczosa, who produced and engineered *Calling Me Home*. "It didn't work out for that album, but when I knew she was available for this record, I approached her about working together."

Paczosa tracked Mattea and a stellar band—including multi-instrumentalist Stuart Duncan, guitarists Bill Cooley and Bryan Sutton, bassist Byron House and percussionist Jim Brock—in Sound Emporium Studio A (Nashville). "It's a great room for getting more people together out on the floor," Paczosa says. "We wanted that natural bleed; the only things I isolated were Jim Brock and Kathy. We definitely wanted the basic tracks to have a front-porch approach."

Paczosa used a number of Neumann KM 54 mics on acoustic instruments, into Doug Sax-designed Mastering Lab mic pre's, GML compression and EQ. Upright bass and percussion were cut through Vintech X73s. Mattea sang into a Blue Bottle mic with the B6 capsule—again through the Mastering Lab and GML units—with an added touch. "Adding the Retro Sta-Level at the end of her vocal chain made a huge difference," Paczosa says. "It's beautiful-sounding on just about everything; most of the mics I'm using are pretty clear and crisp, and the Sta-Level rounds off the edges and helps put the vocal right in your lap without sounding compressed."—Barbara Schultz



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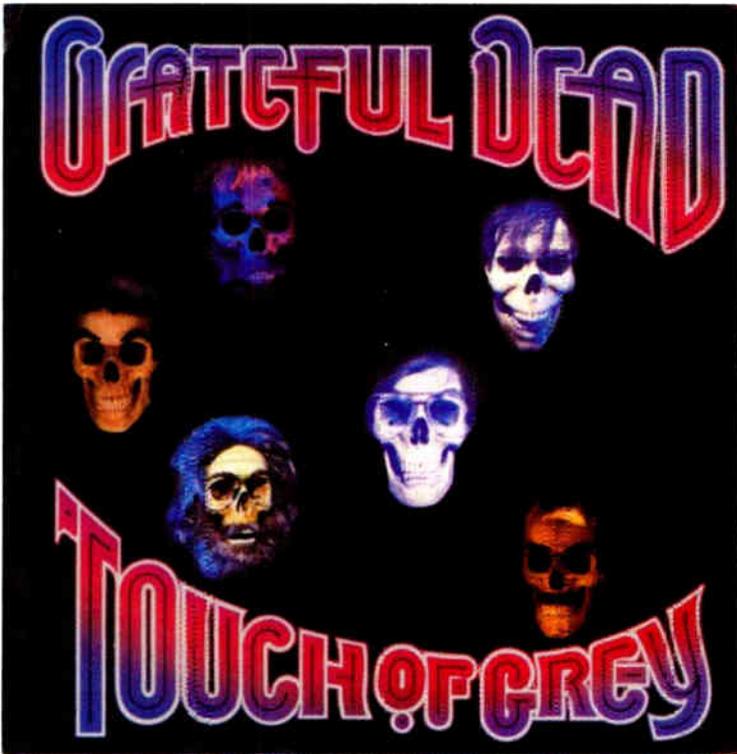
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Classic Tracks

By Blair Jackson



GRATEFUL DEAD

“Touch of Grey”

Twenty-five years ago this summer, the Grateful Dead made it into the Top 10 with the only hit single of their 30-year career: “Touch of Grey,” written by Jerry Garcia and lyricist Robert Hunter. For a band long derided by the mainstream for its loose, jamming ways and its blissed-out hippie following, this was quite a shocking (and satisfying) accomplishment. Even the video for “Touch of Grey,” featuring life-size skeleton marionettes performing the song, was an MTV sensation. WTF?

It didn’t totally come out of nowhere. The Dead had been slowly ascending in popularity for, well, their entire 22-year history. Originally known as the great acid band to come out of San Francisco’s hippie scene in the mid- to late ’60s, they had their first real brush with national fame when they tapped into their folk and country roots and produced such memorable songs in the early ’70s as “Uncle John’s Band,” “Casey Jones,” “Ripple,” “Sugar Magnolia,” “Truckin’” and “Playing in the Band.” In the music industry, styles and fashions came and went through the years, but the Dead always seemed to be charting their own course, oblivious to the “real” world. They didn’t need hits because their ever-growing and fa-

mously devoted fan base made them one of the top touring bands in the U.S. By the early ’80s, they were easily selling out large arenas and the top sheds of that era.

By 1985, however, it had been five years since they had put out a studio album, with nothing on the horizon. That spring they decided to begin work on a long-form video instead. In late April, they secretly booked the 2,000-seat Marin Veteran’s Auditorium in San Rafael, Calif.—just a few miles up the road from the Dead’s office and their funky recording studio, Le Club Front—and hired Guy Charbonneau’s Le Mobile recording truck and One Pass Video’s Mobile One to capture three days of sessions there, sans audience.

The thinking was that because the Dead traditionally had trouble capturing the energy of their live performances in a studio, they might play better if they recorded on a theater stage. They set up as they would in a venue of that size, except instead of all the players facing out at the empty seats, Garcia, rhythm guitarist Bob Weir and bassist Phil Lesh formed a half circle facing drummers Bill Kreutzmann and Mickey Hart on the back line (and keyboardist Brent Mydland off to one side), so everyone could see each other clearly. This also created interesting visual angles for the cameras. Because there was no crowd, there was no P.A., but recording engineer John Cutler—a tech wizard who had worked with the band since the early ’70s—did put up a few mics around the hall to capture the sound of the amps in the room. Onstage, the group employed its traditional stage monitoring setup, with Harry Popick mixing through a Gamble console to the band’s Meyer wedges.

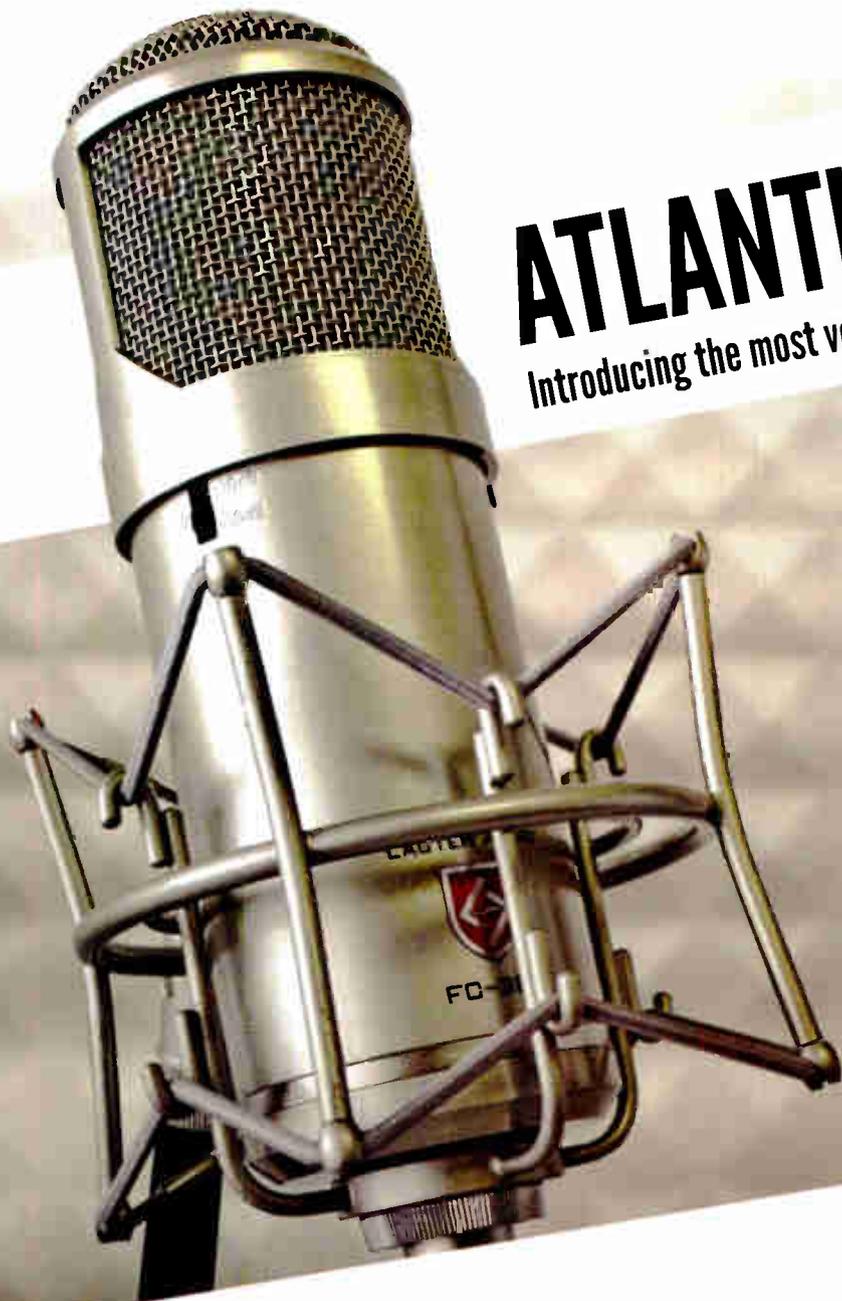
Over the course of three long days, the Dead tackled a wide range of songs, including numerous stabs at some of their unrecorded numbers. At that point, it was not clear what form the eventual video might take, and three additional days at the Marin Vets in November ’85 did nothing to clarify matters. Then, in the summer of 1986, calamity struck: Following the group’s summer tour, Garcia collapsed and went into a coma that was apparently related to an undetected diabetic condition, coupled with his notoriously unhealthy lifestyle. He teetered on the brink for several days, and once he was out of danger, his brain was scrambled and he was extremely weak. Over the next few months, he essentially had to relearn how to play the guitar, and his doctors dictated a serious health and diet regimen. By December ’86, the Dead were back in business and the revitalized Garcia looked and sounded the best he had in years.

Having cheated death, Garcia now enthusiastically poured himself into a variety of projects, including, finally, recording a new album. Though the ’85 Marin video sessions had produced only intermittently strong performances, the band liked the experience enough that in January ’87, they went back there—with Le Mobile once again in tow, but no video truck—to begin recording the album that would soon be named *In the Dark*.

“We did basics in two weeks,” Cutler, who engineered and also co-

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produced the record with Garcia, told me in 1987. “There’s no reason why they can’t be successful as a recording band, but I think it’s apropos that they do their basic tracks as if they were playing live, because that’s where their expertise lies... But it’s definitely a studio recording.”

Charbonneau noted recently, “When we came back and did the album, it was like a different Grateful Dead. They worked really hard, and Jerry was much more into it than he was earlier.”

Le Mobile was (and still is) equipped with a classic Neve 8058 console, with its coveted 1073 mic pre’s. In those days, the Dead were staunch advocates of 16-track recording, but Cutler noted that he’d heard raves about Dolby’s just-released SR noise reduction system, did an A-B test with and without it on some Mickey Hart drum tracks, and ultimately opted to record the album basics using SR in conjunction with Le Mobile’s Studer A800 24-track recorder. “The nature of the [SR] system is that crosstalk between channels is reduced, and its dynamic range increased,” Cutler said. “So I don’t have to pull two [16-track] tape machines all the time, which means you use half as much tape, which is nice economically. From a hassle point of view, you don’t have to wait to lock things up. And it is transparent.” Cutler and the Dead liked SR enough that they bought cards from Dolby for Club Front, where all the keeper vocals and most of the other overdubs for *In the Dark* were done to a Studer A80 16-track through the studio’s own 24-channel/16-bus Neve 8068, which Garcia had purchased in 1977. “We also had a smaller sidecar Neve BCM-10 tied into the stereo bus for more inputs/returns,” Cutler recalls.

Club Front was in a large tin-roofed warehouse building in a seedy part of the Canal District of San Rafael. There was no separate control room—the console and tape machines were out in the main room—so headphones were usually required to monitor recordings, and isolation came from curtains and goboes. More than just a studio, though, Club Front was the Grateful Dead’s rehearsal space, the place where equipment repairs were made and gear was stored, and also their “clubhouse” hangout.

The songs on *In the Dark* were a mixed bag of tunes that had been introduced in the early ’80s but never recorded, and a couple that Garcia wrote after he recovered from the ’86 meltdown. This month’s “Classic Track” was written initially by Robert Hunter alone in the kitchen of a 16th century house in rural England during a visit in 1980. As he noted in a 1988 interview, “I had been up all night and I was looking blearily through the window the next morning wondering, ‘How do you survive?’ And I thought, ‘You just do.’ And I sat down and wrote from the world-weary point of view I was experiencing right then. I started detailing the things that were happening to me.” Indeed, the song serves up a poetic litany of complaints—“I see you got your list out/Say your piece and get out,” “Cow



The group's 1987 promo photo (L to R): Bob Weir, Jerry Garcia, Mickey Hart, Bill Kreutzmann, Phil Lesh, Brent Mydland.

is giving kerosene/Kid can't read at 17," etc.—but then concedes “it’s all right” and, ultimately, “We will get by/We will survive.”

Hunter originally intended the song—which included other verses not in the Dead version—for a solo album he started in 1981 but never completed. However, Garcia was struck by it, and chose to rewrite the music in his own way. “Hunter sang ‘Touch of Grey’ as a sort of dry satirical piece with an intimate feel,” he said, “but I heard something else coming through it. ‘We will get by’ said something to me, so I set it to play big. My version still has the ironic bite in the lyrics, but what comes across is a more celebratory quality.”

Photo: Herb Croshaw

The Dead first played the song live in September 1982, and its bright, anemic qualities made it instantly popular among Dead Heads, who embraced its quirky couplets and its message of perseverance. The song took on extra meaning following Garcia’s near-death—now it was a triumphal celebration of his miraculous survival, too. It was no coincidence that the first song the Dead played when they returned to performing in December 1986 was “Touch of Grey.” As Garcia said, “There wasn’t a dry eye in the house.”

In the process of tightening the song for recording, the arrangement changed somewhat. Garcia slowed the tempo a bit and keyboardist Mydland introduced a catchy bell-like riff—played on a Yamaha DX7—that became a melodic touchstone in the choruses. A couple of the guitar leads on *In the Dark* were live takes from the Marin Vets tracking sessions, but the one on “Touch of Grey” was a Club Front overdub. “Jerry’s guitar amp [a Fender Twin] was usually miked with a [Sennheiser] 421 and often blended with an AKG 414,” Cutler says today. “Bobby was typically DI, but we would also use an iso’d cabinet with a mic, as well. Phil would be a combo of DI and mic.” Cutler believes that Garcia’s lead vocal on “Touch of Grey” was most likely through a Neumann U 87 with a short delay.

The overdubbing was mostly completed during February and March of ’87, with Garcia and Cutler mixing together at Club Front on the Neve through Meyer 833 loudspeakers. (Mickey Hart created some of his percussion parts at his own Marin County studio, working on 16-track slave reels, then passing them back.) Once the band went out on tour, Cutler, who stayed in California, sent mixes to the group for their comments. Later, Garcia and Cutler chopped 1:15 out of the album version of “Touch of Grey” to make it more palatable as a single: “I dislike that as a matter of principle,” Garcia said, “but when it happens, it happens.”

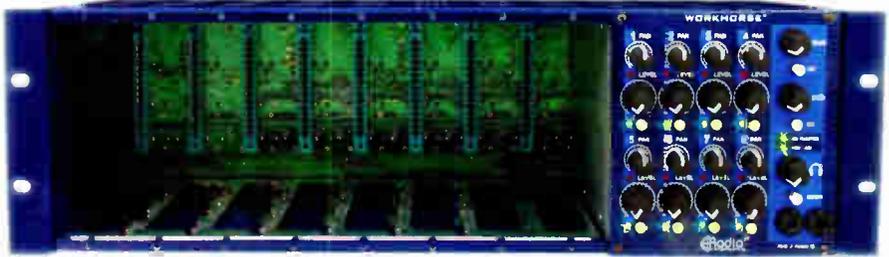
There’s no question that the media’s fascination with Garcia’s Phoenix-like rise from the ashes contributed to the success of “Touch of Grey” and *In the Dark* (which also hit the Top Ten). All of a sudden, being a long-lasting hippie band didn’t look so bad. As Garcia told me with a laugh that summer, “We’re sort of like the town whore that’s finally become respectable.” ■

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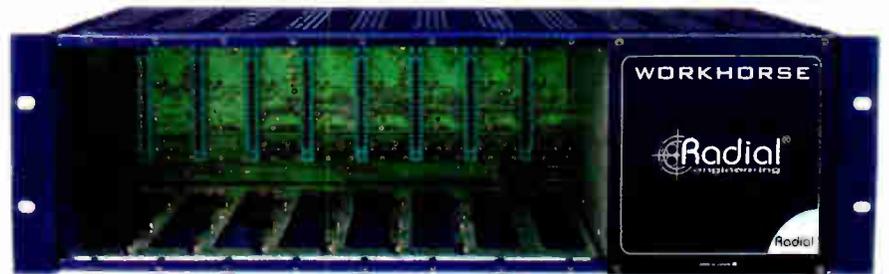
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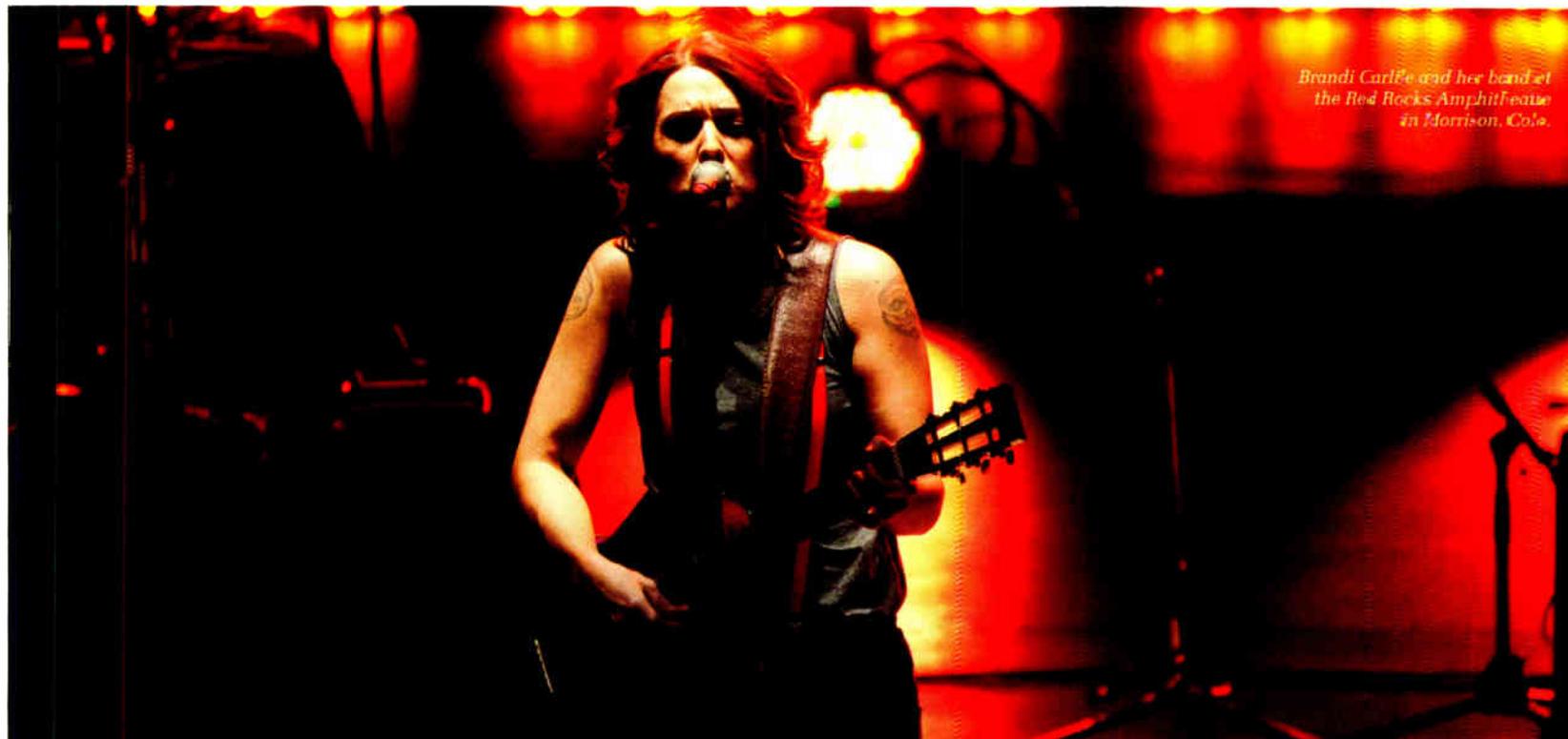
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Brandi Carlile and her band at the Red Rocks Amphitheatre in Morrison, Colo.

Photo: Candace Horgan

BRANDI CARLILE

Acoustic-Electric Fire at Red Rocks By Candace Horgan

Singer/songwriter/guitarist Brandi Carlile built a loyal fan base from actively touring over several years, drawing in new fans with her dynamic and energetic shows. Musically, Carlile shows little regard for staying in a confining box, whether she performs country-oriented material like “Keep Your Heart Young” or her straight-up cover of Queen’s “Bohemian Rhapsody.” She has recorded with the likes of Elton John and the Indigo Girls, and opened for artists like Tori Amos, the Avett Brothers and Chris Isaak. With the release in early 2012 of her fourth studio album, *Bear Creek*, Carlile has moved up to become a main attraction.

Mix caught up with Carlile’s tour at her first

headlining performance at the famed Red Rocks in Morrison, Colo.

Running sound for Carlile is Alex Gardner, who has been with her for eight years and is today the only sound engineer on Carlile’s tour. Engineering runs in Gardner’s blood, as his father worked as a tour manager and sound engineer and Gardner got an early start in the business by working summers at the sound companies where his dad worked.

Gardner’s first touring assignment was with Everclear, and when a friend who was on that tour had to decline an offer to work a short tour of Carlile’s, Gardner stepped in and has been with Carlile ever since.

Carlile still travels with a minimal setup. “I just

finally got my own console on this tour, so we are taking baby steps,” laughs Gardner. “I would love to bring our own P.A., but it’s a pretty big jump to do a full production. You have to have a semi and all that stuff, so right now, I’ll just be happy with my console and my mic package.”

For the tour, Gardner has been mixing on an Avid VENUE SC48, but at Red Rocks, which had a large production due to a simultaneous HDTV broadcast on AXS.tv, Gardner was working on an Avid VENUE Profile.

“It’s very similar to the desk that we normally tour with,” explains Gardner of the Profile. “There’s a lot going on at this show with audio and video for the TV broadcast. They are taking an entire split, as

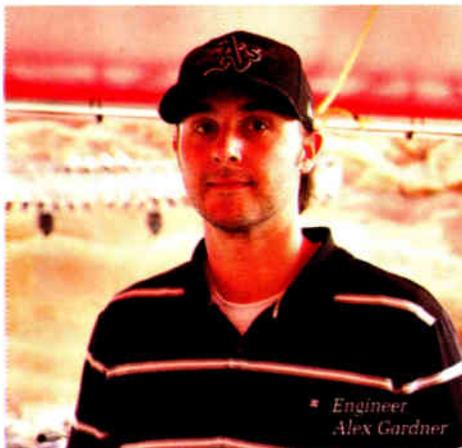


Photo: Candace Horgan

* Engineer
Alex Gardner

well as a left/right from me, and some audience mics. The one we travel with [the VENUE SC48] is very compact, which is nice because we are just traveling in a couple of trailers. It's got everything you need: comps and gates and effects and EQs are all onboard, so you don't need any outboard gear. It sounds pretty good for a digital console, and it's very user-friendly."

Before the tour, Gardner set up most of the gains and inputs for the tour on the SC48, as the mics and DIs that the band uses don't change.

"I mainly just EQ the room every day and maybe use different outputs for different zones, but it's pretty well set day-to-day," he says. "As far as comps and gates, I don't use a lot. I use some gates on drums. With compression, I use very little. I have some on the vocals and bass channels, but not much. As far as effects, not a whole lot with these guys either, just a plate that I put on the drums and sometimes on the acoustics, depending on the room. I have a basic hall reverb for the vocals, and I sometimes change the times on it from song to song, if it needs it. Then I have a bigger hall reverb and a delay that I use at times for dramatic effect, and then I have a separate reverb and delay that I use for a specific song, 'Hard Way Home,' which is new."

Gardner employs mostly Sennheiser mics and Radial active DIs. Fiddle player Jeb Bows uses an L.R. Baggs DI on his mandolin and an A.R.T. tube DI on his violin. Carlile has four DI lines for her

different guitars, and uses a switcher to go back and forth. Tim Hanseroth also sometimes plays acoustic guitar, and Phil Hanseroth at times uses an acoustic bass. Despite the preponderance of acoustic instruments, Gardner has no issues with stage volume and integrating the electric instruments with the acoustics.

For vocal mics, Carlile uses a pair of Neumann KMS 1055, one at center stage and one at the piano. The Hanseroth twins use Sennheiser e865s to sing harmonies. On the kick, Gardner uses a Sennheiser e902, while the snare top and bottom are miked with Sennheiser e905s. For the hi-hat and overheads, he uses Sennheiser e614s, the rack and floor are Sennheiser e604s, and he has an e905 on a trash can lid. The guitar amps get Sennheiser e906s, and the bass mic is a Sennheiser e602.

At Red Rocks, Dowlen Sound provided an Outline GTO line array with 12 cabinets per side, plus one downfill and nine subs per side on the ground. All amps were Powersoft; GTO monitor wedges lined the stage.

"It's the same P.A. that Bassnectar got noise complaints with in Morrison, minus a few subs, so I figure we are okay," he laughs. "I came in and tuned it, but they hung it. We boosted the tops a little bit to get the throw to the top of the venue without killing the people down low, but as far as tuning everywhere, I just ring it out with Brandi's vocal. If I can get that sounding good, I can get everything else sounding good, so that's kind of the focal point."

Often, a house engineer will handle monitors, but sometimes Gardner will handle monitor mixes himself. "Fortunately, Brandi is really easy on the monitors, so we don't need a monitor guy," comments Gardner, somewhat ruefully. "Basically, I'll just get everything set with the vocal mics and our guitar tech will run through all the instruments, and I'll catch it out front while they get basic levels set onstage."

Most of Carlile's backing band uses wedges, though Bows and cello player Josh Neumann are using in-ears. Gardner says he doesn't think Carlile will ever use in-ears, as she likes to feel connected to the audience and hear the crowd. The monitor mixes are fairly simple, according to Gardner.

"Brandi gets a little vocal and acoustic in there, but very little," Gardner explains. "I think she's been mixing in some other stuff lately, like a little cello sometimes and maybe a little fiddle, and Tim's acoustic." ■

ON TOUR: EL-P

Touring in support of his critically acclaimed album *Cancer 4 Cure*, El-P hit the road this summer with a group of notable DJs, rappers and musicians including Killer Mike, Mr. Muthaf**kin' eXquire and Despot. The tour, titled *Into the Wild* (a shout-out to Maurice Sendak's *Where the Wild Things Are*), delivered a four-hour head-nod and fist-pump fest to amped audiences, leaving a trail of thrilled—and sweaty—bodies in its wake.

Front-of-house engineer Ian McCarthy has this "traveling circus" of sorts covered on the boards. *Mix* caught up with McCarthy to find out how he handles the ins and outs (literally) of the tour.

"Because this tour is a package deal with four acts, it was important to create one unified stage layout," McCarthy says. "That way if we were running late—as hip-hop shows tend to—we could eschew changeovers completely."



Photo: Matthew Ismael Ruiz

McCarthy adapts his setup for each artist's specific needs for the performance—which is especially important when you have multiple MCs. "For this tour I carry six handheld vocal mics for the MCs, McCarthy says. "They're each wrapped in different colors of electrical tape. That way, each MC is likely to grab the correct mic. And if they don't, the venue monitor engineers will instantly know which mic they're on. Since all of the MCs have different mic handling techniques, the gain, compression and EQ vary a lot, so it's important to keep them on their own mics.

According to McCarthy, the mic preamp is also important. "I also carry a stereo ART MPA Gold mic preamp—it's affordable, reliable and features easy impedance control, which really helps focus the mic depending on physical characteristics of the room and stage," McCarthy says. "I run channel 1 for El-P's vocal and channel 2 for Killer Mike. It's run as a true insert—mic straight in then balanced out to the console's line input, bypassing the console head amp.

—Lori Kennedy

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Watch Brandi Carlile perform "Raise Hell" live at ACL in 2012. mixonline.com/september_2012

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Marty Stuart (left) and Mick Conley



FIXIT | MARTY STUART ENGINEER MICK CONLEY

Mick Conley is the engineer for Marty Stuart and His Fabulous Superlatives, both in the studio and on tour. Conley says that the band finds one box in particular to be indispensable in taking their studio sound to the stage: “One thing these guys will not play without is the PB1 Class-A power boost from Radial [Engineering]. Marty just calls it the orange box, and it’s a huge part of their sound. It’s not about the boost; it’s the impedance match between the guitar and the amp. You know how a Les Paul might sound dull plugged into a particular amp, but you plug a Tele [into the same amp] and it sounds bright? The PB1 can adjust the impedance just like a microphone in the studio. It helps us achieve the sounds we get in the studio, and it becomes a smooth transition from studio to live.

THE WOOD BROTHERS



The Wood Brothers, a jazz/folk trio, have a live album out, *Live Volume 1: Sky High*, which documents the amped-up acoustic music they make on tour, whether they’re playing their own theater, club gigs, or opening for Zac Brown Band in front of 10,000 arena concertgoers. The group’s front-of-house engineer is Kenny Raduazzo, who also mixes bassist Chris Brown’s well-known band Medeski, Martin & Wood. “The Wood Brothers sound I aim for is natural and raw,” Raduazzo says. “We use very little effects—maybe a little slapback on a bluesy tune or a hint of reverb on a ballad. I don’t use gates at all, but rely on good compression as much as I can—even some multiband compression.”

CENTRO DES BELLAS ARTES

Independent audio consultant Daryl Bornstein designed a major sound system upgrade for three out of four concert halls in Centro des Bellas Artes (CBA) in Santurce, San Juan, Puerto Rico, a 30-year-old performing arts center. Bornstein contracted Specialized Audio-Visual (SAVI) in Clifton Park, N.Y., to pre-assemble three audio systems at its shop and then ship them to CBA for installation and testing within a 30-day window. SAVI senior sound designer Michael Cusick says that Bornstein elected to use all d&b audiotechnik loudspeaker systems for the three venues—including a J-Series line array system in the 1,875-capacity Sala de Festivales, and a Q-Series system in the 775-capacity Sala de Drama—with Midas consoles for the two larger rooms. The smaller theater, Teatro Experimental, received a Yamaha console and Q-Series system; Cusick notes, “Here the deployment is somewhat unconventional, being a quad arrangement with the addition of a B4-SUB in each corner as well.”



RED ANTS PANTS FESTIVAL

For the second consecutive year, the Red Ants Pants Festival, a three-day event featuring food, arts, crafts and music, took place at the end of July with a crowd of more than 8,000 in a grassy pasture in rural White Sulphur Springs, Mo. The Festival benefits the Red Ants Pants Foundation, whose mission is to develop and expand leadership roles for women, preserve and support working family farms and ranches, and support rural communities. Performers included EmmyLou Harris and the Red Dirt Boys, Mary Chapin Carpenter and Taj Mahal. Moon Over Montana, the local sound and lighting company that handled the event, used a QSC WideLine-10 line array loudspeaker system and QSC PowerLight 2 amplifiers. “The weather in Montana is beautiful but wild—it can be sunny one minute and lightning the next,” says Moon Over Montana owner Jerry Mullen. “We are constantly consulting weather radar, making calls on when the bands start and stop, and ensuring that everyone is safe. The WideLine-10 sounds great and has worked really well. It’s an easy rig to tune.”



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KELLY CLARKSON



Kelly Clarkson sings into a Shure SM58 at the Sleep Train Amphitheater in Concord, Calif.



"This is my first tour using the DiGiCo SD7 and I really like it," says **FOH engineer Chris Michaellesi**. "The EQ is excellent. I'm not using any plug-ins, just what's in the board—along with my outboard rack gear that includes a Summit DCI-200, which I use for Kelly's vocal. I also carry a Tube-Tech CL 2A for the piano, left and right, plus a Yamaha SPX1000 for Kelly's vocal distortion effect."

"We're using Clair Global for Kelly's control and stage, and Eighth Day Sound for stacks and racks," Michaellesi explains. "The splitting of the audio between two providers had me concerned at first, but our Clair staff, system engineer Doug McKinley and monitor tech Jeff 'Little Buddy' Wuerth have made the integration seamless. Every day has gone great, so thank you to Clair Global and Eighth Day!"



The audio crew, at the Avid Profile monitor position, from left: **Doug McKinley, Clair Systems Engineer and Stage Tech; Robert Miller, Monitor Engineer; Chris Michaellesi, FOH Engineer; and Jeff Wuerth, Monitor Tech.**

"I'm mixing monitors on an Avid Profile, a standard Clair package with two stage racks," says monitor engineer Robert Miller. "I'm using a few plug-ins, a TC Electronic VSS3, and Avid Smack and Lo-fi. Plus, I'm using the gates and comps that are on the console. I don't carry any outboard rack gear unless you count the TTI RF scanner. My tech, Jeff Wuerth, really does a good job getting clean frequencies every day. We are using the new Clair Fractal antenna for the IEMs and I love it—very few dropouts and very stable."

The band is on Sennheiser EM 2050s for IEMs and Shure RU4Ds for radio mics. Clarkson sings into a regular Shure SM 58 capsule, with the background vocalists on Shure Beta 87As.

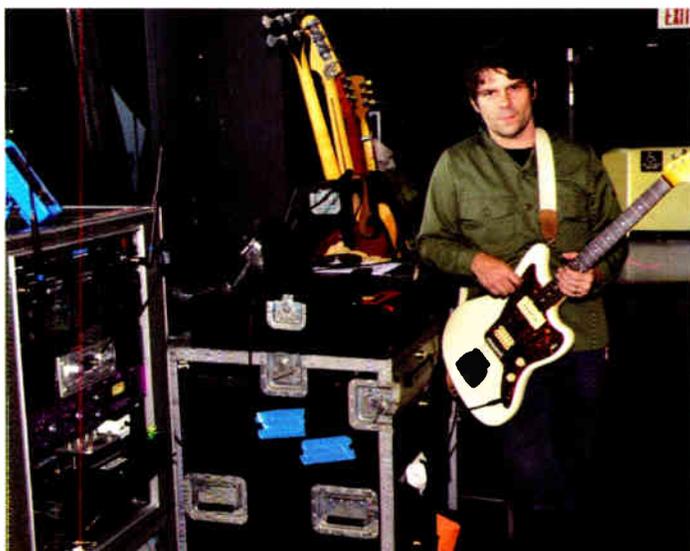
The sidefills onstage are two Clair R2s with a Clair bowtie sub per side and six Clair 12AMS on deck.



Bryan Jones is guitar tech for Chris Rodriguez and Jill Pickering. "Chris uses three amps, a Marshall JCM 800, single channel, through a Mesa Boogie 2x12 cab for a mono dirty channel, and two Category 5/Allen amps through Category 5 2x12 cabs for all stereo goodness. His acoustic guitar feeds a Fishman Aura, and his wireless is a Shure UR4D for both electric and acoustic guitars.

"Jill uses the Line 6/HD 500 for all electric and acoustic guitar processing," he continues. "Amp microphones are, for the Marshall, a Shure 313; the Cat 5 L gets a Shure SM 57, and Cat 5 R gets a Sennheiser MD421. Jill's wireless is a Shure ULX for electric and acoustic guitars."

"For the kick on drummer Miles McPherson's kit, we use a combination of a Shure Beta 91 inside and an Audix D6 outside," says drum tech **Pete Moffett**. "On snare 1, a Shure SM 57 on top, Neumann KM 184 on bottom; snare 2, just a Shure SM 57 on top. Toms are Sennheiser 904s, overheads are a pair of AKG 414s, on ride [cymbal] a Neumann KM 184 miked underneath, and for hi-hat we're using an AKG 431."

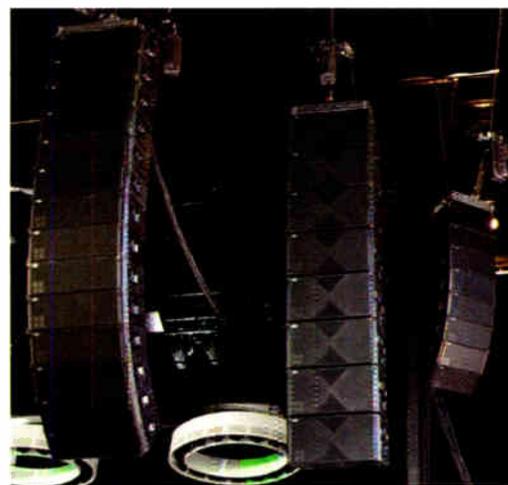


Jim Fredley is the tech for Aben Eubanks (guitar) and Einar Pedersen (bass). "Aben's amp is a Bad Cat Cub 11R—15-watt, EL-84s, 1x12-inch speaker," he says. "It's miked with a Shure SM 57 and Sennheiser MD421. Einar uses an Ampeg Micro-VR Head and 2x10-inch cabinet in a custom iso-box. The DI is an Avalon U5 Tube DI into a Purple Audio MC-77; he's also using a Shure UR4D wireless, L3 system and miked with a Sennheiser MD421.



"Jason Halbert [keyboards/music director] is using a Yamaha S90XS for a weighted controller and piano sounds, as well as a Yamaha DX7 for a semi-weighted controller," explains **Chris Dye, keys and tech director**. "Jason swears that nothing beats the feel of the DX7, that and it was his dream keyboard since it came out. Mostly the keyboards are controllers for Apple's MainStage. Inside MainStage we are running Spectrasonics Atmosphere, Native Instruments Complete 8 Ultimate, REFLEX Nexus, Arturia CS-80v and LA Scoring Strings, as well as all the built-in MainStage plug-ins. All of the B3 sounds come from a Nord Electro rack that drives a 122 Leslie miked with Shure SM 57s and a Sennheiser MD421 on the low. With all the different synth sounds on Kelly's records, MainStage was really the best choice and it allows us to route Kelly's voice through it to achieve some of the effects from the record.

"We are recording the shows using Avid Pro Tools for archival use," he continues. "It's a great way to reference the shows, make tweaks, catch problems and, for the fun of it, let the band hear their clams from the night before."



For the main hang, per side, Eighth Day Sound provided 12 d&b audiotechnik J8s and four J12s; eight d&b J-Subs; eight d&b V8s for outfill hangs; and, on the ground, six d&b B2 subs per side with eight d&b Q10s for lip fills.

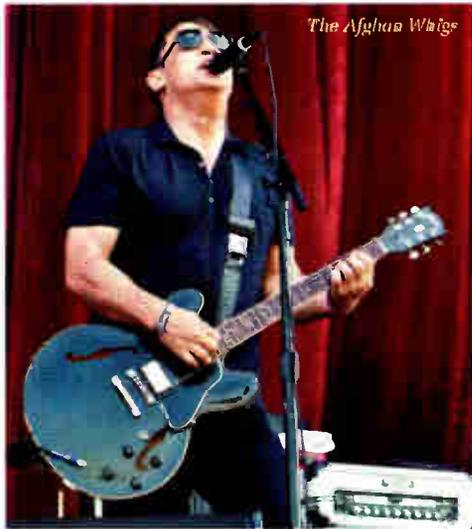


Franz Ferdinand

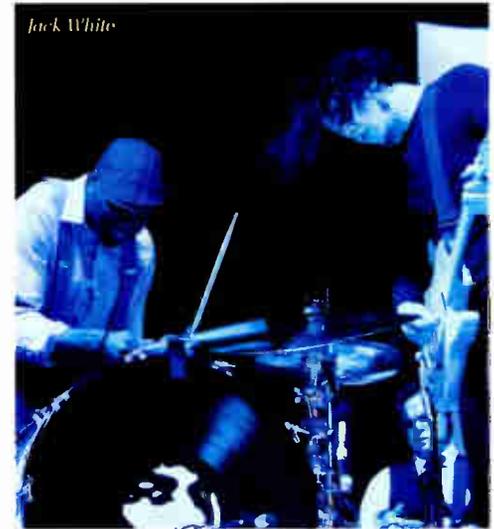
LOLLA-PALOOZA 2012

Lollapalooza 2012 took place in Chicago's Grant Park from August 3-5, 2012, during which an estimated total of 300,000 fans came to see 150 acts on eight stages. Austin-based production company C3 Presents once again presented the festival along with founder Perry Farrell. Sound system services were provided by Eighth Day Sound. "The main speakers were a mix of d&b audiotechnik J8-J12 loudspeakers, in arrays of 18, with arrays of eight-deep d&b J-SUBs per side," says Jordan Zur, audio project manager and crew chief. "Side coverage was a mix of d&b J8-J12 in arrays of eight, front fills were six of d&b's C7-TOP loudspeakers, and all speakers were powered by d&b D12s. Ground subs consisted of 36 d&b B2 subs in a cardioid arc pattern. Delays were d&b Q1 arrays of eight deep for center and d&b V12 arrays of 10 deep for the left and right. The stage monitor setup consisted of a number of d&b audiotechnik M2s C4s and B2s. Front of House featured Avid D-Show consoles and a Yamaha LS9 digital mixing console, and the monitor mix used one more Avid D-Show."

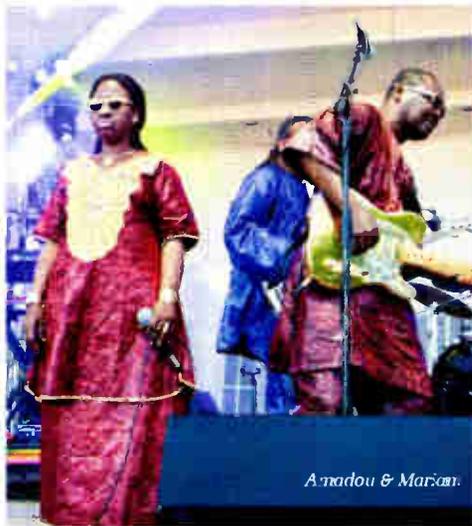
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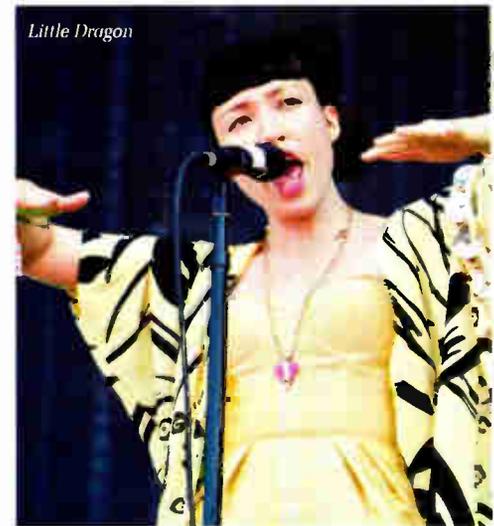
The Afghan Whigs



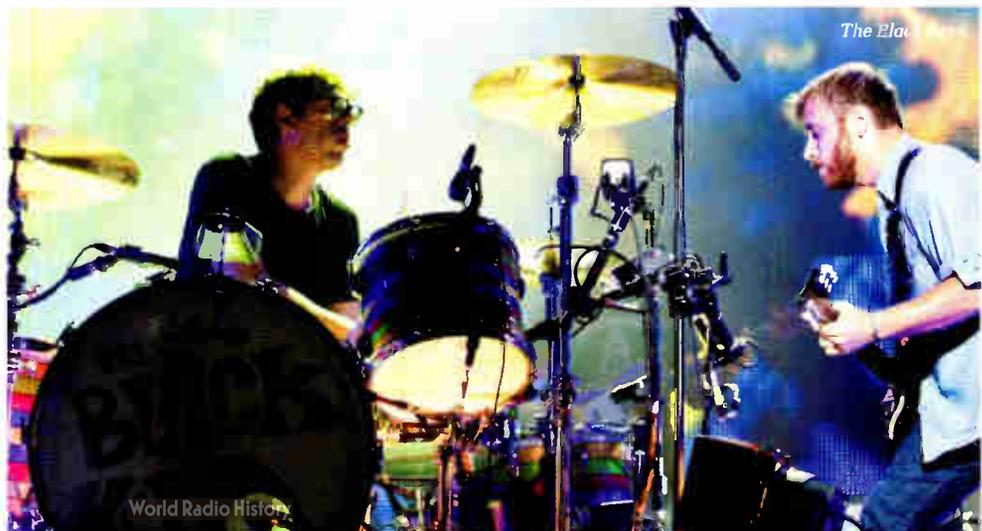
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John Keltonic conducting the strings for *Their Finest Hour* at Omega Studios.



Photo: Rick Arentz

HEROIC MUSIC FOR A HEROIC TIME

John Keltonic Scores *Their Finest Hour* for NBC

By Tom Kenny

When I had my first talks with NBC, it was clear that they wanted this to sound like a heroic, World War II score," recalls composer John Keltonic, referring to his most recent project, *Their Finest Hour*, an hour-long documentary hosted by Tom Brokaw and airing in prime time on the last Saturday of the London Olympics. "No synths, no screaming guitars. Just that rich, historic feel that we've come to associate with that time."

The time was the early days of WWII, and the

title refers to Winston Churchill's famous speech to Parliament in June 1940, rallying his countrymen for the Nazi onslaught that was surely coming. NBC, in mapping out its 2012 London Olympics coverage, wanted to pay tribute to the host country in a major way by honoring its defense of the West.

Keltonic, owner of JDK Music in Richmond, Va. (jdkmusic.com) and a composer for more than 20 years, with a CV that includes a wide range of record projects, as well as scores for BBC, PBS and Discovery Channel, received a call in late February

from Mark Levy, Creative Director for NBC Olympics. "It came out of the blue," he says, "and they turned out to be a great client. They know what they are doing, but even so, with any new client, I like to get some rough ideas early on of what they like and don't like—so I asked if they could put some temp music in the fine-cut version so that we'd have a common frame of reference to chat about. Then we started trading ideas back and forth. Sometimes that's a dangerous thing to do because a client can fall in love with the temp

Composer John Keltonic (left) and engineer Jim Curtis at the Neve VR in Omega Studios Studio A.

Photo: Rick Areniz



score, but in this case, it worked out really well.”

Writing and pre-production took place in Keltonic’s JDK Music studio in Richmond, where the composer is set up with two Macs and four PCs, the former hosting Pro Tools 10, Digital Performer 7.24 and a number of sample libraries, the latter housing GigaStudio, East West Gold and even more instrument and sound libraries. (“The libraries have gotten so much better,” Keltonic says, “even over the last five years.”) He has two modified older-model Ramsa/Panasonic DA-7s that he uses as summing mixers when tracking. He listens primarily through Genelec 1031A monitors, which he ended up bringing to the final mix sessions for an additional reference.

While Keltonic can play piano, flutes and guitar, he usually prefers to write the old-fashioned way, on paper and in Sibelius. He says that whenever he finds himself composing on a real instrument, he finds it self-limiting, meaning that he won’t often write what he himself can’t play. When *Mix* first talked to him in late-May, he was still busy with the back-and-forth approvals of his mockups by NBC, in anticipation of one packed day in June for the tracking session at Omega Studios in Rockville, Md.

“That was a pretty busy day. [Laughs.] We had the strings in from 10 to 2:30, brass from 2:30 to 4:30 and then all of the solo instruments from 4:30 to 8,” he says. “Then we took two full days to mix. There are 27 music cues and about 43 minutes of music in the score. It was a few long days there.”

The players came from the National Symphony and elsewhere, and Keltonic raved about their performance, though he says that it wasn’t too difficult for them because “the music needed to be fairly uncomplicated so as not to conflict with the narration or voice-overs.” The tracking and mixing were handled by Omega Studios chief engineer Jim Curtis, assisted by Nick Martin, at the 60-channel Neve VR in the main room, recorded to Pro Tools.

“We had it laid out pretty traditionally for the sections,” Curtis says. “We set up some close mics for enhancements, but the bulk of the material came from a Neumann USM 69 set up M-S in the middle of the section, with a pair of KM 83s up in the air behind John as he was conducting.”

Besides writing, arranging and orchestrating, Keltonic also often conducts his own music, and for this session he and Curtis implemented a three-monitor approach for the tracking. Curtis had the Pro Tools screen up in the control room, with another at the producers desk running QuickTime video, while out at the podium Keltonic looked at a monitor that ran the Pro Tools MIDI window, “for tempo changes and bar markings,” Curtis says.

“The players blended so well together in the room that it was just that much easier to mix,” Curtis says. “Sometimes I would find myself just bringing up the faders. We did end up doing some submixing within Pro Tools and bringing those up in the session, and we did bring one or two bits from the mockups in at the final—brass and percussion—for taste.”

Mixes were monitored on the Westlake T1s and Yamaha NS-10s in Omega Studio A, along with the Genelec 1031As that Keltonic brought from his own facility. Taking it one step further, Curtis says, before printing any mix, they ran it through a Studer 2-track just to hear what it would sound like out of “a little speaker.”

“We had some 4-second cues and we had some 4-minute cues,” Keltonic concludes. “We had some traditional Irish instruments and sometimes we tripled

the 24 strings. Anything that the material called for. It really was outstanding to work on this Olympic project. Even after all these years, I’m thrilled that I get to do what I love for a living.” ■



Please scan for sample cues.

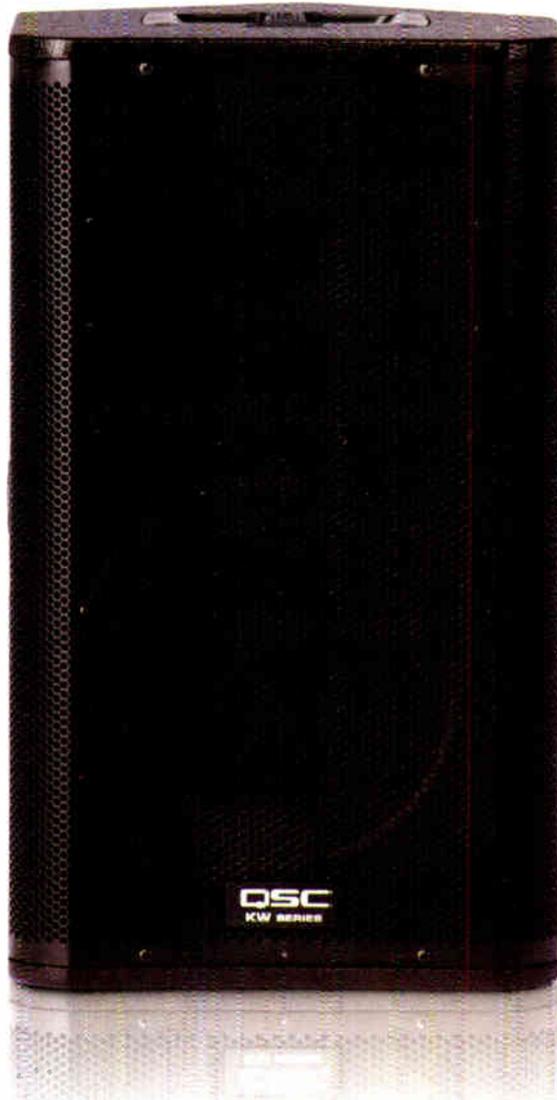
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Plane crash survivor Eckhard
Kuchenbecker, today

PLANE CRASH

AN AUDIO SURVIVOR'S RECOLLECTION

[Editor's Note: Every once in a while a story comes across our desk that has nothing to do with audio equipment or production techniques. Just a human story that happens to involve an audio engineer. This is one of those stories.]

For today's film and TV enthusiasts, the shaking, roaring noise and other cinematic "theatrics" that accompany a plane crash have traditionally kept viewers riveted to their seats. We've all thought to ourselves, "I hope that never happens to me." For Eckhard Kuchenbecker, a location sound engineer/field recordist, and owner, editor and recordist of YourSounds, the unthinkable actually happened.

On December 22, 1991, a World War II-era DC-3 airliner operated by Classic Wings took off from Frankfurt, and, shortly afterward, crashed into a wooded hill approximately 60 miles south. The plane was frequently chartered by aviation buffs for "nostalgia" flights or for documentary shootings like the charter that day, when a total of 28 people died. Miraculously, Kuchenbecker, who was aboard as part of a students' short movie film team for which he was capturing sound, survived.



A night scene—shooting before the plane lifted off

The project was almost finished on the ground. Just a small sequence in the cockpit that encompassed a short dialog between the pilot and copilot was missing, as well as some POV shots through the windows. For all the extras and guests in the fully occupied plane it was just a sightseeing flight. No filming in the cabin was planned that day.

"I placed two channels of wireless for the pilots, fixed at their intercom systems," Kuchenbecker recalls. "For standby, I also had a Lectrosonics H185/CR185 that was set for unscheduled scenes. Like the other four days, when we were filming on the ground, I decided to make the restroom cubicle my onboard workplace. Here, I assembled my Lectrosonics wireless receivers (rented from Ambient Recording GmbH of Munich), along with a Nagra 4.2 tape recorder and a Professional Sound Corporation MX-4S mixer."

The pilots—both former professional airline pilots—were distracted by bad weather and poor visibility. Because of this, they missed the point where the Rhine River near Heidelberg makes a curve and they accidentally fol-

lowed the wrong river, the Neckar, and entered the narrow valley between the mountains shortly after. Suddenly, they were in a thick fog with no visibility. In an attempt to correct the off-course plane, the pilot made a turn and, in the process, brushed the tops of some trees on the top of an unanticipated mountain peak 520 meters high—at which point, the plane crashed in the woods.

"Suddenly," said Kuchenbecker, "my equipment shot up at the ceiling as though it was caused by heavy turbulence. I tried to hold it down. This was the last glimpse before a short period of unconsciousness. There was no indication of a crash, as it happened in a split second. Suddenly, I then realized an eerie silence. As it turns out, the entire restroom cubicle was ejected."



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Upon opening the door of the still intact restroom, Kuchenbecker discovered he was no longer flying aboard the plane, but was suddenly standing in a forest. Upon gathering himself, he went to get help.

As he looks back upon this life-changing event of 20 years ago, Kuchenbecker experiences a mixture of thankfulness, sadness and wonder. "The project—known as Bunkerlow—was completed by Karin Malwitz, the sister of the cameraman, and editor Renate Merck. Kuchenbecker reports. "All scenes had been filmed and we tried to finish the film in place of the author, the director and the DoP. In terms of how grateful I feel to have survived? On a scale from one to 10, I'd say 100!"

Thanks to Eckhard Kuchenbecker for kindly sharing his story. To learn more about his company, visit your-sounds.com.



Kuchenbecker has kept the gear that traveled with him on that fateful day in 1991

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From left: Scott Avett, Bob Crawford, Seth Avett



THE AVETT BROTHERS

Creating *The Carpenter* with Rick Rubin & Ryan Hewitt

By Blair Jackson

In the decade since the Avett Brothers' first full-length album, *Country Was*, the North Carolina country/bluegrass/folk/rock group has grown steadily in popularity, more on the strength of their live performances (and live recordings) than on the success of their studio albums. The acoustic trio—Scott and Seth Avett and standup bassist Bob Crawford—started to turn a corner with the outstanding 2007 disc, *Emotionalism*, their first to include cellist Joe Kwon (on a few songs).

But it was 2009's *I and Love and You*, produced by Rick Rubin for his American Recordings label, that really changed their fortunes. All their previous albums had showcased the brothers' solid songwriting, sweet and soulful harmonies, and instrumental versatility. On *I and Love and You*, all those attributes seemed to come into sharper focus. It's a testimony to the Avetts' talent and their broad, youthful appeal that *I and Love and You* made it into the Top 20 of the *Billboard* 200 album chart, and the Top 10 on that magazine's Rock, Digital and Folk album charts (hitting Number One on the latter). Relent-

less touring and prestigious TV appearances sealed the deal.

I and Love and You was recorded over the course of about three weeks at the beautiful but now-defunct Malibu studio called The Document Room. According to engineer Ryan Hewitt, Rubin had an enormous impact on that album and the way the Avetts approached their songwriting.

"The thing Rick brings to every record he does is that he is a song guy," Hewitt says. "He doesn't play guitar, he doesn't sing, but he's the mega music fan, and everything revolves around what's best for the song. With the Avett Brothers, they're young guys and they'd always gone into a studio and made a record in three or four days, and never really considered: 'Should we change this? Is this the best verse to have here? Do we need this fifth chorus or this seventh verse?'"

"You go back to their early records, and while the songs are really fantastic, there's very little song structure to some of them, and that's part of what Rick really worked on," continues Hewitt, who previously worked with Rubin on the Red Hot Chili Peppers' *Stadium Arcadium*. "If you listen to the live record we did [2010's *Live, Vol. 3*] or how they play songs today, what they do

now has clearly been informed by Rick's method of breaking songs down and making sure that every part is necessary, that every part is complementary. They've changed a lot of arrangements of their old songs. Now, some of their fans loved the lack of song form, but from an accessibility standpoint, they've definitely improved. They're able to bring their songs across more succinctly and more memorably, I think."

The lessons they learned working with Rubin evidently stuck, too: When the Avetts started writing songs for their September release, *The Carpenter*—also produced by Rubin and engineered and mixed by Hewitt—the thought put into crafting and arrangement were evident from the start. As Rubin puts it, "The songwriting and preproduction on *I and Love and You* was arduous. On this album, the brothers owned all of the new ways of looking at song structure, and started way ahead."

Adds Hewitt: "The difference between the last record and this one in the demos was this time they had the benefit of having worked with Rick, so the songs were a lot tighter. They came to Rick a few times out in Malibu [where he has a studio] and played him the songs and he'd say, 'Wow that sounds great!' They made a few changes here and there, but they really had tightened up their songs a lot before they got to Rick and they didn't need as much rewriting and editing. They were pretty much ready to go."

This time around, for various family-related reasons, the Avetts elected to stay in North Carolina to record the album, booking time at Echo Mountain in Asheville, a wonderful studio built inside what once was a Methodist church. The main recording room has a vaulted 20-foot ceiling with great acoustics, and the control room is based around a vintage Neve 8068 console. Scheduling issues prevented the album from being recorded in a single stretch of a few weeks this time; instead, sessions for *The Carpenter* were spread over nearly a year.

"I was flying back and forth to Asheville every five or six weeks to do a session of between five and 10 days at Echo Mountain," Hewitt recalls. "In this case, the band decided they wanted to stay close to home. They didn't want to go to Malibu [where Rubin has his facility, in the former Shangri-La Studios], and Rick gave them free rein because the demos were so good. So, I'd go to Asheville, record a bunch of stuff, come home, tighten things up in whatever regard I needed to, then do some rough mixes, take them to Rick and he and I would listen together and discuss what needed to happen."

This is not an unusual way for Rubin to work. As the producer notes, "We usually are in good

enough shape preproduction-wise where we are clear what our goals are in tracking. I always try to keep as fresh a perspective all through the album-making process by never listening unless a decision needs to be made. On this album, although much of it was done remotely, I listened approximately the same amount, and was able to give clear feedback and then hear the band's updates to my comments in a timely fashion."

The currently touring version of the Avett Brothers is five musicians, incorporating the usual trio, plus cellist Kwon and drummer Jacob Edwards. That configuration did some live tracking as a group at Echo Mountain for *The Carpenter*—as on "I Never Knew You"—but Hewitt says, "It varied from song to song. Scott and Seth intentionally wanted to try different songs in different manners, so there were songs that were the whole band in

nature of the room, really. But because we were in this big ol' church, I wanted to take more advantage of that sound. I'm always recording room mics, because the song could take an unexpected turn in the production process, and they could be key ingredients."

More often, though, Hewitt employed various plug-ins and outboard pieces for reverb and delays. On the moving ballad "Winter in My Heart," for example, "I knew from the first time I heard that song it had to have a plate on it, so that's a UAD [EMT 140] plate [plug-in] on that vocal. We used that quite a bit and the [UAD EMT] 250 digital reverb. I also got into their [Lexicon] 224 plug-in a little bit. I also have some outboard analog delays and some spring reverbs in the rack I like to use a lot. There were also songs where we printed some real plate at the studio that we really liked. Another



Ryan Hewitt in his Lock, Stock Studio, Venice, Calif.

Photo: David Goggain

there rockin' out, and there was also a song that started with just Seth acoustic and then we built the band around that. The song 'Life' [which closes the album] was Scott and Seth playing and singing live in one take start to finish; the two of them facing each other with a couple of microphones."

Asked if we hear much of the spacious church room on a track like that, Hewitt notes, "In general, Rick doesn't go for roomy sounds, but I have mics there and sometimes I can cheat a bit of it into the mix. On that duet ["Life"] there's a Royer stereo ribbon mic next to the two of them. I wanted it to be a little more like you're in the room with them than the last record. The last one was very intimate and very direct sounding because of the

er thing we did when we were in Asheville is I sampled the room [into Altiverb] and used that later here and there—like if we had a percussion overdub from another studio, we were able to blend it better with the tracks from Echo Mountain."

Indeed, that came in handy on some percussion touches Lenny Castro added later at Hewitt's Venice Beach studio, Lock Stock. Other outside musicians who contributed to the album included Chili Peppers drummer Chad Smith on three songs, Heartbreakers keyboardist Benmont Tench (both captured at Rubin's studio), drummer Steve Nistor (recorded at producer/engineer Tucker Martine's Flora Studio in Portland) and a small horn section that was cut at Butch Walker's L.A.-area facility.



Scott Awtet at Echo Mountain

Photo: Mike Bayer

if everything is clean, it can sound a little boring. But when you have one or two elements in an otherwise pretty picture that are f—d up, it makes those things stand out more and it makes those elements more precious. It lets them play a cool role

gets the spotlight. So, if it's the acoustic guitar and vocal, then that's what it is and everything more or less supports that. The vocal is always king. If there's anything in the way of the vocal, it either goes away completely or gets ducked, so when you see the faders dancing on my console there's some pretty big moves sometimes, all in the spirit of keeping the vocal in the front and not necessarily having to push it over other things. It's more sculpting space out via panning and level and EQ and all the other things we have available to us to make that be the center of attention.

That lo-fi horn part, on the funky New Orleans-ish song "Down With the Shine," is one of several tunes that imaginatively blend crisp sonics with deliberately distorted elements. In the case of what Rubin calls "the Salvation Army horns," Hewitt miked the players with RCA and Royer ribbon mics, "through Neve mic pre's and then slammed them onto tape [via CLASP], distorting them in the process. Then I distorted them even more in the mix to make them even more dirty and nasty sounding.

"If everything is dirty, it doesn't sound dirty anymore, it just sounds bad," Hewitt adds. "And

and hold things together as sort of textural glue."

The album is full of those touches—unobtrusive background parts that add much to the overall richness of the album. There are subtle drone cello and organ parts that contrast nicely with crisply articulated acoustic guitars and banjo, fuzzed electric guitars that sit in reverberant fields far removed from the lead vocals, and treated piano that sounds completely different one track to the next.

"One of the main things I learned from Rick," Hewitt says, "is to decide what the dominant factor of a given song is—what's leading the song, what

"When it comes time for cello or organ or some of these other things, everybody plays a role, and sometimes the role is to not really be heard and for the listener to not necessarily know what that thing is down there in the mud—but if you take it away, there's this spirit or something missing from the mix. So it becomes this delicate balance of who comes in at what point in the song, and how loud they are and where they are—are they forward, are they reverb'd? I wind up recording a lot more than I need to and then taking it away even before it gets to Rick, because having been through this ro-

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deo once before, I now have a better idea of where things should go.”

Recording the Avetts in Asheville was relatively straightforward, Hewitt says. To cut the all-important lead vocals, he used a Shure SM7 on Seth, an Electro-Voice RE20 on Scott, “and then if there were overdubs that didn’t have to match anything, I would go with a [Neumann] U47.” In each case, the mic chain also included a Neve 1073 pre and a vintage Black Face 1176.

Bob Crawford’s bass was miked with “a 47 wherever it sounded good that day. It changed depending on the song. I took a DI but I barely used it. I also ran him through an Ampeg B-15 with a 47 FET on it, because you can add more sustain to the instrument. When I mixed it, I would try to bus the mic and the amp and maybe even some DI, if I needed more attack from the fingers, through one compressor and squeeze them all together.” For banjo, he miked the instrument about a foot away with a Coles ribbon, but also ran the banjo through a Fender Twin and miked that for more sustain or aggression in certain places.

For Kwon’s cello: “A Royer 122 and a GML mic

pre—because it’s super-clean and has tons of gain—and a Tonelux equalizer when I tracked it. I think I might have squeezed it a little bit on the way, probably with an LA-3A or LA-2A.”

The album was mixed at Hewitt’s Lock Stock studio on an Avid Pro Control surface and Tonelux summing bus, utilizing a slew of top analog outboard pieces and various plug-ins, with monitoring primarily through ProAc 100s. “Rick was totally involved in the mix,” the engineer comments. “I would work on a whole bunch of songs and maybe take six or eight of them up to Rick and we’d listen to them all in a row. You get a lot more perspective that way, rather than trying to concentrate on one song, finishing it and saying, ‘Okay, this is done.’ The other way, it’s like you’re listening to a lot of the record at the same time: ‘The drums sound way better on that one—what’s the difference?’ Then, we can address all those kind of issues in a number of ways.

“When Rick is happy, then we send it to the



band, and these guys, they’re pretty easygoing. By the time it gets to them, it does sound really great, but still they have opinions and they have input into what’s going on, and I’ll get phone calls or emails to discuss ideas for changes.”

Is it hard to keep an overall perspective when a project takes so long and has so many breaks built into it? “It is a little difficult,” Hewitt acknowledges. “We spent a lot of time mixing and redoing little things in the middle of mixing and changing songs; editing. But every time we had some time off we’d plunge back in happily with fresh ears and fresh intent and remember why it is we do this thing.”

Clearly, a strong bond has been formed over the course of the two albums the Avetts have made with Rubin and Hewitt. “They are such fine people, it’s a pleasure to know them,” Rubin says, adding, “They’re wonderful songwriters, and forms and imagery continue to go deeper and get more personal as they do. I’m always excited to hear what they come up with next.” ■

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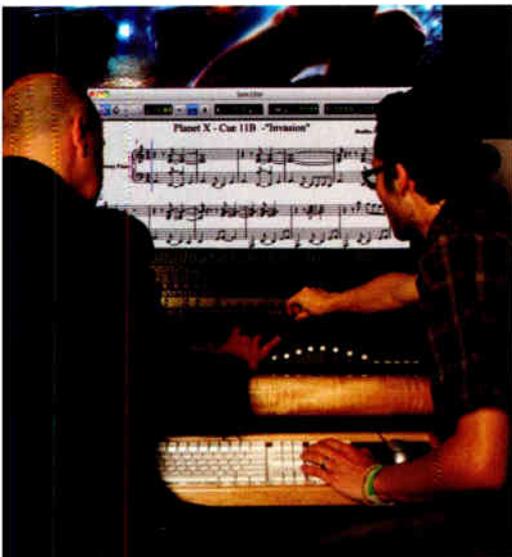


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STEVE VAI'S STUDIES IN HARMONY AND LIGHT

By Bud Scoppa

Steve Vai has married form and function in his new high-end home studio. The fittingly named Harmony Hut, which sits on the grounds of Vai's estate in the hills above the San Fernando Valley in what was originally the gardener's quarters, is a direct and vivid reflection of the guitarist/gearhead's personality and taste—manifested in his dual passions for aesthetics and technology. Dark wood paneling, Tiffany lamps and shelves filled with leather-bound books give the control room a warm, elegantly understated vibe closer in feel to a library than a recording studio.

"If I'm gonna come here every day, I want to feel good," Vai says of this self-designed environment. "You make it comfortable and it's easier to be creative. When I wanted to create a working environment, I was very set on having the freedom of expressing all the different aspects of that space. The music, obviously, is the most important thing, but I find it very enjoyable to weave the environment, the equipment—which has always fascinated me—and every other element in finding what feels good, what feels right."

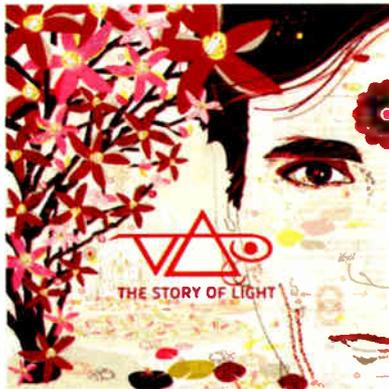
The posh decor complements a fully functional workspace whose most striking foreground feature is a custom-designed Tree Audio 32-channel console, dramatically framed by a pair of monolithic Ocean Way monitors. The board is strikingly finished in sea-foam green, inspired by an antique T-Bird Vai once spotted in a parking garage. "The color was so rich it was like candy," he recalls with characteristic enthusiasm. "I wanted to taste it."

Tree Audio's Steve Firlotte and Ian Gardiner designed the console, making full use of Vai's minutely detailed input. The 16 channels on the left are paired with a series of slots that accommodate 500 Series modules; the 16 on the right are Neve-style buckets. Firlotte and Gardiner have loaded Vai's board with clever touches, like placing the EQ knobs on the bottom row rather than across the top so that they can be reached without leaving the listening window. Putting on his Inward Connections hat, Firlotte custom-designed a 4-band EQ for Vai that he dubbed the Buster. The artist/producer and his engineer Greg Wurth also made extensive use

of Inward Connections' 500 Series Vogad and Brute compressors and Magnum mic pre during the sessions for his most recent release.

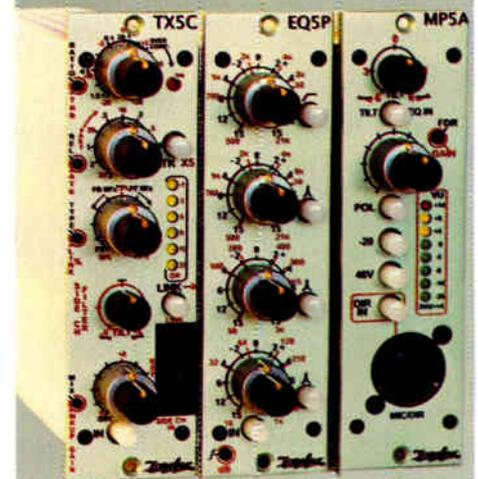
Opening the door that separates the control room from the surprisingly spacious tracking room, Vai says, "It's like the Guitar Center." [Laughs.] He's referring to the jaw-dropping guitar gallery that takes up two of the studio's walls from floor to ceiling—row upon row of axes, organized with OCD precision, behind virtually invisible Plexiglas shields. Likewise, cabinets built into one wall are crammed with every conceivable stomp box—"a guitarist's wet dream," as Vai puts it—adjacent to a well-stocked mic locker. He then points out the absence of perpendicular angles in the walls and peaked ceiling. "I did a lot of research to discover the best angles and surfaces to get the sound that's most conducive to what I like," he explains. "We used this very interesting chart that gives you the various reflective densities—wood, glass, stone, fabric—and how to blend them to get the sounds you want."

Vai broke in his new studio making *The Story of Light* (released Aug. 14 on his own Favored Nations label), his 16th solo album and the second volume of a projected trilogy, following 2005's *Real Illusions: Reflections*. Seven years may seem like a long stretch between studio albums, but Vai has spent the time fruitfully, touring extensively behind the previous album, painstakingly composing and orchestrating a pair of commissioned works for two Dutch symphony orchestras, 2007's *Sound Theories Vol. I & II* and 2011's *The Middle of Everywhere*. Between



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those ambitious undertakings, Vai assembled a band and wrote the music for the *Where the Wild Things Are* tour and live album in 2009. With those projects out of the way, he was finally able to begin gathering ideas for the middle album in the trilogy, the whole of which he'd conceptualized back in '05.

In January 2011, as Harmony Hut was in the final stages of construction and outfitting, Vai spent three months demoing material for *The Story of Light* at The Mothership, his API-equipped studio in Hollywood. He then switched over to the new facility and began recording in earnest, finishing this past April. During the year Vai spent here at Harmony Hut, technology and aesthetics collided, setting off sonic fireworks—though in an extremely deliberate manner.

"I don't record tracks; I build them," he says of his architecturally rigorous recording methodology. "I get a full picture of what I want a track to be, and that tells me how to build it. What I do for the most part is lay down a click or a drum machine as a groove, and I put a scrap guitar on it, and maybe scrap bass and keyboard as well. Then I'll bring in my drummer, Jeremy Colson, and build the track with him."



And build he did. Vai reckons there are upwards of 80 voices on "The Book of the Seven Seals," while "No More Amsterdam," which has Aimee Mann on lead vocals, "has 25 different guitars, probably—half the models on that wall." At the other extreme is "Sunshine Electric Raindrops," which has just one guitar, "but it's as big as a house," he notes.

Taking in his sonic sanctuary, Vai turns reflect-

ive. "This room could be a cardboard box, and it might make somebody perfectly happy, because they don't want to see all the books and colored lights—it's too distracting to them, and that's completely valid," he says. "They might just want to record onto ADAT. There's nothing right or wrong about it—it's all valid, it's whatever somebody wants. But this is what I want. This is what I'm comfortable with." ■

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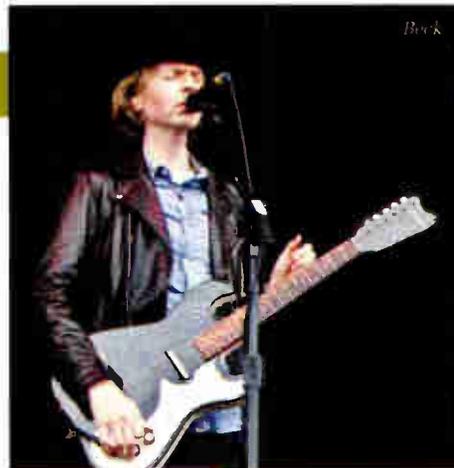
Neil Young & Crazy Horse

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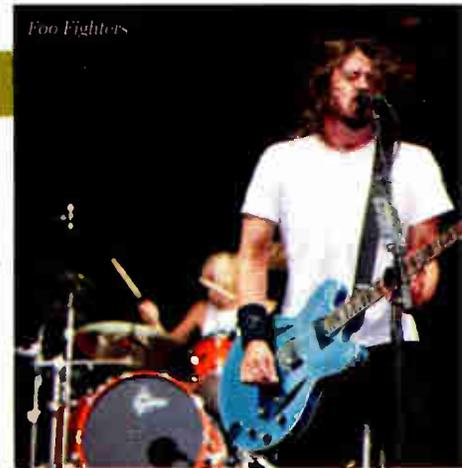
The fifth Outside Lands Music and Arts Festival, presented by Another Planet Entertainment, rocked San Francisco's Golden Gate Park from August 10-12, 2012, where more than 195,000 music fans braved the chilly summer fog to see headliners such as Stevie Wonder, Neil Young & Crazy Horse, Metallica, Foo Fighters, Beck, Sigur Ros, and many others.

Pro Media/Ultrasound once again provided sound system services, auditioning the new Meyer Leo system on the main stage. "The new Meyer LEO system did a great job in covering the Polo Fields with unparalleled fidelity and endless headroom," said Derek Featherstone, VP of tour and rental division at Pro Media/UltraSound.

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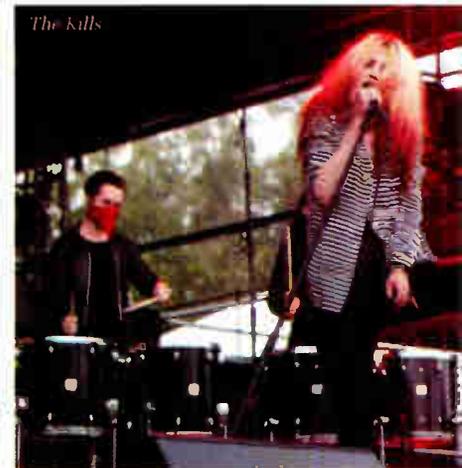
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MAC VS PC



Looking Under the Hood of Next-Generation Hosts

Every time I upgrade to the latest and greatest computer, I'm tempted to think, "That's all I'll ever need for pro audio." But my DAW's new daddy is barely out of the box before a new technology is launched and I'm forced to consider whether I need to upgrade yet again. Do I really need Thunderbolt, quad-channel memory or (fill in the blank)?

That depends. Someone who tracks only acoustic and electric instruments needs a lot less muscle than a film composer or high-definition video editor. It makes no sense to buy more computer than you'll need. On the other hand, as music-production studios branch out into adjunct fields of operation to broaden their revenue streams, it might be professional suicide to assume an outdated or bush-league computer is going to be up to executing new tasks.

In this article, we'll examine what practical advantages new technologies for Macs and PCs are bringing to pro audio. We'll scrutinize the guts of off-the-shelf computers offered by big-box manufacturers like Apple and Dell. We'll also look at how boutique, turbo-charged PCs made by Rain Computers—rigs purpose-built for content creation—are meeting the needs of pros who require extraordinarily high bandwidth and stability. But first, we'll take a whirlwind tour of the new Mac OS X 10.8 (code-name Mountain Lion) and Windows 8.

MINOR LEAP FORWARD

Judging from information available at press time, there are no earth-shattering new developments related to pro audio in Mountain Lion or Windows 8. Most of the new features seem geared toward providing a more streamlined and user-friendly experience. For example, Windows 8 includes several new taskbar options to improve multi-monitor support. In Mountain Lion, you can back up your project files in Time Machine to multiple locations. And if you want to share with your fans an excerpt of your band's last gig that you shot with your camcorder, QuickTime X will let you trim the AVCHD-formatted video.

Which platform, Mac or PC, is superior? Some would argue the Mac OS still presents a slightly more user-friendly look and feel to the complete novice, but Windows 8 has made the differences practically non-existent. If you're fairly knowledgeable about and experienced with computers, both platforms offer equal power. They use essentially the same hardware components. The only clear differentiators are that Macs are virtually immune to viruses and Apple, according to the August 2012 issue of *Consumer Reports*, offers significantly better tech support compared to the big-box PC vendors, though Rain and other boutiques are known for their high-quality response and service. "It's really a very level playing field," says Tim Dolbear, North America Product Specialist at Magix. "People need to stop worrying so much about [the differences] and just make music. I think the Mac/PC debate is over at this point."

A more salient consideration might be whether or not your DAW sup-

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ports the 64-bit memory addressing that modern operating systems offer. If not, you may have trouble loading virtual instruments that use large sample libraries.

ACCESS DENIED

The theoretical limit for DRAM access with 32-bit operating systems is 4 GB, although in practical terms it's closer to 3 GB. (DRAM is dynamic random-access memory; it constitutes the main memory modules in your computer and is often referred to simply as RAM.) A virtual instrument comprising huge multi-samples and alternate samples can easily exceed the 4GB limit and refuse to load. That said, most computers offer up to four RAM slots that can each accommodate 8 GB of RAM, for a total of 32 GB, still plenty for most music applications. The newer 64-bit operating systems offer a theoretical limit of 128 terabytes of memory—essentially limitless.

If you're not using large sample libraries or doing video work that uses a lot of RAM, you don't necessarily need 64-bit memory addressing. "You're not gaining anything except [the ability to use more] RAM," says Dolbear. "It's not going to do anything sonically for you. You'll never notice any difference." [Editor's Note: There are some in the online forums and communities who tend to argue this point.]

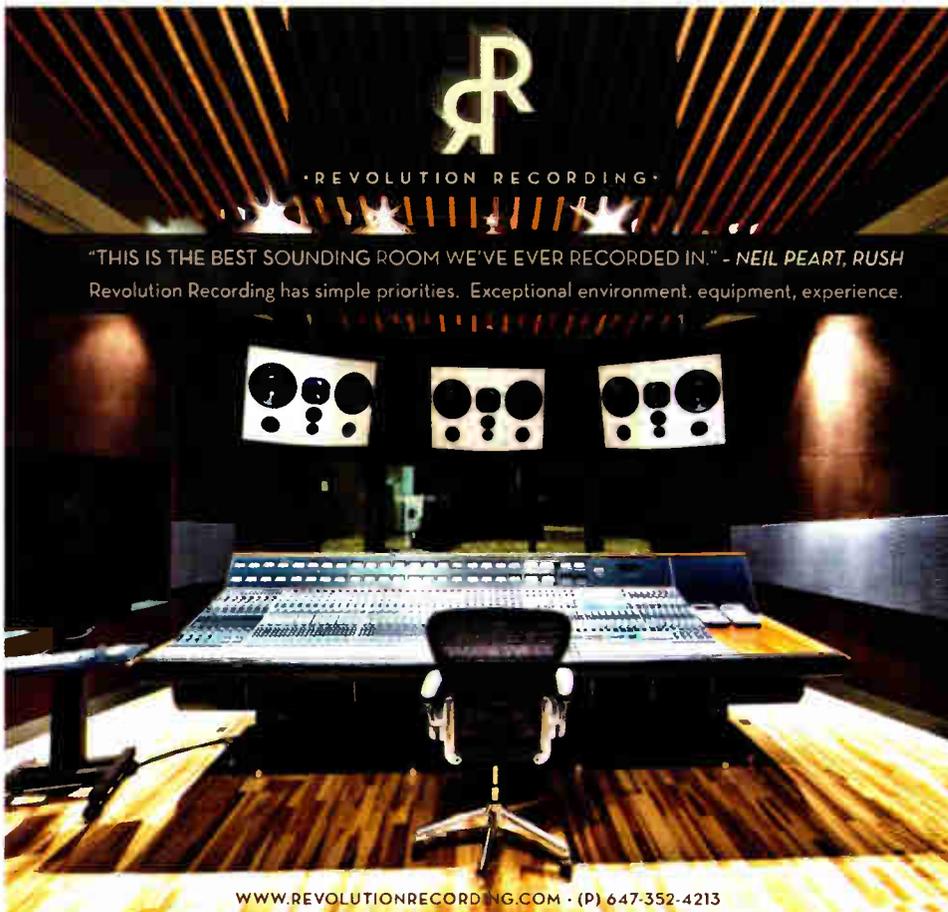
In fact, using 64-bit plug-ins makes your computer work harder, which can generate more heat and make its fan kick on more often. For that reason, and to accommodate users who have plug-ins that don't yet support 64-bit operation, 64-bit DAWs like MOTU's new Digital Per-



former (DP) 8 offer an alternative 32-bit mode.

High-def video editing also requires a lot of RAM and hence 64-bit memory addressing. But for simple audio post-production applications, 32-bit mode works fine. For example, 64-bit mode won't make any difference in opening and playing a video in DP's Movie Window, as that window just streams the content off your hard drive.

To increase the speed of data transfer between the RAM and the computer's memory controller (which manages the flow of data between the motherboard or microprocessor and the memory modules), modern computers also employ multichannel memory. In theory, the specified data-transfer rate becomes multiplied by the number of channels a multichannel memory configuration affords. Most computers, whether employing a 32- or 64-bit OS, use dual-channel memory. The Intel i7-9x series and Xeon chipsets (used in Apple's aging Mac Pro) support triple-channel memory. Rain Computer's Element V2 high-end video-editing workstation uses cutting-edge quadruple-channel memory and 12 RAM slots, allowing it to access a whopping 96 GB of RAM. For the film composer working with huge orchestral sample libraries, having this much RAM available means not having to constantly load, unload and reload small groups of instruments as arrangements are tweaked. Multiple articulations can be kept at your fingertips at all times. To attain the full speed boost multichannel memory promises, you must install your RAM chips in groups of three (for triple-channel memory) or four (quad-channel memory), and they must all be rated identically in capacity and speed.





NEED FOR SPEED

Until recently, the inherent speed of CPUs—microprocessors that, along with other components, determine how fast a computer executes tasks—had historically increased over time. But CPUs operating faster than 3 GHz generate so much heat that we've hit a speed ceiling. To continue improving performance, manufacturers have taken another tack: putting more than one microprocessor core on each chip.

Using multicore processors physically places the cores closer together than they would be on separate processors, thereby increasing the speed at which electrical impulses—and data—travel between them. More important, all multicore processors employ multi-threading, a process in which individual tasks are sent simultaneously to multiple cores. The upshot is that a quad-core computer can perform four tasks at once instead of just one.

In addition to multi-threading, high-end processors—regardless of their core count—might employ hyper-threading, a process advanced by Intel, that dynamically creates an additional “virtual” core for each physical core by utilizing any unused power in each processor. For example, Rain's Element V2 uses two high-end 8-core processors and hyper-threading to run 32 cores (16 physical and 16 virtual) at once. It's important to note that each DAW uses your computer's CPU and implements multicore support differently, and not all can use multi-threading or hyper-threading.

The size of a CPU's Level 3 cache (its built-in memory) also affects how efficiently it processes data. Due to

the cache's close physical proximity to the processor core, data stored in it can be accessed by the processor faster than data stored in the computer's main memory modules.

Of course, it hardly matters how fast your computer is if your hard drives can't keep up with it. Apple still uses SATA revision 2 (second-generation Serial ATA) hard drives, which stream at a theoretical 3 Gbit/s rate. Rain computers use SATA revision 3 drives (either mechanical or solid-state), resulting in double the theoretical data-transfer rate (6 Gbit/s). As a further boost to performance, Rain also uses up to 1600MHz memory, faster than the 1066MHz and 1333MHz RAM Apple uses.

Despite the speed boost SATA 3 affords, mechanical (platter-type) hard drives face eventual obsolescence. Blazing-fast solid-state drives (SSDs), which do not require

caches, are becoming more popular as their prices drop. Much faster than

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mechanical hard drives, SSDs also run cooler, produce no noise and are thought to be more reliable for touring because they have no moving parts that can fail due to physical shock.

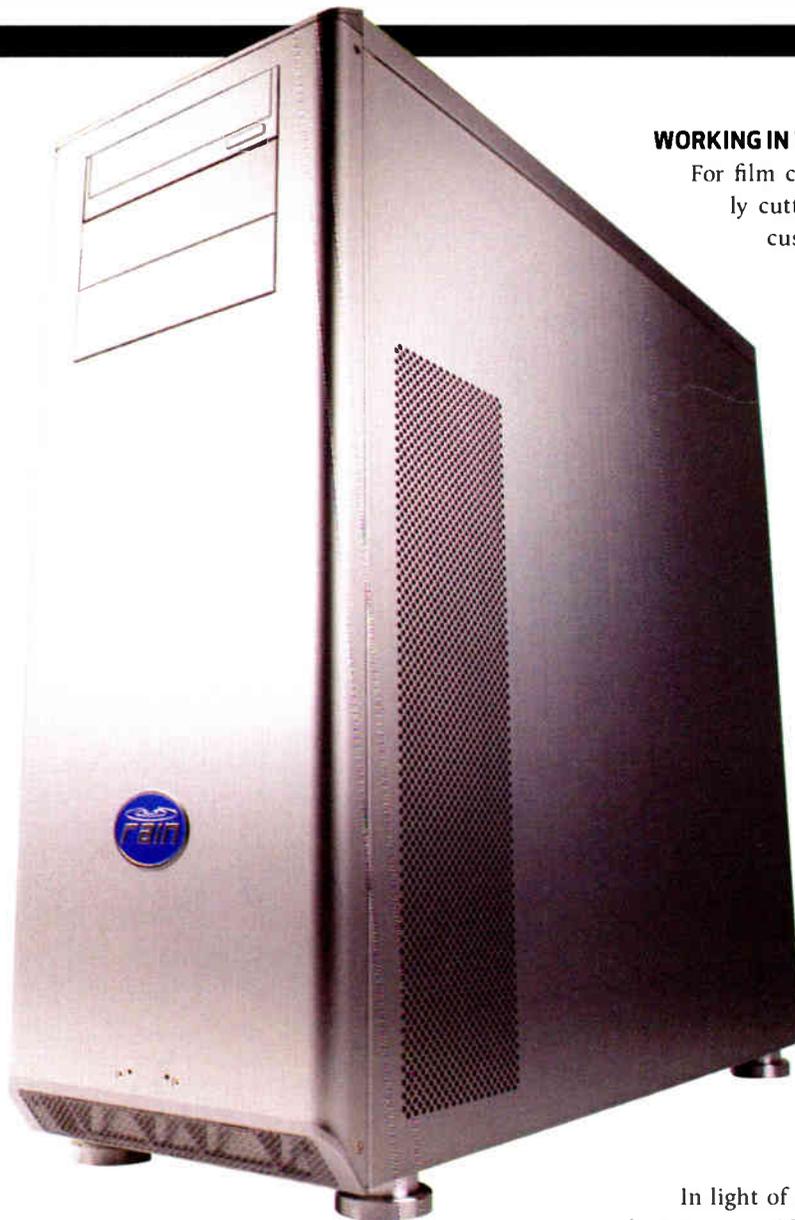
Because they currently offer much less storage capacity and cost far more per GB than mechanical drives, most people are currently using SSDs for their operating systems (which don't require a ton of storage capacity)—an SSD will boot up a computer in just a few seconds. But if you need broad and lightning-fast access to large sample libraries and are willing to pay a premium price for that convenience and performance, SSDs are the best storage option.

No matter the type of drive, the size of its buffer also affects streaming performance. Rain uses 64MB buffers on their hard drives to prevent glitches and dropouts, whereas Apple still uses 32MB ones. Rain finds that a drive that delivers 7200-rpm spindle speed, combined with SATA 3 and a 64MB cache, offers better performance than using a 10,000-rpm drive, which incurs heat and noise issues.

LIGHTNING STRIKES

The speed of the bus that connects your hard drives to your computer also impacts performance. The aptly named Thunderbolt interface offers a theoretical 20 Gbit/s data transfer rate—25 times faster than FireWire 800. Thunderbolt is a serial data interface that combines PCI Express and the Mini DisplayPort digital audio-visual interface to connect peripheral devices such as hard drives and monitors to a computer via an expansion bus. Thunderbolt can use hubs or daisychain up to seven devices to run audio, video and data on one cable.

Do you need Thunderbolt? That depends on whether or not your studio does video production. "Video has hefty bandwidth requirements," notes Jim Cooper, MOTU Director of Marketing, "but for pro audio, Thunderbolt [offers] ten times more I/O bandwidth than we'll ever need—[more than sufficient] for 100 channels of 192k." USB 3, which at up to 5 Gbit/s transmission speed is ten times faster than USB 2 (480 Mbit/s) and a little over six times faster than FireWire 800, offers more than enough bandwidth for the typical music-production studio.



WORKING IN THE STRATOSPHERE

For film composers who demand absolutely cutting-edge performance, Rain has custom-configured a couple large-capacity (up to 480 GB) SSDs in a RAID 0 configuration to have it function like RAM. (RAID—Redundant Array of Independent Disks—is a collection of drives configured to write half the data it receives to one drive and the other half to a second drive.) RAID 0 doubles the throughput at the cost of halving the drives' combined capacity. In combination with SATA 3, this setup allows a humongous sample library to be loaded into memory and accessed with a theoretical 12 Gbit/s throughput (not including other overhead). Only the most high-end, demanding applications (including broadcast-quality video editing and animation) require RAID 0; for most work, a fast mechanical hard drive will more than suffice.

THE END OF TOWERS?

In light of Apple's much higher profitability on the consumer side (with its iPad, iPhone and iPod), the Mac community has become increasingly worried about whether the company intends to sustain its commitment to serving the niche market of pro audio. The worry is possibly groundless but magnified by the fact that Apple has yet to upgrade their flagship desktop computer, the Mac Pro, to incorporate the latest technologies. The Mac Pro still uses a chipset that was released way back in Q1, 2010, practically prehistory in the computing world.

In the meantime, laptops are quickly replacing towers. "We're getting performance out of smaller computers that only the big towers used to provide," Jim Cooper observes. "An i7 Mac Book Pro is just as fast if not faster than an 8-core Mac Pro tower from just a couple years ago."

Smaller and faster is good, though the engineer still needs to take into account other considerations, such as availability of expansion slots and heat generation. No matter what your needs, there's a svelte racehorse ready to help you meet your creative goals. ■

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

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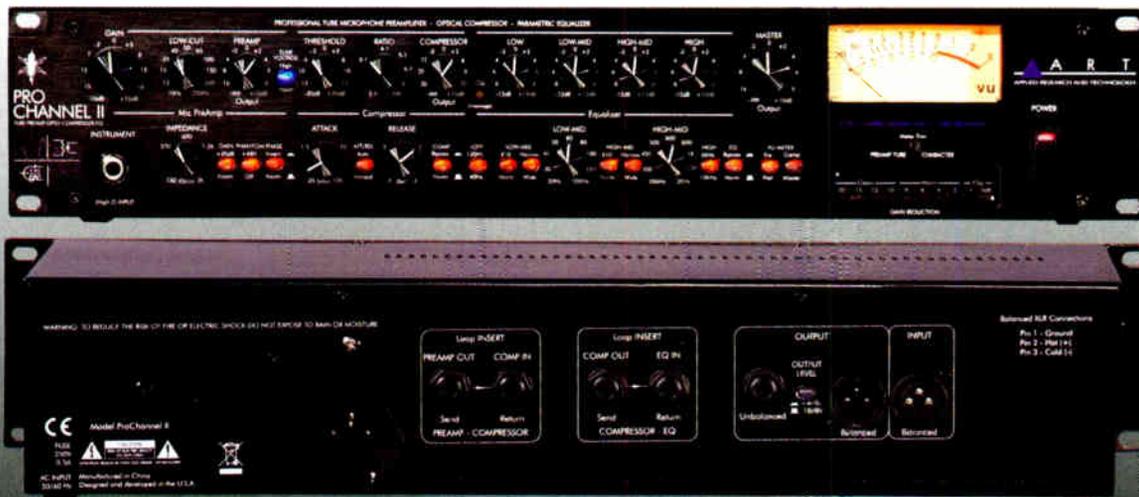
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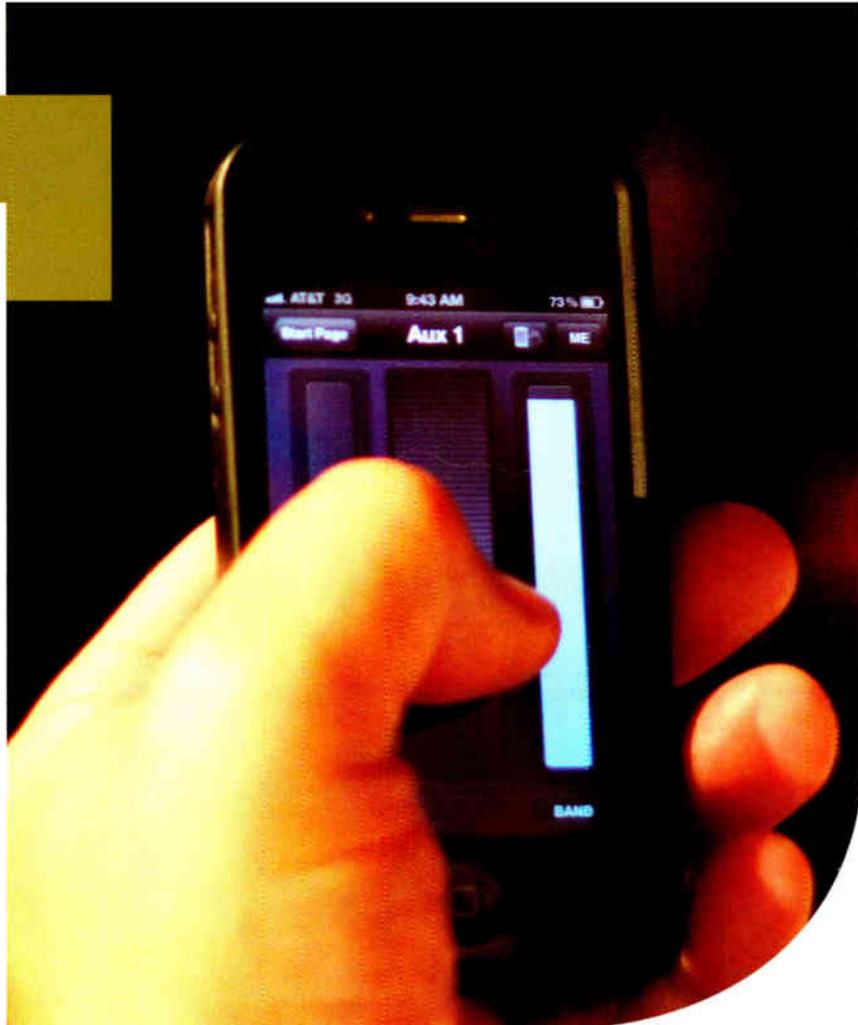
PORTABLE SOUND SYSTEMS IN THE AGE OF THE iOS

Or, How Wi-Fi Killed the Audio Snake

By Derrick Jeror

I work in live sound, and I'm done with audio snakes. No, I don't mean I've switched from copper to Cat 5. I mean that I'm done, totally, forever. And my mixer? I have one, but you won't see it. It's behind the stage. And my iPad? No, I'm not playing *Angry Birds*, I'm mixing the band from the best seat in the house, right next to my wife and kids. I don't even think about monitors anymore, the band takes care of them on their own. And because there's no snake, stage racks or separate monitor system, everything takes less than 20 minutes to set up. Just put the mixer near the stage, connect the band and powered speakers, and go. Even crazier, an entire system for a 600-seat venue can fit in a Honda Civic. Oh, did I mention I'm doing all of this with a \$1,999 mixer and some free apps? Welcome to the future of portable sound.

Because of my line of work at Housetop Media—a bit of installs, retailing, mixing, audio consulting, with an emphasis on portable churches—I'm obsessed with setup and tear-down efficiency. I'm also obsessed with cutting-edge technology.



About three years ago, my never-ending search led me to the PreSonus StudioLive line of digital mixers. They were cost-effective, compact and powerful, but I wouldn't say revolutionary. When I got my first StudioLive it only came with Capture (a multitrack recording program) and StudioOne (PreSonus' DAW). The revolutionary stuff came with the software releases and firmware updates that followed.

First came VSL (Virtual StudioLive), a computer program that provides a control interface and a backup for your preset library. Next came SL Remote, an iPad app that lets you mix over Wi-Fi. Most recently the company released an app called QMix. It's a personal monitor-mixing app that works on iPhone and iPod Touch. These apps and computer programs have totally transformed how I design portable sound systems and how they operate.

FOH, WHEREVER YOU SIT

Have you ever arrived at a venue to find the FOH location is either up in a balcony or back in some "sound room" with a hole in the wall? With the mixer onstage and SL Remote on my iPad, I can pick from any spot in the room to mix. The only time I am physically at the mixer is to set the analog gain knobs and load channel presets when the band first arrives. After that, it's all iPad. I know mixing on a touchscreen instead of knobs and faders may seem like heresy to seasoned road dogs. But after giving it a chance, I have to let you in on my dirty little secret...I actually like it better than mixing on the console.

With the large display I can quickly scan and see EQ, gate, compressor, panning, routing, mutes and fader settings for every channel from a single overview screen. I can directly manipulate parametric EQ curves by touching and pinching. My iPad finally feels like the "magical" device Steve Jobs told me it would be. On top of the features already mentioned, you also have control of eight assignable 31-band graphic EQs



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(if you are working on StudioLive 24.4.2), aux channel control, effects including tap tempo, scene loading, channel naming and talkback mic control—with a wireless mic you can talk to specific members of the band from anywhere in the room. And because the controls are so visual, I find it's a great teaching tool for new sound engineers. Suddenly compressor thresholds and ratios make sense to a kid once they see and hear the changes at the same time.

Because Wi-Fi can be flaky depending on where you are, I always bring an Airport Express for my private network, giving me an additional stereo audio output that I connect to the StudioLive. Using AirPlay, I can play audio wirelessly from my iPad through the system from anywhere in the room. I use it to play music before and after church services and events. Also, using a remote desktop app on the iPad, I can control the computer that's connected to the mixer. That lets me remotely start and stop recordings in Capture or play back audio files from the computer.

MONITOR MIXING? THERE'S AN APP FOR THAT

Most churches I work with don't have the financial or volunteer resources to have separate FOH and monitor consoles. So the part-time, volunteer FOH guy is expected to mix multiple monitors, a separate recording mix and the main mix, and everyone expects it to sound as good as a U2 concert. Let's top that off with the fact there may be only an hour to set up, soundcheck and run through the song set before service starts. And people wonder why sound guys tend to be grumpy and mumble to themselves a lot?

For those reasons I've been a big proponent of personal monitor-mixing systems like those from Aviom. The band can quickly get the mix they want and it lets the FOH guy focus on the house sound. The biggest drawbacks to these types of systems are extra setup time, stage clutter, inability for the FOH guy to remotely help someone with their mix, and, for most smaller churches, the cost can be prohibitive. A six-seat Aviom system can cost upward of \$6,000, and that doesn't include the cost of in-ear monitors. I'm not bashing Aviom or similar systems; they have their place and they work great, if you have the budget. I often don't.

With QMix each band member controls his or her own aux channel or stereo aux pair. If you already have monitors and either an iPhone, iPad or iPod Touch, it doesn't cost a dime. Bands can even share a single iPad and pass it around during practice. But if everyone has their own device, you can assign each device to that person's monitor mix so they can't accidentally mess with someone else's mix. Because I leave the mixer right up by the stage, I can use a single PreSonus HP60 headphone amp to create a six-person in-ear monitor system for less than \$300. To add mobility, I use Elite Core's wired IEM belt-packs that cost around \$20 and let you move around stage without cables tugging at your ears. Unless a musician absolutely has to go wireless, I always prefer wired due to better sound quality, reliability and much lower price. There are also other benefits to QMix.

First, you have direct control of every input on the mixer, with independent control of effect levels in your monitor mix; most systems limit



The author, with iPad.

you to 16 channels. Second, you can assign each band member to either have complete control of their monitor mix or just give the 80-year-old pianist the "Wheel of Me" that lets her simply turn herself up or down. Likewise, you can group channels, so, for example, once a drummer gets the eight-mic kit balanced, they can turn the entire kit up or down but still have access to make individual channel tweaks when needed. Third, you can name all the channels on the computer, and channel names show up on everyone's devices. No more writing on masking tape! And finally, as mentioned but worth repeating: Less stage clutter and quicker setup and teardown.

There are some disadvantages, too, if you're used to working on a more traditional system. For starters, the number of individual monitor mixes is limited by the number of aux channels, which ranges from four on the 16.0.2 up to 10 on the 24.4.2. Also, some people just prefer physical knobs. And finally, again worth repeating, flaky Wi-Fi can be an issue, so bring a router and set up your own private network.

ROAD DOG, NEW TRICKS

I completely understand that this type of setup is a massive paradigm shift and isn't for everybody. But if you're a small- to medium-size church or band on a limited budget and are willing to try something different, I don't think you can find a better solution for the money. Every church I design this type of system for is always nervous about the idea of not having a snake and not putting the mixer in the back of the room. And every one of them comes back to thank me for pushing them to think differently. You'll save money, get more functionality and, if you're portable, drastically reduce setup and tear-down time.

This year PreSonus is going to see new competition from Mackie, Line 6, Behringer and others, no doubt. But the company isn't sitting still, releasing new features like integrated SMAART analysis. In today's world, software is just as important as hardware, so the developments will be interesting to watch. One thing is certain, though, portable sound has changed forever. And this is just the beginning... ■

Derrick Jeror is the founder of House-top Media in Corning, N.Y. (housetopmedia.com), where he specializes in system design for houses of worship.

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GEARFEST

SWEETWATER'S GROWING SUMMER SHOWCASE

It just keeps getting bigger and better. What started as almost a grass-roots effort in 2002, on the Sweetwater campus in Fort Wayne, Indiana, has grown to become one of the premier music and recording events in the country. Sweetwater's GearFest 2012 broke all previous attendance and sales records, with more than 6,000 participants descending on the retailer's headquarters June 22-23 to view products and attend demo/tutorials from more than 200 manufacturers.

Sweetwater, the nation's third largest music and pro audio retailer, was founded 33 years ago by Chuck Surack and from Day One staked its reputation on personalized customer service and support. While orders have always been taken by phone, and sales associates access one of the most sophisticated customer databases in the industry, the company places equal importance on supplying educational and tutorial information. With more than 80 concurrent workshops, demos, seminars, tutorials and live performances, GearFest extends the mission and allows employees to meet customers face to face.



Musician and producer Thomas Dolby presented the keynote address to a capacity audience in Sweetwater's Performance Theatre.



Mitch Gallagher, Sweetwater Editorial Director, presenting "Tones of the Pros": How to get the guitar tones of the stars.

Fender clinician/guitar virtuoso Greg Koch on left, unidentified on right



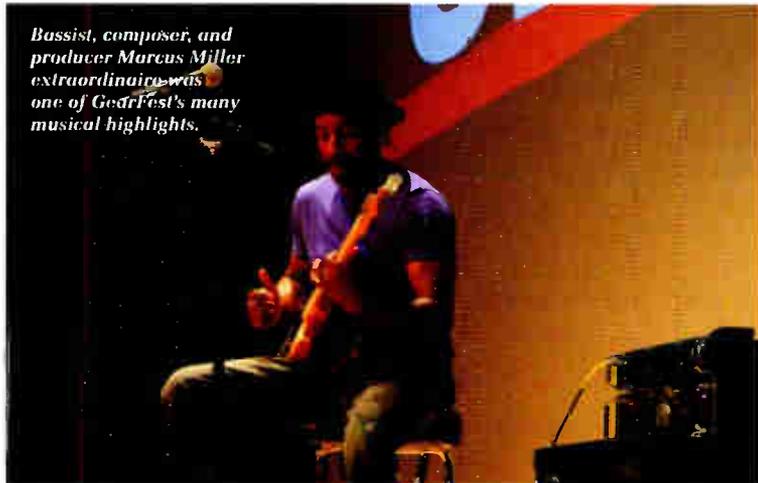
Attendees exploring the many gear tents.



Musicians and engineers from around the globe flocked to GearFest '12.



Bassist, composer, and producer Marcus Miller extraordinary was one of GearFest's many musical highlights.



"It's both humbling and gratifying to see how GearFest has grown over the years," said Mitch Gallagher, Sweetwater's Editorial Director. "Our friends and customers come from all over the world to our campus here in Fort Wayne to share two incredible days of music and complete gear immersion. From guitars to drums, mics to keyboards, DAWs to P.A.s, every category of gear is represented. Attendees get their hands on the equipment and get to interact one on one with manufacturers and gear designers. When you combine that with the educational opportunities in the seminars and workshops, the chance to mingle and network with peers from around the globe, you get a weekend event like no other!"

Highlights from GearFest 2012 included a keynote speech by Thomas Dolby; presentations by noted engineers/producers George Massenburg and Fab Dupont; performances by musicians such as Marcus Miller, Lee Roy Parnell and J.R. Robinson; and a couple of tutorials by noted author and electronic musician Craig Anderton.

It appears that next year, and the year after, will be even bigger, as in the weeks before the 2012 event, Sweetwater announced that the company will be adding 110,000 square feet of new office and warehouse space to its campus, along with 315 full-time positions. The expansion was announced in coordination with the Economic Development Alliance of Fort Wayne-Allen County, which provided incentives for job creation.

Engineer/producer Fab Dupont's 2-part workshop included tracking, mixing, and mastering a full live band in Sweetwater's Russ Berger-designed, state-of-the-art Performance Theatre.



RobairReport

COVER YOUR ASSETS



By Gino Robair

It was only a couple of months ago that Kyle Wiens published an article about Apple's Retina MacBook with the headline "The New MacBook Pro: Unfixable, Unhackable, Untenable." At least he was correct on two counts. It turns out that your computer choice has little to do with its hackability, and in early August, tech blogger Mat Honan found out the hard way: In one hour, someone deleted Honan's Google account, hijacked his Twitter account, then finished the job by remotely deleting everything on his iPad, iPhone and MacBook.

To his credit, Honan takes responsibility—"In many ways, this was all my fault. My accounts were daisy-chained together," he noted on *Wired.com*—before pointing to the security holes in Amazon and Apple's customer service systems. (Apple immediately suspended phone-based password resets while it reviewed the matter.)

But worse than his instantaneous *iExtinction* or the Twitter hacking was the fact that Honan hadn't regularly backed up his MacBook, thus losing over a year's worth of irreplaceable data. As a technology authority, that's especially damning. The old saw, "If it doesn't exist, in three places, it doesn't exist" should be stamped above his ASCII keyboard.

"But I'm also upset that this ecosystem that I've placed so much of my trust in has let me down so thoroughly," Honan added. While iCloud, the nascent Windows 8, and all the other online storage services make it convenient to shuttle things between your computer and some remote server, convenience breeds complacency. Unfortunately, secure backup requires active (and time-consuming) participation.

An apropos CNET headline from 2008 reads, "More storage equals more opportunity to lose precious memories." The sentiment applies to all of us, whether we're talking about digital cameras, camcorders, smartphones or portable recorders. We routinely generate gigabytes of raw data on a card in any one of those devices—data that must be transferred to our computers and then organized at some later date. Then we have to remember to back it all up, if we don't already have an automated scheme implemented.

High-resolution files, of course, require greater storage capacity. That makes it tough for content creators who have entire projects to deal with, though not just while they're working on them. Sometimes we can let clients worry about long-term storage of

their media assets, while we simply keep a safety copy for some specified length of time. But when it comes to our own projects, it's a little different. We want to make them as future-proof as possible. So how do you do that with so much information to store in so many different formats?

For this column, I informally surveyed 25 audio professionals about the backup routines they use in their personal studios for high-resolution and multimedia projects; remarkably, all of them had backup systems that included their personal data. While many of them use online services to deliver files, and a small number of them are happy to store a limited amount of data on remote servers (let's drop the annoying cloud metaphor), none of the pros I asked rely on these services for media projects. The reasons given, whether at the enterprise or consumer level, include the overall cost, supplier stability, the lack of control over the uploaded files, and, most importantly, security issues for projects that are copyright-sensitive.

I found that the most common long-term storage destination was a hard drive or, rather, lots of them. The majority of my respondents rely on an ever-growing number of drives, which require occasional power-ups in order to keep them exercised so they don't freeze. One common storage strategy is a RAID array with a mirrored drive.

Many use DVD-Rs for additional backup, though the format is becoming increasingly unpopular due to the quantity of discs required for large projects. There is also concern about the long-term reliability of the DVD-R and Blu-Ray formats for storage. As one of those surveyed wrote: "All disks fail, eventually."

In the long run, the bootability of a drive might not even be the issue; the standard used to store or transfer the data—think SCSI, floppy disk, ADAT—might keep you from retrieving a project. The work might also be in file formats that are no longer supported. I'd like to say it was easier to store audio in the Good Old Days, but there have always been formats that come and go with alarming speed, many of which are not of archival quality. But even the formats we thought were reliable can prove otherwise. (Those of you who have baked a tape know the true meaning of the word fragile.)

It's a good thing disk space continues to get cheaper as our creations try to outpace our storage capabilities. In the current digital reality, the best we can do is migrate our favorite sessions to successive drives as they appear.

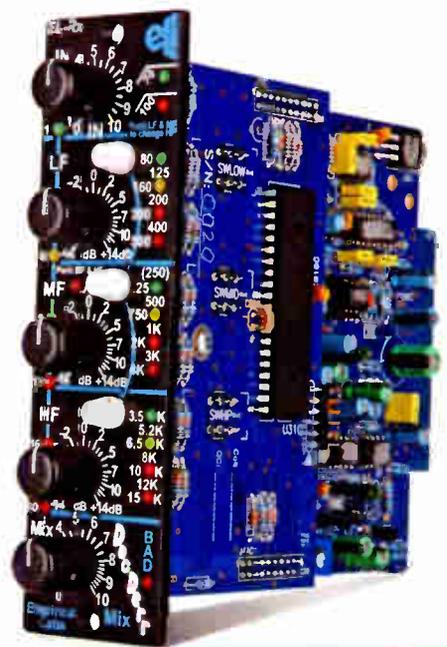
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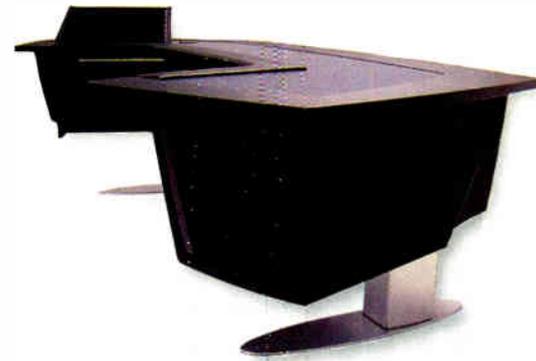
Tech // new products



BEHRINGER X32 CONSOLE

Digital Dream

Behringer is showing its MIDAS touch with the slick X32 digital console (behringer.com, \$2,899.99). Features include a 32-channel digital mixer with 16 mix buses, six mute and eight DCA groups; MIDAS-designed, fully programmable mic preamps; 40-bit floating-point DSP with no internal overload; and near-zero overall latency. Other features include fully automated, motorized 100mm faders; FireWire and USB 2 I/O; scene management; free iPad app for remote operation; and a high-resolution 7-inch day-viewable color TFT.



ARGOSY AURA

Up and Down

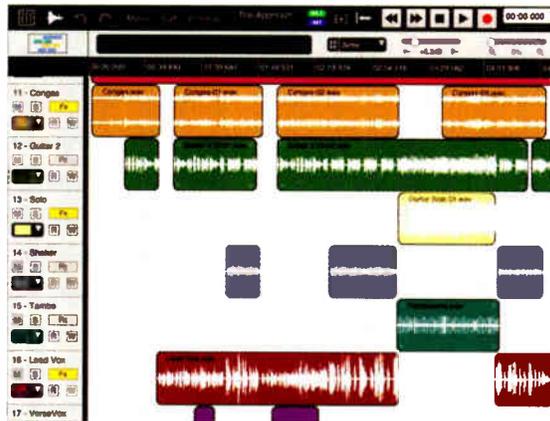
The Argosy AURA line of Sit-Stand workstations (argosyconsole.com, \$5,285 base price) features aesthetic design, durability and ergonomic comfort for professional audio engineers. With the push of a button, users can raise or lower their workstation from 27 to 42 inches in height within seconds, allowing them to alternatively sit and stand without disrupting workflow. The

AURA's electric lifting columns utilize anodized aluminum dual lifting columns with three-part guidance, ensuring complete stability of the workstation at any height and low-noise operation. The line is available in a larger studio-size (520) as well as personal-size (260). All models feature under-mount racks on the left and right. For the upper work area, users can choose from a spacious wrap-around desk surface or add upward-facing racks on the left or right wing of the desk.

AURIA DAW FOR IPAD

48 Tracks in Your Hand

Developed by WaveMachine Labs (wavemachine.com, \$49.99), the Auria 48-track DAW for the iPad features 48 tracks of simultaneous playback of stereo or mono files, up to 24 tracks of simultaneous recording at 44.1 kHz, 48k and 96k, PSPAudiware ChannelStrip on every channel and MasterStrip on all subgroup and master channels, 64-bit double-precision floating-point mixing engine, and third-party VST effects plug-in support available via in-app purchase. The DAW and all accessories are available exclusively through the iTunes App Store.



PRISM DSCOPE SERIES III E

Audio Analysis Tool

The dScope Series III E (prismsound.com, \$5,995 starting price) is the latest audio analyzer from Prism and promises a breakthrough in function vs. price. The dScope Series III E is ideally suited for a wide range of audio test applications but is also aimed at automated production line testing where there is a requirement for a more targeted feature set. The

unit offers a solution for all the most commonly used measurement functions for analog, digital and soundcard-based audio measurements, including multichannel switching capabilities and modern analysis methods such as multi-tones and chirps, to ensure the fastest possible test times.



SSL ALPHA-LINK MX CONVERTER

Affordable I/O

The Alpha-Link MX range of converters from SSL, (solidstatelogic.com, \$1,449) consists of two different single-rack-space units that can be used individually or combined to create larger systems. Each unit features 64-channel digital audio I/O via fiber optic MADI In/Out connections that can be used to connect to any suitably equipped MADI devices. The Alpha-Link MX 16-4 has 16 analog ins and 4 outs, while the Alpha-Link MX 4-16 has 4 analog ins and 16 outs. Up to four MX units can be cascaded in any combination in a daisy chain, providing up to 80 analog connections routable to a single 64-channel MADI In/Out connection. MX units have a switchable reference level to enable matching with the rest of your studio system, with a range of settings between +24 dB and +14 dB.



APHEX HEADPOD 4

High-End Headphone Distro

The Aphex HeadPod 4 (aphex.com, \$249) is a compact, portable headphone amplifier capable of driving four separate stereo outputs with individual level controls from the selected input source. HeadPod 4 combines four independent Aphex stereo amplifiers and high-quality converters in a rugged metal case and offers ultra-low distortion and wide frequency response with headroom to spare. Top panel controls include a separate level control for each of the outputs together with a master level control and an input source selector. The rear of the unit houses a pair of balanced 1/4-inch jacks, a single stereo headphone extension input and a digital S/PDIF connection.

PSP BUSSPRESSOR

Plug-in With VCA Roots



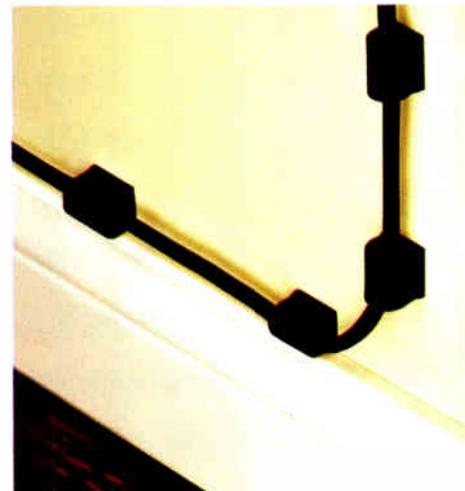
The PSP BussPressor (psp-audio-ware.com, \$99) is a plug-in compressor optimized for group and master bus processing. It combines

the sound of classic VCA compression with wide tuning capabilities. Extra controls allow you to adjust a sidechain highpass filter or apply parallel compression. Features include a gain-reduction level meter, makeup gain control, and Attack and Release with auto switching. Other features include a sidechain HPF, Ratio control, wet/dry controls for parallel compression and a main on/off switch.

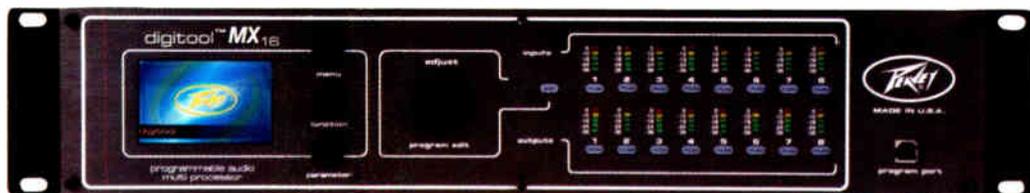
UT WIRE D-WINGS

Cutting Clutter

D-Wings from UT Wire (ut-wire.com, \$3.97 starting price) are designed to control studio cord clutter with separate modular units. D-Wings are paintable and require no tools or special skills to install. The simple peel-and-stick units can be easily applied to a surface where they stay put. D-Wings can be used on workstations, walls, baseboards and behind gear racks to keep cords organized and sequestered from noisy crosstalk.



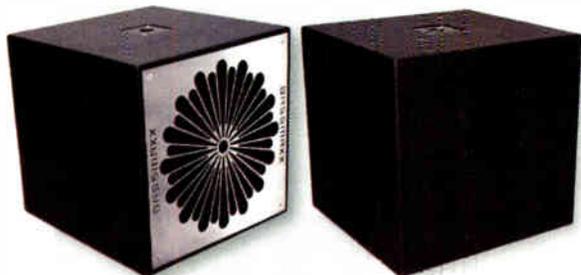
New Sound Reinforcement Products



PEAVEY DIGITOOL PROCESSORS

Integrated Control and Effects

Designed to bring Peavey's NWare algorithms to mid-market contractor and live sound reinforcement applications, the new Digitool Series (peavey.com, \$TBA) is a trio of multichannel, full-featured, digital audio processing and control systems. The Digitool MX16, Digitool MX32 and Digitool Live share a common processing platform with the Peavey MediaMatrix NION processor. The Digitool MX16 features eight inputs and eight outputs; the MX32 features 16 inputs and 16 outputs; and the Digitool LIVE features eight balanced XLR inputs and outputs for front-of-house applications. Features include a full-color LCD display on the front panel, enhanced front-panel navigation, individual input and output mutes, and five-segment LED arrays for input and output signal monitoring. The entire system may also be configured and controlled via a dedicated NWare-based GUI running on an external PC.



BASSMAXX SSP15 SUBWOOFER

Profoundly Low

Bassmaxx's newest Profundo Series powered subwoofer, the SSP15 (bassmaxx.com, \$TBD) is a sub-bass loudspeaker consisting of a single, long-excursion 15-inch low-frequency driver in a vented enclosure. The unit offers a small, lightweight and manageable enclosure, powered by a 3,400W class D amplifier. The 120-pound unit is made of 18mm Baltic Birch plywood, comes with two handles, a pole socket, interlocking rubber feet and a "Sound Defense" warranty covering failed drivers, including burned voice coils, for two years.



DIGICO SD9 RACK PACK OPTION

Road Ready

This high-performance system from DiGiCo (digico.biz) includes the company's SD9 console featuring a high channel count, dynamic EQs, multiband compressors and matrix, and the addition of DiGiTubes, reorder of buses, multichannel inputs and aux VCAs. The Rack Pack option (\$27,100) adds a second D-Rack, digital snakes, flight case for the surface plus a 72-mic-input system. The entire system offers a small footprint, easy load-in/load-out capabilities and an easy-to-program operating system.



AUDIX FUSION SERIES MICS

Sturdy for the Stage

The Audix Fusion Series now features the f50 and f50S mics (audixusa.com, f50 \$65; f50S \$75) that ship with an XLR-XLR low-impedance mic cable, stand adapter and vinyl carrying pouch. Both models feature a cardioid polar pattern, durable diecast zinc body and steel mesh grille. The f50S has the added feature of a noiseless on-off switch for additional user control onstage.

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When the mission is flawless mix-down of live music performances, the producers of America's top rated TV shows call Paul Sandweiss and his team at Sound Design Corporation. To make sure there are no surprises when he views the shows at home, Paul relies on JBL LSR6300 Series Studio Monitors on the gig. "I work in a lot of environments and my monitoring set-up is critical. Not only do the JBL LSRs get the job done, when clients come in, they love the sound. The LSRs have great low end, warm midrange and airy sweet highs that allow me to put a little more love on my mixes. I can mix sixteen hours a day with no fatigue. The RMC™ Room Mode Correction is very helpful in situations where we have to get in quick and get going. It gets us closer faster. We just got a set of the new LSR4300 series and the automated RMC makes set up really easy. It's about knowing the mixes will translate, and the JBL LSRs work really well for us, on location and in our five control rooms at Sound Design."

Hear why Emmy® Award-winning mixer Paul Sandweiss relies on the LSR Series Studio Monitors.

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Tech // reviews

YAMAHA 01V96i DIGITAL MIXING CONSOLE

Versatile Desk Excels in Live and Studio Applications

Yamaha's 01V96i mixing console expands upon the success of its predecessors (the 01V and 01V96), performing double-duty for use in live sound mixing and DAW recording. Featuring a variety of analog and digital I/O, the 01V96i maintains its 40-channel input capacity (32 mono, plus 4 stereo) even at sample rates up to 96 kHz, employing 24-bit/96k converters and 32-bit internal processing. Seventeen motorized faders allow multi-layer control of input channels, output buses and DAW faders, while comprehensive onboard DSP is used to create a wide variety of dynamics, EQ and effects processing.

The 01V96i has 12 XLR mic inputs with phantom power switched in banks of four.



FROM THE TOP

The 01V96i's top panel features 16 analog inputs, 12 of which have XLR mic inputs with phantom power and pad, balanced TRS line inputs, and TRS inserts (tip=send, ring=return). Inputs 13 through 16 are TRS line inputs only, without inserts. Each channel strip features gain control, SEL, SOLO and ON buttons plus a 100mm motorized fader. RCA jacks are provided for 2-track out and 2-track return. Inputs 1 $\frac{1}{4}$ may be switched to accept the 2-track return, enabling it to be re-routed without physical patching—very convenient. A phones jack with dedicated volume control powers any headphones to comfortable levels (including my very old AKG K 240s).

The rear panel hosts TRS Monitor and Omni outputs, balanced XLR outs for the Stereo Master and phantom power switched in three banks of four (you'll need a paper clip or small screwdriver to access these switches). Also found on the rear panel are RCA jacks for SPDIF I/O, ADAT optical I/O (eight channels), word clock I/O, MIDI in/out/thru and a USB 2 port carrying 16 I/Os for DAW recording and playback. A single YGDAI (Yamaha General Digital Audio Interface) slot facilitates expansion.

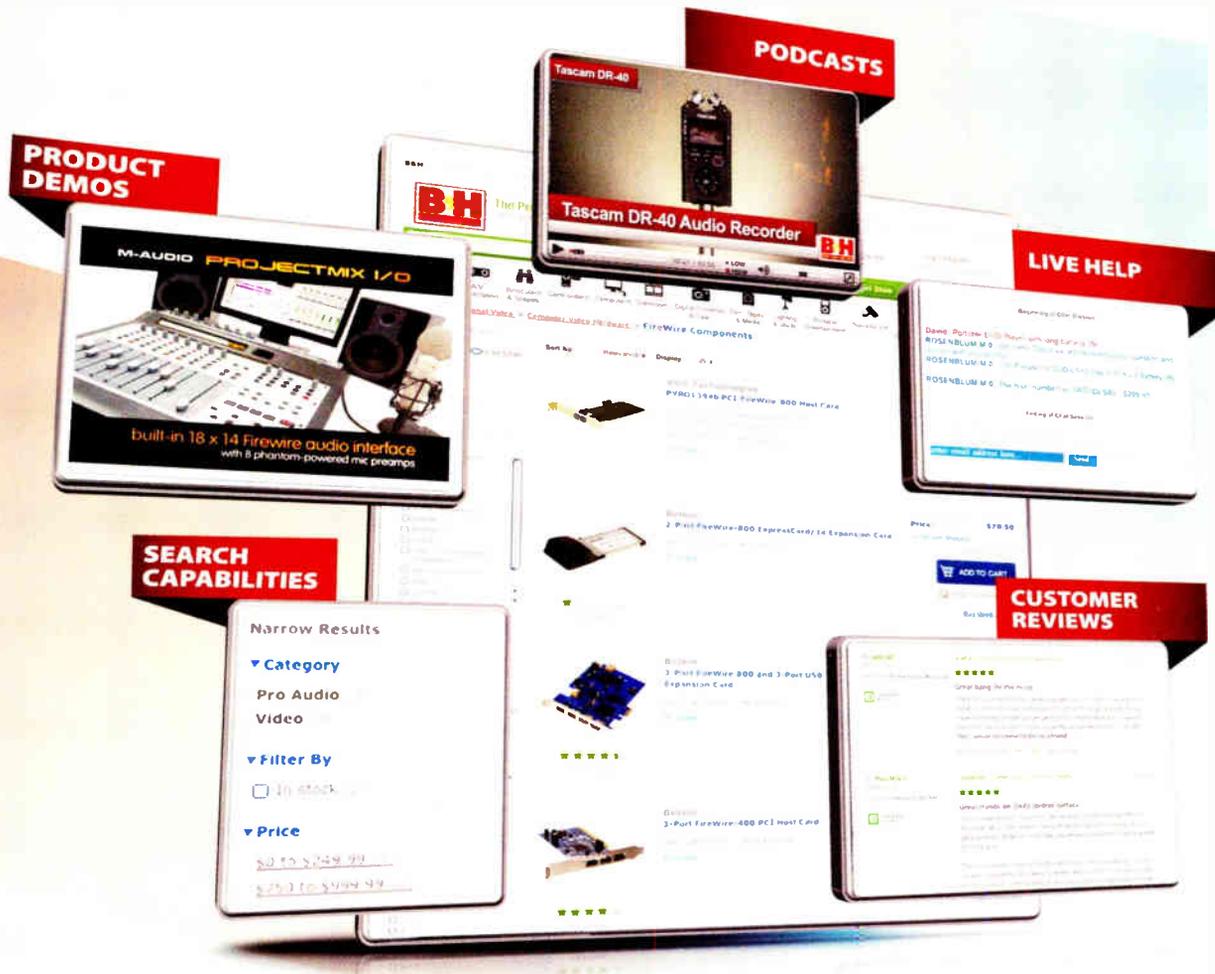
The 01V96i's architecture defaults analog inputs 1-16 on layer 1, digital inputs 17-32 on layer two, Aux and Bus masters on layer three and DAW fader control on layer four. Digital inputs can be USB DAW returns 1-16, ADAT inputs 1-8, or one of a variety of YGDAI cards, including ADAT, AES/EBU, TDIF, Aviom A-Net, A/D, etc. The beauty of the architecture is that you can route any input to any channel, so if you'd prefer to have the DAW returns on

TRY THIS

Although the 01V96i's Remote layer has 16 faders, you can easily manage Pro Tools sessions with higher track counts. My assistant, Lee Petrenka, came up with this: "Under the Tracks Window in Pro Tools, select a grouping of tracks (all the drum tracks, for example). Click on the Track Windows sub-menu and select "Show Only Selected Tracks." All of the other tracks will disappear from the Mix Window, and the remaining tracks will be mapped to the lowest channels of the 01V96i. Under the Pro Tools Windows menu, choose 'Memory Locations.' On the numeric keypad, hit Enter. The New Memory Location window will open. Name the location with a description of the tracks—"Drums," for example. Under Time Properties click None, and under General Properties click Show/Hide. This creates a Memory Location that is not time-based. Repeat the process for similar track groupings such as Vocals, Guitars etc., naming each accordingly. When you recall the Memory Location, the 01V96i's faders will automatically snap to control the channels you have assigned to that Memory."

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layer 1 and the analog inputs on layer 2, it's easy to switch them. These settings are global and are not stored with scenes. Inputs can be routed to any of eight buses, the stereo bus or a direct out, and can be named to avoid confusion when switching from layer to layer.

PROCESSING

All 32 input channels have identical DSP, including 4-band parametric EQ, dynamics (gate and compressor), bus routing, eight aux sends, phase invert, channel delay and software insert, which enables any of the console's onboard effects to be dedicated to an input channel, a really nice option; more on that later.

The remaining eight inputs are stereo effect returns 1 through 4. Default surface controls for the returns are minimal: two sets of SEL, SOLO, ON and a level pot. A shift button is used to alternate access between Stereo In 1 and 2, or Stereo In 3 and 4. The same EQ found on each channel is available on the stereo returns. Effect returns can be re-patched (via software) to unused channels, in which case you get the full feature set of every channel and the 100mm fader. Be aware that it is possible to "mult" the effect returns to input channels and the stereo effect return inputs simultaneously.

The 01V96i's eight aux sends may be routed to the inputs of the internal effects processors or to any physical output. I patched auxes 1-4 to internal effects 1-4 respectively, and auxes 5-8 to external processors via the Omni outs (I'll take my PCM70s to the grave). This barely scratches the surface of the 01V96i's ability to route almost any bus to any output or to multiple outs simultaneously.

LET'S GET BUSY

The 01V96i was a pleasure to use in a variety of applications, including simultaneous multitrack recording and stereo mixing. Using the 01V96i as a sound reinforcement mixer is a breeze: Plug in

PRODUCT SUMMARY

COMPANY: Yamaha Pro Audio
PRODUCT: 01V96i Digital Mixing Console
WEBSITE: yamahaproaudio.com
PRICE: \$2,699 MSRP
PROS: Sounds great. Extremely versatile routing. Gets along well with others.
CONS: Phantom power switches are difficult to access; DAW control capability varies with software.

your sources, assign them to the stereo bus and off you go. Input metering is minimal but effective; there's a green LED for signal present and a red LED to indicate 3 dB below clipping. The preamps are quiet and extend low enough in the frequency range to get the rafters rocking. Having used a multitude of Yamaha digital consoles over the years, it was easy to apply dynamics and EQ, assign and edit effects, and just plain get around.

Onboard effects include EQ and dynamics and time-based effects like you'd find in Yamaha's SPX2000 processor. The REV-X reverb algorithms are wonderful, and the effects library also includes Yamaha's VCM (Virtual Circuitry Modeling) "premium" effects such as Comp 276 and Comp 260. Under many circumstances, the library effects will be used in send/return arrangement, but the 01V96i has the ability to assign any of the library effects to any input (or output bus for that matter), and once you hear some of them you'll want to use them on DAW return channels. I used the 01V96i's preamps to record a drum kit with a pair of Soundelux U195s as overheads, patched the DAW return tracks through the Comp276S and the result was fantastic—smooth compression that tamed cymbals and mellowed the snare drum while letting the toms and kick pop. I'd have been happy to pay for this plug-in. Channel compression and EQ were equally use-

ful for situations such as transforming a horrible-sounding kick drum into well beyond usable.

DAW RECORDING AND PLAYBACK

Using the 01V96i as a DAW interface was a breeze. After installing the supplied driver and connecting the 01V96i to our MacBook Pro it appeared as an I/O device in Pro Tools, Digital Performer, Reason Record and the supplied demo version of Cubase AI. Select the I/O in the software, place the tracks in record and start your engines. Input channels can be assigned to 16 direct outs, which then feed the DAW inputs but the DAW feed can be sourced from any output bus, so, if for example, you wanted to mix two guitar mics to the same DAW track, you could change the DAW feed to the mix bus (Bus 1-8, Aux 1-8, etc.) of your choice.

Yamaha incorporates DAW control "profiles" for various DAWs and User Assignable for those inclined to build their own controller. Choosing the 01V96i's Remote layer enables fader control, channel on/off, solo and select. DAW control works most elegantly with Cubase AI (no surprise), whereby selecting a channel automatically maps the 01V96i's pan control to the DAW track. It also enables choosing, enabling and editing plug-ins from the 01V96i. Functions under Pro Tools were similar but not quite as nicely executed. For example, if you want to pan a track in PT you have to select the Channel page of the Remote layer and use the 01V96i's data wheel to adjust pan. Assigning and editing plug-ins in PT from the 01V96i was a bit clumsy; I could at times assign a plug-in from the surface and other times not. Clicking on a plug-in slot in PT always brought the parameters to the 01V96i for editing.

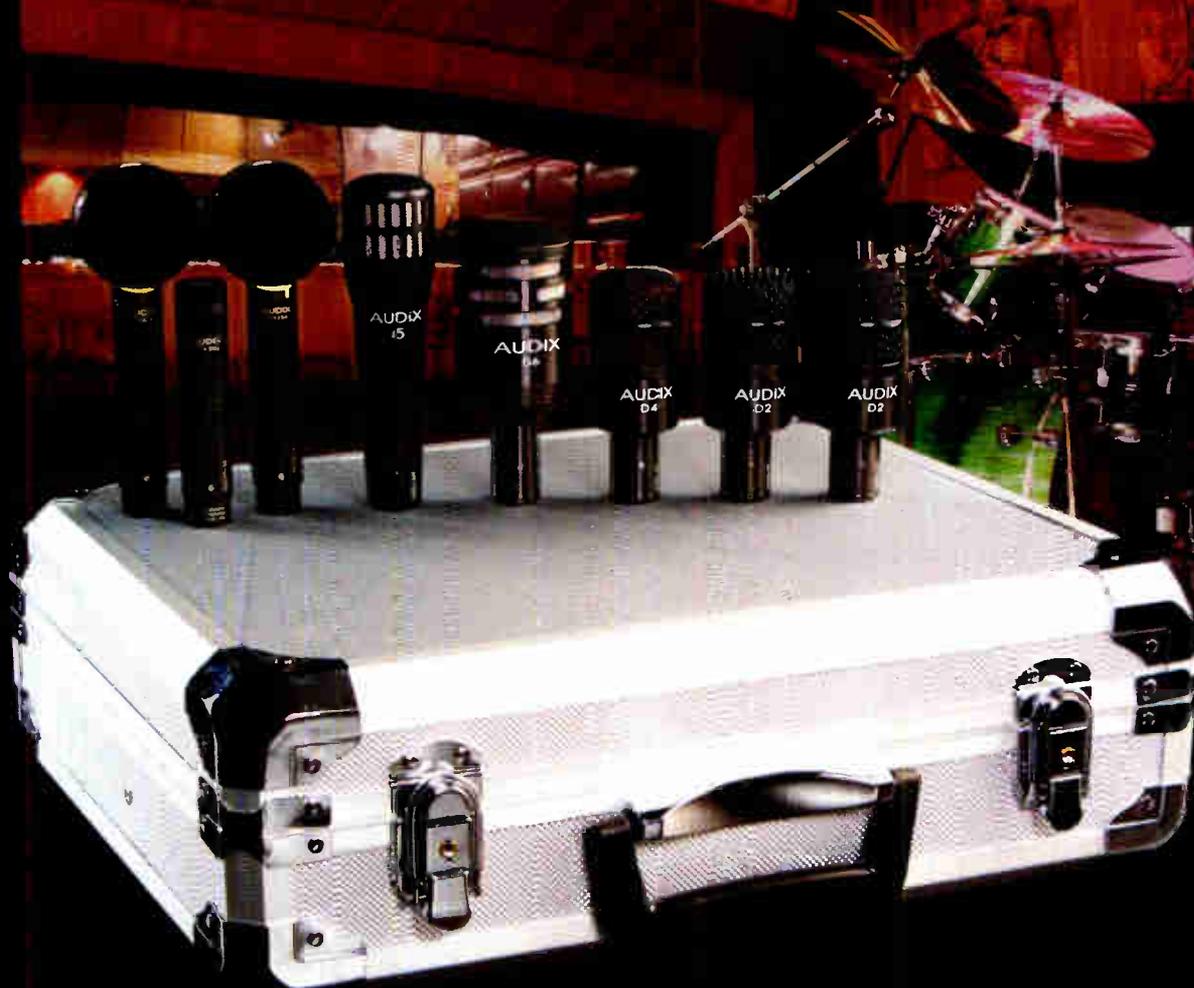
ABLE PERFORMER

Over the course of several months using the 01V96i, I put many its features to task, including external clocking via Word and ADAT at a variety of sample rates, snapshot store and recall, insert routing to both internal effects and the hardware insert jacks, and complete re-routing of input channels and output buses. It performed flawlessly and was fun to use. The pre's and the internal effects sound great, and when you consider its capabilities as a mixer and as a DAW interface, the 01V96i delivers big bang for the buck. It doesn't come as a surprise that Yamaha has a hit on their hands.

The 01V96i will operate as a DAW interface and controller.



Steve La Cerra is a New York-based recording and live-sound engineer.



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Producer, drummer and owner of Tarpan Studios, Narada Michael Walden says, "The SCX25A lollypops capture the colors and nuances of my cymbals like nothing I have ever used. We relied heavily on Audix microphones during my recent tour with Jeff Beck, as well as my own band - Narada Michael Walden and Thunder."

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RADIAL, EMPIRICAL LABS, ELYSIA

Three 500 Series Processors for Shaping Your Sounds

Modular 500 Series processors are versatile and less expensive than buying rack gear because you're not buying the power supply every time—your rack supplies the power. Another great plus is that the category has allowed manufacturers to think outside the (rack) box, resulting in processors for live and studio use that are unique to the series.

For instance, the Empirical Labs DocDerr cannot be found in traditional rack gear format. And while Radial Engineering offers other non-500 re-amping boxes, none approach the feature set of the EXTC and the company's 2-channel Radial X-Amp. Elysia is about to release the envelope in a single-rackspace unit but it first bowed in the compact format tested here.

RADIAL ENGINEERING EXTC

Like all Radial gear I've used and tested in the past, the EXTC is well made with solid switches and pots, journeyman sonics and great features. Simply explained, it's an I/O box that allows you to use instrument-level, unbalanced gear (aka stomp boxes) in a balanced, +4 workstation environment. Features include variable wet/dry control for dialing your effects up or down in the mix, polarity flip and Omniport insert buttons. The latter is for use with Radial's Workhorse 500 Series rack, which has an extra TS connector on the back allowing for various bonus features depending on the unit. In this case, the Omniport adds an additional unbalanced insert path that is wired in series with the front panel insert. Lastly, on the EXTC's front panel are TS Send and Receive jacks, each of which has its own volume control. Being that guitar pedals are noisy neighbors, this is a great feature for getting a handle on your S/N

ratio. And speaking of noise, the EXTC's transformer-isolated output means you'll never fight the 60Hz hum beast.

I used the EXTC on various recorded guitar parts through Electro-Harmonix Black Finger and LPB 2tube pedals. The simple plug-and-go setup had me auditioning sounds right away. The

Black Finger had its own I/O control, so I optimized my S/N by playing around with the Send/Receive levels vs. the pedals' gain controls. I quickly had the levels matched between the EXTC's wet/dry settings at lowest noise possible. The LPB 2tube had no in/out gain so I relied solely on the EXTC's send/receive levels to set things up. This is a great feature that comes in handy no matter what pedal you're using.

For \$249 street, this is a must-have unit for any 500 Series owner. The features and construction are solid, and it gives you the ability to use low-cost guitar gear in the studio setting. Low tech is cool and just the right thing to bring new personality to your mixes, giving them a kick in the pants.



EMPIRICAL LABS DOCDERR

This unit amazed me from the first time I plugged it in. Not only does it offer a range of features hard to imagine in a single 500 Series unit, but it also sounds fantastic. It can be a line-level processor for mixing or an instrument-level preamp/processor for live use; DocDerr comes with a handy TS-to-XLR adapter for plugging your guitar or whatever right into the unit.

Advanced features include some handy options addressed via jumpers on the board. For instance, you can change the unit from an instrument-level preamp to a line-level proces-

TRY THIS

When working with a guitar pedal that has its own gain control, you can use the EXTC's Send/Receive volume to keep your noise floor at an acceptable level. Start with the EXTC's Send/Receive levels at 12 o'clock and use your pedal's volume control to set the level to your track. To bring the noise level down, lower your pedal's output and raise the EXTC's Send level until you reach the same level on the track.



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Photo Credit: Jason Staczek, www.madronamusic.net

TRY THIS

The DocDerr is great for giving a group of tracks a final polish during a mix. For instance, by sending the output of a snare top, bottom and triggered snare to a single DocDerr, you can use the compressor and EQ to give your three tracks a cohesive sound, even if you're compressing and EQing them individually in your DAW.

With one switch, enable a highpass (150Hz) sidechain filter to the detector circuit with another, and alter the output of the unit up or down by 6 dB to keep from clipping your next stage with a third. All these must be set with the unit unmounted, and although it's a drag to have to pull it out, there's honestly nowhere

else these adjustments can be—this thing is packed.

The real depth of its feature set is addressed through single and double button pushes of the unit's three buttons. For example, each band of the 3-band EQ has seven frequencies chosen with a single button push, but the highpass filter is switched by pushing the LF and MF frequency buttons together. It can be set to 70 dB, 100 dB (both at -18 dB per octave) or off. Another dual-button feature is the MF band's wide or narrow Q setting (the HF and LF band's Q is fixed.) A third double-button option is the compressor's on/off switch, which is attained by pushing the LF and HF buttons together.

The EQ offers +/-14 dB of gain and a frequency response beyond 20 kHz. It's also incredibly musical. The compressor has a fixed ratio of 5:1, and its only operational control is the input knob. Of course, with this setup, the harder you hit it, the more gain reduction you get, but you also add some very musical distortion by hitting the unit's saturation circuit. Empirical calls it "tubey," and the company is right. It is very desirable distortion.

The saturation circuit is after the compressor, and I found myself using it all the time. It tends to round off high-frequency peaks, adding harmonics at the low end, and emulates tape distortion—it works. This circuit is always in the compressor's path. When the compressor is on, both can be dialed out by setting the mix control to zero, leaving just the EQ. If the compressor is off, then the Mix control just adds the saturator to the EQ, up to the maximum range of the dial.

DocDerr's name aptly describes this unit's strong point: It will cure what ails

PRODUCT SUMMARY

COMPANY: Radial Engineering
PRODUCT: EXTC
WEBSITE: racialeng.com
PRICE: \$300 MSRP, \$249 street
PROS: Radial Omni Insert and wet/dry control.
CONS: None found.

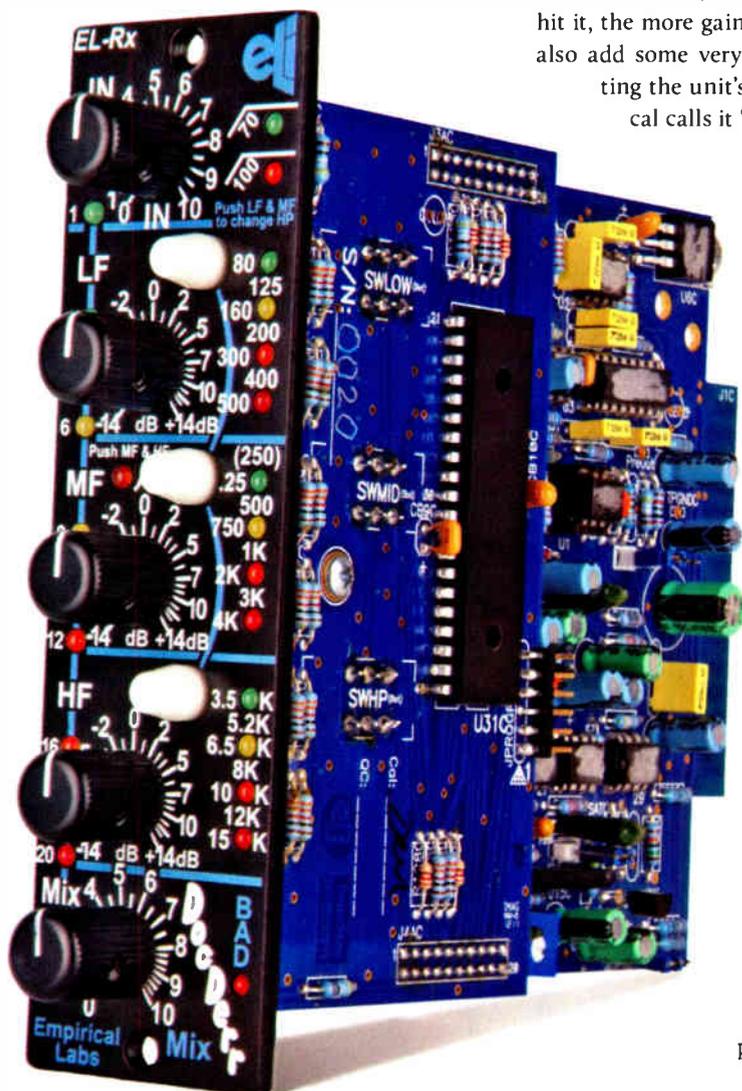
PRODUCT SUMMARY

COMPANY: Empirical Labs
PRODUCT: DocDerr
WEBSITE: empiricallabs.com
PRICE: \$899
PROS: Feature-packed, distortion/compression mix control, versatile EQ/compressor.
CONS: You'll want two of them.

PRODUCT SUMMARY

COMPANY: elysia
PRODUCT: nvelope 500
WEBSITE: elysia.com
PRICE: \$1,049
PROS: Versatile, musical transient/sustain shaper, great-sounding EQ.
CONS: Too pricey for some; would like to see a simple Q control on the EQ.

your signals. I used it over and over on a mix project that had some challenging problems I could not fix using plug-ins. For instance, one song had a snare sample that was thin, strident and generally uninspiring. I was going to replace it completely, but instead I let the DocDerr have a crack at it. I added 3 to 6 dB of gain reduction viewable on the eight-LED gain reduction meter and pushed the mix control up to 7, adding a fair amount of saturation. I added EQ to taste and it was saved—at least now usable. On another song I put a single track of a poorly recorded cello through the unit. The DocDerr's saturation and EQ tamed the nasal characteristic way down and made it sound just like...a cello. DocDerr also works on kick drums, percussion, electric guitar and more. I can't overstate this unit's abil-



ity to apply tasty EQ and compression, not to mention add desirable distortion to a track. The DocDerr gets A-triple-plus in all categories. The best testament to how I feel about the DocDerr is...I bought one.

ELYSIA NVELOPE 500

The elysia nvelope 500 is a 2-channel attack/sustain processor and 2-band, stereo shelving EQ that sits in a double-wide 500 rackspace. If you're not familiar with an attack/sustain processor, it all starts with the track. This unit must be fed with transient material. Think drums, percussion, "pointy" rhythm guitar and synth tracks—anything that has a distinct attack. The nvelope 500 allows you to alter their attack and sustain, boosting or cutting transients, and offering more "wash" to the sound by bringing the lower-level parts of a recording up in the mix. It's easier to hear than describe.

Eight buttons and knobs control its very deep feature set. Being a 2-channel unit, elysia set it up so you can use each side independently or together. For instance, you can EQ one channel while shaping another, shape both sides linked or apart, EQ both channels with one set of linked controls or EQ each side separately.

Full-Range mode—the simplest of the transient processor's settings, the complete frequency spectrum is processed by the nvelope 500. The Freq A controller acts as highpass, but in the sidechain path only. In Dual Band

mode, Attack and Sustain each get their own filter. The top filter sets the start frequency of the Attack effect while the bottom sets the end of the Sustain. While not endless, the possibilities are substantial. One of the best features is the Auto Gain control, which allows you to accurately judge just what the unit is doing without being fooled by "louder means better."

I'm a transient-shaping skeptic. I've used various products in the past but never found them very usable or musical. The nvelope 500 changed my mind. The first thing I tried the unit on was a

stereo drum overhead track. I tried both the full range and dual band linked modes and immediately found usable results. I'm very familiar with the room where these drums were cut and it is sometimes too live for certain styles of music, but you're stuck, right? Not with the nvelope. I played with the filters until I found the perfect combination for cymbals, tom hits and snare, then played with the attack and sustain. It is remarkable how far back you can dial out the attack and still have great-sounding results. I took my overheads and turned them into a larger ambient space with plenty of sustain, making them sound like purposed room mics. Then I dialed the attack in stronger and the room went away, bringing the drum hits to the front. It was all sounding very good and mind-blowing.

Next I tried the nvelope 500 on a guitar track played on a ballad that was laid back but offered some transient peaks. I was able to bring out the peaks without making the track sound unnatural. I could then bring the guitar's overall volume back, making more room in my mix while still having the peaks heard perfectly. When's the last time you turned a track down and heard it better in the mix?

The EQ is also excellent. I used it to sweeten a stereo recording of a Bösendorfer Concert Grand piano with great results. The EQ's personality is more like a GML 8200 than, say, an API or inductor EQ. The top is crystal clear and the bottom brings out what's there without adding "personality." Adding a simple Q control would make this even more useful.

The elysia nvelope 500 is a beautiful machine. While not inexpensive, it is one of those processors that you'll miss once you discover its magic. I found that the attack and sustain controls had a fairly wide musical range before they started spinning outside the realm of good taste. And if you don't have tracks that need transient/sustain help, the EQ is excellent. This unit is a must-hear and is highly recommended. ■

TRY THIS

The nvelope 500 is an able multitasker. For instance, you can control the liveness of a drum room track and then EQ it all inside the nvelope. First feed the input of the track to the left side of the unit, put it in full range or dual band mode and play with the gain until you get the desired result. You can then patch the left into the right channel, or use the Feed button on a Radial Workhorse to put the signal through the right side where you can EQ it before it leaves the unit.



JOEMEER ONEQ2 MASTER STUDIO CHANNEL

Redux of oneQ Offers Enhanced Features, More Headroom



The oneQ2 features seven analog processors in a single channel unit

The updated Joemeek oneQ2 Master Studio Channel keeps all the color, charm and naive quiriness of the original two-rackspace oneQ, but widens its operational range, reliability and usefulness. Primary among the many improvements are the “remixed” front end, a 10dB increase in headroom and lower noise floor for the entire unit, all conjured up by audio magus Paul Wolff.

HIS NAMESAKE CHANNEL

Legendary British recording engineer Joe Meek’s subversive “If it sounds right, it is right” mantra is well represented in this improved, single-channel unit. There are seven analog processors: mic preamp/Input section, Joemeek’s signature optical compressor, Meequalizer, De-Esser, Enhancer, Master Fader and A/D converter. Any section can be inserted (“On” in Meekspeak) into the signal chain at the touch of a button. The large, lighted Nissei VU meter switches between measuring the preamp’s output, gain reduction and final output. The Master Fader section provides up to +10dB additional level and functions as a master fader for direct recordings.

Burr-Brown OPA2134 op amps are used throughout, and the input Gain control now ranges from 18 dB to 60 dB for both the mic and line inputs. A Cinemag transformer (CMM1-10PCA) is always inline for the mic input and also available for line-level processing when toggling the Iron switch. The 80Hz, 12dB/octave highpass filter is now available for all three sources: mic, line and the ¼-inch instrument input. The ¼-inch DI now has a 0dB to +40dB operating range.

The mic preamp accepts up to +24 dBu with the -20dB at-

tenuator pad inserted. The line input gain range is now -19 dB to +22 dB with unity still at the straight up 12 o’clock knob position. A red LED lights when the preamp section clips at around +15 dB. The Input section finishes with +48-volt phantom, polarity flip, line/mic button, and a rear-panel unbalanced TRS send/return insert jack.

The A/D converter has AES/EBU, S/PDIF and Lightpipe Toslink digital output connectors, plus BNC connectors for external word clock in/out. The original 24-bit Wolfson A/D converter is used, with sample rates up to 96 kHz selectable on the rear panel. The output Peak FSD LED lights at +16 dBu, or 2 dB below full-scale digital clip. There is a single balanced TRS ¼-inch analog line-level input jack on the rear panel that utilizes the otherwise unused right channel of the stereo A/D converter.

COMPRESSION, EQ AND MORE

The compressor section is unchanged and uses the same Silonex optocoupler. Controls are: Compress for setting threshold, Slope or ratio adjustable from 1:1 to 10:1, program-adaptive Attack and Release controls, and a Make Up gain control. The Post EQ button toggles the com-

TRY THIS

When using the oneQ2 for super-fidelity vocal recordings, start compression ratios at 2:1 or lower for minimal control and use attack times (5 to 10ms) and medium release times (0.3 to 1 second). The visually helpful GR LED fades down during release and lights up with every new attack. The Compress knob or threshold was at 0 dB. High gain (vocal) recordings and hyper-compression effects are where all sections of the oneQ2 come into play. If I ran compression threshold set at -15 dB, 6:1 Slope, 3 to 5 ms attack time and 0.3 or longer release time and +20dB makeup gain, it’s a whole new processor. The Enhancer and De-Esser sections will ameliorate (or boost) the havoc sibilants caused by using this much gain.

pressor before or after the Meequalizer.

The Meequalizer has two overlapping semi-parametric midrange sections: Low-mid has a variable frequency range from 120 Hz to 2 kHz and the high-mid section goes from 600 Hz to 10 kHz. They each have a fixed Q of 0.9. There are two 12dB/octave shelving EQs. The high shelf has 7kHz and 14kHz positions, and the low shelf with 80Hz and 120Hz choices.

The Enhancer section has a variable control over the frequency: 800 Hz to 16 kHz—above which boost is dynamically added according to the amount set by the Effect control. The Q knob sets the amount of a resonant peak at the selected frequency from 0 to 10.

The De-Esser has a Listen button to aid in setting controls for its frequency (Tune) from 2 kHz to 10 kHz and amount (De-Ess) 0 to 10.

All the sections and controls on the oneQ2 Master Channel interact greatly; while audio is coursing through the unit, there is an unavoidable level shift or slight pop when toggling in/out any of the sections.

FEELING THE LOVE

For all evaluations, I kept the Cinemag transformer always inserted; it rounds out the

PRODUCT SUMMARY

COMPANY: Joe meek
(dist. by PMI Audio Group)
WEB: joemeek.com/oneq2.html; pmiaudio.com
PRODUCT: Joemeek oneQ2 Master Studio Channel
PRICE: \$1,200
PROS: Modern/pro updates extend its usefulness
CONS: Needs routing switch for the front-panel mic XLR

Strat. I used the Creation Audio Labs MW1 Studio Tool to provide two identical guitar signals from one instrument. One signal connected to the oneQ2 DI jack and the other to a RTZ Professional Audio 9762 Dual-Combo Mic Preamp—it also has a high impedance DI. The line-level output of the RTZ connected to the second analog input or the back of the oneQ2. The RTZ is a copy of the Neve 1272 circuit but custom-built to mil-spec.

Once I matched impedances (the MW1 does this), matched level and flipped the absolute polarity to check null, I could hear no differ-

ence between the DI paths of these two units. About 45 dB of gain was required, and both units portrayed the exact sound of my Fender Strat in all ways I know well.

When a ¼-inch plug is inserted into the front of the oneQ2, the XLR mic input is defeated. Having a front-panel mic input XLR is handy, but there should be a way to disconnect it from the rear-panel mic XLR—they are hard-wired in parallel.

A troublesome direct bass guitar recording was easily fixed using both the Compressor section and the De-Esser section to reduce transitory, bright moments, especially whenever the player/part went up the octave or he

did an occasional “pops” that jugged way out in front of my mix. Using the Listen button, I set the frequency to 2 kHz and was able to come to a good balance without the tedium of drawing breakpoint automation—plus this sounds better.

The Enhancer section works the other way around from the De-Esser. Using both sections together at cross-purposes—boosting frequencies above 1 kHz, Q knob on 10, Effect on 10 with the Enhancer and then De-Ess at 5 kHz—these two sections become analog sound-designer tools capable of very interesting sound treatments akin to software-based tools. But this is faster.

The Meequalizer works excellently for both smooth touches—+/-3 dB all the way to massive EQ cranks, vocal effects and radical boost/cut EQ styles. It has a broad midrange character and overlapping frequency ranges.

For all microphone preamp tests, I used a transformer mic splitter box made using a Jensen JT-MB-E to split the output from a Pearlman 250 tube condenser microphone (cardioid, no roll-off, no pad) between the oneQ2 and the RTZ.

I used about 50 dB of gain on both units for quiet singing. The oneQ2 sounded slightly thicker and the RTZ more linear in its overload characteristics.

The oneQ2 is excellent for vocal recording or processing during mixing. In general, I preferred using the compressor first in the chain followed by various amounts of the Meequalizer, Enhancer and De-Esser—a little of those three goes a long way for natural-sounding recordings.

USING HARDWARE LIKE PLUGS

When crafting a unique sound treatment, I “channeled” Joe Meek’s methodology and left no controls or section un-maximized, undiscovered, unused or uncombined in pursuit of the unquantifiable and, hopefully, the sonically attractive. With the oneQ2, being able to audition each of these sections individually or in any combination is like using a chain of software plug-ins in a DAW, only these are all real analog processors. Joe Meek would love this and so do I! ■



Digital I/O on the unit is impressive with Optical, SPDIF, AES/EBU, and Word Clock I/O.

low frequencies in a clean, polyunsaturated way. I used the secondary analog line-level input that feeds the right channel of the unit’s built-in A/D converter as the best way to evaluate the oneQ2 Master Channel’s performance because a common A/D is used throughout all testing.

I routed the A/D converter’s digital output to the stereo AES/EBU Enclosure XLR input on the back of my HD 192 I/O and recorded into Pro Tools HD 10 24 bit/44.1 kHz. I externally clocked both the HD 192 and the oneQ2 from my Benchmark Media ADC1 over short BNC cables.

My first test was recording a direct Fender

CARTEC EQP-1A

Pultec-Modeled EQ from the UK



The EQP-1A features point-to-point wiring and custom-made transformers.

Is there an engineer out there who doesn't love the old Pultec EQs? I think it's safe to say we all have a Pultec on our wish lists. The two factors that keep us from owning a few is that they are hard to come by, and if you do find one, it will cost you an arm and a leg.

Despair no longer. Liam Carter at Cartec has set out to recreate the vintage Pultec magic—and he succeeded.

THE OLD

Cartec has been around only three short years and has released three high-end analog hardware units. The company's two 500 Series units are the Fe-Q5, an inductor-based EQ; the PRE-Q5, a preamp/EQ combo; and the rackmounted EQP-1A tested here.

The original EQP-1A was developed in the early 1950s by Eugene Shank and Ollie Summerland from Pulse Technologies in New Jersey. Eugene and Ollie both built their units by hand, and when the company sadly closed its doors in the '70s, the Pultec EQ became one of the most desired EQs in the world. The Pultec EQP-1A is a passive valve mono unit, and its main characteristics are its smooth tone and the possibility to simultaneously boost and cut the same frequency. Over the years there have been quite a few great hardware versions, and of course there are various software emulations on the market as well.

You could easily ask yourself: "Why invest in one hardware unit if I can just spend a couple of hundred bucks and have a plug-in I can use all over the session?" In our world of mixing in the box, there's always the choice to go with hardware or software. If you're working completely in the box and you don't want to be troubled by recall issues, the solution is pretty clear: plug-ins.

If, on the other hand, you like to get your hands on real controls and feel the unit react to the signal, hardware is the way to go. Whatever the scenario, getting your hands on one of the Cartecs will make up your mind for you.

THE NEW

Like its predecessor, the Cartec EQP-1A has a valve gain stage and valve power rectification stage, giving the unit the classic "compression" sound due to the PSU sag. The inputs and outputs are transformer-balanced, and all the wiring is point-to-point (no circuit boards inside, people).

The custom-made transformers have been hand-wound, and the switches and pots are military-grade Grayhill and PEC models. The green front panel with the warm yellow etching makes the unit very easy on the eyes. This color combo allows you to see the frequencies, bandwidth and boost/attenuate amounts easily, even under cozy studio lighting. It's refreshing to see that Liam didn't yield to the temptation to add extra features; he's stayed true to the original design. Everything you expect to see on the front panel is there: LF range from 20-100 CPS, HF range from 3-16 KPS, Boost and Attenuation from 0-10, sharp to broad bandwidth, the Atten selector 5-10-20, bypass switch, On/Off selector, and a cool bright light.

TRY THIS

One of my favorite tricks is to put an EQP-1A on the kick. Depending on where it needs to live in the mix, I like to boost either 30 or 60 CPS a fair bit and simultaneously attenuate it to taste. If you find one of the original Pulse Technologies manuals, it will tell you: "Do not attempt to boost and attenuate simultaneously on the low frequencies." Rules are there to be broken. Cutting at the same frequency creates a nice little dip just in front of the frequency you're boosting. This way you'll end up with a really ballsy bottom end without muddying up the sound.

IN THE STUDIO

I first used the EQP-1A in recording an album for a Belarusian singer. This was the perfect time and opportunity to insert the Cartec into the signal chain and track a few vocals. I was already using a great microphone, Bees Neez Jade, and preamp, Focusrite Liquid Channel, so I was not expecting a massive change. I was amazed by the result. Switching the unit in, with all the frequencies flat, made a very audible and satisfying difference.

I guess many of us tend to get a little jaded about gear. Some manufacturers turn out new units like software developers release upgrades. And all of us end users are struggling to keep up because, let's face it, we're gear sluts and our clients expect us to run the latest gear available. That's why it's exciting when a piece of equipment comes along that makes such a difference in recording, mixing and mastering situations.

We already established that the EQP-1A in flat mode smooths out the sound. It warms up the signal chain and has that "going to tape"-like quality. Clicking through the frequencies you discover that it behaves exactly like an old Pultec. The 30-60 CPS range for kick drums, 100 for bass or warming up thin vocals, the 3-8 KPS for bringing out vocals in the mix, sparkling up guitars, and 10-16 KPS for air.

Our vocal session that day was on the taxing side to say the least. We were dealing with a particularly tricky vocal part we'd abandoned the night before, in a difficult area of the singer's range. Because it was a fresh start, I decided to

PRODUCT SUMMARY

COMPANY: Cartec
PRODUCT: EQP-1A Equalizer
WEBSITE: cartecaudio.com
PRICE: \$2,895
PROS: Quality construction, great sounding unit
CONS: Maybe too pricey for some

sliding the EQP-1A into the chain to see if I could add something to get everyone excited. Not only did the producer raise his eyebrows, but the singer also noticed the change in sound immediately, and the vibe in both the control room and the vocal booth improved, and we managed to record a very cool vocal performance in no time. The unit remained in the signal chain for the next day and all the backing vocals went down the same route.

KILLER EQ REPRISE

Unfortunately I had the Cartec for only a very short time. As I'd had the chance to use it only on vocals, I felt I hadn't had the opportunity to properly put it through its paces. The unit I used for this particular vocal session had to go pretty swiftly as it was sold to a client. Liam Carter and Kevin Walker at Cartec kindly arranged a brand new box for me to use a little longer.

I'm currently producing a record for Gallows Ghost, so it was the perfect time for more tube

action. This is a grunge/folk act, and we're going for an old-school organic sound. I've now inserted the EQP-1A on acoustic guitars (Brauner Phantom V and sE Electronics RNR-1), more vocals (the Jade again) and bass (Brauner VM1 and a Rainbow 180 amp). Everything went through D.A.V. 501 lunchbox pre's and again switching the Cartec into the circuit added so much weight, dimension and clarity.

After testing this second unit, the Cartec not only exhibited versatility—proving it has that "works on anything you throw at it" quality—but it also demonstrated that all these hand-wired boxes are consistent. You can rest assured that the unit you buy will sound exactly like the demo unit.

IMPRESSIVE OPERATOR

The Cartec is an impressive box to have in your rack—it looks great, it sounds even better and for the noise geeks out there, it has a really low noise floor. I don't mind saying that I had to work twice as hard to get close to the Cartec vocal sound I had without it. You will quickly get used to having this unit in the signal path, and only once it's gone will you realize how much you relied on it. I definitely want one! Arrange a demo, record through it, try it out on parts of your mixes, link two units across the mix bus, insert it over your final masters. You're going to love it. ■

Wes Maebe is a UK-based recording, mixing, mastering and live sound engineer.

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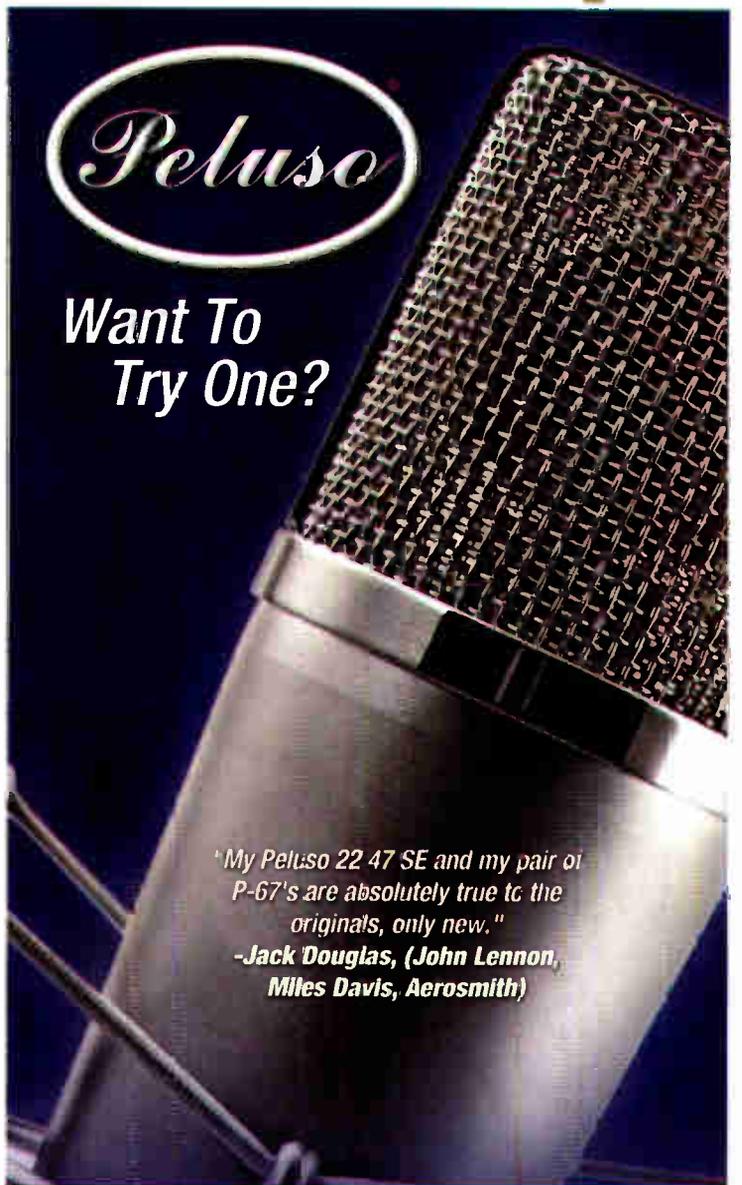
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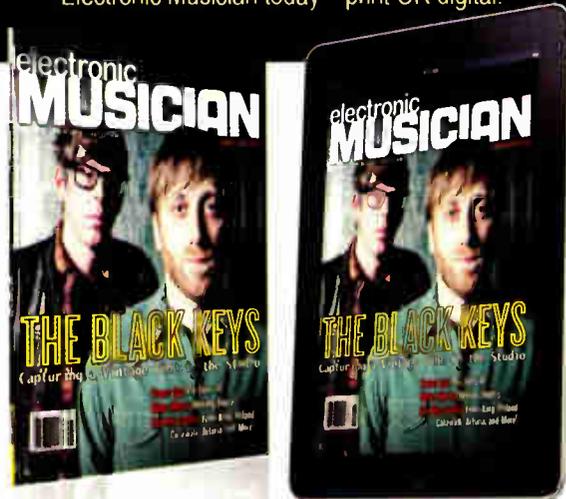
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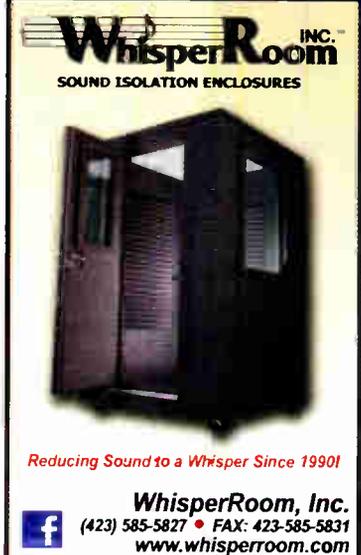
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PICTURE YOUR BOTTOM LINE



By Kevin Becka

Last month I wrote about “skill fracking,” a term I coined describing the search for new information, products and techniques to make yourself better at what you do. Fracking is essential when seeking out new revenue streams, especially when new skills are needed to make you competitive.

Work is where you find it today, whether it's in live sound, working with unsigned indie musicians, online audio, education or wherever the hand of a pro can bring someone's game to a higher level. This month, I talked to a couple of pros who get a good chunk of their work mixing for film and TV.

L.A. engineers Ed Cherney and David Rideau have each been involved in audio for more than 35 years, working with top artists and gathering multiple awards and nominations along the way. Both attest to the fact that sound for picture has become a bigger part of their workflow than ever, about 20 percent of their workday lives.

Ed has recently mixed audio for a Rolling Stones DVD, Bette Midler's *The Showgirl Must Go On* for HBO, and the closing credit theme for the *Bourne Legacy*, written and performed by Moby. He mixes in both surround and stereo in his own room at the Village Studios or other rooms around town. He finds that when mixing for DVD, the process is less complex than for film, so he mixes back to his own rig. For film, however, he mixes to a dedicated rig to deliver up to 20 5.1 stems requested by the music editor. Ed's stem printing may be in separate passes, or simultaneous if he's working on a larger console like an AMS Neve 88R or Euphonix (Avid), which can handle complex busing.

Ed's approach to mixing concert DVDs differs from other engineers. With the Rolling Stones and other live mixes, he pans out the mix like you'd see the band onstage. However, Ed pointed out that engineer Elliot Scheiner exaggerates the surrounds, throwing horns and guitars in the back, which Ed says, “still sounds really stunning.”

When mixing in surround, some engineers will start with a stereo mix and derive surround elements from that. Ed likes to do his 5.1 and stereo mixes as completely separate entities starting with the surround first. It is his experience that while the surround elements can be made to work in stereo, he gets better results if he mixes each from scratch. That said, time con-

straints can define the workflow. When mixing for the *Bourne Legacy* in a crunch, he did a surround mix and a folddown at the same time. The question for Ed is: With limited time, which do you want to pay more attention to, surround or stereo?

David Rideau's work spans mixing indie movies to travel, reality and blooper shows for TV. Dave is mixing the entire show, which brings in more levels of complexity and a shift in workflow. For example, in the past, when mixing for TV and film, it always meant multiple passes for all stems. But his TV work has become more time-constrained and the delivery specs are more complex. Dave works with a team of mixers and engineers that includes two-time Emmy winner Pablo Munguia, Academy Award-winner Oren Hadar, and Salvador Ojeda and Henry D'Ambrosio, who prepare the content and routing in the Pro Tools session.

Pablo provides the template for the Pro Tools session. From that template, Dave is able to print multiple stems in one pass, with global mix processing sequestered to the master, and not effecting individual stems. For example, separate stereo and mono stems are printed simultaneously including master, music, effects, M&E and dialog. While dialog is side-chaining limiters on the music and effects stem for the master mix, the sidechains are not effecting the individual stem mixes—a real time-saver.

Dave's mixes also must comply with the CALM act, which requires broadcasters and cable outlets to ensure that commercials aren't louder than regular programming. He uses the TC Electronic LM6 Radar Loudness Meter and Waves WLM plugin to check for compliance. For instance, he may get a directive from the network to have the mix at -23 LUFS (Loudness Units Full Scale). The broadcaster then includes this figure in the dialnorm metadata of the broadcast, which sets the loudness of the program. If the mixer hasn't checked that the LUFS is where it should be, then the broadcaster is out of compliance with the law.

What Dave and Ed are doing is well beyond the experience of the early years in their careers. After talking to them both, I got the feeling that the passion they both have for music has translated into sound for picture. They're both genuinely excited about what they can do with this medium, and they've built onto their considerable experience and chops, adding new skills and keeping busy. And as usual with these two, it's all sounding great. ■

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