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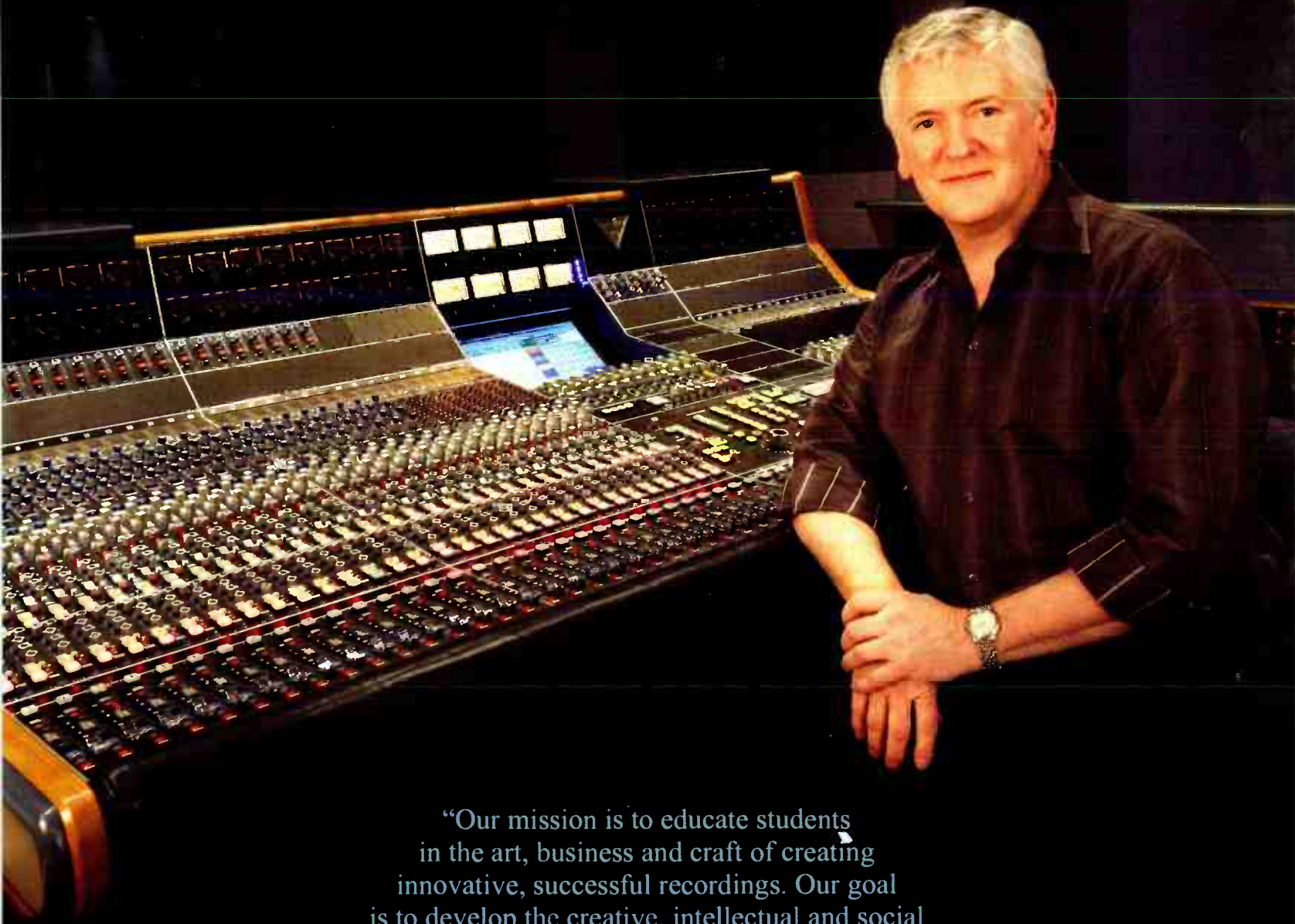


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BY DAVID SCHWARTZ, PENNY RIKER AND BILL LASKI

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## JACK OF ALL TRADES

**A**t least a couple of times a year, for the past 20 years, I find myself in conversations where an engineer, producer, studio owner or manufacturer will say, "These schools have to stop! There are no jobs out here!" Then I talk to the schools and the truth is, there are jobs out there, all kinds of audio jobs, and students are getting hired. There may be fewer behind a console at a commercial facility, but the schools know this and they continually make adjustments to their curriculum as the job market changes. They have to. If graduating students don't get hired, the schools can't stay open. There are rules, and state and federal governments can make life difficult for the program that doesn't deliver the numbers.

So this year, as we were preparing our annual Education issue and I heard the refrain one more time, I started to think about what it takes to have a successful career in audio. How can a student who has the passion, the drive and the talent find success? And what can they, and the schools, do to prepare for an industry that is constantly undergoing technological and budget-conscious change.

Three conversations from this past week came to mind:

The first was with John Fry, who sits on our cover this month as a tribute to his 45 years in the business. He has been through ups and downs, changing markets, dozens of formats and distribution models. He used to wear a tie while he mixed. And he's still vital because he recognized early on that Ardent Studios could not just be a fee-for-service facility. So he has publishing, a label, artist development, video production—all related, all designed to boost an artist's career.

The second was with John Schirmer, a full-time engineer for Keb Mo who says he is where he is today because he has learned to do all things audio: live sound engineer, tour manager, production manager, studio builder, engineer, mixer. This, he says, is what you need to do today. Be valuable in all that you do and bring some of everything to the table. His live sound experience, he says, where he makes an artist sound good night after night in some lousy-sounding venues, made him a better mixer in the studio. And his time in the studio led him to design. His work as a tour manager makes him a better project manager, and his work as a production manager makes him a better businessman.

Finally, I ran into Ron Lagerlof of Visioneering Design at a Meyer Sound/Harrison party at Wildfire Post. He's been in and around our fine industry all of his life, from starting out as a recording engineer at Universal Studios in Chicago in the '70s, to studio manager at Motown Hitsville in L.A., then operations manager at Skywalker Sound. He founded his own company in 1992 and has worked on projects as complex as designing portions of James Cameron's custom technical operation that made Avatar possible a few years back. He's an audio guy through and through, but he's just as likely to fall into conversations about Red cameras, screen resolution and super-high-bandwidth streaming. "It's no longer jack of all trades, master of none," he says. "It's jack of all trades, master of many."

We are leaving the age of specialization and entering an age of true convergence, a word I tend to find meaningless, but at the same time it rings true. Yes, there are still very talented people who can make a good living as a mix engineer, and there are large studios that can turn a profit. But that is more the exception than the rule today. The graduating audio student, tomorrow's audio professional, needs to be on top of all things audio. If they are, they will find a job.

  
Tom Kenny  
Editor





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COMPILED BY SARAH BENZULY

## MORAY MCMILLIN, 1953-2011



Concert touring veteran and EAW application support group representative for the EMEA region, Moray McMillin passed away after a long battle with

cancer. McMillin started his road warrior days with UK sound rental company Tasco in London. By 1980, he moved to Los Angeles, working with Black Sabbath, Saxon and a solo Ozzy Osbourne. Later, he became front-of-house engineer on Motorhead's Ace of Spades tour. He returned to the UK as a freelance engineer and took up FOH duties with bands such as Siouxsie & The Banshees and Whitesnake. However, it was as Deep Purple's engineer over a 10-year period that McMillin made his mark.

In 2005, McMillin dropped his bags and began work in EAW's UK sales office, and later joined the company's application support group. In this role, he developed sound systems for a variety of venues, many of which were familiar to him from his touring days.

Moray is survived by his wife, Antonella, and two sons. In lieu of flowers, the family has asked that donations be sent to The Hospice of Saint Francis, Spring Garden Lane, Berkhamsted, Herts, HP4 3GW, [stfrancis.org.uk](http://stfrancis.org.uk).

Photo: James E. Wilson



## EDUCATION OPPORTUNITIES IN DALLAS

Recently completed, the new 12,000-square-foot Joan and Andy Horner Hall (at Dallas Baptist University, [dbu.edu](http://dbu.edu)) includes a 2,400-square-foot recording studio designed by Russ Berger Design Group, and features an Avid D-Command 24 console and Pro Tools. Recessed sliding glass doors in the adjoining soundstage can be opened up to enlarge the studio space. Two smaller control rooms let students mix projects independently from the main studio. Storage and a central equipment room complete the facility.

"We are looking at creating a campus record

label to help launch the careers of our singer/songwriters, student bands and student recording engineers," says Terry Fansler, director of studies in Music Business and associate professor of Music at DBU. "We hope to also offer the use of the facility to the Dallas/Fort Worth music industry and church community, which will create even more hands-on opportunities for our student engineers."

Dallas Baptist University offers degree programs in Communications, Fine Arts, Music and Music Business.



Buford Jones and attendees at a mixing workshop in Brentwood, Tenn.

## Meyer Mixing Workshops Online

Buford Jones, front-of-house engineer and founder of Meyer Sound's Nashville office, has been promoted to live audio and education specialist, where he will focus on bringing his Mixing Workshop seminars online. Taking his place, Lee Moro is the new touring liaison and manager of Meyer Sound's Nashville office at Soundcheck Nashville.

"Mixing live sound has been my life's work," says Jones. "I've been fortunate to work on many interesting tours across a variety of music genres. I'm excited about taking my class online and sharing tips and tricks that have helped me become a better, more consistent engineer. It's gratifying to know that I'm giving back to the next generation of engineers, and hopefully they can help inspire others to love what a live show offers."

His first webinars, "Mixing on Equal Amplitude Systems" and "Subs on an Aux," are available to watch at [meyersound.com](http://meyersound.com).

## calling all interns



Intern Adam Greenwald (left) sets up the mic at The Hideaway Studio for hip-hop artist Brother Ali to help lay down some guide vocals.

Recently opened to the public (see Mix September 2011 Music "News and Notes"), The Hideaway Studio (Minneapolis, [thehideawaympls.com](http://thehideawaympls.com)) is expanding its internship program. As part of the day-to-day experience with studio processes and operations, interns sit in and assist on recording sessions and engage in session setups and tear-downs for tracking, which will include miking, patching and Pro Tools operations. Additionally, students sit in on and observe mixing sessions and learn techniques for successful mixes.

Adam Greenwald, a McNally Smith College of Music student who is starting his third and final year studying Music Business Production and minoring in Hip-Hop, says this of interning at the studio: "Joe [Mabbott, studio owner] is someone who understands the hands-on nature of learning and wants to involve you whenever possible. From setting up microphones for recording bands to changing drum heads, Joe teaches by giving you a task and allowing you to first figure it out for yourself. He is always willing to answer questions and show how he does things without micromanaging."

Any interns interested in participating in The Hideaway Studio's program are encouraged to speak with their college advisors and/or e-mail Mabbott directly at [joe@thehideawaympls.com](mailto:joe@thehideawaympls.com).

## Poetic License

*Michael Gohub, a 30-year recording engineer in New York City, continues to provide us with the results of his audio muse. Enjoy!*

### Ode to Compressor

A sound from a source entered the air/  
compressed said sound with a ratio fair./Then

compressed again in a mix-down mode/  
compressed again as I mixed the full load./It  
went to mastering and a CD was pressed./And  
guess what my friend? It got compressed./You'd  
think the journey would end there./But guess  
again. 'Twas compressed on air./I must admit  
I find it strange/That music is minus dynamic  
range.

## MIXBLOGS



### Steve's Impact on Audio

Even though we could all see the inevitable with Steve Jobs looking more and more frail as time went on, his passing is sad and shocking. I was watching Anderson Cooper and CNN had an excellent special with interviews, archival footage and a timeline of Apple products from the '70s to the present. His impact on consumers is beyond any other CEO's in history, but he also affected audio production in a big way.

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



### Minimalist Mic Techniques

I ask my students to take a step back from the one-instrument-at-a-time...and consider recording a live rhythm track.

>>[blog.mixonline.com/mixblog/category/ask\\_eddie](http://blog.mixonline.com/mixblog/category/ask_eddie)

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## SPARS Sound Bite

I was lucky enough to have not one but two mentors. These incredible women taught me not only the logistics of my job and the industry, they also taught me the subtleties of how to navigate through them. I learned when to react and when to lay low. They gave me tips on how to deal with different types of people and challenging situations. I wanted to be just like them and emulate their style and poise. They were my education after my education, and they appeared at different times in my career.

The recording industry has changed and the opportunities to observe and learn from our role models have become more limited. Now, engineers are often isolated in their studios and the days of walking down a big facility's hallways and watching other engineers work is fading. How do we pass on our great engineers and studio managers' knowledge? We need more mentors.

I am a big proponent of education. To have the ability to study a craft that you love in a qualified academic setting is priceless. But when you supplement that education with the experience of working and learning from a pro that you respect and admire, then the education experience is amplified! So what can you do? Donate your time. Your knowledge and experience are far more valuable than you'll ever know. Take on a mentee, speak at a school, produce an educational DVD, write an article or do a podcast. SPARS is proud to be kicking off its own mentorship program and we would love to have you join us.

It has started with a long-term mentoring program for students, recent graduates and other career-minded professionals. An example of some of the initiatives were unveiled at the recent 131st AES Convention in New York, Speed Counseling with Experts: Mentoring Answers for Your Career. Check it out at [spars.com](http://spars.com).

P.S. Thanks Elissa and Tammy!

Sherri Tantleff, secretary of SPARS, spent 16 years as VP of operations at Sync Sound Inc. in Manhattan and is now industry outreach manager for Full Sail University.

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## Studio Unknown Update

It's been 12 years since *The Blair Witch Project* burst onto the indie film circuit and carved its indelible mark. Now, the film's director, Eduardo Sanchez, is at it again with another horror, *Lovely Molly*, which recently made its debut at the Toronto Film Festival. We'll talk to the team responsible for the film's sound design—a group that just so happens to be the guys at PopMark's very own Studio Unknown.

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

## Cool Spin

**Carmen Rizzo** *The Space Left Behind* (Electrofone Music)



While Carmen Rizzo may be best known as an electronic and world music producer, collaborating with such heavyweights as Seal, Paul Oakenfold and Ryuichi Sakamoto, among many others, as well as an established film composer, sometimes he just needs to be alone. Working through the loss of his parents this year, Rizzo's latest is a transcendent journey through the heart, with beautiful atmospherics that lend an airy, ethereal quality that seeps throughout the six-track release. A more drum machine-driven "Returning to Silence"—and the only track that has a computerized vocal, albeit for just a few bars at any given time—lends a haunting feeling, as if the music is twisting and turning through time.

>>[mixonline.com/cool-spins](http://mixonline.com/cool-spins)

## SoundWorks Collection Update

*Real Steel* plays out this fantasy as robots have replaced humans in boxing in this Shawn Levy film. Charlie Kenton (Hugh Jackman)



loses a chance to become a boxing champion when robots take over, and he becomes a small-time promoter. When he has difficulty making a living, Kenton reluctantly teams up with his son, Max (Dakota Goyo), to build a robot that can contend for the championship. The stunning visual effects behind the robots can only be brought to life by believable sound. The team responsible for this difficult task include Craig Henighan (sound designer, sound re-recording mixer, supervising sound editor), Skip Longfellow (first assistant sound editor), Warren Hendriks (sound designer), Rob Nokes (sound effects field recordist) and Dan O'Connell (Foley artist).

>>[mixonline.com/post/features/video\\_sound\\_works\\_collection](http://mixonline.com/post/features/video_sound_works_collection)

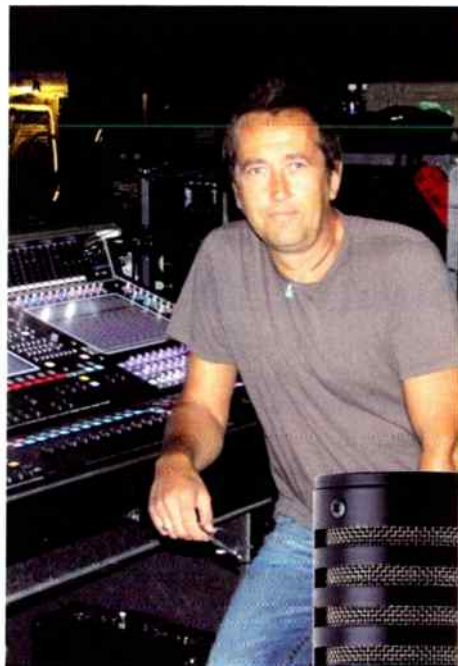
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From left to right:  
LSR4326P, LSR6328P, LSR2325P, MSC1 Monitor System Controller

# LSR SERIES

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STUDIO MONITORS



# On the Cover

By Tom Kenny

## 45 YEARS OF ARDENT STUDIOS, MEMPHIS



Photo: Tomray Bridwell

The Ardent family, surrounding owner John Fry, at the newly installed SSL Duality.

**W**ow—45 years and counting. That's not easy to do in any industry, let alone one that is dependent on the forces of technological change and the whims of a record-buying public. But Ardent Studios, under the leadership of John Fry and a dedicated, loyal team of creatives, has weathered the ups and downs, branched into new markets over the years, added and dropped studio services, and continually kept an eye on the future. To commemorate its 45th anniversary this month, Ardent has undergone a complete acoustical makeover of its flagship Studio C and dropped in an SSL Duality console.

The history of Ardent Studios has been writ-

ten before—Fry in his garage in 1966, the move to National and then Madison Avenues; the association with Stax, Al Green, Sam and Dave, Big Star, ZZ Top, R.E.M., Steve Earle, Huey Lewis and a slew of local talent—so we won't go into that here, except to note that the past does inform the future, and the commitment to technical and creative excellence has never wavered. If you talk to the people in and around Ardent, that's attributed to Fry; if you talk to Fry, that's attributed to the people he surrounds himself with.

"Ardent is unique because of one individual, and that's John Fry," says Jody Stephens, Big Star drummer and studio manager at Ardent since 1987. "He's the captain, and he fosters that spirit of innovation

and creativity. Look at some of the talent that has called Ardent home—Jim Dickinson, Terry Manning, John Hampton, Joe Hardy. All have helped keep the doors open because John has always emphasized that individuals come first. But then he provides the tools, too, and brings in someone like Chris Jackson, a chief engineer that we are just lucky to have. He's amazing. But it starts with John Fry."

Then you talk to Fry, and he humbly states how pleased he is to just have been a part of "all things Memphis, to have so many good friends and clients be a part of our lives for these 45 years. From around the world and from right down the street."

There are any number of reasons why some large commercial studios survive and others do not. For



*Pictured (L-R) Ralph Arista, band assistant; Bill Gibson, drummer; Johnny Colla, guitarist/saxophonist; Jim Gaines, engineer/co-producer; Lydia Gilman, staff assistant (seated); Huey Lewis; Curry Weber, engineer; and Sean Hopper, keyboardist*

Arden, besides the obvious assemblage of Talent and Tools, the team has always been about the music and offering services that can launch or boost a career.

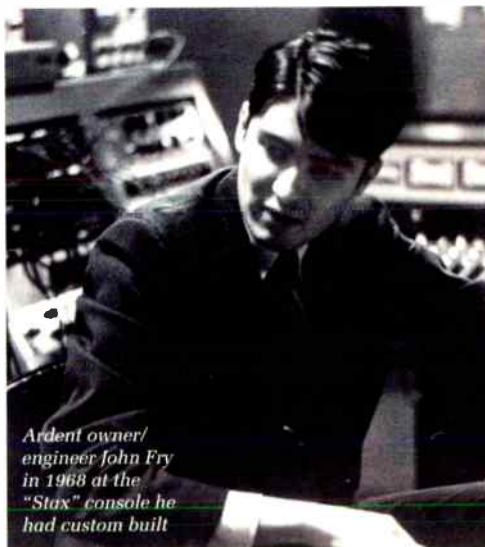
"We've always been involved in artist development," Fry says. "We've always had a production company, a record label or both. We've always had publishing interests. So we've always been more than a fee-for-service studio, and I think those aspects of our business cause talent to gravitate to the facility. Jody Stephens has spent a lot of time developing relationships in the A&R and label world, music supervisors, too—people who can help with exposure for local artists and music coming out of the area."

Those local artists have included Big Star, most notably, but in later years John Kilzer, Tora Tora, 36 Mafia (an Oscar!), Skillet, Star & Macey and many others. It extends to the visual arts, where after a few years' hiatus, a film department has reopened, headed by returning Memphian Jonathan Pekar, son of Ron Pekar, who designed the neon star for the first Big Star album cover.

### KEEPING IT FRESH

Still, Fry, Stephens and Jackson realized that to stay a player in today's changing production market they had to stay current with technology. A couple of years ago, they started thinking about the aging Neve V Series in Studio C. Fine for tracking, couldn't mix on it, and it was proving a maintenance headache. "Everybody liked the sound of it, but it was getting problematic," Stephens confesses. "It was getting long in the tooth," adds Fry. They decided to put in an SSL Duality and tear back the walls to ready the room for 5.1.

"We wanted to retain superior analog perfor-



*Arden owner/engineer John Fry in 1968 at the "Stax" console he had custom built*

mance," Fry says, "and we liked the design features that give it high reliability. They removed most of the electrolytic capacitors, and with digital control, they've removed over 1,000 switches, both of which can be a maintenance headache. The other thing is it speeds up your workflow by enabling you to control your DAW from the worksurface. It's really efficient."

"The interface with Pro Tools is definitely a plus," adds Stephens. "But the selections of mic pre's and EQs is excellent. And you can track and mix on it! Imagine that!"

Chris Jackson, chief technical engineer, supervised much of the deconstruction and reconstruction of the control room, working hand-in-hand with engineer Curry Weber. "For the past six years, I've been looking at Studio C and trying to figure out what to do about the low end," Jackson says. "The

measurements confirmed our issues at some very specific frequencies. So when this opportunity came up, we went back into the walls, starting with the back wall. We put in some bass traps on resonating panels, tuned to those frequencies, and then put in this dense mineral wool, up to 18 inches thick in some points. Then we added back a tiny bit of RPG diffusion right behind the mix position; it had been there before, and it works. Then we also added some traps on the side walls so that we now have a sweet stereo image that also works great for 5.1 work."

### MEMPHIS HOME

Memphis is truly a special place. I'm often reminded by my friend Rick Clark, producer, musicologist and semi-regular contributor to *Mix*. It's a sentiment echoed by Fry and Stephens. While they are quick to point out that their success is not unique to a geography, they do exhibit a fondness for their hometown and its rich musical legacy. The birthplace of rock 'n' roll...does it get any bigger than that? Beale Street, the Peabody, the pawnshops. Stephens recalls the Battle of the Bands at the Orpheum, George Klein and his band at The Place, Goldsmiths and the rise of Stax. He walked into record at Arden for the first time in 1969 and says he felt like an imposter.

But being part of a community is being a part of the community. And Arden has always been conscious of being a good neighbor, whether it's the current run of PSAs for health care, hosting a Grammy GPS event on a Road Map for the Music Business or putting on "16 Over 48," a two-day recording marathon with 16 local bands in three-hour studio slots (produced by Mike Wilson). "This is a tight community," Stephens says. "It's a real, living music community, and we're real happy to be a part of that."

They are sure doing something right down there on Madison Avenue in Memphis, and they show no signs of slowing down. "In many ways we've come full circle," Fry says. "In the mid-'60s, when we started, independent labels and independent artists were so important. Then it became a business. But we've seen a decline in the dominance of the majors and a new ascendancy in the role of the independent."

"Not everybody needs a studio environment for everything they do, but some want to do ensemble playing and need the services of a studio. Others are missing the sense of community and the kind of assistance they get from a staff and the interaction they get with other musicians by being in a studio environment. We've been having fun here for 45 years, so we're going to keep on with it!"



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# MUSIC



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Engineer John Schirmer (left) and Keb Mo



## KEB MO

### Grooving at Home in Nashville

By Tom Kenny

**K**eb Mo, it turns out, is a hands-on guy. And his engineer, John Schirmer, is something of a jack-of-all-audio-trades. So when they decided to leave L.A. for Nashville in 2010, and the original plan to buy a house with a studio already in place fell through, they decided to build their own. Two, actually, with almost identical technology complements.

The first to go up was Schirmer's Twelve Tone Studios, at his home in Franklin, where they did some recutting of vocals and guitars during the mixing for the August release of *The*

*Reflection*. It was followed by Keb Mo's Stu Stu Studios, albeit on a slightly larger scale, also in Franklin. "Kevin and his family fell in love with this house," Schirmer recalls, "and when we did a walk-through, we looked at this 2,900-square-foot basement, with a three-car garage, an office, a big open rec room. Lots of space. And 14-foot ceilings! There were lots of possibilities. A great blank canvas."

But there was also a budget, which, while not low-cost was certainly not extravagant. So while quick to praise the contributions of a good studio designer, they decided to put their money into materials and construction and go

D.I.Y. Schirmer read Jeff Cooper's *Building a Recording Studio*, along with every article he could find online, and agreed to supervise the build-out. They hired the contractor on the original house, who had built other home studios in town. Bill "Hatchett" Story installed a separate electrical system. And they hired Michael Rhoads of Skinny Fish Audio to wire the place professionally, with input panels placed in every space, including closets, and video and audio ties to the living room upstairs for the grand piano and a live, open, wood-and-glass living room sound.

Schirmer hooked up with Keb Mo in 2006 while touring with Bonnie Raitt as P.A. systems tech. The two hit it off, and over the ensuing years he's served as tour manager, production manager, live engineer, studio engineer and now studio designer. For the artist's space, they decided early on to float the floors on rubber isolators



as isolation was paramount and they were rebuilding within an existing portion of the garage. And they knew they needed to drop the ceiling by two feet and blow a lot of insulation into the walls. Once construction was under way, he turned to surface treatments to fine-tune the monitoring environment.

"I've known Peter Janis for a while now, and when I started working with Keb, I contacted him for some of his Radial J48 DI units," Schirmer says. "Kevin [aka, Keb Mo] has five or six guitars onstage for his acoustic shows, and it can get like a rat's nest of cables up there. So Peter helped put together a more functional setup using the Radial JD7, guitar splitter and a rack filled with Radial J48s, and eliminated the rat's nest. We have been friends ever since.

"Then while we were working on the studio, I realized that Peter also owns Primacoustics," he recalls. "I sat down with his guy in Vancouver, Jay Porter. I drew out all the rooms with all the exact dimensions, floor to ceiling, wall to wall, interior and exterior. I sent them to him and he sent back some diagrams. We made some adjustments and I sent them back. He sent them back to me, and the next thing you know, we have four rooms all laid out and a tractor-trailer shows up at Keb's house with all this matere-

ial on pallets. Me and Keb's guitar tech, Casey Wasner, went in there and put this stuff together in three days, looked and listened, and it turned out phenomenal. It cost me just under 15 grand as opposed to 70 grand. We've got a mixture of bass traps and diffusion and clouds in the control room, and it turned out very cool.

"The first thing we did entirely in the room, track and mix, was this four-song Christmas EP for Ryko," he adds. "We would record real-time bounces back into Pro Tools, export the regions as files, burn CDs and listen in our cars, and it was exactly what we were hearing, so much so that we went in and did a couple of bonus acoustic tracks for *The Reflection*. We mastered them ourselves in the room because it was so true, and the record company loved them. Good monitoring, good clocking, good D-to-A conversion and some well-placed acoustic treatments, and it sounds phenomenal."

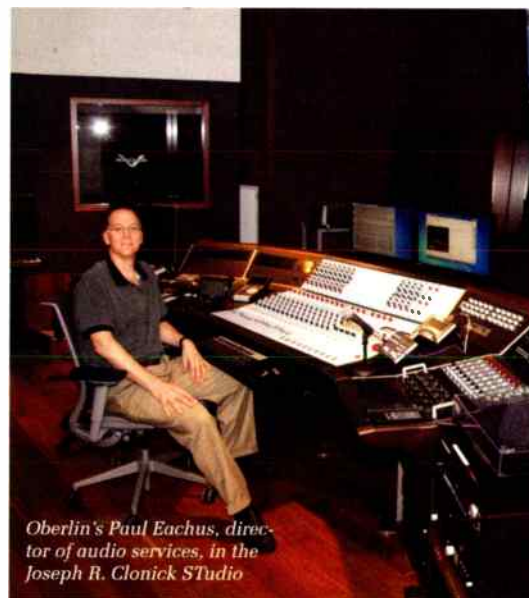
Today, Schirmer and Keb Mo have near-mirror-image studios in their technology choices and their acoustic treatments, so that the vast amount of work—from the records to music for the weekly TV series *Memphis Beat* and *Mike and Molly*—can come out of either place, with the same expectations of quality for production. Avid Control|24 console, ADAM SX-3H monitoring, two full lockers full of microphones, including a Mikttek C7 mic for vocals. Avid HD I/O, 192 and 96, and all of the same plug-ins. Plus outboard gear from Universal Audio, API, Grace, Avedis, Shadow Hills and Neve. They have been very busy, and with these two studios they can handle all of it.

## OBERLIN BEEFS UP STUDIO SPACE

The Oberlin Conservatory of Music's ([oberlin.edu](http://oberlin.edu)) new recording facility/performance venue, the Joseph R. Clonick Studio, was built for surround sound and offers a Rupert Neve Designs 5088 console, a 24-track analog mixer with Tonelux Shadowmix fader automation housed in a Sterling Modular Systems custom piece.

"Sterling offers a standard console for the RND 5088 and matching patchbays that are quite handsome and well-built, and with excellent acoustic properties," says Dana Kirkegaard of Kirkegaard Acoustic Design LLC, who handled the acoustical consultation. "We started with that design and modified the patchbays to serve as side racks; we then wrapped the console around the operator to facilitate access to the equipment. One of the features that puts the console design over the top is an automated monitor stand that raises and lowers a pair of Apple cinema displays at the touch of a button."

A desire to rehearse Oberlin's large jazz ensemble



Oberlin's Paul Eachus, director of audio services, in the Joseph R. Clonick Studio

inspired the size of the room. Once the dimensions of the space were determined, the acoustics team was able to turn the space into a recording facility, taking sound isolation and treatments into consideration.

Recent projects include pianist and composer Hiromi Uehara mixing her newest CD with Cleveland-based producer Michael Bishop in the studio's control room. Cellist Zuill Bailey, pianist Orli Shaham, Richard King, principal hornist of the Cleveland Orchestra, and Tod Bowermaster, third hornist of the St. Louis Symphony, have recorded at Oberlin. And music legend Stevie Wonder stopped by and test-drove the room's new Hamburg Steinway.

### more online



Watch Keb Mo recording in his studio at [mixonline.com/november2011](http://mixonline.com/november2011)



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## THE SAGA GROWS

To accommodate the growing number of singer/songwriters and groups booking Saga Recording (East Vancouver, sagarecording.com), owner/operator Michael Nowak hired Russ Berger Design Group to design a space that fits between a large multiroom facility and a small project room. The space features a 22x13-foot control room (where most of the tracking and vocals are done, per Nowak's recording preference), a 15x10-foot live tracking room and a foyer with glass-panel doors that is wired for use as an iso booth. The control room features Logic and Pro Tools, with monitoring by Event Electronics. Acoustically, custom-built broadband and low-frequency absorber panels in the control room double as hanger mounts for the studio's large stringed-instrument collection, which also contributes additional diffusion. Auralex Space Couplers are employed to manage reflections from rear windows in the control room and as a cloud above the mix position.

Nowak is currently producing SharaLee Ward (JMD Records/INGrooves/Universal Music Group) for her debut CD. He has also been writing and recording in the new studio with singer/songwriters Cassandra Bangel, Vania Levans and Lindsay Kipp.

—Sarah Benzuly



## TEMPEST TURNS 30

Photo: Michael Woodall

Tempe, Ariz.-based recording engineer Clark Rigsby is celebrating 30 years of success in his Tempest (tempestrecording.com) studio. Rigsby has recorded many of the top names in music, including Tower of Power, Steve Gadd, World Saxophone Quartet, Kim Wilson, James Moody, Jimmy Smith, N.Y. Philharmonic Principals, Joe Alessi and Phil Smith, Joey DeFrancesco, George Coleman and Glen Campbell, among others. The key to the Rigsby/Tempest longevity? Simple. "We put music first and we make it with real people," answers Rigsby.



## NDEGEOCELLO, HENRY

Singer/songwriter/bassist Meshell Ndegeocello collaborated with the Grammy Award-winning team of producer Joe Henry and engineer Ryan Freeland for her ninth album, *Weather* (Naïve Records). It was recorded in Henry's basement studio—an open space with drum and vocal booths, but no control room—and mixed and mastered at Freeland's Stampede Origin studio. Freeland uses Pro Tools with Apogee Symphony I/O converters, summing with two API 8200

8-channel line mixers. The band recorded takes live. Freeland miked Henry's Steinway upright piano with a pair of Sony C37A mics. Ndegeocello sang into a Neumann M49 through a Brent Averill 1073MPF mic pre into a Summit Audio TLA-100A tube-leveling amplifier.

—Matt Gallagher



## SSL FOR ABBEY ROAD ONLINE MIXING SERVICE



To help celebrate 80 years in the biz, Abbey Road Studios (London, abbeyroad.com) has opened its new production/mix room, Studio 52, which features an SSL Duality SE board. In addition to the traditional client-attended sessions, the new space will help with the workload from the studio's new Online Mixing Service, where clients book mix sessions online and upload pre-recorded files, along with instructions and examples, to the studio's site. At which point, staff engineers work on the mix in unattended sessions and upload the files for client approval.

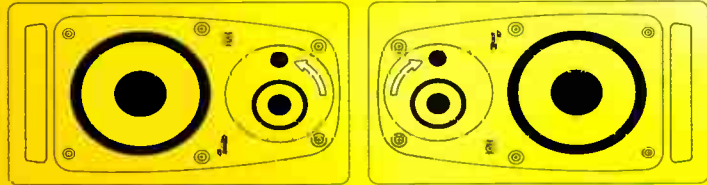
—Sarah Benzuly

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# Classic Tracks

By Sarah Benzuly



## MUDHONEY

### "Touch Me I'm Sick"

Jack Endino has been in the press an awful lot in the past few months. With the 20th-anniversary celebration of Nirvana's *Nevermind*, everyone wants to find out just how he recorded their debut album, *Bleach*.

But before he handled that project, Endino was jump-starting his producing career with EPs for Soundgarden, Green River and Mudhoney, whose debut single, "Touch Me I'm Sick," gets this month's "Classic Tracks" treatment. Interestingly, this song was a case of both artist and producer beginning their careers and putting out a piece of work that would not only put them on the map, but would also fire the powder keg that became known as "Seattle grunge."

Tracking for "Touch Me I'm Sick" took place at Reciprocal Recording (Seattle), which Chris Hanzsek and Endino opened in 1986. Endino describes the space: "The control room, triangular, was at the narrowest corner of the building, with an entry door right behind the console chair. At the other two points of the triangle were the load-in door and the bathroom, with one small iso room in front of the bathroom. The bathroom had the building's only window. There were some baseboard heaters, but no A/C or ventilation. In the summer, we would leave the door open at the back of the control room with

a floor fan in the doorway. Every time a big truck went by outside, you'd get a dose of exhaust.

"The control room was really tiny, we had terrible monitors and the acoustics of the whole studio were completely dead," Endino continues. "It was a horrible place to record, but since it was the only studio we knew at the time, Chris and I didn't realize it! The totally dead acoustics worked to my advantage with bands that liked to record live, like Mudhoney. The room was big and dead enough that you could have a super-loud band all play together, nose-to-nose, but if you close-miked everything, used gobos and were really careful of where the amps and the mics were pointing, the bleed was negligible. Not being isolated from each other, the bands felt like they were still in their rehearsal room."

The tonality of the room helped in creating that "grunge" atmosphere, especially for a band like Mudhoney, with whom Endino had previously worked, albeit individually: with vocalist Mark Arm in his former band, Green River; with Arm and guitarist Steve Turner in The Throw-Ups; and with drummer Dan Peters in Bundle of Hiss.

Inside Reciprocal, the band gathered to work on their "Touch Me" demo. Playing "together" live, Endino set up the drums on a small riser at one end of the room, the bass in the iso room in front of the bathroom and guitar amps at the other end of the room from the drums, pointing away, "with gobos also isolating them a bit more," Endino says. "I tried to minimize bleed with careful placement of mics and instruments because the bleed in that room—what there was of it—wasn't

too sonically useful." On the placement of the bassist, Endino says, "I hated DI bass, and to this day I rarely use it in a mix. I prefer the sound of a 15- or an 18-inch speaker, close-miked, driven hard with a burly tube amp."

When you think of Mudhoney, you think "big, fat, fuzzy guitars." Asked how he got that signature sound, Endino replies, "I think I said something along the lines of, 'Are you sure you want the guitars to sound that fuzzy? Okay, then...'" They wanted to capture a crazy garage rock sound, just as they played it. There was not a lot of 'producing' to do, except for reminding them to tune, which they needed someone to tell them. [Laughs] It was actually not that easy to record; it was all about mic placement. I just put the mics in the right place, added some 1k and smacked the tape.



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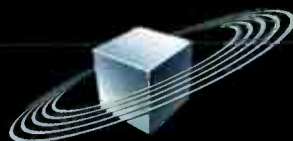


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Mark had an Ampeg combo, maybe a flip-top, and Steve was using a Super Reverb. Both had fuzz boxes, and I remember being very amused that Steve was using two fuzz boxes in series for part of the song. I'm a ProCo Rat guy—I prefer a cleaner tone—but there was probably a Super Fuzz and a Big Muff in the room, along with god knows what other pedals.”

For mic selection, Endino says he was “winnin’ it” as he was new to the producing game, but chose standard fare. For drums, a 57 on snare, 414s as overheads, 421s on toms and D-112 on kick. Shure 58s and 57s handled amps, pointed close to the cones, while a 421 was used on bass. Vocals took a 58 with a pop filter. “You didn’t throw a condenser on a shouter like Mark,” he says. “It just didn’t sound right—too sibilant and nasal.”

Although Endino may have been hampered by Reciprocal’s limited mic closet, he knew that mic placement was critical. “With a band that loud and noisy, all in the same room and a guitar sound with such a high white-noise component, you have to really dig to find the music. Don’t even get me started on the hi-hat blowing everything out. You can’t just put some mics up and settle for the first thing you get. I would listen, go tweak the amp EQ knobs a little, move the mics an inch, listen again, tweak a little more. Sometimes the key was just turning the amp volume down a notch. You’re search-

**WITH A BAND THAT LOUD AND NOISY, ALL IN THE SAME ROOM AND A GUITAR SOUND WITH SUCH A HIGH WHITE-NOISE COMPONENT, YOU HAVE TO REALLY DIG TO FIND THE MUSIC.**

—Jack Endino

ing for some tone in a wall of white noise. I got very good at that because all the early grunge bands were using extreme distortion, more than I had ever heard before. It’s the opposite of metal: You have to add midrange. You also can’t distant-mike a guitar tone like that or it just turns into gray mush.”

During tracking, Mudhoney would run through the songs, recording live except for keeper vocals. Inside the control room, Endino recorded to ½-inch 8-track: an Otari MX5050 Mark 3, “a wonderful little machine,” running from the studio’s 20-channel Ramsa board. “I made a lot of the early Sub Pop records on that machine, including Nirvana’s *Bleach*,” Endino recalls. “It ran at 15 ips, and at first we used dbx with it until I discovered that everything sounded way better without the dbx—tape hiss be damned! That was it for me; I never used noise reduction again, even on 24-track. I rarely did track bouncing or comping back in those days because I learned on an 8-track, and where you going to bounce to? That would have upped the noise a lot, never mind degrading the sound quality. If I had multiple vocal takes, I would unmute back and forth between the tracks while I was mixing, comping it in real time.”

With the tracks laid down, Endino began the mix (to ¼-inch at 15 ips

on a Revox PR99). Drums (sans snare) were already submixed to two channels, so he panned them left and right. If he wanted more cymbals, he would add some 10k; more kick, add some 80 Hz; more toms, add 1.5k. “I had to learn to get the balance right when I recorded it,” Endino says. “Since the whole kit was getting the same EQ, it was pretty phase-coherent. Snare would be on track 3 so that it had its own reverb send. Bass, I’d compress with whatever we had, probably a Symetrix 522 or 501. Guitars, pan ’em 8:00 and 4:00; lead vocals down the center through another Symetrix compressor. Drums and guitars I didn’t compress: The Otari did enough, not to mention all those fuzz boxes. I never mixed with stereo bus compression, and still usually don’t. It makes you work harder at getting your mix right. Vocals were distorted ‘live’ during the mix by being re-amped

through my Twin and brought back to channel 9 of the console so I could blend the clean and distorted vocals for maximum intelligibility. I think there’s a little slap echo, too.”

All in all, the sessions for the demo came down quickly: an initial 6-hour tracking session, second 5-hour session for vocals and mixing, and a 3-hour session for mixing or remixing. A total of 14 hours for five songs, costing the label a whopping \$325.

Prior to the release of “Touch Me I’m Sick,” Sub Pop sent a five-song Mudhoney tape to New York-based Sonic Youth, who proposed a split-single where they would cover “Touch Me I’m Sick” and Mudhoney would do Sonics’ “Halloween.” This limited-edition 7-inch vinyl hit the streets in December 1988, four months after “Touch Me I’m Sick” was officially released.

Mudhoney’s single came out as a 7-inch vinyl; in distribution were 800 clear coffee-brown vinyl copies, 200 black vinyl copies and a few assorted vinyl color copies. The record, which came in a white paper bag without a picture sleeve, had an inscription on the A-side: “What does the word ‘crack’ mean to you?” The B-side sticker featured the toilet picture that would become the cover art of the sleeved second edition of the single. The track would never quite propel the band into mainstream acceptance, but it did have an incredible influence on other local musicians, including Nirvana’s Kurt Cobain, as well as putting Seattle squarely on the map as the capital of grunge music.

As for the studio, Reciprocal closed in 1991, but still remained a music-recording space, most recently as the temporary home of Hall of Justice run by Death Cab for Cutie’s Chris Walla.

For Endino, this track was at the early stages of his career, and he didn’t consider himself a “producer” yet. “I was still focused on playing guitar for Skin Yard. The UK press went nuts for the Mudhoney single, though. No one had heard anything like it before. It took me awhile to realize the impact it had. I guess people were kind of whacked over the head by the sound of it. It’s a nasty little record. [Laughs]” Since then, he’s been in demand as a go-to rock producer for Nirvana, Soundgarden, TAD, Screaming Trees, Afghan Whigs and many more. He’s still in Seattle, as an independent engineer/producer, most recently working on the new Screaming Trees record on Sunyata Music. He can be reached at endino.com.

## MUSIC EVENTS IN 1988

**March 2:** U2’s *The Joshua Tree* takes home the Album of the Year Grammy Award, while Narada Michael Walden is awarded with Producer of the Year, Non-Classical.

**April 19:** Sonny Bono is inaugurated as the Mayor of Palm Springs, Calif.

**April 30:** Celine Dion wins the Eurovision Song Contest for Switzerland with the song “Ne Partez Pas Sans Moi.”

**September 10:** *Billboard* publishes its Hot Modern Rock Tracks chart for the first time.

**December 8:** Vocalist Roy Orbison dies of a heart attack.



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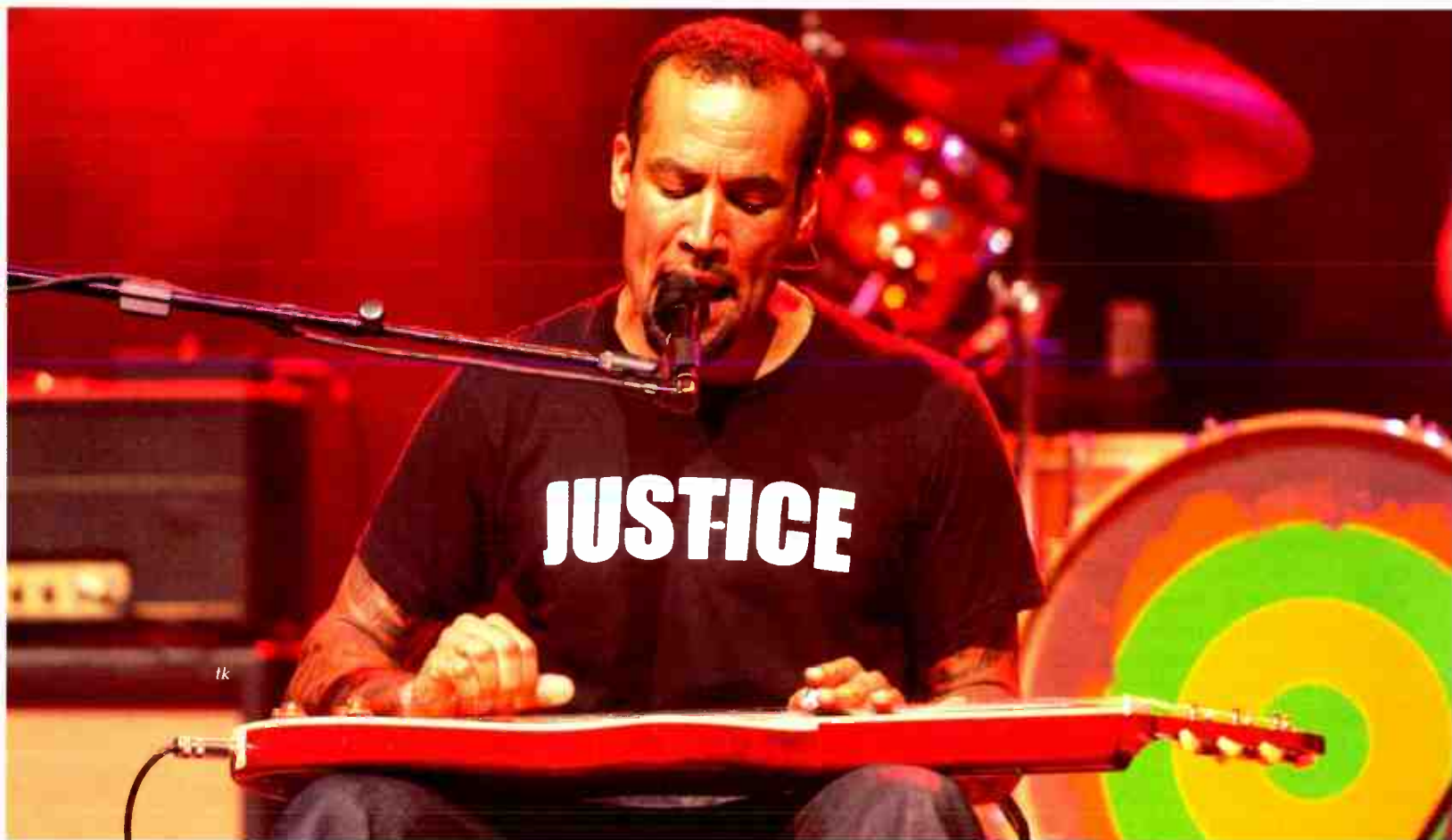
**BEN HARPER & THE RELENTLESS7**  
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## BEN HARPER & THE RELENTLESS7

### House Gear Proves Educational

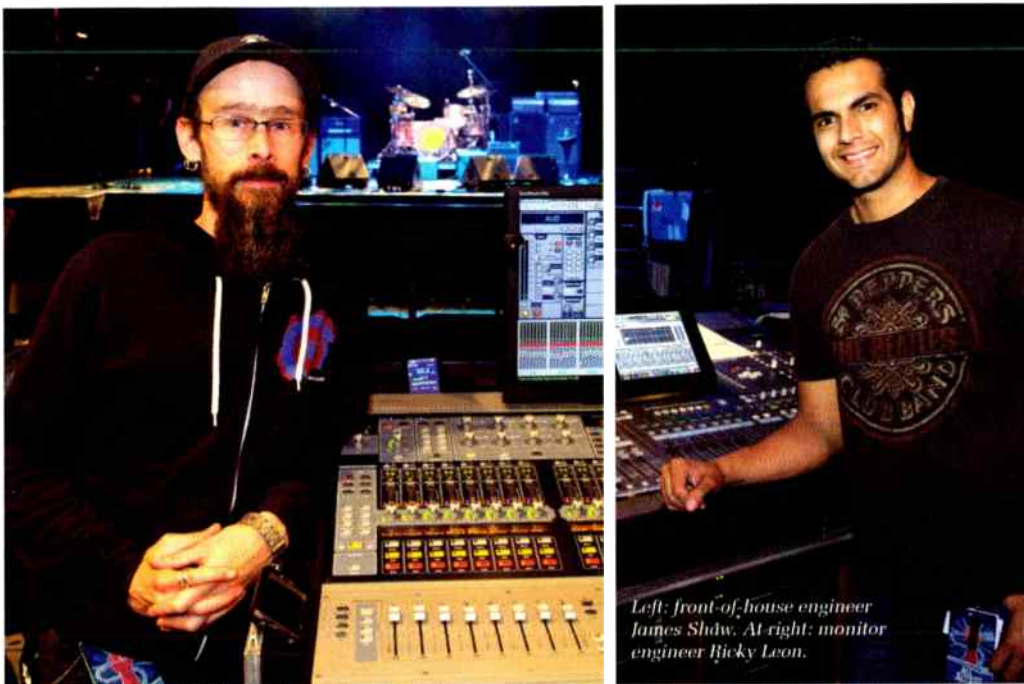
By Sarah Benzuly

**W**hen I learned that for the latest round of Ben Harper & The Relentless7 dates, front-of-house engineer James Shaw and monitor engineer Ricky Leon were contending with house-supplied gear, I was a bit surprised. A five-piece rock band, dueling electric guitars and a very specific sound—I would have thought that the tour would have been using a sound company to help create consistency from gig to gig. But when *Mix*

caught up with the tour at San Francisco's Warfield Theater, this proved to be unfounded concern.

Shaw has been in front of numerous desks during this run, but prefers to stay in the analog domain "It's not so much about the sound of the desk as compared to how smooth it is to mix the show in the moment," explains Shaw. He doesn't employ much in the way of effects: standard compression and gating; some reverb on drums and acoustic guitar; delay on vocals; and flanging on vocals for two songs. "Most of the time," Shaw adds, "I'm doing parallel bus com-

pression of a drum mix, which while easy in the analog world, sometimes takes some thought about delays incurred when in the digital world. It's a straightforward five-piece rock band, and I try to blend it all together with nothing necessarily on top. Of course, Ben's vocals need to be intelligible and somewhat on top. The trickiest part would be getting the two electric guitars to be distinguishable from each other. In the studio, panning the guitars can take care of much of this, while live, if you get too extreme with it, then the people off to each side usually miss out on the guitar panned to the opposite side. I get away with what I can and go extreme for some special moments—almost as an effect."



In Leon's case, he's enjoying being presented with numerous types of consoles, providing him with a chance to learn how each board ticks. For effects, he's using onboard reverb effects for Harper's in-ears. "I mix everything post-fader, and I split Ben's vocal mic [a Neumann KMS 105] so that one will be sent to the wedges and the other would be sent to his ear," he says. "This gives me the chance to EQ differently and compress the vocal to his ear. Ben can be off and on the mic, or he'll just scream into the mic. Compressing the vocal for his ear really helps me out so that he doesn't hurt himself and I can concentrate on riding the wedge vocal for everyone else. He only wears his left side of the ear, so I blend the two together. The drummer [Jordan Richardson] likes to have pretty much everything in his mix and loud. He also sings, which makes it a bit more difficult for me because the monitor is right at his head. [Laughs]"

Constant communication with the band onstage is paramount for Leon. "It is very important that I have line of sight at all times," he explains. "I am a pro when it comes to reading facial expressions and gestures. [Laughs] I thank the guys on the crew because they are also my eyes when one of the band members needs something in their mix."

Shaw also relies on the crew—specifically, the house system tech—when it comes time to align the house system. At some venues he'll double-check delay times, and when the system isn't cooperating, he pulls out some tried-and-true apps: Fuzzy Measure to set delay times and Spectre for coherence and RTA.

While the engineers are finding new gear at each stop, they can simply pop open the mic road

case and get straight to work. Harper's guitar goes through a single 12-inch cabinet with a Sennheiser e 609 mic; all other guitar mics are also e 609s.

For drums, a Shure SM91 goes inside the kick while an Audix D6 is placed on the outside. "Snare top is a bit of an oddity as I've been using a Shure KSM9 that we had lying around with good success and hi-hat rejection in hypercardioid mode," says Shaw. Snare bottom and snare top get Beta 57s, Sennheiser e 604s are on toms, Audix SCX-1 on hi-hat, SM98s on cowbell and agogo bells, and AKG 214s for overheads in a Glyn Johns pattern.

In addition, Shaw pulls out Shure SM87s or Neumann KMS 105s for audience mics as each show is being recorded—at front of house and onstage—with a multitrack recording rig comprising two Alesis HD24s with PreSonus mic pre's. "We carry our own splitter to send to our recording rig and to feed the locally supplied split to feed house and monitors," Shaw says.

Both Shaw and Leon are quick to say that if not for having a great crew to work with and a stellar band to mix for, their job could have been a lot more difficult. "We are a tight crew; we take care and help each other out," enthuses Leon. "I am so grateful to be a part of this camp, and even though I am the youngest and have the least experience, I thank Ben and everyone for giving me this chance."

"Touring with Ben has been great, both with the Innocent Criminals and the Relentless7," adds Shaw. "We have done some great shows in some amazing locations throughout the years, and hopefully there is more to come!"

## LIVE FROM THE HOUSE OF LES

Though still considered a nascent technology, concert Webcasting—especially in a festival atmosphere—can be a great marketing opportunity or alternate revenue source for artist and venue. Always keeping an eye on the future, Iridium Club (New York City)—the home of the late Les Paul—has begun a series of Webcasts featuring performers gracing the long-storied club's stage.

At last year's NAMM show, club owner Ron Strum met with Dean Guitar, which wanted to do Webcasts to promote their endorsed artists. Strum began the hunt for a Webcast vendor, settling with Live Stream, which would provide its platform and handle distribution. Using the club's recently constructed recording studio—centered on a 24-track Pro Tools system—Iridium is able to send out a high-quality, high-definition feed to its Facebook page. The studio's engineers take signal from the stage using a splitter and make tweaks on the fly (reverbs and such) as it hits Live Stream's platform and then the Web. In addition, those engineers are also recording for a possible "Live From Iridium" CD series release.

"We're giving [the artists] the footage that they can promote and we get the footage that we can promote," says Strum. "Through learning about the Webcasts, it's a strategy with us because we're really focused on social media and our fans on Facebook. The advantage of it is that it's going to grow in the future and it spreads virally. If those 50 people with Facebook accounts watch it, and they have 400 friends, potentially you've got 20,000 people right off the bat. It's a small base, but it's going to grow."

"We're giving the Webcasts for free now. We feel that a lot of the people who are watching it are outside of the New York area, and I don't think it cannibalizes people coming down to see a live show. I think over time, people from other countries will see the Iridium brand and want to see the club when they come to New York. I think Les would be smiling about this because he was one of the fathers of modern recording."

—Sarah Benzuly



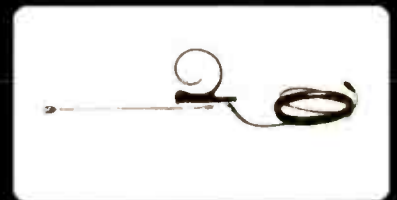
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Photo: Sven Holcomb

## JEFF BRIDGES & THE ABIDERS

The Jeff Bridges tour this fall that popped up on a lot of national TV and in some select West Coast wineries sure looked like a lot of fun. Like a bunch of guys getting together on the back porch at Hollister Ranch, working through a playlist they all know through and through. There were songs from *Crazy Heart*, sprinkled with a number of tracks from his recent self-titled album, some of them co-written by Bridges. He is definitely not an actor dabbling in music; he is a bona fide performer. And he's got a crack band, starting with musical director/lead guitarist Chris Pelonis, whom *Mix* readers might know first as a first-call studio designer.

Specs: Front of house by Jeff "Raz" Rasmussen; monitors by Tyson Leonard. House-provided sound.

## KID ROCK FRONT-OF-HOUSE ENGINEER STEVE CROSS

**FIXIT**

[Avid ReVibe] is versatile enough for all my needs in this show. With the exception of one "effect" verb, I try to keep all the verbs for the vocals and instruments very similar in type and decay. If I move from a large hall to a plate verb, I make that change for all verbs and then tailor the times to get them to layer nicely with each other. Another plug-in I use a lot is the Crane Song Phoenix. It has a nice way of bringing things forward in a mix without simply turning them up. Other than that, there are lots of delay cues that use the Avid delay. I use channel compression where needed, but no compressor plug-ins at all.



Photo: Steve Jennings

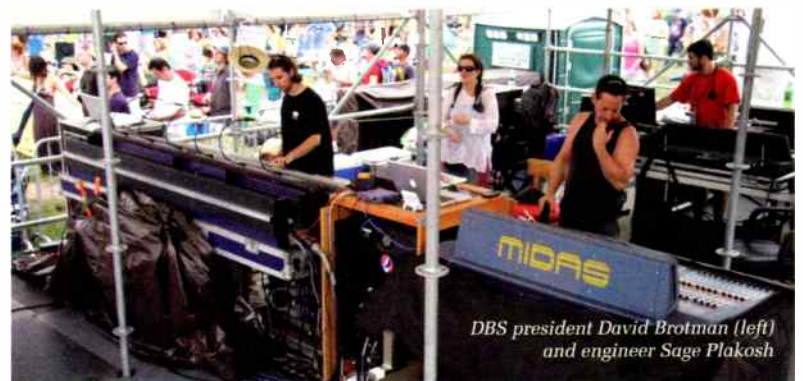


## MOM GETS QSC TREATMENT

Part of an A/V system integration for Budapest's MOM Cultural Center is a QSC IIA line array system, with a dedicated SC28 system controller to optimize and control L/R hangs of six WL2081-i models and two WL118-sw elements per side, powered by RMX5050HD, RMX4050HD and RMX2450 amps. QSC's Hungarian distributor, Interton Electroacoustics, worked with acoustic consultant András Kotschy and contractor Market Ltd. "We ran the main system in a tri-amp-plus-sub configuration using the recommended settings, but with some EQ fine-tuning to meet the needs of the operators," says Interton design engineer Ferenc Volár.

## DBS SUPPLIES THE VIBES

DBS Audio Systems (Coatesville, Pa.; [dbsaudio.com](http://dbsaudio.com)) handled sound for the Gathering of the Vibes festival in Bridgeport, Conn., that featured Further, the Levon Helm Band, Tedeschi Trucks Band, Elvis Costello & The Imposters, Jane's Addiction and many more. The multi-faceted sound company brought in a Meyer MILO array with four M'elodie cabinets underhung per side. Lows were covered with 16 Meyer 700HP subs set up in a cardioid pattern, while 12 Minas were deployed for an outfill on the stage-right-side only. In addition to the slew of band-provided consoles, DBS also provided a Midas Pro 6 and a Midas Heritage 1000 for those who weren't carrying.



DBS president David Brotman (left) and engineer Sage Plakosh



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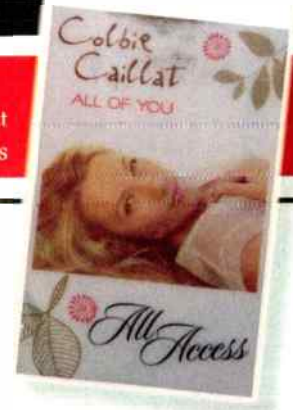
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## COLBIE CAILLAT



Colbie Caillat sings into a Shure UR2 wireless mic with an SM58 capsule.

Out in support of her latest, *All of You*, singer/songwriter Colbie Caillat brought out a stellar backing band at San Francisco's Regency Ballroom in San Francisco. *Mix* caught up with the crew, who are relying on house-provided gear.

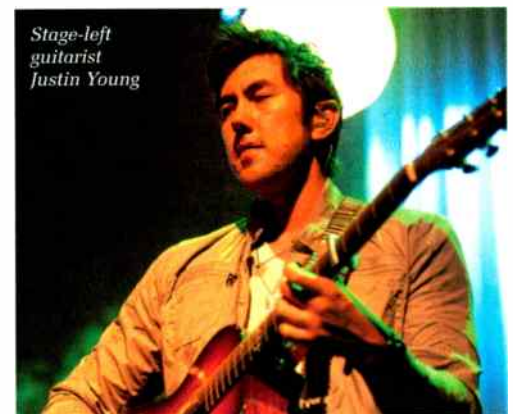


**Front-of-house engineer Jonathan Loeser** is relying on house-provided consoles, using a Yamaha PM5D at the S.F. date. "I prefer to mix on analog, but with Colbie, I'm using 44 channels, so when it comes to most analog consoles, it doesn't leave room for our support, Andy Grammar, whom I also mix," says Loeser. "If we get a digital console, it makes it easy to recall the show and not have a second console."

Onboard, Loeser employs Waves plug-ins, and Avid C6, Doubler, Renaissance Reverb and the Q10. "I don't have them consistently on this tour, but I plan to put together a small MixRack system that would replace my current outboard rack," he says. "When I found out that I wouldn't carry a console on this tour, I at least wanted to have some consistent effects and vocal comps. For the effects, I have an Eventide H3000, TC Electronic D2 and M2000, and a good-old Yamaha SPX-990. I have two dbx 376 tube channel strips for the main vocal and spare. I use all this for days with PM5Ds; for analog days, I add the BSS 404 comps for BGVs and the dbx 1046 and 1076 for the kick and snare. On days that I have an Avid console with the Waves plug-ins, I don't use the rack at all."



**Monitor engineer Monte Carlo** is also mixing on a Yamaha PM5D at the Regency, using onboard Waves Compact Soundgrid Server and such plug-ins as C6 multiband comp, Kramer PIE bus comp, Bass Rider, TruVerb and Doubler. The eight monitor mixes are being sent via Sennheiser G3 Series transmitters to the musicians, who are wearing a collection of Ultimate Ears UE11s and UE7s, and Sensaphonics 3Max/3D systems.



Stage-left guitarist Justin Young





**Donald Barrett's drum kit** is miked with a Beta 91 (kick), Beta 52 (sub-kick), SM57 (snare top, bottom), Beta 181 (hi-hat, rider), Beta 98 (rack, floor 1 and 2) and KSM 137 (overheads). Next to the Aphex Headpod 454 is a shaker amplifier for his drum throne (inset). "It's similar to a ButtKicker, except the driver is built directly into the seat and delivers tremendous low end without needing a large amp," says monitor engineer Monte Carlo.



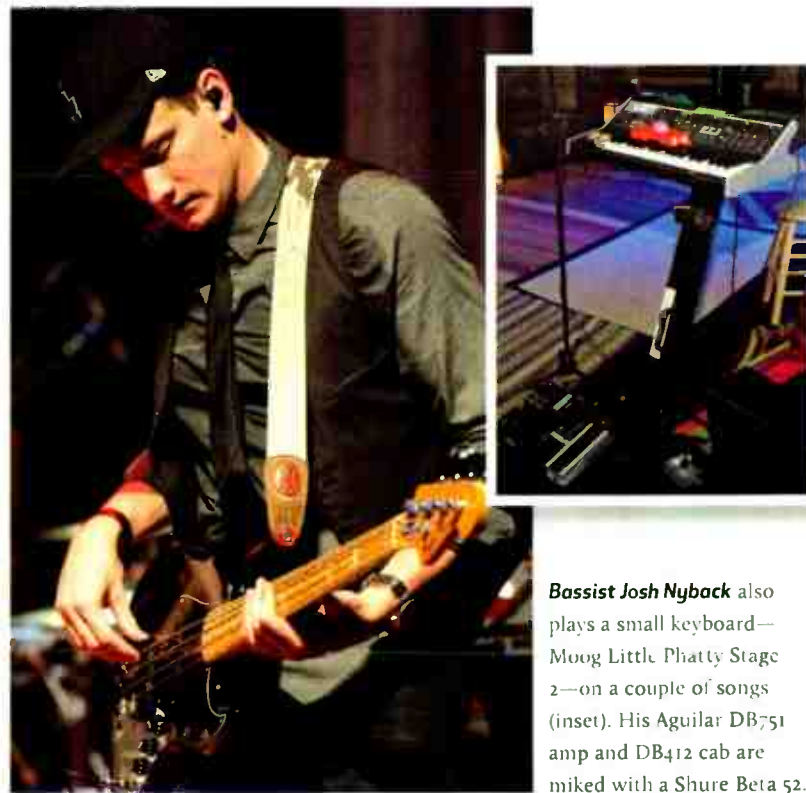
**Dory Lobel's (stage-right) guitar amps** are Mesa Boogie Lonestar Special 1x12 and a Transatlantic 30 2x12, both miked with Shure SM57s off the center of the cone. Effects pedals comprise Piggy FX, Visual Sound, Line 6, Xotic Effect, Voodoo Lab and Maxon



According to backline tech/stage manager **Terry Staley**, Caillat uses all custom guitars, including a Gibson Songwriter Standard, Dove and Coco.



**Keyboardist Daniel Mandelman's** setup includes a Nord Stage 88 ES and Electro 3, Yamaha Motif ES7 and a M-Audio Axiom, the latter controlling the Electro 3 and allowing physical freedom when playing the organ without having to cross hands. Logic and M Audio ProFire are running the tracks.



**Bassist Josh Nyback** also plays a small keyboard—Moog Little Phatty Stage 2—on a couple of songs (inset). His Aguilar DB751 amp and DB412 cab are miked with a Shure Beta 52.

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## PEARL JAM 'TWENTY'

### Rock Doc Gets Film Treatment

By Blair Jackson

**S**eattle rockers Pearl Jam are celebrating their 20th anniversary in style—with a new music-heavy documentary, *Pearl Jam Twenty*, directed by Cameron Crowe, which was released briefly in select theaters, turned up on PBS in late October and is now out on DVD; a double-CD soundtrack album compiled by Crowe; and even a big, photo-filled coffee table book devoted to the group. All this from a band that has traditionally been boldly pushing forward at all times and gaining momentum with each passing year.

*Pearl Jam Twenty* features performances that span the group's entire career, literally from their

second gig opening for Alice in Chains in 1990 to the present. And though there is some interview footage of the band (some shot specifically for the film) interspersed along the way, it is still by and large a music film—Crowe and others have compared the approach to the much-lauded 1979 *The Who* doc, *The Kids Are Alright*.

The film's primary mixer was Eric R. Fischer, who laughingly admits that he got the job "from pure nepotism. My brother, Andy Fischer, is a producer who has been working for Cameron for years." That may be true, but it doesn't mean Eric Fischer was not highly qualified: "I've been an engineer since '93, and on and off I've helped on a couple of things for Andy and Cameron. For instance,

I mixed a couple of tunes for *Elizabethtown*. So when this project came up and they got closer to being finished with editing, Cameron asked Andy if I'd be interested in mixing the movie, and of course I said, 'Yes.' Engineering-wise, this is the direction I've been going the past couple of years—mixing for picture."

Fischer came onboard once the editing was close to being finished (by Kevin Klauber and Chris Perkel, who also helped with the sound design and music editing), so he had the advantage of knowing what pieces of music were going to be used and how. Fortunately for Fischer, too, many of the recordings he was working with for the film were high-quality multitracks.

"Pearl Jam has a really extensive vault," he says, "and over the years they've been good about gathering whatever sources are out there, in addition to recording all their live shows from a certain point on. Because Cameron has such a good relationship



Primary film mixer Eric R. Fischer in his studio space.

with the band, we had access to everything, so as we were getting into it and mapping things out, I'd say, 'Let's get the multitrack of "Jeremy" off *Ten* and do a 5.1 mix of that for this section of the movie,' and a day or two later—boom—we'd have it. If multitracks were available and were recorded, we got 'em, so a lot of the live material was mixed from scratch."

Brett Eliason, who was Pearl Jam's front-of-house engineer for their first decade, has worked with them in the studio and spearheaded literally dozens of Pearl Jam live releases through the years, recording multitracks regularly in the late '90s on ADATs before moving on to Pro Tools. John Burton has been the group's main live recording engineer and audio archivist in recent years. "For the stuff that was before [multitracks]," Fischer notes, "we had a ridiculous assortment of sources, from 4-track to Hi-8 camera audio to DAT recorded alongside 16mm film." Fischer also did all of the dialog clean-up, editing and mixing.

Fischer's studio in the hip Silver Lake dis-

trict of L.A. includes a Pro Tools|1D3 rig, a Sound Performance Lab SMC-2489 monitor box, five Yamaha HSM 80s near-fields and a Yamaha SW10 for a subwoofer. Though he owns a considerable amount of traditional out-board gear, for this project, which was mixed entirely in the box, he used only plug-ins. For example, "I've started using Sonnox plug-ins, especially the Inflator plug-in on the older 2-track stuff, and it worked great," he says. "It's kind of

like a 'loudness' button on a stereo. It adds some upper-end harmonic stuff and it heightens the bottom end. It was a big help.

"I've also started using Waves plug-ins a lot—like the [M360] surround suite, and I absolutely fell in love with a couple of their EQs," he continues. "For this project, I bought the UA DUO—the FireWire box that's a processor for their plug-ins—and I started buying a lot of their plug-ins like the 1176. This is a competitive business, and when you have your own studio you get to that point where you think, 'Do I spring for a \$2,000 LA-2A or should I buy this plug-in?' I actually almost bought an actual plate for this project because we were going for that *Live at Leeds* [The Who's 1970 live album] plate sound, but the [UA EMT 140] plug-in was so good I didn't need it."

Fischer used multitrack masters to create surround mixes for 21 different songs in the film, and the full versions of each of those appear on a second DVD of complete performances of songs that are in the main documentary. As the band's representative, Eliason made a few suggestions for tweaks, but in general it was left to Fischer to finesse the mixes. Then re-recording mixers Doug Hemphill and Ron Bartlett (both veterans with amazing credits) used Fischer's stems "and took it to the next level," Fischer says. "That was a nice learning experience for me working with them."

Still, he says, "It was Cameron's show. The film is a great journey. It's not just another rock documentary. It's much more."

## VOCAP— CHANGING GAME VOCALS

Keith Arem has done, it seems, about every job in audio: recording artist and engineer, sound designer, composer, field recordist, talent director and, now, film director, with two titles on the horizon. But this month he's talking videogames, a field he's worked in since the mid-'90s, forming PCB Productions (L.A., pcbproductions.com) in 2000 to handle sound design, Foley, ADR, music and just about any audio need for a slew of major interactive titles. Now he can add the moniker of "product designer" with the debut of VOCAP, a custom vocal recording system that he's betting will change the fidelity and



Keith Arem directs the voice talent with the custom carbon-fiber VOCAP helmet in place.

realism of vocal performances in games.

"Traditionally, videogames are recorded one actor at a time, in a booth," Arem explains. "But many of the titles we're working on are very cinematic in their themes and epic in their casts. We're running six to eight actors at a time here on our live stage, simulating the voice recording much like we would motion capture, but in a treated room. Then we can bring those tracks and play them back on the motion-capture stage, which only helps improve performance.

"We partnered with a company called Technoprops, which did all of the headsets for James Cameron on *Avatar*," he continues. "They designed custom carbon-fiber helmets for us with mounted DPA 4021 mics about 12 to 18 inches off the mouth. And it's all wireless, so the actors can interact and perform naturally. This is the closest that games are now getting toward film. The performance and fidelity are fantastic."

The helmets also house hi-def cameras so that facial capture is also recorded.

The first full implementation of the VOCAP system can be heard this month on the highly anticipated title *Saints Row: The Third* (THQ and Volition).

—Tom Kenny

### more online



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## FROGS AND FIATS

Mark Mangini and *The Rum Diary*

By Matt Hurwitz

**C**oquis: the tiny little chirping-frog natives of Puerto Rico. In San Juan, where Bruce Robinson's *The Rum Diary* was filmed, they are literally everywhere—even on the soundtrack—whether one wants them there or not.

But supervising sound editor Mark Mangini (Soundelux) did want them there, just under the control of the sound department. "With the soundstages they shot in down there, they couldn't get rid of them," Mangini explains. "We never had a properly clean dialog track."

But Robinson was keen to use the production recordings to keep favorite performances intact. So dialog supervisor Curt Schulkey, using iZotope RX and other spectral repair tools, carefully isolated the actors' dialog from that of the frogs. But the Coquis are part of life in San Juan and still needed to be heard—everywhere.

That was one of Mangini's challenges as sound designer: to help put audiences in the world of late writer Hunter S. Thompson's Puerto Rico, where journalist Paul Kemp (Johnny Depp) slowly finds himself enveloped. "Most



Sound supervisor Mark Mangini in his design/mix suite

## *Every Time, All the Time*

Front of house engineer Patrick Mundy knows a good thing when he sees one. Take for example Yamaha's M7CL. Beating out any and all competitors, the M7CL is chocked full of useful features making his life at FOH a breeze. Asked what he enjoyed about the mixer, Mundy had much to say. Here's just a sample.

"When mixing artists whose music you may not be familiar with, having access to all your channels in a pinch is crucial. With most competing desks, plus or minus thousands of dollars in the price range, you'll end up flipping through pages trying to find what's ringing in monitor world or over the mix for FOH. Yamaha's M7CL is a true professional board. Being a professional is about being consistent and fast every time all the time. The M7CL gives me a flexible customizable work surface that does not stunt my creative vision as a mixer."

*— Mundy*

*California Based Freelance Engineer mixing festival gigs such as SXSW and Rock the Bells as well as House of Worship festivals such as Light at the Lighthouse and Calvary Chapel events.*

Mundy offered up some of his secret sauce settings that he uses as a starting point. Check them out and download them at [www.yamahaca.com/mundy](http://www.yamahaca.com/mundy)





filmmakers aren't aware of how sound is affecting them, dramatically, as they watch a film," Mangini says. "I think great sound design is most effective when it works at that subliminal level, a place at which much great cinema art works." So, Coquis.

The trouble was, Mangini could find no library recordings of the amphibians to insert into the background, even among his own 2TB library of 200,000 sounds collected during the past 35 years. "No one's ever really done a proper recording of them," he says, noting the exception of the production track. "Between dialog lines, Curt would clean out the Coquis. So he just gave me a bunch of the most egregious takes, where the Coquis were as loud as the dialog!" Mangini then cobbled together, from hundreds of takes, a clean 4-minute, stereo-ized ambient sound effects bed, which could then be placed underneath the dialog in a controlled manner.

Another part of Kemp's San Juan life that plays a big part in the film is his car, the venerable Fiat 500. The tiny two-stroke, rear-engine, air-cooled auto—recently reintroduced by the company, though not with that unique-sounding drive train—had been out of production since the early '70s, so a controlled recording for sound effects purposes became a problem.

"You just can't find them in Southern California," Mangini says. "The couple I did find were restored and in flawless condition. I needed to beat 'em up—drive them like crazy and skid around corners with them."

Mangini called his "usual sources" (i.e., his buddies in the business) and eventually found one of the cars in Barcelona, Spain. "A good friend of mine, a fine sound designer, mixer and editor in Madrid named Gabriel Guttierrez, found a collector who was willing to rent us his car for two days. And we did everything with it."

Not only was Guttierrez tasked with recording the usual "full series" of basic car sound effects (starting, idling, driving away, pulling in, interior constants, etc.), but also a laundry list of "performance" recordings corresponding to a specific action taking place onscreen. "I gave him a list of sounds that were specific to this movie that would be too hard to edit from whole cloth, without them actually being performed," he says.

In one scene, the Fiat is found stripped by thieves, not in particularly good running condition. Onscreen, the car is seen bobbing up and down as Kemp struggles to control the vehicle, even driving it down a set of stairs. "So I gave

Gabriel specific directions: There's a scene where Kemp is bobbing back and forth, and the engine should be revving and stopping, revving and stopping, in a sort of silly, cartoon-y way. Do that for 20 seconds. And then he drives down the set of stairs, so we need even more weird revs and the bouncing suspension sounds." Mangini sent QuickTime videos of the scene to further assist Guttierrez in visualizing his recording needs. The designer then fine-tuned the recordings to match specific visual cues. "I don't time-stretch," he says. "I just take out little slivers along the way to get a moment to hit."

Guttierrez recorded a total of 215 such cues of the Fiat, in multichannel, to give Mangini material to create a full, rich spread.

Mangini was also able to take advantage of additional background material recorded for the film by production sound recordist Ed Tise. "He's an extremely conscientious sound recordist," Mangini says. "He would get up at 2 in the morning—this was all on his own time—and record these dawn and dusk recordings for us, knowing we'd love to have them. For us in post, this is just gold."

Among Tise's recordings were a number of group wallas made specifically for the film. "There's a gambling component where there are crowds of 50 men in these open-air plazas, betting on cockerel fights. And it's a unique sound that I could never reproduce. It's a certain kind of Spanish, a certain kind of guy that goes to these things that says certain kinds of things. A group walla could never reproduce this, so Ed captured a whole bunch of wild track."

For those and other crowd scenes, Tise not only recorded the close-miked dialog of characters seen onscreen, but also made multichannel ambient background recordings of those same takes. "The dialog recording has those same 50 guys betting, but it's in mono. He got a wild track, in stereo, that I could then lay on either side of it. It's like a perfect marriage of sound effects and production sound that doesn't sound artificial."

Good sound effects design usually gets plenty of attention when it involves big action scenes or sci-fi effects, but Mangini notes the type of work created for *The Rum Diary* is equally important to the moviegoer. "It gives you a sense of place and time," he concludes. "There's no T-Rex attack or backward screaming monkeys; I don't have any of those stories on this one. [Laughs] I just think I've done a nice job of putting you in Puerto Rico in the '50s. Everything feels real; it just supports the film."



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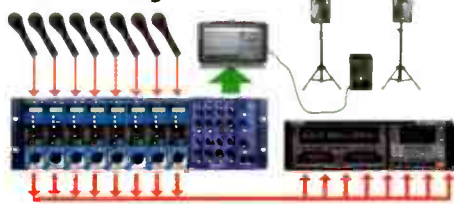
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# TRI STUDIOS

## Pushing Concerts Over the Web Into the Next Century

By Blair Jackson

**D**uring their 30 years together, the Grateful Dead established themselves as audio innovators of the highest order (no pun intended). They were the first group to use top-shelf hi-fi components as part of their SR setup, and among the first to regularly employ monitor wedges.

They hot-rodged everything from guitars to amplifiers to loudspeakers in search of cleaner and more powerful sound, and their justifiably legendary Wall of Sound system in the early '70s remains a model (albeit a financially impractical one) of how to deliver pristine audio to large numbers of people. The Dead also always supported up-and-coming instrument and gear artisan, from Alembic and Doug Irwin on the guitar/bass front, to Meyer Sound loudspeakers and Gamble front-of-house and monitor boards. Guitarist Bob Weir and drummer Mickey Hart were both home studio pioneers.



Overview of Slightly Stoopid Webcast



The main control room

Sixteen years down the line from Grateful Dead guitarist Jerry Garcia's death, both Weir and Hart continue to push the sonic envelope onstage and in their studios, always looking for that next cool audio thing—often putting their own money toward redefining the “state of the art.” In Weir's case, that has led to a fascinating new venture known as TRI Studios in San Rafael, Calif. TRI—an acronym for Tamalpais Research Institute (Mt. Tamalpais being the most prominent topographical feature in the region)—is an 11,500-square-foot warehouse studio complex that includes two large rehearsal/recording/performance spaces, two audio control rooms, a video-editing room, five iso rooms, machine rooms and a handful of offices. Initially designed to be, in Weir's words, “the ultimate playpen for musicians,” it is fast-evolving into something much bigger. The past few months have seen several hi-def Webcasts featuring Furthur (Weir's jam band with Grateful Dead bassist Phil Lesh and others), stoner reggae/rock/hip-hop groovers Slightly Stoopid and the supergroup Chickenfoot.

Weir did have another rehearsal space in San Rafael he hoped to turn into a proper studio, when the building that now houses TRI—the former home of Bay Area Sound Studios rehearsal studios—became available. “I'd just come off the [2009] Dead tour and had some nickels in my jeans and it came on the market,” Weir says. “The deal is it had close to \$1 million of acoustical treatment put into it [by BASS], so for almost anyone who would buy a building like that, all that would have to come out and it would be really expensive. The asking price was real cheap on that account so I waited and bought it. What really caused all this to happen was at the end of the fall of 2009, the good folks at API were doing a little show at AES in New York and they invited me to come back and play their little hoe-down. In return they offered me a real swell deal on their top-of-the-line, all-the-bells-and-whistles 5.1, 48-in board. So I jumped at that.”

With that choice API Vision board as the anchor, Weir next enlisted a pair of old friends to help him turn the new building into a world-class facility.

Studio COO John Cutler had been in the Grateful Dead orbit since the early '70s, as an equipment designer, mixer for numerous live broadcasts, co-producer and engineer on their two '80s albums (*In the Dark* and *Built to Last*), FOH engineer for the Jerry Garcia Band for many years and, ultimately, for the Grateful Dead from the spring of '94 until Garcia's passing in the summer of '95. Another tech expert, Dennis “Wiz” Leonard, also came onto the Dead scene in the early '70s and has worked on and off with them ever since while establishing himself as an in-demand film sound supervisor and mixer.

Wiz comments, “John [Cutler] and I and a guy named Matt Lavine from a company called Bug ID [pronounced “bug-eyed”; a Bay Area A/V system design and integration firm] designed the wiring infrastructure, and the three of us chose the gear. I did all the renovation drawings for the control room and did all the acoustics and the performance room.”

In addition to the API console, the main control room contains Meyer Sound Acheron mains and HD-1s for near-fields, X-800 subs, six UPI-1p sur-

rounds in the soffit, three large video screens under the mains, Pro Tools|HD DAWs, a pair of Studer 824 multitracks, and plenty of high-end analog and digital processing gear. The “B” control room is centered around the Sony MXP-3000 console that was part of Weir’s home studio. All of the performance, control and iso rooms can be tied together.

### HEAVENLY CONSTELLATION

The 2,000-square-foot Studio One, down a long hallway from the main control room but tied in by video feed, features the facility’s Meyer Constellation system: an acoustic modeling system that uses evenly spaced, small custom microphones hanging from the ceiling throughout the room and inside the soffits, along with scads of hidden low-voltage Meyer UP4XPs, UP Juniors and double-12-inch subs. Says Wiz, “What they do is virtually upholster the room with speakers and microphones, and what you end up with modeling any acoustic environment. There are

to the limit in terms of what we designed it to do,” comments Meyer’s Michael Maxon, who was also on hand for the Stoopid Webcast. “Originally, the intent was to just re-create a few different presets [of acoustic spaces], but Bob was looking at it as being part of the band—like an extension of the band. He was also looking at it as a way to rehearse and prep for a tour. You could change the space and make it sound like an arena or a theater with horrible slap-back.”

### SUBTLE STOOPID

When I arrive at TRI a couple of hours before the Webcast, the whole facility is buzzing with activity. In the main control room, Wiz is sitting at the API with Slightly Stoopid’s regular FOH mixer, James Wisner who relays how he sets up the group’s usual Avid VENUE D-Show FOH board and discusses specific processing they might want to employ. The sound coming through the HD-1s is incredibly clean and clear, and when they A/B certain inputs

breaking band Black Uhuru. As I walk into the room, I’m struck by the incredible clarity of the sound. There’s a *lot* going on musically—the expanded band includes the core septet of leaders Miles Doughty and Kyle McDonald switching off on guitars and bass, drummer Ryan “Rymo” Moran, keyboardist Paul Wolstencroft, percussionist Oguer Ocon, trumpeter C-Money and saxophonist Dela, augmented by Dumstaphunk members Ian and Ivan Neville on guitar and organ, respectively, and jam-band saxophonist Karl Denson. Still, every subtle nuance can be distinctly heard in the room through the two Meyer UPQs that hang above each side of the performance area, aided by a pair of M3D subs. At the suggestion of James Wisner, the band is set up differently than usual, with the drums on the right side (instead of dead center), keyboards center rear.

The Constellation system’s many mics hang discreetly from the black ceiling, but the system’s many smaller loudspeakers are all but invisible. For this show, a pair of widely spaced AKG 414s about two-thirds of the way back from the band are picking up the sound of the room (and feeding into the Constellation system’s software that is “reading” the space). This time out, there is a single Constellation setting being employed for the performance—“to give a little life to the room,” comments Slightly Stoopid monitor mixer and production manager Josh Driscoll, who is manning one of the studio’s Gamble EX-56 boards in the back of the room, directly facing the band as if it were the FOH position. The four wedges for the show were Meyer UM and UM100s.

### SHOWTIME

Once the show begins—following an introduction by stoner hero Tommy Chong—Doughty and McDonald lead the big group through its paces, trading off on lead vocals all night, hitting many different nuggets from the group’s deep catalog and traversing multiple styles, often within the same song. There’s an overall mellowness to the sound, yet the interlocking parts fall together with a remarkable intensity. Weir comes out for a couple of songs and Don Carlos brings his authentic reggae spirit (and gravitas) to the proceedings for several numbers. While there are reportedly some glitches in the Internet transmission of the show (on the server end), inside TRI, the hi-fi audio and hi-def video operations are as smooth as Slightly Stoopid’s bright and infectious music.



The main studio, empty, with Constellation system mics and speakers visible

more than 20 mics, and there is no area that is hot and also none that is devoid of pickup from the mics. It’s a system that’s really part of the room.” Wiz says that presets already exist for Carnegie Hall, Amsterdam’s Concertgebouw and even one for Grace Cathedral in San Francisco, but there are seemingly limitless variations. Meyer Sound originally designed the flexible system to be used primarily in orchestral applications, but Weir was interested in adapting it to amplified music.

The system’s first “test-drive” came in the summer of 2009, when John Meyer invited Weir to bring his band RatDog into Meyer Sound’s Pearson Theatre to try out the system. “Bob was pushing it

on the Acheron mains, the crystalline signal fairly explodes in the room with a pleasing visceral punch.

On the large screens in front of the console, Wiz can follow the action in the performance studio as it’s directed by veteran filmmaker/videographer Justin Kreuzmann, who is calling the shots from the video suite down the hall. The active shot appears in glorious HD on the center screen, while smaller versions of the other camera views (there are five) take up another screen.

Over in the main performance space, Slightly Stoopid is bopping through an extensive rehearsal/soundcheck with guest singer Don Carlos, a Jamaican dancehall great formerly in the ground-

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# REALITY CHECK

Are There Jobs for All Those Audio School Graduates?

By Barbara Schultz

**"I** wonder what it would be like if we all became what we wanted to be when we grew up. I mean, imagine a world full of firemen, cowboys, nurses and ballerinas." That's a Lily Tomlin quote from an early *Saturday Night Live* episode. It is funny to imagine, and it's just as odd to think about what the world would be like if we all became what we wanted to be when we were teenagers. Imagine a world full of guitar gods, celebrity chefs, NBA players and rock 'n' roll recording engineers. In other words, not everyone can end up in his or her dream career. And logic dictates that a music industry plagued by piracy and poor sales also doesn't demand thousands more music recording engineers every year.

Still, thousands of high school grads head off to audio school to follow their dream of working in a studio, recording bands. Part of what they're bound to learn is that few of them will find full-time employment in a high-end music studio. Like all those former-future ballerinas out there, audio students sometimes need a reality check.

## REALITY-BASED EDUCATION

To help audio students face the realities of a down economy, and a really down music industry, without giving up their dreams, many of the established audio education schools and programs offer career-counseling services and internship opportunities for a range of audio careers. As director of the student services department at the Conservatory of Recording Arts and Sciences (Tempe, Ariz.; [audiorecordingschool.com](http://audiorecordingschool.com)), Greg Stefus guides students into internships that provide essential work experience—a mandatory part of his program.

"I'm a graduate of the Conservatory," he says. "When I came here, I wanted to make rock 'n' roll records. By the time I left, it didn't matter what I was doing. If I was making sound great, I was happy doing it, in any capacity. Most of our students understand by the time they leave here that even though you want to be idealistic to yourself, audio is a business and there are a hundred different ways to make money in audio if you keep your mind open to it."

Stefus says that CRAS emphasizes "reality-based teaching. That means we teach all aspects of the industry." The idea is that with a broad base of audio skills, students will be able to find some kind of work in the industry after graduation. So those aspiring band recordists will also come out of CRAS' program with some understanding of creating and mixing sound for film and TV, game audio, sound reinforcement and music business. He works side-by-side with the CRAS faculty to make sure the school's curriculum reflects changes in the job market.



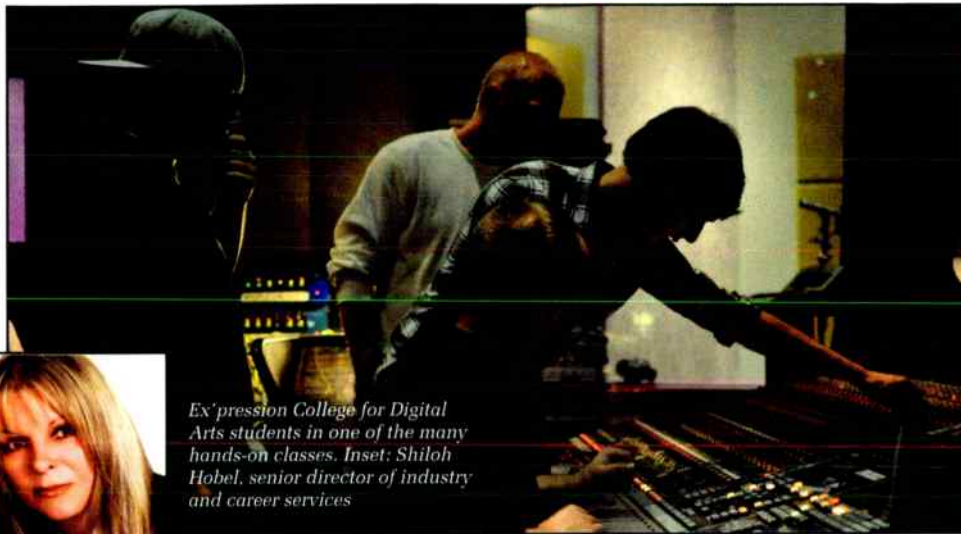
Conservatory of Recording Arts and Sciences (CRAS) graduate Joe Carvalho at Engine Room (New York City). Inset: Greg Stefus of CRAS.

The biggest change the conservatory has recently made is embracing the idea of the owner-operator as a likely outcome for many students. "With the digital revolution and everyone going smaller and everyone being able to record," he says, "we made a huge overhaul of the program, so everyone starts with their own laptop and recording setup. After completing the course curriculum, every student has the ability to enter and excel in the industry. Getting into audio now, you are going to be your own company to some extent."

Krysti O'Rourke, director of career services at Five Towns College (Long Island, N.Y.; [ftc.edu](http://ftc.edu)), also collaborates with college faculty to fine-tune course offerings to prepare students for employment. "We make sure all of our students are exposed to our MIDI lab, post-production, audio theory, corporate audio," O'Rourke says. "We've seen a greater need in the live sound market recently, so our office has been developing more internship opportunities that provide exposure in live sound. Select students also receive exposure by working at our performing-arts center, The Dix Hills Performing Arts Center."

Like Stefus, O'Rourke says her office strongly encourages students to consider employment in all aspects of the industry. Grads might have to piece together three part-time jobs or take a full-time job with a label or audio equipment manufacturer, or with a company that provides corporate A/V while recording bands on the side.

"Many of our graduates have their own home studios and are diversified in a lot of different areas, besides being musicians," she says. "We do have students who get jobs in big studios and we're proud of that. We have an interns and graduates at Avatar and Electric Lady and the Magic Shop, as well as other fine recording studios. We want students to have their dreams, but



*Ex'pression College for Digital Arts students in one of the many hands-on classes. Inset: Shiloh Hobel, senior director of industry and career services*

there's also reality to the professional world and how to adapt and adjust your career for success. We had a panel for our required internship class where a group of senior-level interns spoke to the younger students, and they were saying how it is sometimes a challenge to get an internship. Students need to get their resumes together, reach out to companies, go on interviews."

O'Rourke walks a line between opening doors—reaching out to major studios, labels and manufacturers—and requiring students to develop the skills and confidence that will appeal to employers. Her office also stays in touch with students after they graduate, continuing to give help and guidance. "Many of our successful graduates working at major companies reach out to us all the time to bring us back the opportunities to our students now—that's a great compliment to the college," she says. "We do a lot of one-on-one counseling with them while they are here, from assisting them with finding internships on campus or off campus, offering workshops and job-placement advice, and we're still offering assistance with internships and job placement after they graduate."

### STUDENT SERVICES

That's the good news for audio students: Many audio schools clearly acknowledge their responsibility not only to turn out graduates with great technical chops, but also to help them along their career path. Shiloh Hobel, senior director of industry and career services at Ex'pression College for Digital Arts (Emeryville, Calif.; [expression.edu](http://expression.edu)), says that her team includes five advisors who provide individualized career guidance. "From resume building to holding mock interviews to reviewing cover letters, our advisors offer tips and techniques so that our students and recent alumni are better prepared to successfully enter the job market," she says. "Our department also organizes employer interviewing sessions, networking and portfolio review events, and an industry speaker series."

At the large and many-faceted Full Sail University (Winter Park, Fla.; [fullsail.edu](http://fullsail.edu)), Doree Rice is associate director of career development. Her department is 55 people strong and takes a three-tiered approach to student career advancement: There's an advisor team, a team that conducts industry outreach and one that facilitates an alumni network. "Industry-specific advisors meet one-on-one with the student to partner his or her career pursuit," Rice explains.

"Services include resume and cover letter assistance, research help, interview tips, strategic goal planning and review, location-specific market information and job leads. We also govern credited internships for organizations and facilities across the country, and offer the internship opportunities to eligible students."

Full Sail's Industry Outreach department is devoted to building and maintaining relationships with audio professionals. CRAS' Stefus agrees that these kinds of relationships are essential to generating great internship and job leads for students. "My department attends various national audio events and we spend a lot of time in the cities where they take place, letting people know who we are and maintaining relationships in the audio community."

Another element in preparing students for the workplace is people skills. This is a particular sticking point for Hobel, a former recording artist and a vet

in management, spanning nearly two decades with both The Plant Studios in Sausalito, Calif., and music producer Narada Michael Walden. Like Stefus, she sees that many students will also be future entrepreneurs; she makes it her job to ensure that Ex'pression graduates know the business and the personal sides of audio, as well as the technical side. "We are teaching them how to start their own businesses, how to prepare content and demo reels for the different fields they will be entering, how to pay attention to the 'human' element of the business and how to keep the work of the artist at the forefront of their production workflow," Stefus says. "We focus on training students so that, in the media field, we are serving the clients' needs, training students to be self-reliant when necessary to complete a project, but also how to work with a team to reach a common goal."

Ex'pression also offers a class in Studio Etiquette and Psychology that helps students develop those all-important interpersonal skills. Full Sail does as well, via an initiative the school calls its "Global Professionalism" program. "This was in response to repeated appeals from employers for a system to measure and encourage professionalism and the soft skills that entails," explains Rice. "Through the program, faculty and staff track a code of conduct that is representative of the industry: timeliness, evidencing respect, preparation, attentiveness and following compliance protocol."

"You have to have that personality that people want to work with," Five Towns' O'Rourke says. "You're not going to be able to record if you don't have clients, if people don't want to work with you."

### GETTING INTO GAMES

One area where audio schools seem to be treading lightly is the burgeoning videogame audio business. From the outside, this would seem to be a key career-growth area for audio engineers. The videogame business is strong, though definitely cyclical, and all of the schools we approached for this story have added game audio to their course offerings. However, Stefus says that job opportunities for game audio engineers are still quite rare.

"Game audio is a growing area of our industry," he says. "The idea of audio people getting into games and not being programmers is still new. We're still developing relationships to show software-development companies the advan-

tages of taking on young, ambitious engineers. When I was at the Game Developers Conference, I talked to two audio guys for a major software-development company, and they only had two audio guys on staff. They told me that on one of their projects, when the video, programming and integration were done, those people were having keggers before the project even got to audio. They were celebrating the game completion. So audio is still really the last step; of course, it's crucial, but it's the last thing they concern themselves with. We frequently find that the audio is outsourced to sound design and post-production facilities. Hopefully, we'll see in the next couple of years with great programs like Audiokinetic Wwise and FMOD—middleware software—audio engineers will start being more involved.”

#### FOLLOW THE PASSION

Stefus does help hundreds of students find pro-level audio internships every year and wants CRAS students to grab every bit of experience they can get. “This is a passion industry,” he says. “I always encourage my students to remember this is the only golden ticket they get. The internship is a guarantee going through CRAS. You never know where you're going to end up. We have students who start here all the time who want to make rock 'n' roll records. Then at the end



*Students at work at Five Towns College*

of our 42-week program, they're working for NBC Universal Sports and they never imagined that. I certainly didn't think I would be teaching 11 years ago when I first got into this business. Follow your passion first and let the world work with you after that.”

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# CHARTING THE FUTURE AT MCGILL

## Research Meets Real World

By Gary Eskow

**M**cGill University (Montreal, Quebec; [www.mcgill.ca](http://www.mcgill.ca)) is taking a holistic approach, with one foot in the present and another peeking into the future. Thanks in part to a generous endowment from John Eargle, the institution is establishing itself as one of the most advanced audio research environments in the world. At the same time, the Schulich School of Music has made a determined effort to attract recording industry professionals of the highest order to serve on the faculty. Mix spoke with a few of them, including Richard King, who won a Best Engineered Classical Album Grammy for *Bernstein: West Side Story Suite* and another for contributions to Yo-Yo Ma's *Obrigado Brazil*.

"I started as an associate professor in August 2009 at the Schulich School of Music," says King. "I graduated from McGill 20 years ago and have always considered returning to teach. Our graduate-level department has grown to four full-time faculty members, including the program's founder, Wieslaw Woszczyk; producer Martha deFrancisco; and producer/engineer George Massenburg. I am continuing working on projects out of New York with producer Steven Epstein and others for various labels, as well as the occasional film score."

At McGill, sound-recording students work in several mix rooms, three concert halls and a large scoring stage. "The small mix room, with a new 22.2 surround playback installation, is a Ben Kok design [Holland]," says King. "It has Pro Tools and Pyramix workstations, and our proprietary Space Builder, which we are working on with NHK Research in Japan. Loudspeakers are ME [Germany] with Cascade Flying Mole amplifiers. Approximate dimensions are 13-by-16 feet with 19-foot ceilings."

"Our other new rooms include the MMR studio and the John Eargle Studio,"

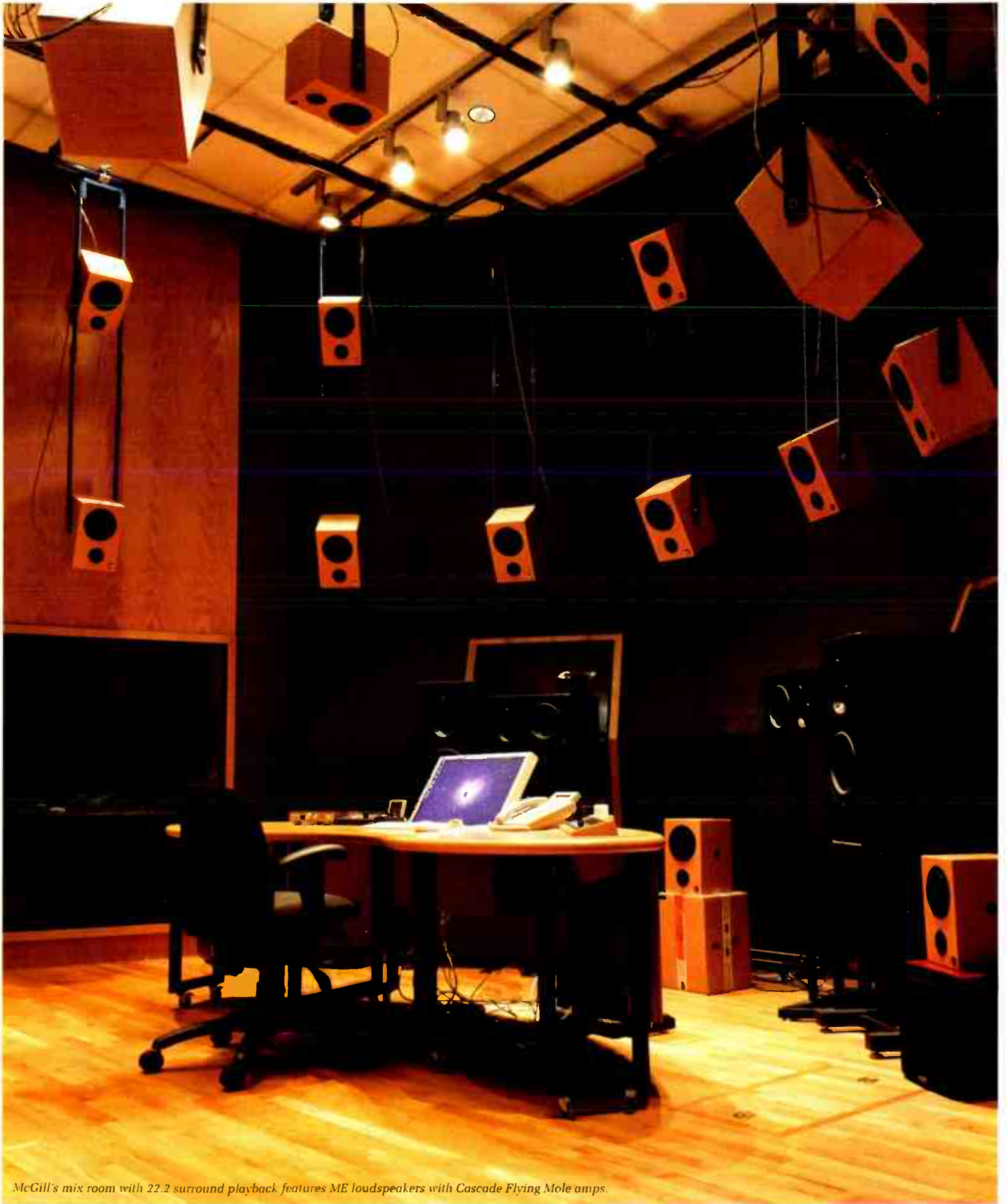
he continues. "The MMR [multimedia room] is an ARTEC design [New York], though the acoustic treatment has yet to be finalized and installed. We are using it in its unfinished state, with theater curtains helping to bring the reverb time down to around two seconds. The dimensions are 80-by-60 with 56-foot ceilings. The adjoining control room is also nearly finished, and has a 64-channel API Vision console, Pro Tools and Pyramix, and is out-

fitting between the three control rooms."

At this point, the large stage is used primarily for research and large ensemble rehearsals, but real-world recording projects also take place there, including frequent client The Montreal Symphony Orchestra and many chamber music recordings. There are film scores on the books, and King did a large-scale jazz mix, *Miles Espanol* (E-1 Entertainment), on the API last summer.

The work being done at McGill and elsewhere, exploring the sonic benefits of 22.2 playback and Wave Field Synthesis, is all very nice, but what applications does McGill see for these technologies in the near-future? According to professor Woszczyk, "Ultra Hi-Vision is the chosen future format for Japanese television, with 22.2 channels of audio, but this is many years away. The picture size and resolution are stunning. NHK has demonstrated this technology at NAB and IBC, and the technology is being standardized internationally. Considering that 3-D video shows signs of perceptual fatigue, the future may turn out to be with very high-resolution 2-D, of the Ultra HDTV from NHK."





McGill's mix room with 22.2 surround playback features ME loudspeakers with Cascade Flying Mole amps.

© Davyden Ko

Woszczyk is also spending a great deal of time working on what could be a significant advancement in convolution reverb technology. "Our graduate students and professors are working on a sophisticated ambience generator for future multichannel formats with researchers from NHK Science and Technology Research Laboratories in Tokyo," he says. "The tool, named Space Builder, uses multiple low-latency convolution engines loading data from a library of multichannel impulse responses, a 128-channel MADI router and mixer operating at 24/96 resolution, and a MIDI controller. The controller reveals different levels of complexity depending on the needs of the user. The system provides spatial up-conversion from one to 24 channels and has capacity to expand the number of channels beyond 22.2.

"Fast digital processors and reinforced sound makes it possible to create an adjustable acoustic environment that adapts to specific functions in communication," he continues. "There has been a growing interest in active acoustics enhancement systems that provide musicians with desirable stage acoustic support while presenting natural spatial quality of rooms that increases enjoyment of playing."

King's research, meanwhile, centers on "studying how lateral reflections affect the mixing engineer during balancing. We have prepared a series of stems, with solo element and backing track separated, and we ask engineering to set an appropriate balance. The examples are 30 seconds in length, and they are repeated several times for each trial. We have several different wall treatments prepared, from very reflective to very absorbent, and we hang acoustic fabric on each side so the test subject has no visual cue as to the characteristic of the wall surface. Mixing levels are recorded as well as other data such as time elapsed that we can analyze in several ways."

This all sounds great, but I had to ask again: Is the real-world application of these technologies in sight? "Absolutely," King says. "Twenty-two-point-two will become the standard, in both Europe and

Japan, maybe even in the next five to 10 years. Ultra Hi-Vision television and 22 loudspeakers to put up in your walls and ceilings and a couple of subwoofers will come here in the next generation, I believe. Fantastic developments are taking place and we have to stay on top of them."

### IN THE CLASSROOM

One of the industry's most highly recognized and awarded producers, Steve Epstein has been a member of the McGill faculty since 1996. "I teach a graduate-level course in classical music production," he says. "It's a 16-hour course given to second-year grad students. I give them my take on the techniques involved in producing classical and other material, including jazz and Broadway cast albums.

"In our first two meetings, I ask the students to consider the producer's job," he explains. "What is required from a good producer? I share my process of preparing, then we get into the technical aspects. Microphone placement has always been critically important to me. In the first class of the second semester, the students produce their own chamber productions. I'm hovering over them, giving my ideas and suggestions. They edit their own material in our last class, using a Pyramix workstation for the most part.

"Are we training kids in this fabulous audio environment for a world that will be exclusively MP3-driven?" he asks. "I don't think so. There will always be a market for high-end recordings. Naxos, for example, is releasing PCM recordings to be played on Blu-ray machines only. Some of my recordings have been released in 24-bit, 88.2 only, and even 96 kHz. With all the extra land on a Blu-ray disc, you can have this kind of high-resolution audio delivered to the user inexpensively. As high-resolution audio becomes more and more available on the Internet for download, the MP3 format will, I believe, turn out to have been transitional."

George Massenburg is doing what he can to prod the next generation into an appreciation for high-

end audio. "My fundamental goal is to reinvent the recorded music industry, starting with a reinvigorated appreciation for high-quality recorded music," he says. "A major track for our students is a concentration on critical listening and critical evaluation. Once students know how to listen, everything else falls into place. Also, it's important for students to be able to integrate with a changeable world when they go out into it. We have an evolving multimedia component that inculcates in students a broad range of skills, tools and disciplines, giving them multiple competencies and the sensitivity to know how and when to deploy them."

McGill professor Martha DeFrancisco is looking forward to a number of recording projects. "We have many exciting class projects lined up," she says. "There will be large ensemble recordings and filmings like the live recording of Mahler's Third Symphony in a large Montreal church. Opera McGill will present three works onstage, giving us the opportunity of experimenting with audio and video recording of live theater. Other plans include recordings with the McGill Jazz Ensembles, contemporary music collaborations and surround sound recordings of the Montreal International Organ Competition. Students have lots of opportunities for individual experimentation with music recording."

Does McGill University address the difficulties these future professionals will face and the adaptive skills they will need to develop to survive? "Yes, we certainly do," says King. "In part, what we're giving them here is the awareness of how good audio can sound when every part of the chain is handled with care and the best tools are used. The cultivated ear can mix an album in a bedroom or use tools that aren't of the highest quality and turn out an excellent-sounding product. We talk to them about how they'll need to market themselves and be able to handle every aspect of a recording production. Our job is to provide our students with the fullest education possible."



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# EDUCATION GUIDE 2011

In each issue, we profile established and up-and-coming producers, engineers and the like, but they didn't just "fall" into their job. Each one of them followed a required course curriculum, garnering knowledge at each step of the way. And so, the editors at *Mix* are happy to resurrect our long-standing "Audio Education Directory." Whether looking to start their career in the recording/post/live sound industry or researching for a certificate course to boost your knowledge, this must-read directory is geared for you. Listed alphabetically by state, you'll find the school closest to you to get you on your way.

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 6600 Peachtree Dunwoody Rd. N.E.  
 100 Embassy Row  
 Atlanta, GA 30328  
 800/275-4242  
<http://artinstitutes.edu/atlanta/media-arts-602.aspx>  
 Degree/Certificate(s) Offered: B.A. in Audio Production

**GEORGE STATE UNIVERSITY**

School of Music  
 P.O. Box 4097  
 Atlanta, GA 30302-4097  
 404/413-5900  
 Degree/Certificate(s) Offered: Bachelor of Music, Music Recording Technology; Bachelor of Science, Music Management

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 Atlanta, GA 30309  
[www.scad.edu/sound-design/index.cfm](http://www.scad.edu/sound-design/index.cfm)  
 Degree/Certificate(s) Offered: B.F.A., MA, MFA

**> ILLINOIS**

**COLUMBIA COLLEGE CHICAGO**

School of Media Arts  
 Department of Audio Arts & Acoustics  
 600 S Michigan Ave.  
 Chicago, IL 60605  
 312/344-8800  
[www.colum.edu/Academics/Audio\\_Arts\\_and\\_Acoustics/](http://www.colum.edu/Academics/Audio_Arts_and_Acoustics/)  
 Degree/Certificate(s) Offered: B.S. in Acoustics, B.A. in Audio Arts and Acoustics

**DEPAUL UNIVERSITY**

Sound Recording Technology Program  
 804 W Balden Ave.  
 Chicago, IL 60614  
 773/325-7260  
<https://admin2.mus.depaul.edu/srt/>

**ELMHURST COLLEGE**

Music Department  
 190 Prospect Ave.  
 Elmhurst, IL 60126  
 630/279-4100  
<http://public.elmhurst.edu/music>  
 Degree/Certificate(s) Offered: B.M. or B.S. in Music Business, B.A. in Music, certificates

**MILLIKIN UNIVERSITY**

School of Music  
 1184 W Main St.  
 Decatur, IL 62522  
 217/424-3934  
[millikin.edu/music](http://millikin.edu/music)

**SOUTHERN ILLINOIS UNIVERSITY**

Department of Radio-Television MCMA  
 Southern Illinois University  
 1100 Lincoln Dr.  
 Carbondale, IL 62901  
 618/536-7555  
<http://rtv.siu.edu/>  
 Degree/Certificate(s) Offered: B.A. with a specialization in Audio

**TRIBECA FLASHPOINT MEDIA ARTS ACADEMY**

28 N Clark St., Ste. 500  
 Chicago, IL 60602  
 312/332-0707  
[www.tfa.edu/programs/recording-arts-program-overview](http://www.tfa.edu/programs/recording-arts-program-overview)

**> INDIANA**

**BALL STATE UNIVERSITY, SCHOOL OF MUSIC**

2000 W. University Ave.  
 Muncie, IN 47306  
 765/285 5537  
[www.bsu.edu/music](http://www.bsu.edu/music)  
 Degree/Certificate(s) Offered: Bachelor of Science, Major in Music Media Production

**BUTLER UNIVERSITY**

College of Communication  
 Fairbanks, Room 118  
 4600 Sunset Ave.  
 Indianapolis, IN 46208  
 317/940-5962  
<http://www.butler.edu/creative-media-entertainment/>  
 Degree/Certificate(s) Offered: B.A. in Recording Industry Studies

**INDIANA STATE UNIVERSITY**

School of Music  
 100 N. 7th St.  
 Terre Haute, IN 47809  
 812/237-2771  
[www.indstate.edu/music/](http://www.indstate.edu/music/)  
 Degree/Certificate(s) Offered: B.A., B.S. in Music; B.A., B.S. in Music Business; Bachelor of Music Education; Bachelor of Music in Performance;

**INDIANA UNIVERSITY**

School of Music  
 Department of Recording Arts  
 1201 E Third St.  
 Bloomington, IN 47405  
 812/855-1087  
<http://music.indiana.edu/departments/academic/recording-arts/index.shtml>  
 Degree/Certificate(s) Offered: B.S. in Recording Arts; A.S. in Recording Arts





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1933 N. 10th St.  
Kansas City, KS 66104  
913/621-2300  
www.recordingeducation.com  
IAEA has been providing quality, hands-on training in audio engineering since 2004. The Audio Recording Engineering program immerses students in a 2-year/6-semester education that covers all areas of audio engineering, including professional music recording and production, live sound reinforcement, audio for video, music theory and MIDI production. IAEA provides its students with the most hands-on training found anywhere, and graduates can be seen across the country in various recording/post-production studios and live sound companies. Students will engineer dozens of recording sessions, acquire countless hours of mixing and editing experience, and develop extensive musical production skills—all for a fraction of the cost of similar schools. All classes are taught at BRC Audio Productions, which houses multiple recording studios, a mastering studio, a computer music lab and a live sound/recording club. Our mission is to graduate professional-level audio engineers who are ready to work in the industry.

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888/877-1876  
nescom.edu  
Degree/Certificate(s) Offered: B.S. in Communications Technology, with concentrations in Audio Engineering and Live Sound Technology

> MARYLAND

**COMMUNITY COLLEGE OF BALTIMORE COUNTY**

800 South Rolling Rd.  
Baltimore, MD 21228  
443/840-2222  
ccbcm.edu  
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**OMEGA STUDIOS**

School of Applied Recording Arts & Sciences  
5609 Fishers Ln.  
Rockville, MD 20852  
301/230-9100  
omegastudios.com



**PEABODY INSTITUTE OF THE JOHNS HOPKINS UNIVERSITY**

1 E Mount Vernon Pl.  
Baltimore, MD 21202  
410/234-4553  
peabody.jhu.edu/recordingarts  
Degree/Certificate(s) Offered: Bachelor of Music in Recording Arts and Sciences, Master of Arts in Audio Sciences  
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800/355-6613  
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800/903-4425  
artinstitutes.edu/Boston  
Degree/Certificate(s) Offered: A.S. in Audio Production, B.S. in Audio & Media Technology, certificate in Audio Production

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617/267-5657  
http://go.tufts.edu/musicengineering  
Degree/Certificate(s) Offered: B.A., B.S., B.S.M.E., B.S.E.E., B.S.C.S., B.S.C.P.E.



**Sound Recording Technology**

www.umf.edu 978/934-3850  
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Department of Music  
35 Wilder St., Suite 3  
Lowell, MA 01854  
978/934-3850  
umf.edu/College/arts%5Fsciences/music/default.html

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Masters degree program prepares graduates with advanced production skills and thorough understanding of technology; thesis or recording project concentrations. Bachelor degree prepares students for production-related careers through studies in recording, music, EE, physics, math and computer science. World-class facilities and faculty. Programs are supported by eight studios and control rooms, including critical listening and surround recording studio, high-end multitrack room with API Vision console, MIDI/synthesis studio, DAW/surround room, intermediate-level control room, video post-production suite, maintenance/repair laboratory, entry-level room.

> MICHIGAN

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School of Broadcast & Cinematic Arts  
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989/774-3851  
www.bca.cmich.edu/  
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**MICHIGAN RECORDING ARTS INSTITUTE & TECHNOLOGIES**

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Southfield, MI 48076  
248/569-95422  
www.mirecordingarts.com/  
Degree/Certification(s) Offered: certificate

**RECORDING INSTITUTE OF DETROIT**

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Eastpointe, MI 48021  
800/683-1743  
recordinginstitute.com  
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5619 N Beech Daly  
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313/561-7489  
studioarecording.com  
Degree/Certificate(s) Offered: Avid Pro Tools certificate

**UNIVERSITY OF MICHIGAN**

School of Music, Theater and Dance  
E.V. Moore Building  
1100 Baits Dr.  
Ann Arbor, MI 48109  
734/764-0583  
music.umich.edu

**WAYNE STATE UNIVERSITY**

College of Fine, Performing and Communication Arts  
42 W. Warren Ave.  
Detroit, MI 48201  
313/577-3577  
music.wayne.edu  
Degree/Certificate(s) Offered: B.A. in Music, Bachelor of Music, Master of Arts, Master of Music, graduate certificate in Orchestral Studies

**WESTERN MICHIGAN UNIVERSITY**

The School of Music  
Kalamazoo MI 49008  
269/387-4667  
http://www.wmich.edu/music/about/index.html  
Degree/Certificate(s) Offered: Bachelor of Music, Bachelor of Arts in Music

> MINNESOTA

**INSTITUTE OF PRODUCTION & RECORDING (IPR)**

312 Washington Ave. North  
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218/477-2101  
mnstate.edu/music

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320/234-8500  
https://www.ridgewater.edu/programs/AudioTechnology/pages/home.aspx  
Degree/Certificate(s) Offered: AAS, Degree

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700 Terrace Hts.  
Winona, MN 55987  
www.smumn.edu/music  
Degree/Certificate(s) Offered: Four-year B.A. degree in Music Industry: music technology or music business tracks

> MISSISSIPPI

**DELTA STATE UNIVERSITY**

W. Sunflower Rd.  
Cleveland, MS 38733  
662/846-4579  
http://dmi.deltastate.edu  
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314/644-9100  
http://www.stlcc.edu/FP/

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St. Louis, MO 63119  
314/246-7962  
webster.edu/aes

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402/844-7365  
northeastaudio.org.  
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973/748-9000  
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steinhardt.nyu.edu/music/technology

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www.barton.edu/  
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Department of Music  
Elon, N.C. 27244  
336/278-2000  
http://www.elon.edu/e-web/academics/elon\_college/music/  
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> **OHIO**

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11021 East Blvd.  
Cleveland, OH 44106  
216/791-5000  
cim.edu

**CUYAHOGA COMMUNITY COLLEGE (TRI-C)**  
Recording Arts and Technology Dept.  
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Center for Creative Arts  
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http://new.oberlin.edu/  
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419/772-2000  
http://www.onu.edu/

**OHIO UNIVERSITY**  
Scripps College of Communication  
School of Media Arts & Studies  
9 S. College St., RTV 202  
Athens, OH 45701  
740/593-4870  
http://www.mediaschool.ohiou.edu/  
Degree/Certification(s) Offered: Bachelor of Science, Communication  
The Music Production & Industry program in the School of Media Arts & Studies at Ohio University emphasizes creative cutting-edge production techniques in conjunction with a grounding in real-world recording industry studies and entrepreneurial strategies. Boasting an expert, professionally experienced faculty and world-class, John Storyk-designed recording studios (equipped with a Rupert Neve Designs 5088 mixing desk, Apogee conversion, Pro Tools and Logic, Portico, Avalon, Universal Audio and Summit outboard gear, and a comprehensive collection of microphones), the school works with students to help them become proficient in record production and fluent in the social aspects of working in creative teams. Ohio University is located in the culturally vibrant community of Athens, nestled in the welcoming Appalachian foothills of southeastern Ohio, and offers a 4-year liberal arts Bachelor of Science in Communication degree. For more information, contact Eddie Ashworth (ashworth@ohio.edu) or Jeff Redefeer (redefeer@ohio.edu) or consult mediaschool.ohiou.edu/.

**OHIO UNIVERSITY ZANESVILLE**  
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Zanesville, OH 43701  
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http://ouzmedia.com/  
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800/466-9367  
www.owens.edu  
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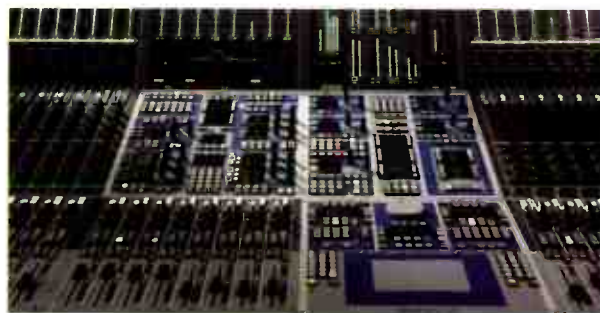
## Models for Any Budget, Any Project

By Matt Gallagher

Console manufacturers have adapted to our evolving workflows by offering a range of solid products aimed anywhere from large-format studio installations to desktop audio production. The group of products listed here—the newest from each manufacturer, listed alphabetically—include a variety of features such as embedded converters, onboard DSP and effects, FireWire, USB and analog IO, modular design and more. All in these products offer something for every budget and need, so dig in and enjoy.

Alesis' (alesis.com) MultiMix 16 USB FX is a 16-channel mixer with built-in DSP effects (reverb, delay and phaser) and a footswitch bypass control that has eight XLR inputs with gain trim, switchable highpass filters and 48-volt phantom power. It offers 1/4-inch line-level inputs on all 16 channels, a high-impedance input on channel 2 and a tape RCA stereo input. Channels 1 through 8 feature

# 2011 STUDIO CONSOLES



3-band EQ (with sweepable parametric midrange control on channels 1 through 4) while channels 8 through 16 have 2-band EQ. The board also contains an aux out and stereo returns, as well as insert jacks on channels 1 through 4. The MultiMix 16 USB FX offers a USB recording interface (16-bit, 44.1/48kHz bidirectional stereo) for Mac and PC that requires no software drivers. Main and

headphone outputs have independent level controls, and the mixer includes Cubase LE software.

AMS Neve (ams-neve.com) hand-builds the modular Genesys console in its UK factory, combining analog design and Neve preamp circuitry with hands-on DAW control and connectivity for Pro Tools, Logic, Nuendo and more. The Genesys' basic 16-fader configuration comprises 16 channels of mic/line preamps, 16 channels of DAW mixing,



Alesis MultiMix 16  
USB FX 16-channel  
mixer

AMS Neve Genesys

32-channel analog summing at mixdown, eight auxiliary buses, eight group buses and 5.1 monitoring. Every switch is "soft," so every routing decision and switch setting can be saved and instantaneously reset. The console can also recall optional Neve analog EQ and dynamics cassettes. The Genesys is expandable up to 64 faders/128 inputs, with Encore automation, Total Recall, transformers on mic preamps and Neve AD/DA converters.

Based on API's (apiaudio.com) vintage 1604 console, the all-discrete API 1608 small-topology analog console (\$89,800 for 32-channel console; \$49,900 for 16-channel console) features 16 input channels with mic pre, 12 550A equalizers, four 560 equalizers, eight echo returns, a complete center facilities section, 16 manual faders and a stereo fader.

Designed by David Dearden, Audient's (audient.com) ASP8024 (from \$32,000 for a 24-channel with Dual Layer Control) combines the company's analog circuitry with DAW control and automation, providing a centerpiece for production studios and education facilities. Each input channel features Audient's Class-A preamp and 4-band EQ. The console offers 24-bus routing, 12 auxes, two dedicated cue sends, four stereo returns, stereo bus compressor and a comprehensive monitor section.

The Avid (avid.com) S5 Fusion (call for price quote) offers a dedicated DSP engine that is expandable up to 116 channels and complete EUCON Hybrid control, allowing for deep tactile control up to five different DAWs, as well as the console's own DSP channels. The S5 Fusion control surface is customizable from eight to 56 channel strips. Each channel strip includes a multifunction motorized fader; eight touch-sensitive knobs for EQ, filter, compressor, expander/gate; aux sends; and pan control that can also control DAW functions, including adjusting TDM, VST and AU plug-in parameters. High-resolution TFT displays provide instant visual feedback on metering, track info, routing, EQ, dynamics and more. The S5 Fusion also offers 256 channels of MIDI connectivity (expandable to 512), SnapShot Recall, customizable layouts, Total Automation, user-definable Spill zones, and mixing in up to 7.1 surround with twin joysticks and up to 26 analog outputs.

Behringer's (behringer.com) XENYX UFX1604 is a 16-input, 4-bus analog mixer with a 16x4 USB FireWire interface (24-bit/96kHz) supporting Windows XP/Vista/7 and Mac OS X, and a 16-track USB recorder. It also has eight XENYX mic preamps with individual phantom-power switches, eight compressors with "one-knob" functionality and control LED, 4 band British-style EQs with

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two semi-parametric midrange bands, and dual stereo effects processors with 16 editable presets, including reverb, chorus, flanger, delay, pitch-shifter, multi-effects, Tap function and storable user parameter settings. An illuminated MIDI Transport section provides remote control over a DAW or sequencer. It also has two hi-Z inputs, eight channel inserts, balanced main mix outputs on 1/4-inch TRS and XLR connectors, four aux sends per channel (all pre- or post-fader-switchable), four stereo aux returns and separate CD/tape input. The XENYX UFX1604 also offers Solo-in-Place with PFL/AFL function, and talkback and monitor sections.

Fairlight's (fairlightus.com) new EVO M Series is a complete music production system incorporating recording, mixing, MIDI, sampling, plug-ins and video playback for scoring. Its processing heart is Fairlight's single-chip FPGA engine, maxing out at 192 disk tracks, 230 channels of mixing and video up to HD quality. Every channel provides 4-band parametric EQ, highpass and lowpass filter, gate, compressor and limiter. In addition, the system supports the full range of VST plug-ins and instruments. The worksurface employs the Xynergi keyboard as central control panel, and includes faders and a range of optional tactile panels. Customization supports widely different sizes, layouts and specialist panels tai-



Audient ASP8024

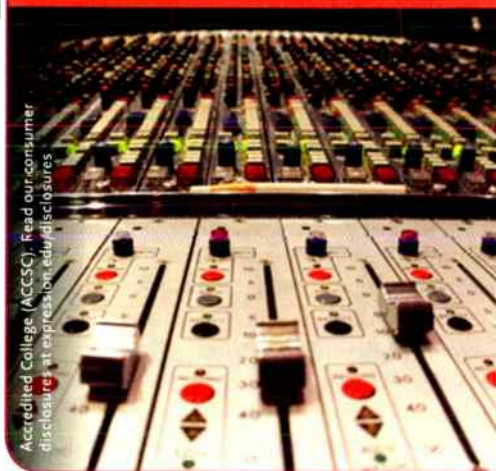
lored to users' workflows. One version offers a built-in music keyboard. Furthermore, EVO saves everything as a single file.

The Focusrite (focusrite.com) Control 2802 (\$5,999.99), the first product jointly created by Focusrite and Audient, is an analog recording console and DAW control surface via its Dual-Layer Technology. In a single surface, the Focusrite Control 2802 integrates state-of-the-art summing of 28 inputs, comprehensive monitoring, stereo master bus compression and control over every major DAW. The Control 2802 also offers eight Class-A mic pre's, ultra-low-noise analog circuitry with reportedly extreme HF extension, Ethernet-based control, and DAW and console automation.

Harrison (harrisonconsoles.com) 950m analog console is designed for the DAW-based studio, with an ergonomic frame design that accommodates DAW peripherals. It comes in a modular design with 12, 16 and 24-channel frames standard. It incorporates a massive linear power supply, robust ground plane design, all balanced connections, gold-plated switches, through-hole components and high-headroom summing buses. It also has two master buses comprising one 32 Series-style transformer-balanced output, and one Series 12-style electronically balanced output. The 950m also fea-

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tures two studio feeds, talkback, oscillator and headphone feeds.

Lawo's (lawo.de) mc<sup>2</sup>66 MKII (pricing starts at \$250,000) provides 512 DSP channels, 144 summing buses and top-quality signal processing. For intuitive operation, the mc<sup>2</sup>66 offers its newly developed operation philosophy, "assign at destination," which provides for a fast and secure interference. The new redundantly designable MKII Router has a routing capacity of up to 8,192 crosspoints and a fully integrated control system for high system reliability. With the Extra Faders Option (supported with the Version 4.14 software release), an additional eight faders are available.

The 16-channel Mackie (mackie.com) Onyx 1640i (\$1,899.99 MSRP) FireWire production mixer combines the benefits of a computer interface with the tactile, hands-on control of an analog mixer. It derives its sonic performance from 16 Onyx mic pre's and Perkins EQ. The 1640i can be used with all major DAWs, including Pro Tools M-Powered 8. The mixer can send channels, aux sends, groups or master L/R signals discretely to a Mac or PC for recording. Users can also return all 16 channels back to the mixer for mixdown.

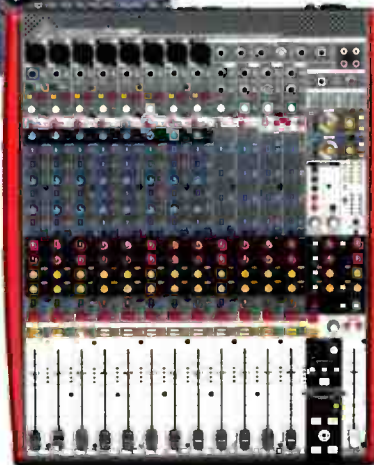


*The Roland V-Studio 700 DAW is fully integrated with CirkonMKII SONAR.*

Manley Labs' (manley.com) 16x2 Mic mixer provides 16 mic preamps with up to 60 dB of pure Manley gain. Each channel features pan and mix level controls on silent conductive-plastic rotary faders, with Solo, Mute, Insert and Phase-Reverse switches. These 16 solid-state channels are summed to an all-vacuum-tube stereo bus (complete with monitor and metering sections) and

then coupled to the outputs via custom-wound Manley transformers. Audiophile componentry is used throughout, and a robust outboard power supply reduces noise and heat. For versatility, each channel on this small-format console has a combo jack input that allows it to serve double-duty as a line-level summing mixer. The 16x2 is available in Mic (\$9,900), Line (\$9,000) and 8 Mic + 8 Line (\$9,500) versions.

Merging Technologies' (merging.com) Ramses MSC console control system offers a fully integrated multitrack audio recording, editing, processing and mixing environment. The system is scalable from 16 to 256 simultaneous input and output channels (512 I/O), with a 256 user-configurable bus structure. The dedicated automation section allows for control of all mixing parameters, and the different automation states can be split and assigned to faders, pans, EQ, dynamics etc., independently. The monitor section



*Behringer XENYX 16FX1604 analog mixer*

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Nady Systems ([nady.com](http://nady.com)) offers the MM-15USB (\$199.99 MSRP) desktop mini-mixer with a built-in USB 1 audio interface that comes in 7x8-inch durable steel casing. It uses SMD technology for compact design, and accommodates up to 15 simultaneous inputs and 10 outputs (including the complete USB interface) and has two mono channels with balanced mic and line inputs and two stereo channels with line and RCA inputs. Each channel has trim, 3-band EQ, aux send, pan and level controls with peak-indicator LEDs. The MM-15USB has a stereo mini-jack input that accommodates iPods and MP3 players, as well as a stereo mini-jack output. Other features include ultra-low-noise mic preamps for optimum signal integrity; a full-spectrum frequency response with wide dynamic range and superior headroom; separate main mix, control room and headphone outputs; stereo aux; return inputs with level control; tape I/O RCA connectors; and dual 4-segment LED bar graph meters.

The Phonic ([phonic.com](http://phonic.com)) Digital Mixer (\$2,749.99 MSRP) is a 16-channel mixer (16 mono mic/line with insert points and grouped phantom power) with XLR and 1/4-inch inputs on each channel. It has 17 100mm motorized faders, of which 16 faders offer three layers of operation (channel, aux/group and multi). It also has eight balanced 1/4-inch phone jack multi outputs (eight aux and eight group buses are assignable to multi outputs), and XLR main and control room outputs. All input and output channels offer delay, EQ and dynamics processing, 4-band parametric EQs, multi outputs and main outputs. Two stereo digital EFX processors are assignable to input channels and aux buses. The unit also includes a 40-bit floating-point digital signal processor, AES/EBU inputs and outputs, an internal digital sampling rate of up to 24-bit/96 kHz, a full-color touchscreen, and an optional FireWire and USB 2 expansion card (16-in, 16-out) for multitrack recording.

PreSonus ([presonus.com](http://presonus.com)) offers three StudioLive digital mixer models: the StudioLive 24.4.2 (\$3,999.95 MSRP), StudioLive 16.4.2 (\$2,499.95 MSRP) and the newest model, the StudioLive 16.02 (\$1,599.95 MSRP). It has 12 mono input channels with preamps, two stereo channels with line inputs only, four auxes, one stereo graphic EQ (on the

*Tascam DM-4800 digital console*

main) and a 16x16 FireWire interface. The 16.0.2 also has MIDI I/O, serves as a MIDI interface, and offers MIDI control over main level, effects and scene recall. All StudioLive digital mixers have built-in, tightly integrated FireWire audio interfaces that work with any recording application that supports ASIO or Core Audio. The mixers are bundled with PreSonus Capture multitrack recording software, Studio One Artist DAW software and Virtual StudioLive bi-directional control/librarian software for Mac and Windows. StudioLive mixers feature



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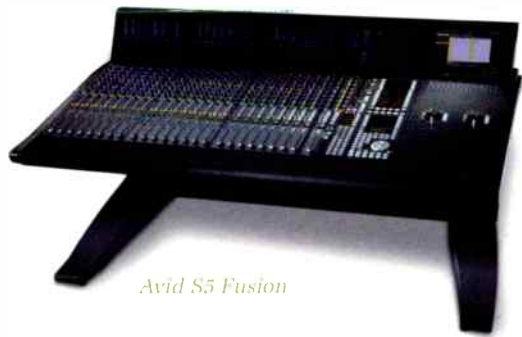
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Avid S5 Fusion

thesizer (based on Roland's Fantom Series) and SONAR 8 Producer software with a 64-bit mix engine). Cakewalk's Dimension Pro and Rapture software synthesizers are also included

Solid State Logic ([solidstatelogic.com](http://solidstatelogic.com)) followed its successful and ongoing run of hybrid studio consoles in recent years with the Nucleus, which combines DAW control via Ethernet, SuperAnalogue monitoring, analog mic pre's and USB audio interface, and bundles SSL Duende Native plug-ins. Users can connect up to three different DAWs at once and switch between them with a single button push. Nucleus uses either HUI or MCU protocols to

ensure compatibility with Pro Tools, Logic, Cubase/ Nuendo and other DAW applications, and can transmit MIDI CC data. Hardware controls can be customized for all major DAW and plug-in parameters. Two banks of eight channels each provide room motorized faders, fully user-definable soft keys and V-Pots, dedicated Select/Solo/Cut buttons and 10-point channel level meters. Center section DAW controls provide large heavy-duty transport buttons, a jog/shuttle wheel, bank/channel/layer selection and navigation, global DAW parameter selection and additional USB keyboard emulation buttons. System configuration is via a remote "SSL Logictivity" browser.

The Stagetec ([stagetec.com](http://stagetec.com)) AURUS combines the direct access of a conventional analog desk with the configurability, flexibility and the electro-acoustic parameters of an advanced digital console. Configured as an inline console for recording or straight production console for music mixing, the AURUS offers full dynamic automation and multiple machine control via 9-pin, LTC or MIDI. Its modular design enables users to select the size of the control surface, from 24 to 96 channel strips in units of eight channel strips, as well as the amount of signal processing to give the required number of DSP channels and buses. True 40-bit floating-point architecture offers precision EQ and dynamics in every channel. The TrueMatch digital microphone preamps (which are modular and can be user-specified) offer a dynamic range of more than 158 dB. I/O options include analog, AES, MADI, ADAT, TDIF, Dolby D and more.

The Custom Series 75 from Australia's Studios 301 Manufacturing (dist. in the U.S. by Vintage King Audio, [vintageking.com](http://vintageking.com)) presents a combination of classic circuitry and modern circuitry in one. The board's original Neve circuits have only been changed where justified by an improvement in reliability or performance. The console's two stereo buses allow for maximum flexibility, and the 2081 in-line channel modules feature a blend of the best features of Neve's 1073 and 1081 modules. The console's master section includes two 2254 compressors, four stereo reverb returns, eight recallable scenes, monitoring of up to 12 sources simultaneously and comprehensive 7.1 monitoring. The Series 75 is available in a 16/24/32/40/48/56/64-module chassis (prices range from \$46,990 to \$125,590 MSRP; pricing is dependent upon configuration).

The Tascam ([tascam.com](http://tascam.com)) DM-4800 64-channel digital console offers analog and digital I/O, and includes a "fat channel" strip that provides instant access to 4-band parametric EQ, dynamics and aux controls available for the first 48 channels. It has

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TL Audio ([tlaudio.co.uk](http://tlaudio.co.uk)) offers the M4 tube console, available in 16/24/32/40/48-channel options and promises "classic big valve console performance in a compact package." The M4 is compatible with all DAWs, and features 8-channel ADAT interface options, a 24-bit/96kHz mix output option, 100mm K Series faders, 4-band equalizers with bypass, four auxiliary sends



*PreSonus StudioLive 16.02*

selectable pre/post, channel mute and PFL, studio monitoring and stereo metering. Users can track direct channel outputs with level control, and levels are switchable between +4 and -10 dBu.

Toft Audio Designs' ([toftaudio.com](http://toftaudio.com); dist. by [pmiaudio.com](http://pmiaudio.com)) 80B EQ uses the original Series 80B's circuitry and same type and specification of

components to reproduce its sound. The split/in-line design means that in addition to the mic/line inputs, users also have the same number of in-line monitor returns that are always assigned to the stereo bus, and eight more monitor returns in the "split" monitor section. On the ATB-32, this means 72 inputs between main channels and monitor returns; add eight stereo effects returns and the ATB-32 can offer up to 88 inputs on mixdown.

Tonelux ([tonelux.com](http://tonelux.com); dist. by [pmiaudio.com](http://pmiaudio.com)) offers its Series 28 designed by Paul Wolff. The 8-bus 1628 console features 16 MP1A discrete mic preamps, 16 EQ4P 4-band proportional equalizers and 16 MX2 line input modules. Other features include four aux sends, eight effects returns, group and 2-bus metering, and switchable peak or VU. The stereo outputs are mixed through Wolff's all-discrete summing amps. Full control room and talkback facilities are via the CR2 and TB1 modules. The 1628 console comes with a 192-point TT patchbay. Tonelux's moving fader automation system, Shadowmix, can be integrated into the console.

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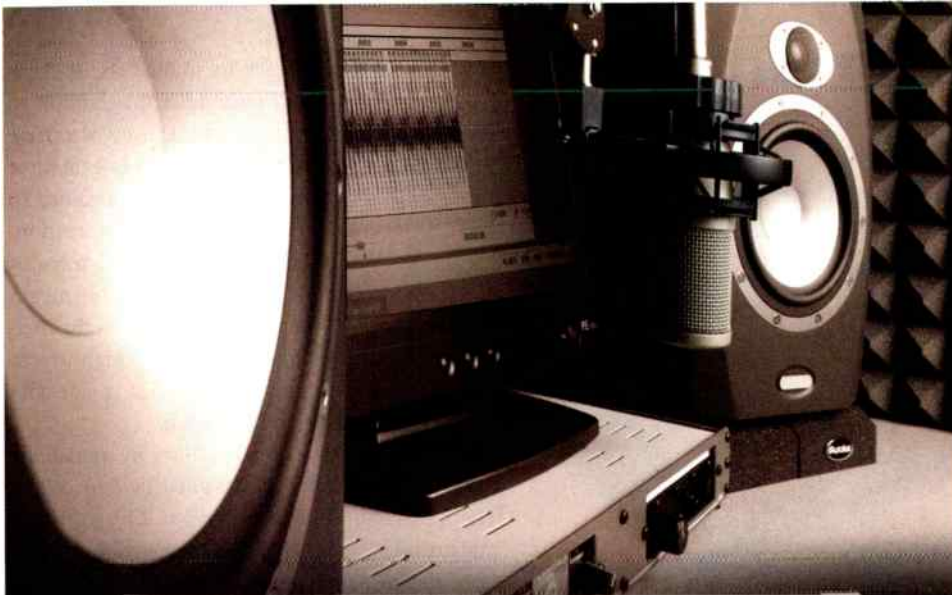
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With Trident's ([trident-audio.com](http://trident-audio.com); dist. by [pmiaudio.com](http://pmiaudio.com)) 24-bus all-modular Series 82, Malcolm Toft offers his newest ultra-quiet circuit designs, featuring Lundahl transformer-balanced mic inputs and 2-mix outputs. The Series 82 equalizer features four overlapping sweepable bands with the high and low bands being peak- or shelving-switchable, the high-mid and low-mid bands with switchable Q, and highpass filter sweepable from 30 to 500 Hz. It also features Toft's split/inline design. There is also a parallel 24-channel split-monitor section to the right of the master section, adding 24 more inputs on mixdown. All monitor returns feature high (12kHz,  $\pm 15$ dB) and low (80Hz,  $\pm 15$ dB) fixed-frequency shelving equalization filters, with the split section offering a sweepable midrange band. Additionally, the Series 82 dual-input module offers eight effects sends, all pre/post-switchable, and four stereo effects return with 3-band fixed-frequency equalization. Input configurations up to 48 are available.



*Trident Series 82*

The Yamaha ([yamahaca.com](http://yamahaca.com)) DM2000VCM (\$20,999 MSRP) digital console combines a multitude of surround mixing and monitoring functions on its control surface with a maximum of 96 inputs and 22 mixing buses. It offers transparent sound quality, thanks to its head superb amp, 24-bit AD/DA and 96kHz sampling. The DM2000VCM also integrates with DAWs such as Nuendo, and includes VCM plug-ins such as EQ, compressors, tape saturation and guitar effects, along with the REV-X reverb algorithm. The Yamaha DM2000VCM offers up to 96 simultaneous inputs, and all 96 input channels include 4-band parametric EQ, gating, compression/limiting and up to 453ms of delay with variable feedback. The output section offers 22 buses: eight group buses, 12 auxiliary buses and the main stereo bus. Eight of the 12 auxiliary buses can be used as surround effect sends, and its Unity function automatically sets the auxiliary buses to nominal (0dB) level so they can be used as additional group buses.



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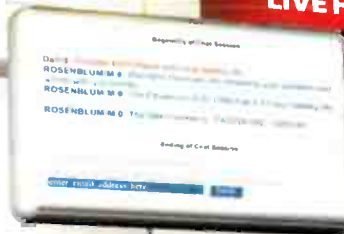
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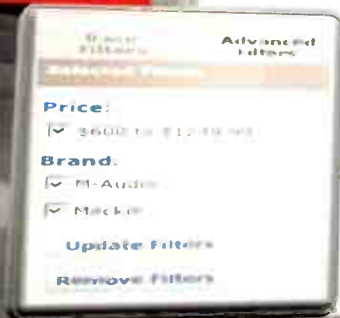
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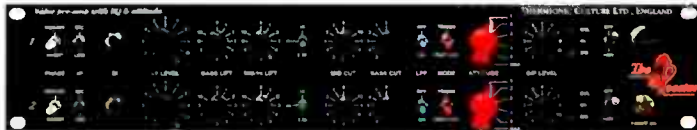
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# Tech // new products

## LINDELL AUDIO 17X COMPRESSOR

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The 17X (\$2,995) from Lindell Audio ([lindellaudio.se](http://lindellaudio.se)) of Sweden is a single-channel, transformer-coupled compressor/limiter designed to bring classic 1176-style compression to any track. This FET gain squeezer features a high-pass sidechain filter to reduce pumping and a wet/dry Mix control for parallel compression. I/O is simple with a balanced XLR line in and two line outputs, one before and one after the Mix control. The unit also features signal high- and lowpass filters set at 6dB per octave. The unit is made with the best parts available, including Alps pots, Carnhill transformers, Wima caps, Original Fender super-switches, gold-plated XLRs and more.



## CHANDLER LITTLE DEVIL PREAMP

### Red-Hot Gain

The Little Devil 500 Series (\$999) tone-shaping preamp from Chandler ([chandlerlimited.com](http://chandlerlimited.com)) features three different input types. Switching to line input processes any line-level source such as tape or DAW tracks, bus submixes or the complete stereo bus. For unbalanced sources, such as bass and keyboards, select the DI input or gain any mic up to 6 dB, then use the Feedback/Bias to drive and shape the unit's tone. Other features include two-way impedance switching for mic and line, output control, brightness switch, low cut from 100 Hz, DI input, phantom power and polarity reverse.



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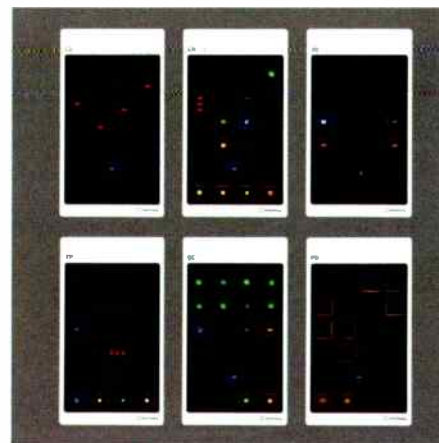
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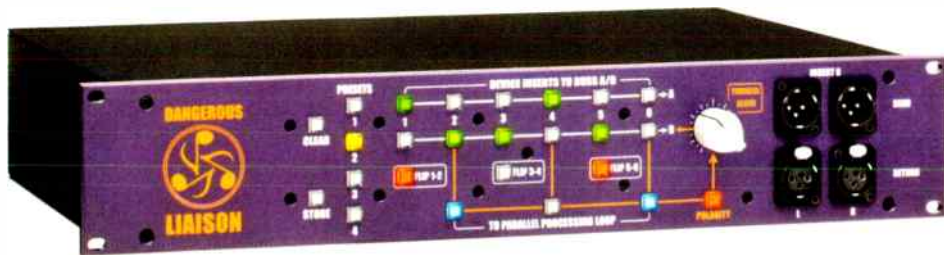
The Little Big Disk Thunderbolt Series (starting at \$399, 1 TB) from LaCie ([lacie.com](http://lacie.com)) features a pair of 2.5-inch drives in a Mac OS RAID configuration, delivering read speeds of more than 480 MB/s in SSD and up to 190 MB/s in HDD. The more Little Big Disks chained together, the more impressive the performance. Users can daisy-chain several Little Big Disks to maximize the interface's capabilities and reach transfer rates around 800 MB/s—rackmount storage speeds in a portable package. The drives are available at the Apple store or through LaCie.com.

## STEINBERG CMC SERIES CUBASE CONTROLLERS

### Modular Control Freaks

The CMC Series (starting at \$199) of controllers from Steinberg ([steinberg.net](http://steinberg.net)) is equipped with a combination of elements that provide tactile control over many Cubase functions. Each unit can be used separately or hooked together with the included joint plate. The CMC-CH channel controller houses 16 illuminated rubber push-buttons, one rotary encoder and a touch fader covering a wide range of mix and instrument functions. The CMC-FD fader controller features four high-precision touch faders with LED-based metering and a solo/mute function. The CMC-QC quick controller boasts 13 illuminated buttons and eight rotary encoders in three different modes: EQ, Quick Control and MIDI. The CMC-PD pad controller features 16 highly responsive backlit pads and one rotary encoder. The CMC-TP transport controller houses 17 buttons and a touch slider. And the CMC-AI controller highlights Steinberg's universal AI Knob, together with its 10-function buttons. CMC accessories comprise the CMC Studio Frame 4 and the CMC CC121 Extension Frame.





## DANGEROUS MUSIC LIAISON

### Quick-Change Artist

Dangerous Music ([dangerousmusic.com](http://dangerousmusic.com)) is now shipping the Liaison (\$2,399), a Mix Certified Hit from Winter NAMM 2011. The unit features six stereo-insert loops, assignable to two stereo buses; flexible and parallel processing; instant recall of any gear patched through the unit; and seamless integration with Dangerous Master. Scenarios include recall of gear chains for recording vocals and instruments, storage and recall of two custom-mix processing chains for mixing, and switching of processors in any order for mastering.

## ANTARES AUTO-TUNE EFX 2

### Pitch and FX

Antares ([antarestech.com](http://antarestech.com)) Auto-Tune EFX 2 (\$129) is the newest generation of the popular tool for real-time pitch correction and the iconic Auto-Tune Vocal Effect. Features include Auto-Motion™ Vocal Pattern Generation, allowing users to add a variety of intricate musical patterns to their tracks for an entirely new (and sonically dramatic) vocal effect. Designed to make almost everything automatic, Auto-Tune EFX 2 provides two different flavors of the Auto-Tune Vocal Effect, as well as Antares' real-time pitch correction. For songs with complex chord progressions or modulations, users can optionally set up custom scales or use their host's automation facility to allow the processing of virtually any vocal line. Auto-Tune EFX 2 is available now for RTAS (Mac OS X and PC), VST (Mac OS X and PC) and AU (Mac OS X).



## ADAM A77X MONITORS

### Full-Range Redo

The A77X monitor (\$1,399 each) from ADAM ([adam-audio.com](http://adam-audio.com)) features the company's X-ART tweeter, new woofers and amplifiers, and completely redesigned speaker cabinets. The new A77X is equipped with the same advanced technologies as its popular counterpart, the A7X, but produces much higher, compression-free maximum SPLs and dynamics. Due to its power and radiation characteristics, it is ideally suited for near- and mid-field monitoring. The A77X's two 7-inch woofers feature 1.5-inch large voice coils and powerful 100W PWM amplifiers. Both are capable of deep lower-register reproduction. The woofers cover different frequency bands: One handles the (sub) bass frequencies to approximately 400 Hz, while the other reproduces most of the midrange, eliminating interference between the two drivers.

## WAVES BASS RIDER

### Low-End Wrangler

A companion to Waves' ([waves.com](http://waves.com)) Vocal Rider plug-in, Bass Rider (Native, \$200; TDM, \$300) delivers perfect bass levels without changing the natural sound of a user's bass. Optimized for the frequency range and envelope characteristics of bass instruments, Bass Rider features operation up to 24-bit 192kHz; support for TDM, RTAS, Audio Suite, VST and AU; and target energy meter and a target slider for setting the desired bass-level range and calibrating the Rider Fader "0" position. Other features include sensitivity control, artifact-tolerance control, maximum and minimum range, and output trim.

# New Sound Reinforcement Products



## L-ACOUSTICS ARCS II

### New Line Source on the Block

Unveiled at this year's PLASA show, L-Acoustics ([www.l-acoustics.com/arcsII](http://www.l-acoustics.com/arcsII)) ARCS II constant-curvature line source uses the company's Wavefront Sculpture Technology and K1-grade transducers (for a 140dB increased SPL) and is based on a two-way active design. The array can be deployed either horizontally or vertically, with a coverage angle proportional to the number of enclosures in the array. The orientation of the ARCS II enclosures within the array determines asymmetric distribution, allowing the use of a horizontal ARCS II line source either for upward or downward coverage. The LA-RAK touring rack and LA8 amplified controller preset library deliver an advanced and precise drive system for ARCS II. Additional features include the L-DRIVE intelligent two-way transducer protection circuit (peak and RMS limiting) and Array Morphing EQ interface, allowing the engineer to quickly adjust the tonal balance of the system to produce a reference curve or ensure consistency of the system's sonic signature with multiple arrays of different types and sizes.

## COMMUNITY DSPEC226

### Processing As Easy As 1-2-3

Community's ([communitypro.com/dspec](http://communitypro.com/dspec)) new loudspeaker processor uses a high-speed SHARC DSP and a Xilinx Spartan FGA, and features a 4-input/6-output fixed-chain DPS architecture that includes 2x6 native analog I/Os. Various expansion cards provide two additional analog inputs, two AES-3 dual-channel digital inputs or eight CobraNet I/Os. Users select from a library of Community loudspeakers, and dSPEC will automatically assign factory-recommended lowpass and highpass filters, corrective EQ (including 1,024 points of FIR EQ via CONEQ), protective limiters, phase compensation and more. dSPEC also configures LF and HF outputs with optimal crossover slopes for bi-amplified loudspeaker models.



## BAG END UPDATES TA SERIES

### Boosted Driver

This range of full range loudspeakers now features a high-performance, high-frequency E-700 driver, providing an improved HF response with lower distortion at extreme levels. The new systems are compatible with previous Bag End ([bagend.com](http://bagend.com)) models and are available at the same prices. The updated models include the TA1202, TA2002 and TA6002; these loudspeakers replace the earlier models TA1200, TA2000, and TA6000, respectively.

## DPA D:FINE HEADSETS

### Theater-Pleasers

Available in omnidirectional and directional versions, the new DPA ([dpamicrophones.com](http://dpamicrophones.com)) d:fine™ headsets feature earpieces made from a sprung material used to manufacture hearing aids, ensuring comfort and user-adjustability. The mics use a smaller

version of the 5mm miniature capsules in the company's 4066s and 4088s. The new model can be easily switched between omni and directional modes. D:fine is delivered with different-colored cable steer clips, allowing cable runs from in-ear devices to be fixed in the clip. A neck cable clip attaches the cable to the cloth to relieve the cable draw.



# Next Generation Digital Mixing

At last, a digital mixer with more feature, more technology and less snob!

With the Digital Mixer, Phonic redefines the ultimate live and studio mixing/recording experience. An advanced digital mixer with the soul and usability of an analog console, the Digital Mixer is the culmination of Phonic's 35 year mixing and electronics heritage. On the surface, the Digital Mixer is a 16 input channel mixer with a set of XLR and 1/4" inputs per channel. The unit also has flexible output possibilities through 1/4" multi outputs, and XLR main and control room outputs. But the Phonic Digital Mixer offers so much more than mere inputs and outputs...

## An Entire Studio

The Digital Mixer packs an entire studio worth of gear into a small, compact system. Delay, EQ and dynamics are found on all inputs and output channels, so there is no need to waste money on external processors. An astonishing 77 signal processors are built in, including 25 dynamic processors, 25 4-band parametric equalizers, 25 delays, and 2 digital effect processors with a large array of effects and user adjustable parameters. Over 9700 research and development hours went into perfecting the Digital Mixer. As a result, users are rewarded with fast, accurate dynamics; smooth, flawless equalization; and high definition digital effects normally found on pricey, stand-alone processors.

## PC and Mac Recording

Through the optional FireWire and USB interface, users are able to record up to 64 tracks — with four Digital Mixers daisy-chained — to the computer in 32-bit, 96 kHz resolution. Recorded signals can be returned directly back into the channels with the touch of a button. The interface is compatible with Windows XP, Vista and 7, as well as Mac OSX Snow Leopard, and can be used with the most popular digital audio workstation programs, including Cubase, Logic, Sonar, Sound Forge, Garageband and Pro Tools 9.

## Digital Circuitry

High quality AD/DA converters can be found on each and every input and output channel with a state-of-the-art 40-bit floating point DSP processing all digital signals. Digital AES/EBU inputs and outputs are included, which allow for expanding the scope of your system by connecting it to external digital consoles. The detailed color touch-screen offers clear, concise visual depictions of all settings and functions and allows users to control all features quickly and easily. A high definition digital algorithm takes care of the rest.

## Powerful and Versatile

With built-in EQs, dynamics, delays, digital effects, signal generator, and input/output meter bridge, the Digital Mixer is not your run-of-the-mill mixer. It is powerful enough to suit multiple applications as a live sound reinforcement mixer, a stage and in ear monitor mixer or for producing professional studio recordings.

## • FEATURES •

- 16 balanced microphone and line input channels
- 8 balanced 1/4" multi-purpose outputs
- Stereo balanced XLR main and control room outputs
- 8 auxiliary and 8 subgroup mixes
- 17 ultra-smooth automated faders encompassing a 3-layer design
- -20 dB PAD button on all inputs for attenuating hot inputs
- Insert points on all input channels
- 2-track RCA input and output connectors
- Dedicated headphone output with individual trim
- Digital AES/EBU input and output onboard, assignable to main
- Pair and link feature on all input channels
- Individual delay adjustable on all inputs and outputs
- A full digital meter bridge available for all input and output signals (pre/post)
- Flexible soloing with user-selectable AFLs and PFLs and safe soloing
- 25 onboard 4-band parametric equalizers for all inputs and outputs
- 25 dynamic processors with expander, gate, compressor and limiter
- Two effect processors with 8 effects; processor 1 with an additional 24 reverbs
- Signal generator with sine waves and pink noise
- User-selectable processing order through delay, EQ and dynamics
- Phase invert on all input channels
- Scenes function allows users to store and recall settings on SD card
- Limited-time only free 16-in, 16-out FireWire / USB 2.0 interface (32-bit, 96 kHz)



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# Tech // reviews

## M-AUDIO FAST TRACK C600 AUDIO INTERFACE

New I/O Brings Clean Preamps, Advanced Routing, DSP Effects



The C600 includes a software mixer for routing inputs and software returns to outputs and headphones.

**W**ith the release of Pro Tools MP this year, users have been buzzing about the possibility of an upgrade to M-Audio's hardware. The company's devices were preferred by many over their LE rivals because of its thorough feature sets, abundance of I/O and reasonable prices. The answer has come in the form of the new M-Audio Fast Track C400 and Fast Track C600 (reviewed here) USB interfaces.

### ON THE SURFACE

The Fast Track series' overall cosmetic design has gotten a complete overhaul. No longer do we see the stackable unit with a narrow front control panel. The new design takes a note from desktop interfaces like the Apogee Duet, with a large volume control and a generous spread between knobs and buttons across the large top surface. Ergonomically, this is a refreshing alternative. Other welcome additions, which I haven't seen from the Fast Track line before, are the 8-segment LED input meters, innovative monitoring section and transport controls. All of these new bells and whistles are built upon a solid foundation mirroring the impressive feature set of the Fast Track Ultra.

The Ultra offered plenty of input and output options, with quality mic pre's, dual independent headphone mixes and MIDI I/O, as does the C600. One of the most impressive Ultra features, how-

ever, was the software mixer for routing inputs and software returns to outputs and headphone mixes. The ability to mix zero-latency inputs with playback tracks and effects powered by DSP from the hardware was professionally executed. The C600 improves upon this with stylish new graphics and even more options.

### TRY THIS

Many engineers are constantly making sure that their mix sounds great on different sets of high-quality reference monitors. Many users will be excited to find that they can connect two different monitors to the C600. In addition to that, given that three different output pairs are selectable, send the third set of outputs to a cheap pair of desktop computer speakers. Meanwhile, connect one headphone output to a pair of good over-ear headphones and the other to a pair of earbuds. Cycling between all five references and making mix decisions accordingly will lead to better mixes in the end.

### INPUT SELECTIONS

The C600 can accept signal from four analog inputs simultaneously. On the back panel of the unit, four XLR/¼-inch TRS combo jacks can accept mic or line-level signals. Alternatively, the first two inputs can be fed by front panel instrument jacks. Comparing the C600's preamps to the Fast Track Ultra's, I found a strikingly similar character. Recording vocals, I noticed the same tight low and low-mid frequency range with plenty of substance, without being over-emphasized. The top end is smooth and balanced, without an abundance of additional harmonics seeming to be added. Most of all, the upper-midrange from the preamp/converter pairing has an impressive amount of detail and clarity for a product in this class. Several M-Audio products—including the ProFire Series, the Fast Track Ultra and Ultra 8R—include the "Octane circuit" in M-Audio's Octane preamp/converter. These pre's have distinctly superior gain, fidelity and flavor to those found in the Fast Track Pro. I would not be



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The C600 I/O includes MIDI, USB, S/PDIF line out (six) and mic/line in (four).

surprised if that same circuit was the basis of the C600's preamps.

By contrast, plugging an electric guitar into the instrument input on the front panel was slightly disappointing. This was an area that I felt could have used improvement on the original Fast Tracks, and after using the HD Omni I/O, I learned what a well-executed instrument input could really sound like. Granted, the Omni and the Eleven Rack, which apparently was the basis of the Omni's instrument input circuit, are in a higher price class than the C600. That said, with the Avid brand name shared by M-Audio, I had hoped that a lower-cost yet comparable design might have trickled down to the C600. The Omni felt like plugging into an actual guitar amp. I plugged in, never really had to adjust a gain control on the device, and a hot, meaty signal lit up an Amplitube Fender Twin. With the C600, I had to keep backing off level, padding the input and scaling back gain further and further to avoid clipping. By this point, the signal felt thin and compromised, and my performance still felt inhibited by my fear of overdriving the A/D converter. A DI through the C600's mic pre provided a superior experience.

### MANAGING OUTPUTS

The C600's output strategy was clearly a point where M-Audio focused on customer feedback, executing a fantastic solution. The unit offers six analog outputs using TRS 1/4-inch analog connections. The unit also offers two headphone jacks on the front panel, each having their own level control on the top. What is fed to each of these analog connections is controlled by the software mixer in the C600 Preference pane in the Mac OS System Preferences. The layout of the GUI found here will be a comfortable transition for Fast Track Ultra users. It can be a bit confusing at first, but only because it is so packed with features.

Any piece of software send-

ing signal to the C600 recognizes it as having eight outputs, including the six analog and the S/PDIF. Routing signal to output 1 from, say, Pro Tools will bring that signal into the software mixer's "Software Return 1." This signal can then be routed to any of the device's physical outputs. By default, all eight software returns are routed to the corresponding physical connections, but you can easily modify this. In a similar way, the four analog and two S/PDIF inputs arrive into the software mixer previous to the A/D and D/A converters so that latency-free signal can be routed to any or all of the physical outputs. The first headphone mix will mirror the mix being fed to physical outputs 1 and 2, and the second headphone output will receive the output 3/4 mix. A new feature in the C600's software mixer is the ability to copy the output 1/2 mix over to output 3/4 to create identical mixes for both cues or output paths. Likewise, any output pair's mix can be copied to any other output pair's routing page.

Each of the inputs and software returns feature an aux send that can feed signal to the onboard effects processor. By using the unit's DSP to provide reverb or delay effects, the responsiveness of the processing is fast enough to be provided without latency. Eight different styles of reverb and delay offer simple controls, but are capable of producing sounds that allow a singer or guitarist to feel comfortable hearing his/her performance playing through the zero-latency inputs without being awkwardly dry.

The top of the unit has a generous spread between knobs and buttons.



### PRODUCT SUMMARY

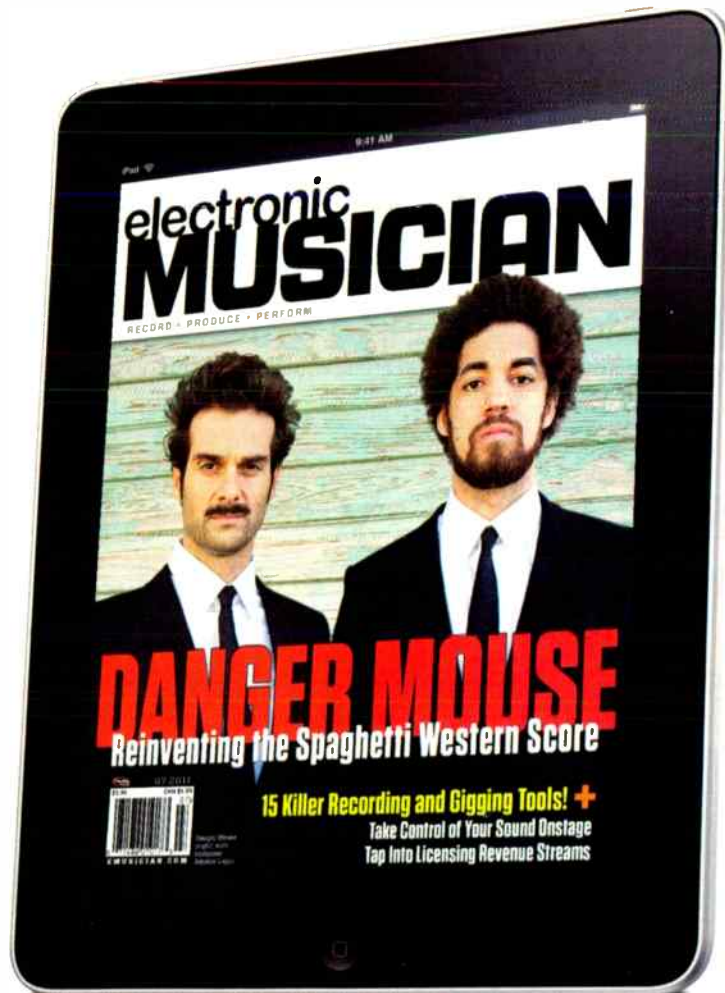
**COMPANY NAME:** Avid M-Audio  
**PRODUCT:** Fast Track C600  
**WEBSITE:** M-Audio.com  
**PRICE:** \$499.95  
**PROS:** Loaded with features. Great sound.  
**CONS:** Connection sometimes requires a restart.

The way that this software mixer integrates with the hardware monitor section is where the C600 really raises the bar. The large volume control on the unit's top panel is accompanied by three buttons, corresponding to the three analog output pairs. The idea is that, for one, during a mixing situation each pair of outputs is connected to a different set of monitors, each output pair is being fed an identical mix and the volume control adjusts the output level as the mix is evaluated on each monitor pair. You can switch between monitor pairs by turning on and off the corresponding buttons. Alternatively, during tracking you might have your main mix feed outputs 5/6 to your monitors, allocating that mix to the main volume control and freeing up the other stereo pairs for independent headphone mixes. Most exciting, in my opinion, is that 5.1 audio from a DAW can be routed to the six analog outputs; all three pairs can be selected to feed the main level control simultaneously, and the large volume control can adjust the level of the entire surround mix.

With all of these flexible routing options within the software mixer, a great variety of professional workflows can be managed in very comfortable ways. Comparing to the hardware setup of the HD Omni I/O, I would say that the C600 software routing takes a slight edge in terms of overall look, ease of use and fea-

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tures. The copy/paste feature and DSP effects alone push it over the top. The software control panel for the C600 also handles the transport feature. The five transport buttons are a tad small and stiff for my taste, but I could see why some would find them useful. They are recognized by the Mac OS as a USB keyboard. With that in mind, you can program each of the buttons to play a keyboard shortcut recognized by the desired application as a specific command. Setting the Play button to perform the "spacebar" command makes the button useful in pressing Play in a good number of applications. Fast-Forward and Rewind, on the other hand, will find themselves very DAW-specific once programmed. An additional Multi button can be programmed to perform any shortcut, or even an eight-step series of commands.

#### ALL GOOD?

Clearly, there are a lot of positive things happening with the Fast Track C600. Great design, good amount of I/O, pleasing sonic quality and a useful new monitoring section are all among them. I do have some minor complaints. I have always liked the Fast Track Ultra, and was excited to see this new

product that adds to all of my favorite Ultra features. The C600 does not offer hardware inserts, which were useful on the Ultra, and the C600 has two fewer line inputs. Otherwise, the C600 only improves upon its predecessor.

One thing I had hoped to see resolved on the C600 was the issue of hot-swappability. Both units are made to perform in a way that they can operate using exclusively USB power but only offering two ins and reduced outputs. To achieve full I/O, an additional wall wart power supply must be connected. Usually for the unit to be recognized in this mode, a reboot is required. Sometimes the unit will be found without rebooting, but it just isn't consistent. One or two times, the C600 exhibited some sort of clocking issue where the sound crackled until power was recycled, leading to a necessary reboot, all during a session. It would be really annoying if that happened consistently.

#### WORTH THE WAIT?

A new fleet of M-Audio USB interfaces has been long anticipated, but it seems that the company has taken its time and gotten it right.

The slick new layout is much more appropriate for the kind of desktop use where it will most likely be popular. The powerful software mixer gets even better in this new generation. The sonic quality doesn't seem like a radical leap forward, but really didn't need a major revamp. It's worth noting that even the C400 is reportedly receiving the same type of quality mic pre's and software control found on the C600, so that'll be a major step forward from the Fast Track Pro. Playing the features-per-price game is always a balance of tradeoffs, and it seems like M-Audio is at it again, finding the perfect recipe of bang for the buck.

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

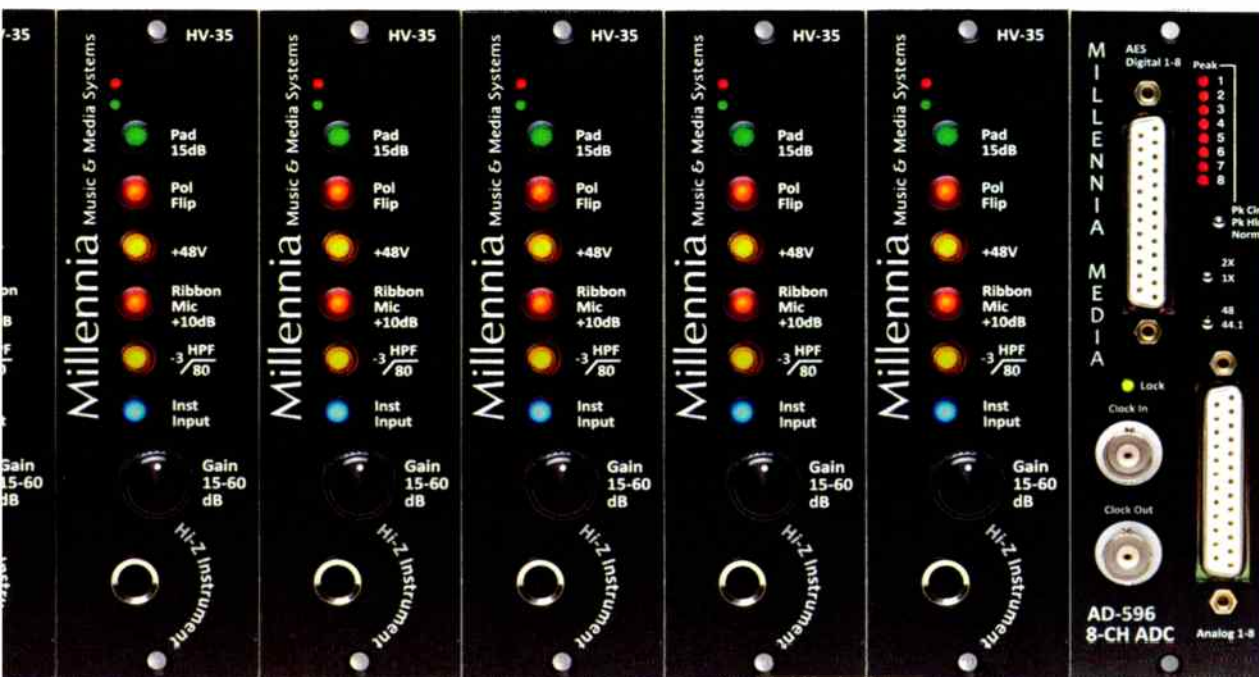
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Watch a demo video of the C600 at [moxonline.com/november2011](http://moxonline.com/november2011)

# You know you're going to want more than one

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## KRK ROKIT RP10-3 POWERED SPEAKERS

### Three-Way, Mid-Field Monitors at a Near-Field Price

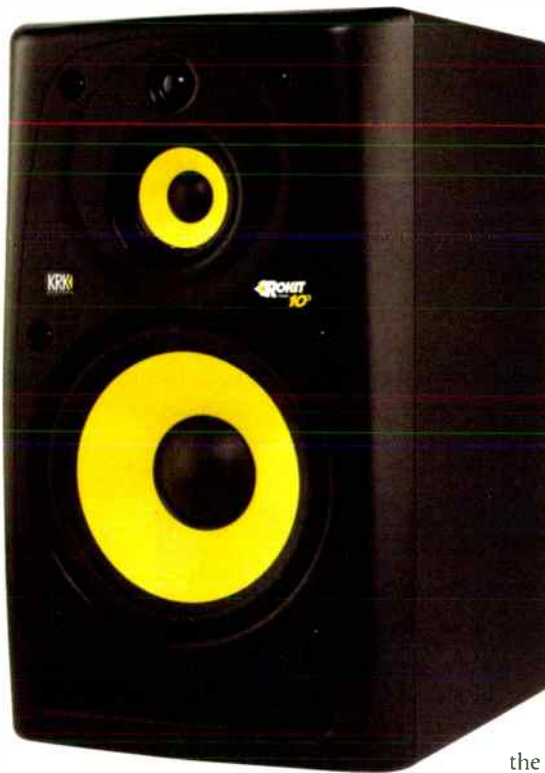
Most engineers would agree that it's counterproductive and dangerous to mix at high SPLs all of the time. However, there are times during the mix and tracking/overdubbing processes when you want to really crank it up. Sometimes it's just to do a reality check on your mix—if it's something that's going to be played back at high levels—or possibly your clients are asking to hear it loud.

Commercial studios frequently have large-format speakers mounted in their walls for that purpose. For today's project and home facilities frequently only have near-fields, which, for the most part, aren't ideally suited for that kind of cranked-up, pulse-pounding playback. But for many studios and musicians, the cost of buying monitors that are capable of putting out high SPLs with full-frequency-range response has been prohibitive—until now.

#### BLAST OFF

KRK introduced the Rokit RP10-3 at the 2011 Musikmesse, and the product recently started shipping. These monitors, which can be used in mid-field or near-field applications, feature three-way reproduction, with a 10-inch glass Aramid-composite woofer, a 4-inch mid-frequency driver of the same material and a 1-inch silk-dome tweeter. According to the spec sheet, they can put out 113dB max SPL, which is more than your typical near-fields but right in range with competitors in the three-way monitor category. What's not in range with the rest of that market is the price—\$499 per speaker—which is half of its nearest-priced competitor (the ADAM A77X) and a third or less of what many of the other three-way mid-fields cost.

The RP10-3s are large: Each is 29.3x12.8x14.4 inches and weighs a fairly hefty 46 pounds. The cabinet is made of reinforced MDF (Medium-Density Fiberboard) with the distinctive yellow KRK cones on the drivers. The cabinet contains a curved baffle that KRK says virtually eliminates distortion caused by diffraction. A horizontally oriented port at the bottom-front of the cabinet extends to just beyond



the width of the low-frequency driver. KRK says the reason for placing the port on the front rather than the rear is to avoid possible bass issues that could occur with a rear-firing port on a speaker that's mounted on or placed close to a wall.

Along with the grounded IEC AC receptacle, all of the controls and inputs reside on the back of the RP10-3, including the power switch. I have always found front-mounted power switches to be more convenient. That's a minor point, considering that most studios will power up their speakers from a remote switch. The power indicator is on the front and takes the form of a KRK logo that lights up.

Kudos to KRK for offering three different connection options for the speaker's audio input: balanced XLR and ¼-inch, or unbalanced RCA. You get a detented volume control that lets you cut up to 30 dB and boost up to 6 dB from unity gain.

There are two EQ controls that allow you to tailor the speakers to your room acoustics: an LF adjust and an HF adjust. Both offer four detented positions: -2 dB, -1 dB, 0 dB and +1 dB. According to KRK, each of these controls adjust the "output most commonly affected by room acoustics" within their frequency range.

The RP10-3 is equipped with a tri-amplification system featuring 30W amps for the tweeter and midrange driver, and an 80W amp for the woofer. Crossover frequencies are 350 Hz and 3.5 kHz. According to the specifications, the frequency response of the monitors is 35 to 20k Hz, ±2 dB.

One of the interesting features of the RP10-3 is that if you prefer to orient the speaker horizontally (perhaps in a wall-mounting situation), you can rotate the tweeter

#### TRY THIS Reorienting the Drivers

One of the cool features of the KRK Rokit RP10-3 monitors is their ability to be used in both vertical and horizontal orientations due to their unique adjustable tweeter. Changing the orientation takes about five minutes per speaker and is easy to do. First, unscrew the six hexbolts that hold the baffle down and remove it. Then unscrew the four Phillips screws around the sub-baffle, which is a circular piece of plastic that holds the midrange driver and tweeter. Once those are loosened, it's simply a matter of turning the sub-baffle to the position you desire, depending on how you plan to orient the speakers. If you want a "tweeters in" configuration, turn the baffle 90 degrees counterclockwise; if you want "tweeters out," turn it 90 degrees clockwise.

90 degrees so that it's properly configured. You have to open up the cabinet to do so, but it's not terribly involved. (See "Try This" sidebar.)

### MULTIDIMENSIONAL

I set the monitors up vertically, putting them on Primacoustic Recoil Stabilizers and sitting them on equal-height cabinets to either side of my mix position. I first tried listening to a variety of music on the RP10-3s to see how they'd handle different genres. I found their three-way sound to be clear, crisp and transparent, making it easy to hear musical elements in all frequency ranges.

Having the 10-inch driver really made a difference in the low-end response. As expected, I could hear low frequencies in the bass instruments that were not audible on my smaller monitors. The tightness of the bass was most impressive: Electric bass guitars sounded smooth and contained, not flabby; kick drums were tight-sounding, too. The acoustic bass on a live recording of Oscar Peterson's "Night Train" felt like it was in the room with me (as did the rest of the instruments). I liked that the KRKs didn't accentuate the bottom end, just reproduced it—no hype. I was also able to judge pretty clearly when I heard a mix that was overly bassy.

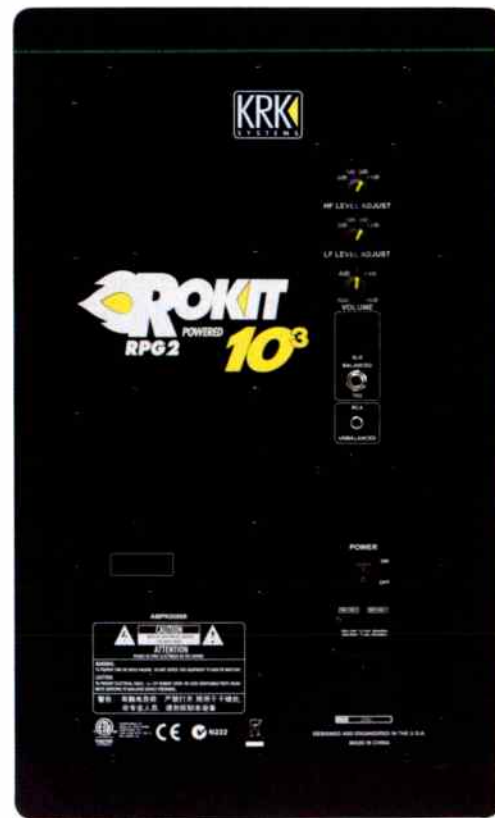
### PRODUCT SUMMARY

**COMPANY:** KRK Systems  
**PRODUCT:** Rokit RP10-3  
**WEBSITE:** krksys.com  
**PRICE:** \$499 each  
**PROS:** Excellent value in a three-way, mid-field monitor. Tight, un-hyped bass response. Impressive clarity. Tweeter can be reoriented easily for horizontal configurations.  
**CONS:** High-end can be a little harsh.

The midrange didn't jump out like it does on some smaller two-way monitors, but it was certainly present. Thick rock-rhythm guitars, like on The Offspring's "Nitro," stayed nice and present, and fit nicely in the track, as they were intended.

The highs seemed a tad on the harsh side to my ears. Bearing in mind that my studio tends to be a little high-end heavy, I lowered the HF adjust to the -1dB setting, which smoothed it out nicely.

I listened first in a near-field configuration and then moved further back to a mid-field distance, and the sound was excellent in both situations. I



The KRK RP10-3s offer four detented adjustments for LF and HF.

felt like I could distinguish between the mix elements in a way that I couldn't on my various smaller monitors. Then to really put them through their paces, I turned them up to close to 100 dB, and they stayed crisp and clean. I put on a track by dub-step artist Bassnectar that has a huge synth bass sound, and I felt the floor vibrating.

I also tried the KRKs in my own mixing situations for some rootsy acoustic music tracks featuring drums, acoustic bass and instruments like dobro, acoustic guitar and mandolin, and I really liked the way the speakers sounded. I found them very useful for judging all aspects of the mix.

### ROKIT 'N' ROLL

For the money, there's nothing that I know of on the market like the Rokit RP10-3. If you've ever wanted to add a pair of larger-format speakers to your studio, whether to add a three-way mix reference to your studio or just to impress your clients with loud, mid-field playback, the combination of price and performance you get from these monitors is irresistible.

Mike Levine ([www.mikelevine.com](http://www.mikelevine.com)) is a New York-based guitarist, composer and music journalist.

## Powerful DAW controller.

### V-Control Pro



- Pro Tools
- Cubase
- Logic 9

V-Control provides multi-touch control of transport, faders, pan, mute/solo/record, sends, automation, plug-ins, and more. It uses the iPad's Wi-Fi to wirelessly control DAW's such as Pro Tools, Logic 9, and Cubase. V-Control is the perfect remote controller for recording by yourself. At the studio or on the road V-Control gives you a comfortable bank of virtual mixer faders that you control with your fingers, just like on a real mixing console.

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# IK MULTIMEDIA CUSTOM SHOP

## Build Your Dream Guitar Rig in Software

**I**K Multimedia Custom Shop lets you cherry-pick digital models of guitar amps, cabinets, mics, stomp boxes and rack effects from the company's collection of guitar-amp simulation plug-ins and combine them to create your own "Greatest Hits" rig. A try-before-you-buy interface and à la carte pricing offer a risk-free shopping experience tailored to any budget.

### STARTER KIT

IK Multimedia provides a free, downloadable, fully functional plug-in for operating all of your handpicked

Custom Shop treasures. It's called AmpliTube 3 FREE (Mac/Win) and is operationally identical to IK Multimedia's flagship guitar-amp simulation software, AmpliTube 3 (Version 3.5 and later). The only difference is that AmpliTube 3 includes more than six times as many models as the FREE version, which comes supplied with only nine stomp boxes, four amps, five cabinets, three mics, two rack effects and a tuner. Both AmpliTube products' installers include the Custom Shop application, and their GUIs interface with Custom Shop in the same way.

Both versions of AmpliTube can host all of your currently owned AmpliTube models and presets, making the legacy AmpliTube X-GEAR obsolete. If, for example, you already own AmpliTube Fender, all your models and presets for that plug-in are displayed and can be used in AmpliTube 3 FREE. The GUI also provides a clickable icon that takes you directly to the Custom Shop online store (provided you are connected to the Internet), where you can audition and buy additional models.

Even if you never visit Custom Shop, AmpliTube 3 FREE is yours to keep and a great little guitar-amp simulator. Its GUI accommodates eight serial and parallel-routing configurations using two separate amps and cabs—each paired with two movable mics—and up to 20 effects (12 stomp boxes and eight rack effects). The software comes



*Fig. 1: Custom Shop shows you which models you currently do and do not own in each category, and makes auditioning and buying new models a snap*

in stand-alone and plug-in (RTAS, VST and AU) formats, and is compatible with 64-bit DAWs and operating systems. The stand-alone version offers instant preset switching (a boon to use onstage) and a built-in 4-track recorder (useful for recording rehearsals). The included SpeedTrainer lets you slow down or speed up backing tracks without changing their pitch. AmpliTube 3 FREE is fully integrated with IK's StealthPlug, StealthPedal and

StompIO hardware.

### SHOPPING SPREE

When you click on the Custom Shop icon in AmpliTube 3 or AmpliTube 3 FREE, a Webpage launches, where you log into Custom Shop using the same user name and password you normally would use to access the IK Multimedia user area (or acquire newly by registering). If you've previously registered any AmpliTube-related plug-ins (AmpliTube 3, Fender, Jimi Hendrix, Metal or the bass guitar-centric Ampeg SVX), click the Account tab at the top of the Webpage that appears after logging in. Select Restore My Gear from the drop-down menu to make all your models and presets populate AmpliTube 3 FREE.

Inside Custom Shop, you can purchase Gear Credits that serve as currency to buy the additional models you want. (IK's reward-based JamPoints can also be applied to purchases for up to a 50-percent discount.) Gear credits cost between \$0.60 and \$1 each, depending on how many you buy at once;

### TRY THIS

Whenever you record an electric-guitar track, plug the guitar first into a DI box. Route the unbalanced output of the DI box to the player's floorboard and amp, and mike up the cabinet as you normally would. Then route the mic(s) and balanced output of the DI box (via mic pre's) each to a separate track for recording. During mixdown, you can run the DI'd track through different AmpliTube patches to either augment or replace the miked tracks. You'll never need to reamp!

large purchases offer the larger discounts. Models cost between five and 20 credits each (as little as \$3). Amps run the gamut, while stomp boxes and rack effects command between five and 15 credits apiece. Mics and cabs each cost a mere five credits. Rotary speakers each sell for 20 credits.

Custom Shop offers more than 200 gear models for audition and purchase. These include officially approved models from Ampeg, Fender, Gallien-Krueger, Groove Tubes, Orange, Seymour Duncan, Soldano, T-Rex and THD. The models are organized in Custom Shop both by brand (for example, Fender) and type (amps, cabs, mics, stomp boxes and rack effects). You can also do a keyword search for the model you want. Choose a category from the pop-up menus in the upper-left corner of the Custom Shop Webpage, and you'll see a list that begins with the models you don't currently own and follows with those you've previously purchased in that category, all clearly delimited. (See Fig. 1.) There's virtually no risk of unintentionally buying a model you already own. When you find a model that piques your interest, click on one of two buttons to either try it out for up to 48 hours or buy it



Fig. 2: Pop-up submenus in AmpliTube 3 FREE list models you own, those you're trying and locked models. The remaining trial period for the 1x12 Tiny Terror cab is shown here (highlighted in orange). Two items down in the submenu, the 2x12 PPC OB cab's name is grayed out and has a padlock icon next to it, indicating it is not currently owned or being tried.

immediately.

Models you try are fully functional, with one caveat: You must keep Custom Shop open (you can hide the window) and stay connected to the Internet while you use them; if you don't, AmpliTube 3 FREE will intermittently produce broadband noise. (You don't need to keep Custom Shop open when using models you already own.) Models you don't purchase become non-functional after the trial period expires but can be auditioned again two months later for another 48-hour period. To avoid unpleasant surprises, the submenus that

load models in AmpliTube 3 FREE's GUI show the time remaining for each model's trial period. (See Fig. 2.) Models you don't own and aren't currently trying are listed with a padlock icon next to their grayed-out names; you can see at a glance what new goodies are available to add to your custom rig. Select a locked model, and an alert asks you if you'd like to enter Custom Shop to try or buy it.

When you decide to buy a model you've been auditioning, click on the My Gear tab in Custom Shop. A list of all your installed models appears, beginning with those you're currently auditioning and don't own. Click on the Buy button next to the model you want, and within seconds it's yours to keep.

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## PRODUCT SUMMARY

**COMPANY:** IK Multimedia

**PRODUCT:** Custom Shop

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

**PRICES:** Six tiers of Gear Credits ranging from \$19.99 (20 credits) to \$299.99 (500 credits)

**PROS:** Great-sounding models. Inexpensive à la carte pricing. Can try any model for two days before you buy. Easy to use.

**CONS:** No advance indication of which presets won't load properly because they contain models you don't own.

AmpliTube 3 FREE's browser contains all of the factory presets for every AmpliTube-powered plug-in in existence. There's no indication whether a preset contains a model you don't currently own, however, until you try to load it. Because such presets won't load properly, their names should ideally also be grayed out to avoid minor annoyance, but they're not.

### AMERICA'S NEXT TOP MODELS?

New models are regularly being added to Custom Shop. I tested the latest ones in Digital Performer 7.21 and Pro Tools 9.0.5, playing a Strat and using an 8-core Mac Pro running OS 10.6.8. Most of what I heard really impressed me.

One of my favorite new amp models was the Fender '57 Champ, which delivered warm-sounding tones ranging from clean to vintage-rock-crunchy. The Fender '65 Princeton Reverb amp sounded more present than the Champ and produced very good clean and crunchy timbres. The Orange RuckerVerb 50 MKII amp model rocked a bit harder than the new Fenders, coaxing beautifully warm, brown tones and smooth sustain for lead work; even with heavy treble boost, it didn't make my single-coil pickups sound harsh. Channel A of the Orange Thunderverb 200 had the same tone stack as the RuckerVerb and sounded similar. The Orange Tiny Terror also had a somewhat similar vibe, but sounded a hair less supple than the RuckerVerb. The Soldano SLO-100 amp excelled at dishing out soaring lead solos with smooth distortion and sweet overtones. Matching cabs were available for all but the Soldano amp.

New stomp box distortion models include the Seymour Duncan Power Grid and the T-Rex Moller and Mudhoney. The oh-so-flattering Mudhoney was aptly named, as it readily produced warm and dark-sounding distortion. The Moller allowed me to blend clean and overdriven signals, enhancing definition. The Power Grid featured excellent 3-band EQ, useful for sculpting precise tones.

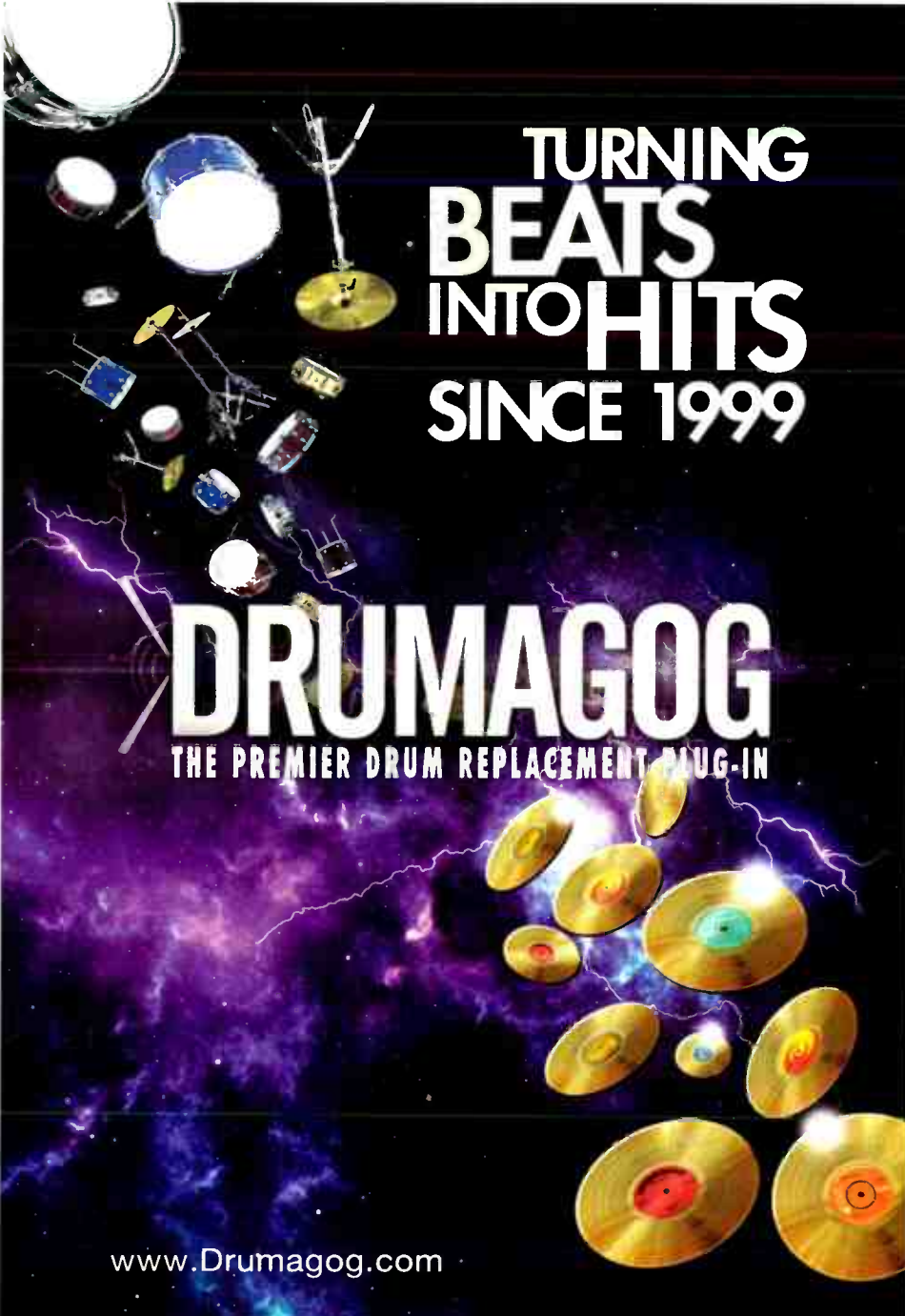
T-Rex Replica, an echo stomp box, sounded wonderfully warm on clean tracks, but sometimes added discordant overtones when chained after some of the aforementioned distortion pedals. The Seymour Duncan Shape Shifter tremolo stomp box sounded really cool; it let me select among different LFO waveforms and then reshape the output's envelope to fashion a variety of head-warping sounds.

But don't take my word for it. You can hear for yourself—risk-free—how all these models work in combination with your own axe. That's the beauty of Custom Shop.

### CLOSING UP SHOP

Custom Shop is the iTunes of guitar-amp sims. Instead of being locked into buying a complete plug-in (album), you can preview and buy inexpensive single models (songs) one at a time. User-friendly and loaded to the gills with great-sounding models, Custom Shop is the new paradigm for the digital age and these recessionary times.

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



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## MILLENNIA AND ELECTRODYNE 500 SERIES MODULES

Three Winning Preamps and an EQ

**S**ince purchasing a Radial Workhorse 500 earlier this year, I've been enjoying the range of modules available for the 500 Series platform. I recently had the pleasure of using three products—the Electrodyne 501 preamp, the Electrodyne 511 inductor-based EQ and a pair of the Millennia Media HV-35 preamps—across a range of applications. What's great about these and most other 500 Series modules I've used in session is how companies have gotten so good at squeezing personality and features into such a small enclosure.

### ELECTRODYNE 501 AND 511

Electrodyne was started in the 1950s by Arthur Moser and Arthur Davis with the intent of creating high-end portable gear for the motion picture industry. Early products included a modular microphone amplifier, program EQ, mic EQ, and variable highpass and lowpass filters. Intended for field use during production, Electrodyne products were both portable and rackmountable, much like the 500 Series units tested here. In the '60s and '70s, the company offered the ACC-1204 15x4 audio console, the ACC-1608 console purposed for 8-track studio recording and the ACC-803 audio control console for sound reinforcement. These offered a pick-a-part design using modules in a variety of colors dependent on their purpose, making it easy for users to identify units visually. It's in this light that the 501 and 511 were created, using designs and components from these early desks.

The Electrodyne 501 (\$895) is a two-stage, transformer-coupled preamp using discrete transistors with direct input based on the classic ACC-1608 console. Performance is optimized using detailed factory-engineering notes from the era, and components are selected with the intention of duplicating the originals' performance. For instance, the 501's transformers are made by the



*The Electrodyne 501 (left) preamp and 511 EQ modules use the same parts and specs as the original gear.*

original supplier using the original specs.

The 501's controls are straight ahead and enough to overcome any studio challenges. There is a large rotary gain knob (68 dB) adjustable in 2dB steps. There is a smaller output level completely variable from infinity to +6 over zero. Other controls include a DI/mic switch, two-way impedance switch (50 or 200 ohms), -20dB pad, polarity flip and a 48V phantom-power switch with a welcome confidence LED. There is also a single red LED that flashes when signal is present and gets brighter and stays solid when any stage is 3 dB from clipping or higher.

The Electrodyne 511 EQ (\$1,050) is a simple, 2-band, discrete transistor, inductor-based equalizer using design technology from Electrodyne's early consoles. As with the 501, the 511's custom inductors and output transformer are made by Electrodyne's origi-

nal provider to strict factory tolerances. While simple in design and control, this EQ is incredibly musical. The frequency control is a slick, small rotary metal pointer just outside the gain knob that points to the chosen band. The upper control offers 12 dB of equalize/attenuate at 1.5k, 3k, 5k and 10k, while the bottom features the same cut and boost at 50 Hz, 100 Hz, 200 Hz and 500 Hz. Both can be either bell or shelf. The only other control is the EQ in/out button, which has a confidence LED.

I first used the 501 and 511 in tandem on a kick drum and later a snare drum. While the combination is not a must, the pairing was sweet anywhere I used it. On kick drum with a Shure Beta 52 placed inside about four inches from the head, the 501 didn't wince at the input gain from the mic once I kicked in the -20dB pad. Using the Input and Output controls, I was able to tailor the sound by driving the output a bit, giving me a fatter tone. With the 511 next in the chain, I set the

frequency to 40 and boosted it quite a bit (+6 to +9 dB) before I got what I was looking for. While I wouldn't call it subtle, like most inductors the EQ does need quite a crank before it gives you what you want, and that's not a complaint. Once I got the rest of the kit up and going, I did change the frequency to 100 and had better results on this particular kit. Next I set the upper band to 5k to bring out the beater and boosted it between 4 dB and 6 dB, dialing in the perfect blend of the two. Overall, the 501/511 combo gave me plenty of gain with personality, plus that sweet low thump and beater sound. Next on a snare drum, after I set the gain I dialed in the EQ using the shelf control at the top to bring out the snap of the drum starting at 3k and mixed in the fundamental at 200 Hz, with the lower band set to peak. It made me wish I had two of each unit in this application for use with a drum kit.

Next I used the 501 (without the 511) on a lead vocal recorded with an sE Electronics Voodoo VR2 active ribbon mic. This then fed a Universal Audio LA-2A compressor and then to Pro Tools through CLASP, which uses analog tape for throughput—in this case, a Studer 827. The preamp/compressor combo provided a sweet tone that EQ'd well coming back from Pro Tools. I had an "aha" moment later because I worked the morning session with that vocalist while a golden-eared colleague took the p.m. session using the same mic and signal chain, but not through the 501/LA-2A combo. She later mixed both of our sessions and without knowing what I'd used, said she thought my track had more intimacy and presence. While this could be the compressor, I'd had the same experience on other tracks with the 501 in different circumstances. "The preamp is present without being in your face" is the best way I can say it. While hard to describe, these two offer a unique sonic character that is very appealing.

(mil-media.com) products over the years, including the STT-1 Twin Topology recording channel, the TD-1 half-rack recording channel, the HV3R 8-channel remote-control preamps and now the HV-35 (\$799). Millennia is new to the 500 Series game, though now offering both the preamp tested here and an 8-channel converter. While I try not to gush in a review, anything I've used from this company has spoiled me, and the HV-35 is no exception. The company gets it right or it doesn't release it. On the downside, one of the units was damaged in shipping, making the rotary volume control work differently and not as smoothly as the other. But this was never reflected in the audio path and I quickly got over it.

The HV-35 offers a continuously variable gain control, DI input, highpass filter at -3dB per octave starting at 80 Hz, a DC-coupled ribbon mic +10dB gain boost that disables phantom power, +48V phantom power, polarity flip and a -15dB pad. There are two LEDs: one marking signal present (green) and the other clipping (red). All other buttons are LED lit in various colors for quick confidence.

When I have a variety of preamps from which to choose, including Millennia products, I always save the latter for critical applications where clarity and low noise are a must. Because I had two units, my first test was to gas a pair of Blue Bottle mics over a drum kit. Not only are the mics fantastic, being the early versions with the chicken-head knobs on the power supplies, but the HV-35s got out of the way, providing transparent gain, making the kit sound—for lack of a better phrase—like a drum kit. No wash on cymbal hits, clean transient strikes of the cymbals and a fantastic true stereo picture of the drums. You gotta love that.

On another session, I used the HV-35 to power an sE Electronics Voodoo VR1 mic recording a tenor saxophone with great results. The Voodoo ignores the annoying part of a closely miked horn, rounding out the tone. Once again, the HV-35 gave me plenty of clean gain and confidence when I kicked in the Ribbon Mic boost button. I can't tell you how reassuring a feature like that is in the heat of a session where you're using a lot of outboard gear, changing settings, pulling cables, patches and troubleshooting. Being able to look over at your rack and see that glowing red light and knowing there's no way phantom power can be on is like hot chicken soup on a cold day—love it.

#### MILLENNIA MEDIA HV-35

I've been fortunate to have used and reviewed a lot of Millennia

Kevin Beck is *Mix's* technical editor.



Millennia Media's HV-35 preamp offers a DC-coupled Ribbon mode that boosts gain by +10 dB and kills phantom power.

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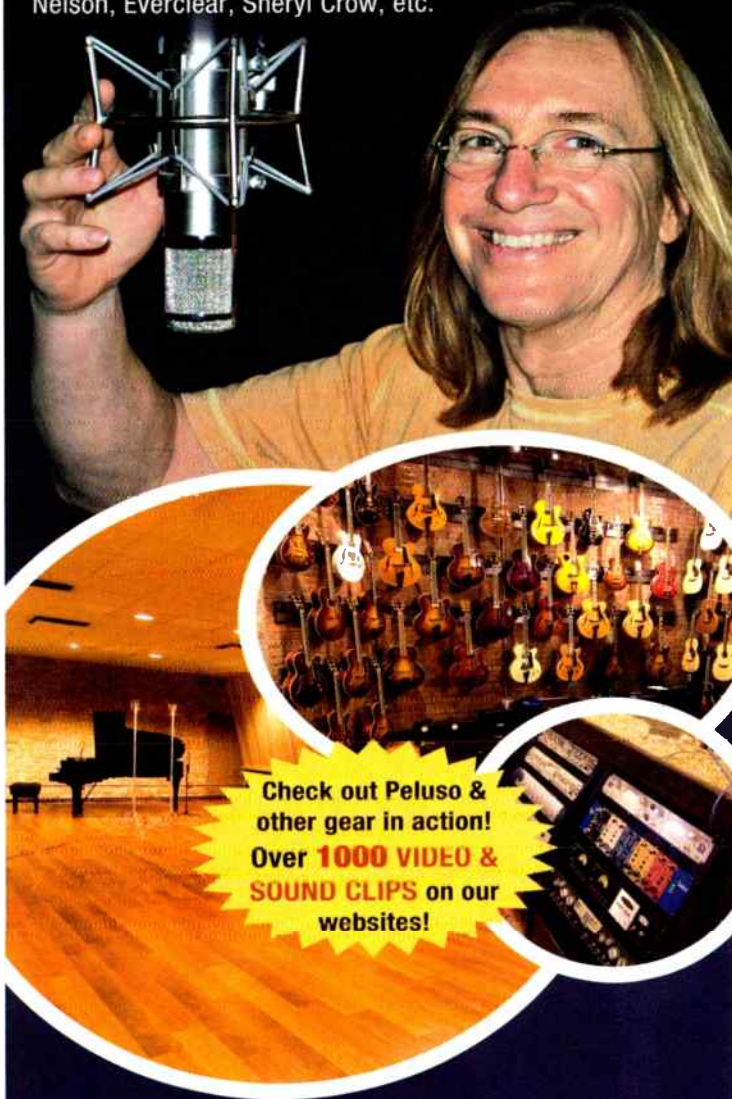


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## WYSI (NOT ALWAYS) WYG



**O**ne of my rules when writing a product review is to never ask the price until the end. I'll do everything I can to stay away from the figure after the "s" because I don't want it to affect my perception of quality. Not so much in studio products, but in the audiophile realm, the idea "it's expensive so it must be good" is king and drives sales. Now this isn't to say that something expensive isn't the absolute top of the heap, but it's not always true.

Case in point, I went to the Consumer Electronics Show in Las Vegas this year for the first time and it was an eye- and ear-opening experience. My engineering buddy Dave Rideau and myself jumped from room to room listening to incredible systems with audio playback from vinyl, analog tape and digital sources through the priciest players, converters, amps, cables and speakers. With only a few exceptions, the brands were nothing you'd ever see in a Best Buy or Guitar Center, and many systems cost as much as a small house.

There were rooms we visited where the playback was making us smile and others that were categorically unimpressive, where the top end was strident, bottom boomy or there was that intangible feeling that something just wasn't right. But the one thing they all had in common, at least if you read the product material, was they made the best stuff on the planet.

So where is the truth about quality? How do you separate what you see, hear, know (or knew) from the hype? And even more important, how do you keep your own internal prejudices—like "it's too expensive," "too inexpensive" or "I don't like that brand"—from souring your evaluation?

To get some perspective, I talked to JBL's Peter Chaikin about the methods the company uses to create speakers. It turns out that JBL has a unique and very scientific way of reducing sensory input when testing speakers for consumer "lifestyle" products, automotive and, of course, professional live and studio audio.

It all started in 1991 when Dr. Floyd Toole came to Harman as VP of acoustics. His mandate was to bring a scientific method to the development of Harman products. He believed you could measure quality and design to those qualities, getting close long before the consumer ever heard the speaker.

Harman built a Multichannel Listening Lab (MLL) at its Northridge, Calif., campus and other locations around the world to collect data on listener preferences. The methodology has been to bring people through the facility and test their responses to various playback systems, including JBL's competition. The company buys off the shelf and

puts competitors into the mix. Those invited to listen include marketing managers within the company, college students, product reviewers, professional engineers and more. Through the process, JBL attempts to prove or disprove what's true about listener preferences.

How you test is the key to getting good data, and Harman's test is double-blind. In the MLL, Harman created a device called the speaker shuffler, a hydraulic machine that operates behind a visually opaque and sonically transparent screen, and lets you swap up to four pairs of speakers up to 200 pounds each and put them in the exact same position, all within three seconds. It removes what Chaikin calls the "nuisance variables" that can color perception, such as logo, brand, look of the product, color, price and, most importantly, position. Any speaker will sound different if it's placed even a foot to the left or right, affecting the listener's judgment.

They use broadband music for playback or invitees will bring their own music. In four separate trials, the listener rates each speaker from 1 to 5 and enters comments. The speakers are switchable from a touchpad, on which they are given an A, B, C or D designation. The listener doesn't know which speaker is which, and the music played is random. Also, the letter designation for each speaker changes from trial to trial. So the speaker on button A playing music track 3 in test 1 may be the same, or different, in tests 2, 3 or 4.

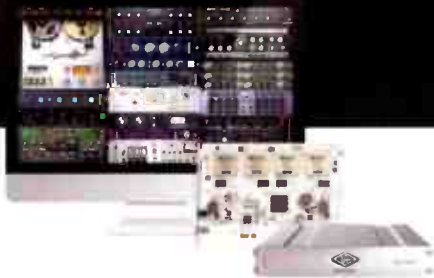
Harman then comes out with a rating for each speaker, as well as a rating for each listener and how reliable their responses are. Here is what's remarkable. From all this testing, it turns out that all listeners from Pros to Joes, in all countries, tend to prefer a speaker that measures flat. Not what I, or Chaikin (who comes from a pro engineering background), would have thought. So using these results garnered from frankly the most fair-testing process I've ever heard of, Harman creates speakers that will please the widest variety of listeners.

This is not to say that JBL is the only company with a bead on excellence. I've visited both the Genelec and Focal manufacturing facilities and found them to be exceedingly passionate about what they do. All speaker manufacturers test their products scientifically and perform extensive tests in a variety of environments, anechoic and not. But the MLL's ability to objectively assess a listener's subjective evaluation is unique and one we can learn a lesson from.

The truth for me is that your ears are the most reliable resource available when making product-buying decisions, as long as you deprive yourself of hype and try to reduce your own internal bias based on past experience. Without your own personal MLL, it's a tough thing to do, but knowing what keeps you from making better decisions is a great way to up your buying skills.



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