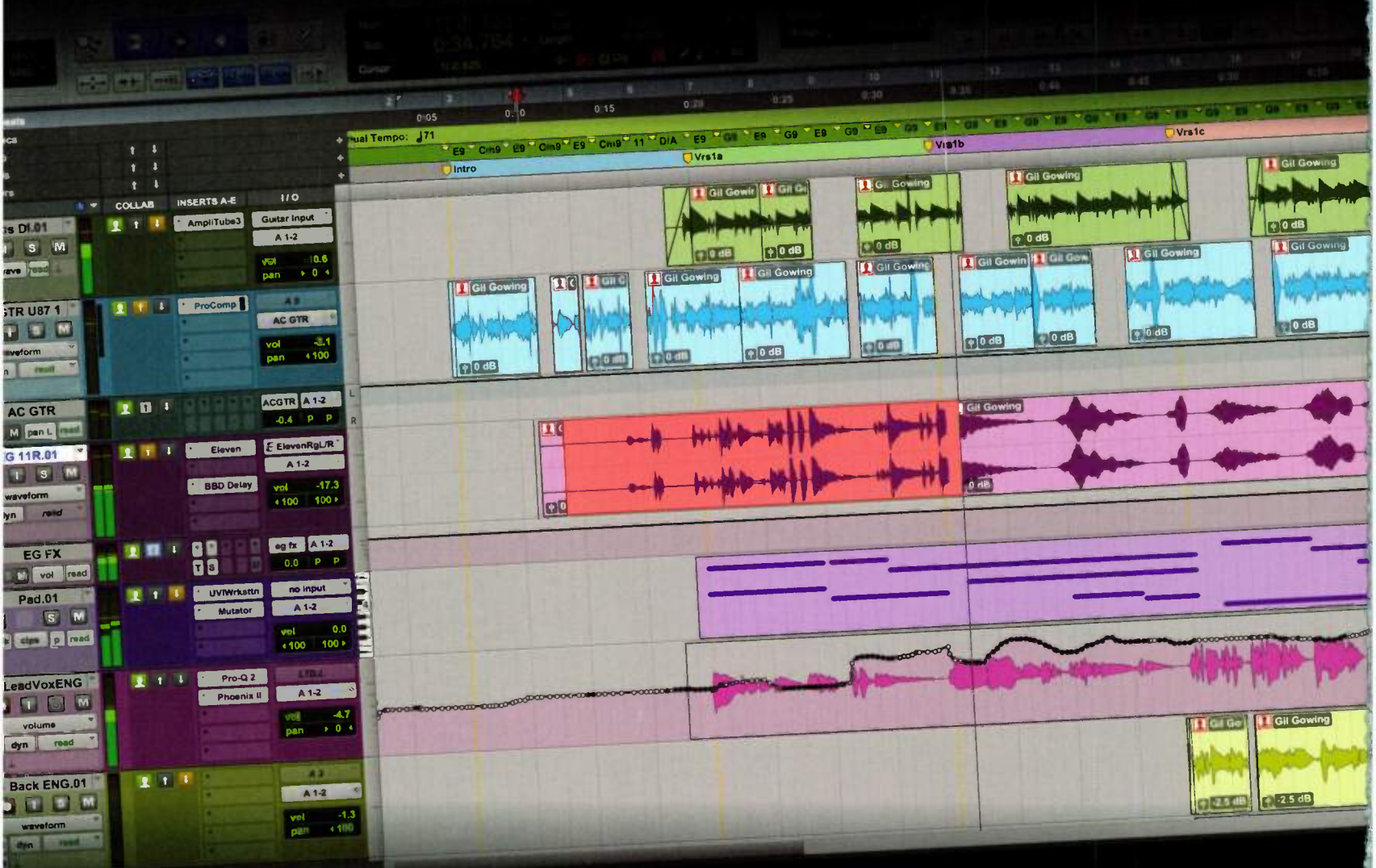




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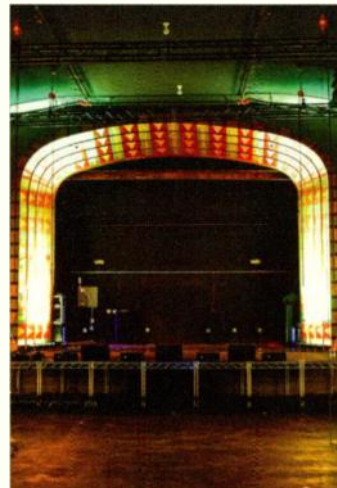
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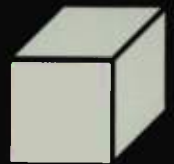
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On the Cover: Toto, February 2015, at Steve Porcaro's home studio, from left: Joseph Williams, producer CJ Vanston, David Paich, Steve Lukather and Steve Porcaro. **Photo:** Heather Porcaro.

Mix, Volume 39, Number 3 (ISSN 0164-9957) is published monthly by NewBay Media LLC, 28 East 28th Street, 12th floor, New York, NY 10016. Periodical Postage Paid at New York, NY, and at additional mailing offices. POSTMASTER: Send address changes to Mix, PO Box 8518, Lowell, MA 01853. One-year (12 issues) subscription is \$35. Canada is \$40. All other international is \$50. Printed in the USA. Canadian Post Publications Mail agreement No. 40612608. Canada return address: BleuChip International, P.O. Box 25542, London, ON N6C 6B2.

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ARCHIVES AND MICROFORM: This magazine is available for research and retrieval of selected archived articles from leading electronic databases and online search services, including ProQuest. For microform availability, contact National Archive Publishing Company at 800/521-0600 or 734/751-4700, or search the Serials in Microform listings at napubco.com.

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ENGAGING ARTISTS EVERYWHERE

Jeremiah Slovarp – Owner of Jereco Studios in Bozeman, Montana and Emmy® award-winning Producer/Engineer knows a thing or two about the art of mixing. Working with television giants such as HBO, PBS, Disney and BBC, his impressive resume ranges from commercials to documentaries and so much more. With a recent studio upgrade to Yamaha's NUAGE Advanced Production System, Jeremiah's workflow has taken a turn for the better. We caught up to him to hear his thoughts on the new hardware.

"I feel like I can get back to mixing, pushing faders, turning knobs, and just working on a creative console. Previously, after an eight or ten hour day, my hands would be in pain from all the manual movements I had to make being dependent on mouse editing and clicking. With the advent of all the cool and amazing new digital DAW based mixing tools and equipment, I think the industry, in general, has regressed from the art of mixing and working with consoles and large format hardware. But with NUAGE, I appreciate the deliberate move Yamaha has made to enable engineers to get back to mixing and editing as an art form."

— Jeremiah Slovarp

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From the Editor

NEVER SETTLE FOR GOOD ENOUGH

Toto could have easily phoned this one in and nobody would have blamed them, or even criticized them. After 38 years in the studio and on the road, through chart-toppers and slow-sellers, through lineup changes and solo careers, through tragedies and triumphs, what's the big deal about the last record in a label contract? It had been 10 years since their last studio effort, and the music business had changed so as to be nearly unrecognizable—not just to Toto, to anyone. With more than 500 million collective records sold among the band's members, there's nothing left to prove. Phone it in. Leave YouTube and Twitter to the next generation. So much easier.

But that would never happen. Not in a million years. Paich, Lukather, Porcaro, Hungate, Williams, now with drummer Carlock—these guys are musicians, artists, playing as well as they ever have, writing as well as they ever have. Instead of turning in 12 half-worked tracks with a surefire single and calling it a day, they set out to follow up *Toto IV*, their 1982 seven-Grammy smash that was one of the defining records of the decade. The album is *Toto XIV*, due out on March 24, and it's good. Old-school good and new-school good.

"Once we got into it, we said, 'If we're gonna do this, let's make a great one,'" says Steve Lukather in this month's cover story. "A lot of people say bands our age don't have any good ideas left, they used them all up. We said, 'No, no, no,' we gotta break down that myth, and we had CJ to push that little extra performance and get the best out of us."

Co-producer/multi-instrumentalist/budding psychologist CJ Vanston is the guy who brought this cover story to *Mix*. Though he's most regularly associated with the Christopher Guest and Harry Shearer extended family, dating back to Spinal Tap, he's so much more than that. Google him if the name is unfamiliar. His relationship with Toto goes back to playing in cover bands in Chicago, through session keyboards on Kingdom of Desire, on to co-producing solo Lukather. A little less than a year ago he called to say what

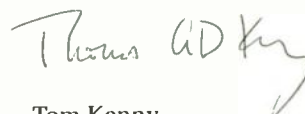
an amazing time he just had touring with the band through Eastern Europe, playing to crowds of 8,000 to 12,000, recording dates for a DVD, *35th Anniversary: Toto Live in Poland*. He also said they were in the middle of making a new record, and it was amazing, invigorating. They were writing in his own Treehouse Studios, recording in the control room, everybody was involved. The playing, he said, was off the charts, as good as he'd ever heard them.

"Toto is playing to 10,000 people in Poland?" I said. "They're having a ball," he answered.

They're having a ball. Maybe that's it. Maybe that's what inspires a Band of Brothers to push each other, to get the best out of every member, to strive for an opus when it would be far easier to drop off a product.

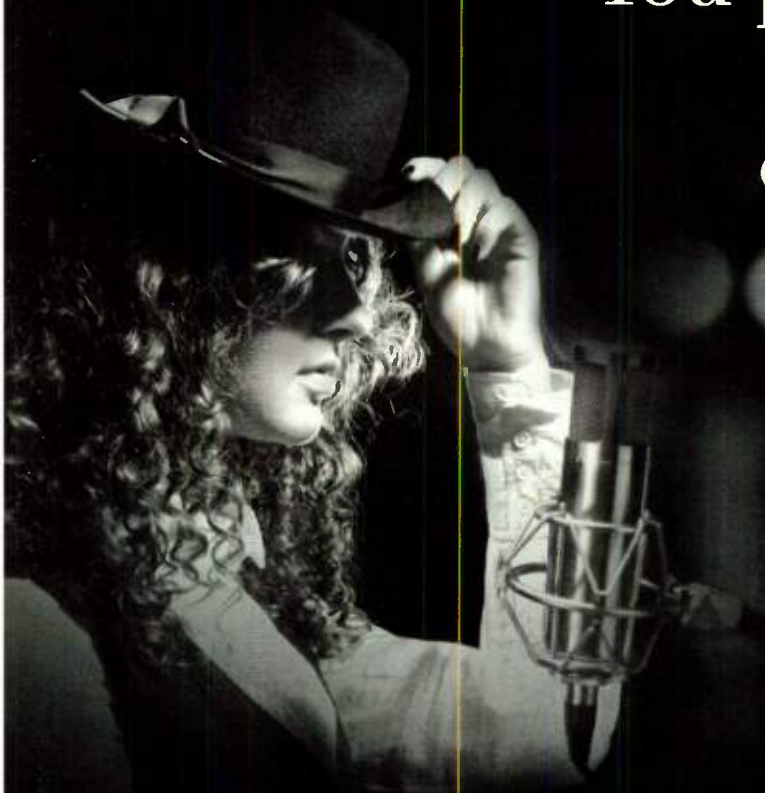
Over the next several months, as Vanston and I chatted, I couldn't stop thinking of one of my favorite scenes in all of movies, from Sam Peckinpah's *The Wild Bunch*, as William Holden, Ernest Borgnine and their outlaw brothers deliver the best badass walk to a final showdown that's ever been caught on film. The world had changed, the next generation had assumed authority, but they were still the baddest boys in the West. And they still had something to say. While it didn't end well for the outlaws, that's not my point. It's the walk through the abandoned town's streets that I remember. *Toto XIV* is Toto's swagger-walk down the streets of the record business. And it no doubt is going to come out significantly better for them.

One final note: Jeff Porcaro and David Paich founded Toto, Mike Porcaro played bass for many years, and Steve Porcaro holds down the keys. Heather Porcaro, daughter of Steve, took this month's cover shot.



Tom Kenny
Editor

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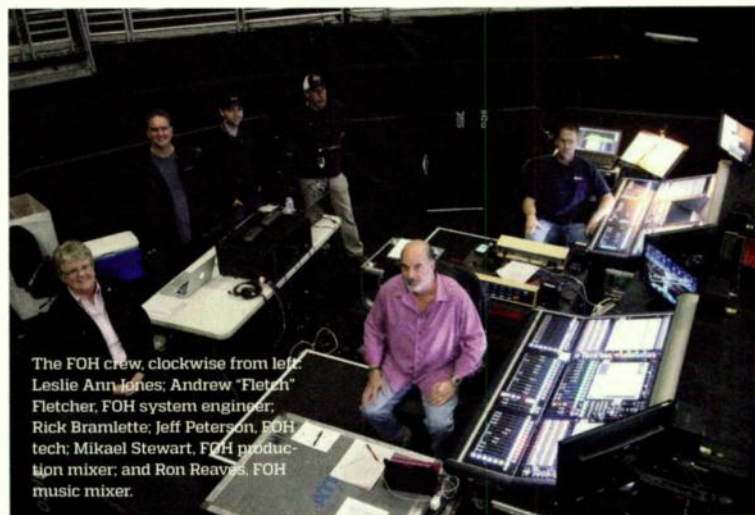
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Backstage Tech at the 57th Grammy® Awards

Text and Photos by Barry Rudolph



Music mixers Eric Schilling, left, and John Harris in the M3 Mobile. Inset: M3 Engineer-in-Charge Joel Singer.



The FOH crew, clockwise from left: Leslie Ann Jones; Andrew "Fletch" Fletcher, FOH system engineer; Rick Bramlette; Jeff Peterson, FOH tech; Mikael Stewart, FOH production mixer; and Ron Reaves, FOH music mixer.

In the six days before rehearsals would begin, the Staples Center in downtown L.A. took on the gravitas of a military operation—a well-planned invasion of 150 stage hands, 17 tractor-trailer trucks with tons of rigging, 130 technicians and an audio crew of 60.

With four days of rehearsals, sound checks, and camera blocking using 23 high-definition cameras, the 57th Grammy Award Telecast has become the largest production of an annual awards show with the most complex audio production in television.

There were 26 songs performed using 23 different setups alternating between A and B stages or both stages together for performances by John Legend, Beyoncé, Madonna and AC/DC's opening set. Small "Dish" stages out in the audience were also used for smaller setups.

Using the latest and most reliable technologies, the veteran audio crew, under the direction of Audio Coordinator Michael Abbott, deployed the latest in audio platforms and workflows in order to accommodate or exceed the highest expectations of both the artists' and the in-house and TV audience.

Joel Singer, M3 (Music Mix Mobile) Engineer-in-Charge, notes that his company's Eclipse and Horizon trucks used Grace M802 remotely controlled microphone preamps with A/Ds into RME MADI converters out to dedicated fiber to his two music trucks.

In the two music trucks, Broadcast Music Mix engineers John Harris and Eric Schilling work simultaneously using mirrored Pro Tools 10.3.8 rigs, Avid D-Control mixers and Genelec 5.1 Smart Active Monitoring. Both rigs were in simultaneous, redundant record mode during the dress rehearsal and actual live broadcast.

Harris recorded all rehearsals while the second music truck became available for artists to come in and tweak EQ, compression, static effects and panning with Schilling.

Stored as snapshot automation, these settings were used for the live broadcast mix. The broadcast mix was delivered in uncompressed, 24-bit/48-kHz, 5.1 surround format.

About one-third of the artists require the use of some sort of track augmentation—from entire backing tracks to loops, strings, keyboards or backing vocals. However, all lead vocals are sung live and all bands perform live. Pro Tools engineer Pablo Munguia worked in a separate trailer to provide these pre-recorded track elements.

Out in the arena, the FOH music mixer was Ron Reaves, supervised by Leslie Ann Jones of the Recording Academy. Next to the DiGiCo SD7 at FOH was ATK/Audioteck's Mikael Stewart, FOH Production Mixer, using a DiGiCo SD5 for in-house audio feeds, announcer microphones and playback during commercial breaks.

More than 391 microphones were used, including more than 54 wireless mics, 18 guitar packs, plus 41 wireless in-ear monitors. RF coordination for 300-plus frequencies was the responsibility of David Bellamy of Soundtronics. He explained that he had deployed 28 antennas throughout the arena for maximal coverage. Audio-Technica, Shure and Sennheiser wireless products and systems were all well represented.

In the Denali broadcast truck, Broadcast Production Mixer Tom Holmes provided the finished 5.1 audio mix in real-time, transmitted via embedded audio to CBS-NY. Holmes sits at a Calrec Alpha console to combine 5.1 music mix, audience mics, handheld stage mics, pre-recorded audio from video clips and other sources.

Playback Mixer Eric Johnston plays (pre-approved) pre-recorded music clips the instant the winner is announced, as well as all "bumper" music to and from commercial breaks.

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Broadcast production mixer Tom Holmes

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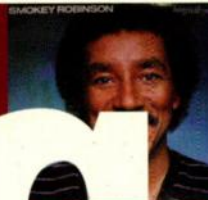


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Music



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Photos by Crackerfarm

Seth Avett and Jessica
Lea Mayfield

'SETH AVETT & JESSICA LEA MAYFIELD SING ELLIOTT SMITH'

Artists Bond Over Personal Songs By Barbara Schultz

The same way high school kids may find their “people” through a mutual appreciation of Nine Inch Nails or Green Day or whatever moves them, Seth Avett (of the Avett Brothers) and singer/songwriter Jessica Lea Mayfield are friends who bond through music.

“Jessica and I realized we’d both had an independent discovery experience with Elliott Smith,” Avett says. “We both really loved the last record of material he was working on, *From a Basement on a Hill*.”

Smith was a troubled singer/songwriter

whose gentle, poetic music gained popularity in the mid-'90s when five of his songs were used for the *Good Will Hunting* soundtrack. Smith suffered from depression, and drug and alcohol addiction, and notoriety was no friend to his struggles. He died in 2003, at age 34, from stab wounds that authorities believed (but never proved) were self-inflicted.

Smith’s lovely music endures, however, and with luck new listeners will discover him through Avett and Mayfield’s tribute album, *Seth Avett & Jessica Lea Mayfield Sing Elliott Smith*. This collection, culled from throughout

Smith’s catalog, features tender, faithful interpretations, with both artists singing and Avett playing most of the instruments.

“I recorded the first part in my own studio with my computer—by myself as engineer, producer and musician,” Avett says. “Then we did some at Jessica’s house with her husband doing the engineering. In the final stages, we took everything to a proper recording studio. But I felt it was paramount to keep the most intimate sound going.”

Avett’s personal studio includes a Pro Tools rig and some multipurpose microphones. “I



have used, pretty consistently, a pair of [Shure] SM7Bs for vocals, but just before we started working on this I bought a Neumann U 47," Avett says. "I have a little army of [Shure] 57s on the drum kit."

Avett and Mayfield traded voice memos and held collaborative sessions when their touring schedules permitted, until they felt they'd taken the tracks as far as they could get them. Then they brought their collection of songs, in various stages of completion, to engineer Danny Kadar at Echo Mountain Studios in Asheville, N.C.

"I think Seth brought it to me because he wanted it to have a unified feel," Kadar says. "The kernel of most of the songs was there, but we started a few from scratch. Most of what came in was vocals and guitars, but some songs had more. The first day or two we did a lot of putting in the rhythm section—drums and electric bass—all of which Seth played. Later, we did some upright bass on the record with Paul Defiglia, who is the bass tech with Avett Brothers."

Defiglia also arranged delicate string parts for some tracks, played by Avett's bandmates Joe Kwon (cello) and Tania Elizabeth (violin/viola).

Kadar often records analog in Echo Mountain, to one of the studio's mint Studer A800 machines, but this album was captured to a Pro Tools/Aurora Lynx setup, as the sessions had already begun in the digital domain and each one would need different parts added and edited. Kadar set up stations in the studio where musicians could play whatever was needed to flesh out each song.

For vocals, Kadar put up two vintage AKG C12s—one for each singer. "Sometimes I would use that C12 in addition to an omni Josephson microphone for acoustic guitar," Kadar says. "A lot of times when you have a big



condenser in cardioid, it gives you too much low end. I knew I would have plenty of low end if the C12 was up, so the omni gives a natural feel to the instrument."

Echo Mountain's Yamaha grand was miked with a pair of Neumann KM 54s, and Kadar says drum miking was "minimal": a Neumann FET 47 on kick, Shure SM57 on snare top, and a pair of AKG 414 overheads. Kadar's room mics were Neumann U 87s.

"The studio has a ton of great mic pre's—API 512s, Brent Averill stuff, and a couple of Tridents, which I used to record acoustic guitars," Kadar says. "Then to unify the scattered recordings becomes pretty easy if you have a wonderful, big old Neve 8068, like Echo Mountain does. I knew I was going to be mixing on the Neve, so I didn't put a lot of instrument mics or vocals through that [during recording]. But in the mix, add in some of the badass EQ on that Neve, and things starts evening out. The other thing that really unifies the tracks is the reverbs that I use. There's a great EMT 140 plate that I used the heck out of."

"I also make chambers—actually in the bathroom," Kadar continues. "You hear that especially on the vocals—a short, bright reverb. It's so natural that it gets out of the way and sounds like you're in an intimate space. The studio is in an old church, and it has a nice big reverb, but not if you're Jessica Lea Mayfield; if you want any kind of ambience on Jessica, it has to be added, because she sings really quietly."

Resulting from the artists' and engineer's thoughtful approach is a beautiful album that honors Smith's quietly powerful legacy. "One of the elements of Elliott Smith's music that so many people respond to, is you feel like you're sitting down with him in a very intimate conversation," Avett says. "It's very personal." ■

TUXEDO'S DEBUT



Photo by Piper Ferguson

Mayer Hawthorne (left) and Jake One

A few years prior to Mayer Hawthorne breaking hearts and taking names with his debut, he and hip-hop producer Jake One were trading mixtapes. Noticing an overlap in tastes, almost a decade later the two Grammy-nominated artists come together for their *Tuxedo* project—and a return to Peanut Butter Wolf's Stones Throw Records for Hawthorne. To make *Tuxedo* sound as authentic as possible, Hawthorne and One went to John Morales, of the *M+M Mixes* fame, the man who mixed records that helped to define two decades of dance music.

Holed up in his Steinberg-driven New Jersey studio, Morales' back catalog gives him living-legend status. Much of this catalog is collected on his *M+M Mixes* compilations. They include Jocelyn Brown, Miami Sound Machine, The Temptations, The Rolling Stones, Tina Turner, The Commodores, to name just a few. What Morales did for those records is what *Tuxedo* wanted for its debut: '80s-style smooth funk and R&B.

Prior to starting his mix, Morales cleans all the tracks, getting rid of noise, cutting up and muting, including samples. On the *Tuxedo* album the music is either recorded live or comes from samples of live instruments. Morales then makes individual parts to create movement in his mix.

The majority of Morales' time was spent in layering and mounting the vocals, which in the case of "Start to Dance" included 40 tracks of just vocals. Hawthorne blew through Morales' studio at one point during the mix, giving specifics about bounces and which parts he wanted more upfront.

"The main thing with *Tuxedo* is there were a lot of vocal tracks—10, 15, 20, 30 tracks of vocals only, stacked, harmonies," Morales says. "Noveltech Vocal Enhancer is a vocal plug-in I love because it brightens everything up nicely, allows the vocal to really shine. You can tailor the frequency you want to push. I would group all [Hawthorne's] vocals and send them to a group fader to give it a brightness. If I EQ'd every individual part, then I would use it to color the whole thing over. I used it on every track."—Lily Moayeri

A PLACE TO BURY STRANGERS, 'TRANSFIXIATION'

You would be well advised to bring your most effective earplugs to a A Place to Bury Strangers show. The New York-based nu-gazer trio, led by Oliver Ackerman, is known for its ear-splitting live performances. The impressive distortion that defines the group's gigs is what APTBS set out to capture on its fourth album, *Transfixiation*.

Ackerman, who has been involved in the production of all APTBS works, also heads up production on *Transfixiation*. The album was recorded in the group's Williamsburg (Brooklyn) multipurpose warehouse space—which APTBS has since given up—as well as in Etne, Norway, as part of a Norwegian government incentive. To tap into the static noise his group has perfected, Ackerman employs his own effects pedal company, Death By Audio. But he also counts on unintentionally coming across feedback sounds.

For the shrill sounds on the doom-laden "Deeper" (one of the tracks recorded in Norway), the guitar is run directly into a cheap 4-channel Behringer mixer with all the knobs turned up, then straight out into headphones with a microphone in between the earpieces. Says Ackerman, "It almost sounds like speakers blowing up. It hits a different

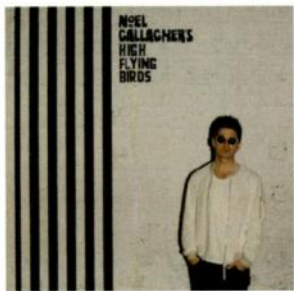


Photo by Dineen Conditon

frequency range than any other amp. We use that as a layer of distortion with a contrast on top of other sounds."

Another accidental situation occurred on "I Will Die," where the microphones are distorting due to the sound pressure in the room. There is a cross-feed between the instruments where, when the kick drum is hitting, it cuts out the bass, or as Ackerman explains, "It does this weird speaking distortion where one thing is making the microphone distort one way—and it can't possibly do it in another way—while another instrument is hitting some particular note. You get a rippling effect from the physical microphone bouncing back and forth and the elements shifting from a super loud bass amp or kick drum."—*Lily Moayeri*

COOL SPIN NOEL GALLAGHER, 'CHASING YESTERDAY'



On his second solo album, *Chasing Yesterday* (Sour Mash Records), one time Oasis main man Noel Gallagher has progressed more than he did over the course of seven albums with his previous group. Helming production for the first time, Gallagher is not compromising, and he is not taking direction. This is a good thing.

Gallagher is not known for being adventurous, either in his songwriting or in the studio. He is now. Showing maturation right from the opener, "Riverman," which admittedly starts like a throwback to his classic "Wonderwall," he quickly changes course with improved vocal prowess.

It wouldn't be Gallagher's songwriting if at points it wasn't overtly influenced by classic songs. David Bowie is channeled on "Gilt With X-Ray Eyes," where Gallagher gets daring with his vocal reaches. "Lock All the Doors" takes its melody lines and a snippet of lyrics from David Essex's "Rock On." A large chunk of *Chasing Yesterday* is predictable latter-day Oasis-by-numbers. But the carved out, disco-inspired "Ballad of the Mighty I" featuring Johnny Marr on guitar, is the best representation of what Gallagher could have been doing with present-day Oasis. Modern yet classic.—*Lily Moayeri*

Recorded by Paul 'Strangeboy' Stacey at Strangeways Studios, London; mixed by Craig Silvey at Toast, London; strings recorded by Matt Howe at Abbey Road Studios, London; mastered by Greg Calbi at Sterling Sound, NYC

KITTY, DAISY & LEWIS, 'THE THIRD'



Photo by Dawn Chubbly

For their latest album, *The Third*, Durham siblings Kitty, Daisy & Lewis moved their home studio from the two tiny back rooms of their mother's house to a derelict Indian restaurant. Gaining space, the British trio added more classic gear to their wholly analog setup. Among these pieces are a 16-track tape recorder (a step up from the 8-track used on the first two albums), a new homemade mixing desk with echo sense for all the channels, EMT plate reverbs, Altech equalizers, RCA limiters—a

huge leap forward in processing for the group.

The new studio also allowed for space to bring in The Clash's Mick Jones as producer—a first for the trio, who until *The Third* has been self-produced. Instead of recording live, which is what they did on the first two records, struggling with separation of sounds, on *The Third*, Kitty, Daisy & Lewis strip back to only drums and sometimes piano, then rebuild with overdubs. Initially reticent about working in analog, once in the swing of things, Jones didn't know why he ever changed over to digital.

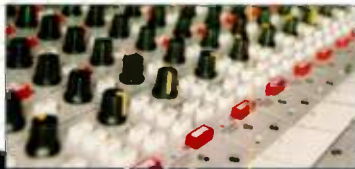
Lewis, who along with his father, Graeme Durham of mastering studio The Exchange, engineered *The Third*, says, "We're using a lot of older gear, but we're using it in a very modern way. We wanted to match the bang of pop music. A lot of the vocals are bright and tons of 16k dB was added. The equipment we use doesn't have an old sound. It just doesn't have the synthetic brash sound of modern equipment."

Preferring the unrestricted nature of the originals, Lewis stays away from plug-ins. "When you're using the older-style EQs, you can get away with pushing of frequencies without going into harshness," he says. "Plug-ins of old EQs are not even the same. They're 100 million miles apart. On an old Pultec, you can crank up loads of top end. It may sound wrong, but it doesn't sound bad."

—*Lily Moayeri*



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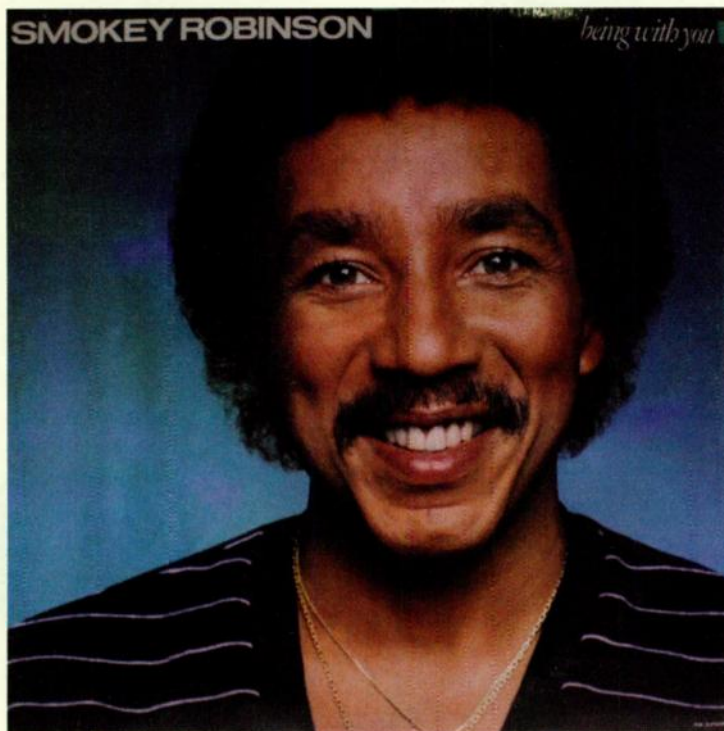


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Classic Tracks

By Barbara Schultz



"BEING WITH YOU" Smokey Robinson

You know a Smokey Robinson song when you hear one. Whether the man himself sings in his own heartbreaking falsetto, or other artists do the honors, Robinson's songs have their own unmistakable style and rhythm. And one of the many pleasures of seeing Robinson perform live is the chance to hear the composer's own renditions of the songs he gave away. Listen to the excellent live album *BBC Electric Proms 2009: Smokey Robinson*, which commemorates Motown's 50th anniversary; you'll hear Robinson singing "My Girl," "The Way You Do the Things You Do" and "Get Ready," just for instance. This month's Classic Track is about a song that Robinson intended for another singer but ended up keeping: "Being With You."

Following his split from The Miracles in 1972, Robinson focused a lot of energy on his duties as a Motown label exec and producer, but he also continued—on and off—to record as a solo artist and write for other artists. During this period he scored hits with songs such as "Baby That's Backatcha" (1975) and the Top 5 "Cruisin'" (1979). Another success that he enjoyed during this period was Kim Carnes' version of a song that

Robinson had cut with The Miracles in 1967, "More Love," which was a Top 10 hit for Carnes in 1980.

So, following Carnes' success, Robinson wrote a new song that he thought would suit her voice, and he showed up at Music Machine Studios to play the tune for Carnes' producer (and the studio owner), George Tobin.

"I was in the studio with George, and in walks Smokey Robinson," says engineer Howard (aka H. Lee) Wolen, who had also been the recording engineer for Carnes' "More Love." "Smokey had a song he'd just written, and he wanted to play it for George as a possible follow-up to 'More Love.' He played the song for George, and George said, 'Forget about Kim Carnes. I want to record you singing it!' Right there and then, he talked Smokey into doing the song. George saw an opportunity he couldn't pass up and he just went for it. He was very good at that."

Wolen regards the events leading up to that moment in the studio with something like amazement. He had started his life in music as a drummer in his hometown of Toms River, N.J., playing mainly with regional bands on the Jersey shore, 20 miles south of Asbury Park. He'd made the move to California when an artist he'd been playing behind on the East Coast needed a drummer for some gigs around Santa Cruz, Calif.

After a few months in Santa Cruz, he moved down to L.A., where he hoped to line up some drumming gigs. He says he'd held a lifelong fascination with the record-making process, and felt L.A. was the place to take the next steps in his career. "I followed every lead that was even the slightest possibility of a situation, calling ads in the *Recycler*, checking bulletin boards at local supermarkets, and, of course, the bulletin board at the local musicians' union. I called and went to just about every studio in L.A., knocking on a lot of closed doors," Wolen says.

He eventually knocked on the door of a studio owned by Tobin, and was hired to overdub drum parts for various productions, but the drummer soon found himself gravitating toward the other side of the glass—in part, because there was so much competition in L.A. for working musicians. Wolen says his path to becoming Tobin's staff engineer required equal measures of "hard work, blind faith, diligence, and a lot of luck!" He read piles of audio magazines, and learned from mentors such as producer Allan Rinde.

"I would wake Allan up at three in the morning to ask how to patch effects through the patchbay. He had great patience and was always there for me," Wolen says. Wolen also benefited from a few key small-world coincidences within the business. Carnes' manager turned out to be a longtime friend from Toms River, Michael Brokaw, whom Wolen hadn't seen since they were students at Ocean County College. And one of the first artists Wolen was called upon to record for Tobin was Robert John, who remembered Wolen as a session drummer on some of his early songwriter demos in New York.



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For Wolen, it seemed that the many friends and colleagues whose paths he'd crossed between the Jersey Shore and Hollywood led and connected him to Tobin and his artists, and landed him as the engineer at the board when Robinson walked through the door of Tobin's Studio Sound Recorders.

"It was probably around 4 o'clock in the afternoon on a Friday when George talked Smokey into recording the song," he says. "Instantly, George is on the phone, calling up the rhythm section, and four hours later, we were in the studio recording 'Being With You' with Smokey Robinson singing it."

Tobin started by bringing in top session keyboardist Bill Cuomo (Lynyrd Skynyrd, Little River Band, Faith Hill), and Cuomo helped form the rest of the band, which included bass player Scott Edwards, guitarist Bill Neale, and drummer Ed Greene. Robinson had come into the studio with a basic idea of the song arrangement, and Cuomo and the band helped to flesh out those smooth R&B parts during the demo phase.

"George's original studio in Studio City [Music Machine] was an MCI 16-track facility, and I believe he had a Harrison board at that point," Wolen recalls. "After the success of Robert John's 'Sad Eyes,' he built Studio Sound Recorders, a brand-new, two-room 24-track studio in North Hollywood.

"That studio had a drum booth off in the corner that was all glassed in, so we started by recording the rhythm section live, with drums in the drum booth, and Smokey singing a scratch vocal in an isolation booth. I used mostly Shure SM57s on drums, but the mic on the bass drum was an AKG D12. When I EQ'd everything out at 400 cycles, that mic automatically sounded great, and felt the same way it felt when I was behind the drums. It had the same puffiness and, at the same time, the same snap, which sounded good to me and worked really well with Ed Greene's laid-back style."

Wolen recalls that Bill Neale played guitar through a Fender Reverb amp, which was miked with two SM57s. "I didn't take the guitar direct, but I did take the bass and the keyboards direct; Bill Cuomo was playing a Fender Rhodes. Smokey's reference vocal was probably a Neumann U 87."

Robinson's keeper vocals were recorded after the band tracks were laid down. "George had some really good mics at Studio Sound Recorders," Wolen says. "On Smokey, we used a Telefunken 251, and once we started using that on Smokey's vocals, we didn't try anything else."

Wolen didn't use any outboard mic pre's at that time, but he says the studio's UREI 1176 compressor/limiter was the workhorse of the studio: "Vocals, bass...I remember using it on just about everything."

Another thing Wolen remembers from the "Being With You" session is mustering the courage to stop the tape during one of Robinson's vocal takes. "When I was at Stockton State College in New Jersey, I had studied music composition, and I learned ear training. For some reason I had an aptitude for it; I was at the top of my class as far as being able to hear if something was sharp or flat. So, once I started working with Smokey, the most intimidating situation I ever experienced in the studio was telling Smokey he was a little flat. George was overseeing the vocals, but



I was running the machine, doing punch-ins. With the background I had, I could tell whether the singer's pitch was a little off. I actually stopped the machine to tell Smokey Robinson that a line was a little flat.

"He looked at me like he didn't know whether I knew what I was talking about or not, but he just said, 'Play it back for me.' I played it back for him, and we punched it in. I guess he realized he could trust my ear enough to value my opinion, and we got along really great. But of course, Smokey is so good, he could sing the telephone book."

The backing vocals on "Being With You" were added by singer/composer/musician Mike Piccirillo, who Wolen describes as "George's right-hand man as far as song-

writing and producing. Mike wanted to add a 10cc-type lush vocal 'ooh.'

"Before sampling, we used to do 'wild syncing,'" Wolen explains. "All those beautiful background vocals were recorded on a 24-track, and mixed down to a half-track, quarter-inch machine. I would back up the half-track tape a little bit, and at a certain point, push Play, and if I started it at the same place each time, I could adjust whether it was a little ahead or a little behind. I would mark a spot, and push the Play button. When I got it right, it would magically be in sync!"

Sessions for the song "Being With You" went so well that the project grew into a full-length album, with "Being With You" as the title track. Robinson produced the album, and Tobin served as associate producer.

The title song earned Robinson, Tobin, Piccirillo, and Wolen a Gold record, and rose to Number One on the *Cashbox* chart and Number 2 on *Billboard's* pop chart. More important, it's a vocal masterpiece. Robinson's tender, restrained performance on this song is one of his most unforgettable. And the success of the song and album encouraged Robinson to record more projects with Tobin over the next several years. In the decades since, Robinson has continually struck a remarkable balance between resting on his laurels—performing early Miracles and solo hits year after year—and making beautiful new recordings. His recent releases include an album of standards (*Timeless Love*, 2006) and a collection of duets (*Smokey & Friends*, 2014).

For Howard Wolen, "Being With You" was a career game-changer. Soon after Robinson's album hit the charts, the engineer found himself in demand for Motown and A&M projects. He engineered The Temptations' *Reunion* album with Robinson producing; records with Herb Alpert, Natalie Cole, Flo & Eddie, and Thelma Houston; and Roberta Flack and Peabo Bryson's smash hit, "Tonight I Celebrate My Love."

Wolen also worked for three years as the recording and mixing engineer for the popular *Solid Gold* TV series. He enjoyed a varied career, working with some of the biggest stars of pop and R&B. Unfortunately, Wolen's career was cut short because he suffers from Multiple Sclerosis. Today, he lives in Hawaii with his wife, Lin Bennett Wolen, a former A&M production department employee.

"A New York record producer named Artie Wayne once told me, 'If you want to make records, you have to go to where records are made,'" Wolen says. "It was the truth." ■

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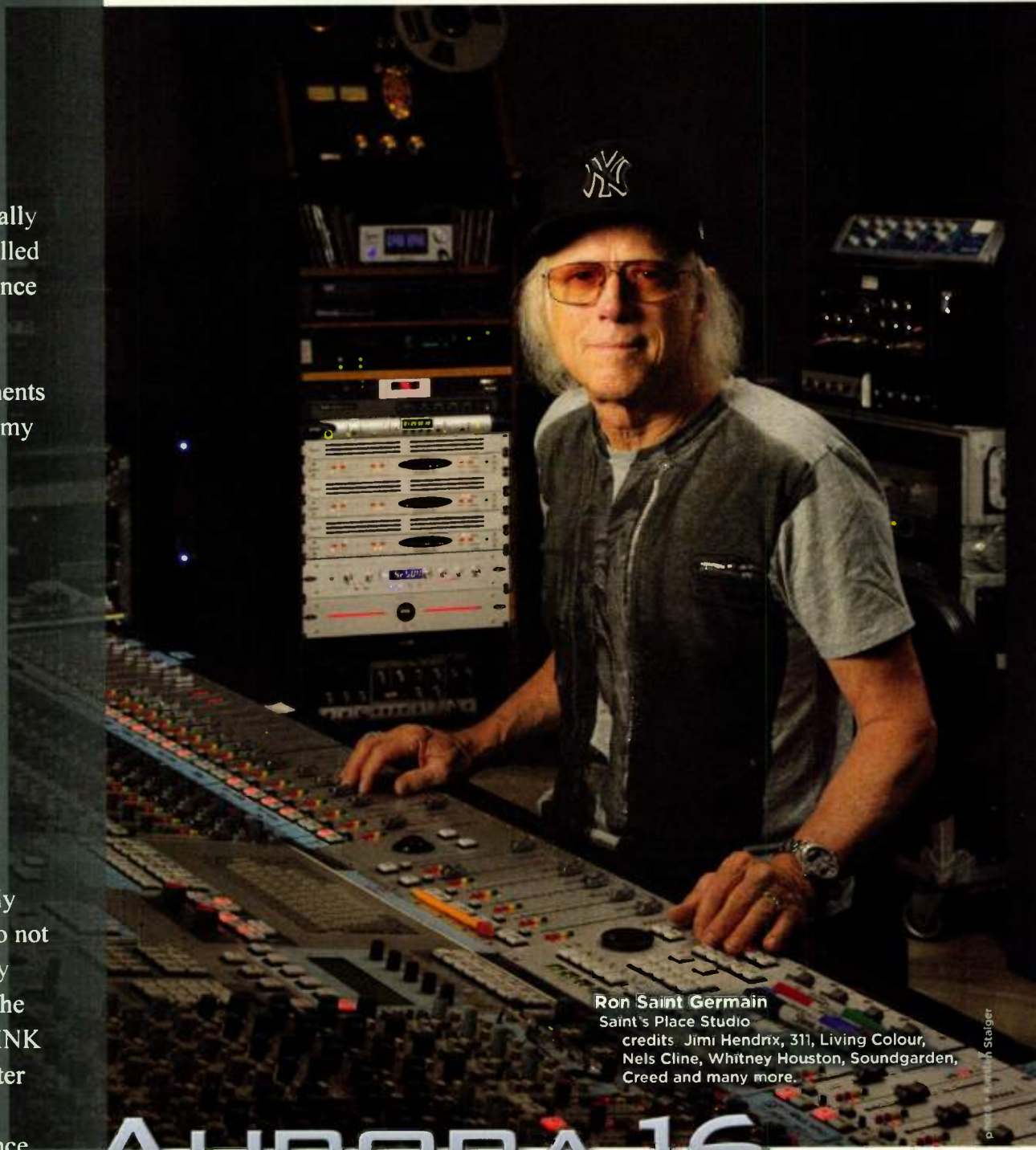
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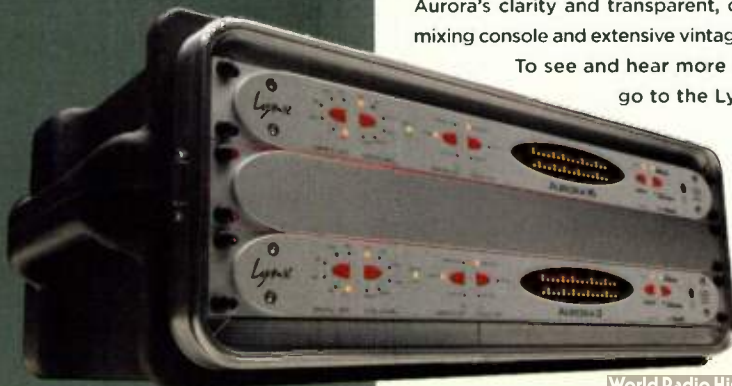
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World Radio History



ENRIQUE IGLESIAS TOUR



Mix caught Enrique Iglesias with nine-piece band, a 50-foot runway, and a C stage behind FOH, for a lively mid-February show at the Oracle Arena in Oakland, Calif.



"I'm using the Avid Venue Profile with 96 inputs, HDX, ECX and five DSP cards installed," says **FOH mixer Brad Divens**, pictured at right with **Sound Images system engineer Jim Miller**. "I like the fact that I can set up my desk in whatever format I choose with my selection of plug-ins. I can export my plug-in settings and set up a Pro Tools session and work on my mix in a hotel or

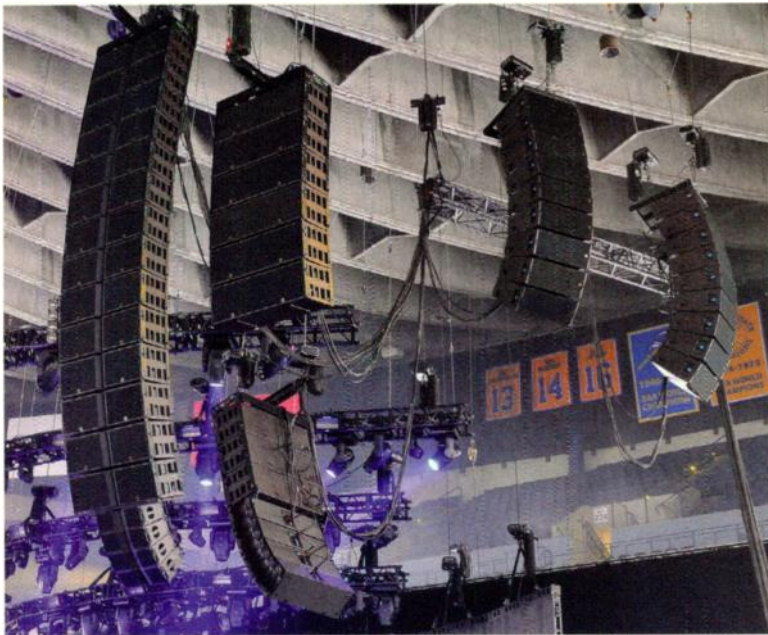
on an airplane. I'm using Waves Mercury and SSL bundles, Crane Song, Soundtoys and SPL Transient Designer. I've got Waves SSL E-Channel on my drums, guitar and vocal channels; API 550B and CLA3A on the bass; parallel compression on the drums with the SSL G-Buss Compressor. NLS Channel is used on all the inputs along with NLS Buss on L/R. Soundtoys Decapitator is used as an effect to add some character to Enrique's vocal."

"I stay in the box with the exception of running a Lake Processor in line between the console and the P.A. processing. This is essential in a one-off or a festival situation. Since I know that my console is dialed in, it allows me to focus on making sure the P.A. is EQ'd to my preference."

"I'm mixing at monitors on an Avid Venue Profile configured with two stage racks for 96 inputs and 48 outputs," says **monitor engineer Eddie "El Brujo" Caipo**, at right, with **RF/monitor tech Chris Sharp**. "Depending on what artist I'm out with I try to keep it simple and use all onboard EQ, dynamics and plug-ins. But there are certain key plug-ins that I like. I love the McDSP stuff—sounds great. I use the ML4000 on my IEM mixes; the limiter just makes the mix tighter and the multiband compressor allows me to just target a certain frequency or frequency range to keep the mixes free of any muddiness or harshness. I also use the classic Legacy MC2000 on acoustic guitars, also just targeting the low-mids during rhythm parts and remaining untouched during lead parts."

"On Enrique's vocal I use an SSL Channel and an SSL Buss Compressor. On all background vocals I use SMACK! for that in-your-face sound. For 'verbs I use a combination of ReVibe and Reverb One. The only thing outside of my console I use are my favorite IEM units, Shure PSM1000, which I have had Enrique's band on for a while now and they love them. The highs are just incredibly clean and clear."





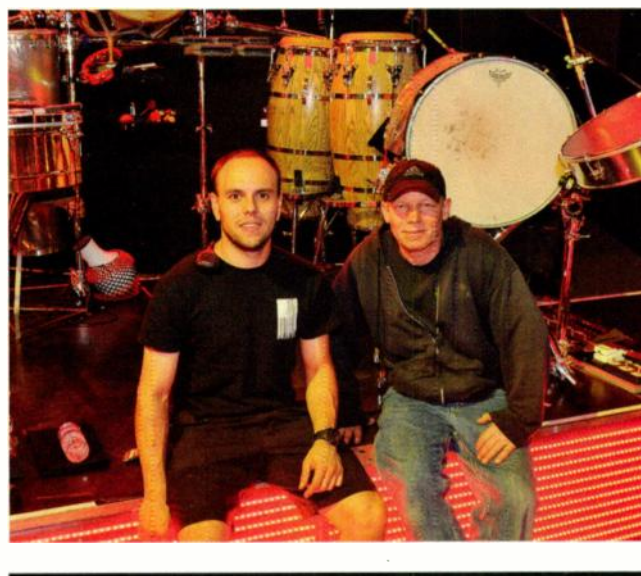
Sound Image provided an L-Acoustics rig that includes, per side: 14 K1s, 4 KARA for downfill, 4 KARA as front fill, 6 K1SB subs flown, 12 KUDO as side hang, 12 KUDO as rear/270-degree hang, 14 SB28 subs on the ground, and 48 LA 8 for amplification.

“Along with Enrique, there’s nine band members, so there’s a lot going on musically and the volume of the audience can get up to around 108 dBa,” Divens says. “I mix around 102 dBa, so you can imagine that can be a bit of a challenge. The L-Acoustics K1 has great stereo imaging, clarity, coverage and I feel as though I’m mixing on a big set of studio monitors, which is what I look for in a P.A.”



“Enrique roams all over the place,” monitor engineer Caipo says. “RF is tough to deal with and I am extremely thankful that I have Chris ‘Sharpie’ Sharp as my RF/monitor tech. We are running about 50 channels of wireless, and the most complex part is that besides the wings and runway, Enrique has a ‘C’ stage, which is always behind FOH. We are talking about 160 feet away depending on venues. And most members of the band are on that stage with him during the acoustic set. So every day we have to monitor the RF very carefully before and during the show.”

“For mic placement, we run all three guitars per guitar player [nylon, steel and electric] all through the same Line 6 HD500X pedal each,” explains Caipo. “It all gets processed in the box and comes out in stereo. Originally we did it for one-offs only in order to consolidate inputs to try to stay within 48 inputs. But we ended up liking the results. Our lead guitar player, Emmett O’Malley, programmed all the presets for each guitar and they sound great with amp emulations, dynamics, EQs, FX. And the best part is that they get to hear it all in context as Enrique and our *musical director Carlos Paucar* (pictured below, top) envisioned for the songs in their IEM and at FOH. Our backline techs (pictured below, bottom, from left, *Trent Lopez and Brett Grau*) are crucial in keeping it all working perfectly and managing presets.



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TWO GALLANTS PLUS ONE

The Two Gallants are heading out on tour this spring in support of their latest album, *We Are Undone*. It's the duo's ninth year touring with their engineer and friend, Moses Mayo, who's sort of the third Gallant. "Technically my job has changed little since I first started," says Mayo. "We pull in, get the room tuned in as best we can, relax and then showtime. Personally, though, it's changed quite a bit. Most touring personnel will tell you that family and bonds are made on the road—similar to road tripping with your best pals. Over the years we have become friends, confidants, brothers, lovers, fighters, manics, romantics, jewels and fools."

Mayo and band carry a microphone package only, which the engineer says is "by no means a snappy, expensive gang of mics, but they stand up to the touring elements and don't get sick often. I've collected an array of tested and mildly vintage soldiers, including older [Shure] Beta 57s, blackface [Sennheiser] 609s. I do have an old [Sennheiser] 421 with a West German ID plate and low serial number; they sound even, true and subtle around the edges," he says.

"For Adam [Stephens'] guitars, I split-mic the guitar amp front and back, off center, and take them out of phase. This gives a desirable effect, lending the guitar tone a seemingly wider voice," Mayo says. "It doesn't



Adam Stephens (guitar, vocals, harmonica) and Tyson Vogel (drums/vocals) at San Francisco's Outside Music and Arts Festival in August 2012.

Photo by Garcia Bonghi

sound so directional and gives the guitar a little more body.

"I mike the front of the guitar cab with a blackface Sennheiser 609, and the back mic is an old Shure Beta 57. For some of [Tyson Vogel's] drum mics, I use the Audix D Series mics—D6 on the kick and D2s on the toms—and a Beta 57 on the snare top. I am a big fan of under-head mics for the cymbals; I believe you can get more out of them with a tighter response, not having to open them up as much as with overheads," Mayo continues. "Tyson is a heavy hitter, and we spend a lot of time getting the drums working together internally, and together with the guitar as well."

For Vogel's vocals, Mayo uses an Audix OM7; he says the mic's rejection works well for a powerful drummer. "On Adam's lead vocal, I have usually used a Beta 58. It seems to work well with his vocal range, but for this tour, I got a Telefunken M80 for his vocals. Trying new things is always exciting!" — *Barbara Schultz*



THE REGENT THEATER IN LOS ANGELES

In November 2014, music promoter Mitchell Frank, the owner of Spaceland Productions, reopened the historic Regent Theater as a premier venue in L.A.'s reemerging downtown music

scene. Frank, along with Artist and Recreation, LLC, and Knitting Factory Entertainment Inc., took over the building's lease in 2012. Over 19 months, the 1,100-capacity venue was renovated and is now hosting concerts, themed dance nights, theater performances, movie screenings, special events, parties and festivals.

The Regent's audio upgrade includes a JBL VTX Series line array and Crown I-Tech HD Series amplifiers. The theater's VTX complement includes six V20 boxes and four STX 828S dual-18-inch subwoofers on each side of the stage, augmented by four JBL AC26 2-way compact speakers for front fill, two PRX735 3-way full-range speakers used as side fills and an even dozen VRX915M 2-way 15-inch stage monitors. Six Crown I-Tech 4x3500HD amplifiers power the main left/right line arrays, three Crown I-Tech 12000HD amps drive the subwoofers and four 4x3500HD amps handle the stage monitors.

The Regent has a main floor that slopes to the stage and a newly built second-floor mezzanine level. "The VTX line arrays are relatively compact, but really powerful and clean," Frank says. "We did not have to install separate speakers for the mezzanine. The I-Tech 4x3500HD is incredible. The amplifier's built-in processing and ability to be matched to the VTX arrays and the stage monitors saved us space because the loudspeaker management technology is all in the amps.

"We're dampening up the room just a bit and just kind of tightening it up, but it's been pretty much ready to go," Frank concludes. "We've had 10 shows already and everything sounds great."

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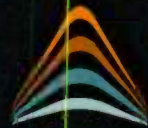
To strengthen its support for system integrators, Meyer Sound has joined the Crestron Integrated Partner Program. Crestron is a leading provider of control and automation systems. The result is a suite of Crestron modules in development that will allow customers to seamlessly implement Meyer Sound self-powered loudspeaker systems in environments controlled by Crestron products.

The Crestron Integrated Partner modules will provide integrators with direct access to the Meyer Sound Galileo and Galileo Callisto loudspeaker management systems, including functions such as snapshot recall, level control, muting and more. Developed and tested by Crestron, the modules will fully support Crestron 3-Series control systems via an Ethernet connection. The Crestron modules for Meyer Sound will be available on the Crestron application market this summer.

"As applications of Meyer Sound products continue to broaden across connected A/V environments from corporate boardrooms to arenas, this new partnership will allow us to further simplify workflow for consultants and integrators," says John Monitto, Meyer Sound's director of technical support worldwide. "Now our customers can skip the time-consuming custom OSC programming and enjoy more flexibility in creating high-performance A/V systems."

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INNOVATING SOUND TECHNOLOGY

On the Cover

By Robyn Flans

THE SIMPLE GENIUS OF TOTO XIV

Great Musicians, Stellar Songs and a True Band of Brothers



Photo: Alex Kluit

In Capitol Studio B for drum tracking, from left: Keith Carlock, David Paich, Steve Porcaro, Joseph Williams (seated), Steve Lukather, producer CJ Vanston

Everything about *Toto XIV* puts the band of seasoned musicians back in the garage where they started as buddies in 1977. Just a bunch of guys making music in CJ Vanston's control room at Treehouse Studios—sans lounge, hot tub, pool table and videogames—where, with Vanston at the helm, they made their first studio record since 2006, every bit as good as their 1983 six-Grammy grab for *Toto IV*.

Seated in the cozy studio, Steve Lukather, Steve Porcaro, Joseph Williams and CJ Vanston (David Paich was on vacation) all agree that the 10-month process, which began as mere record company fulfillment, was one that felt like a band again, honoring the past and bringing the music into the present.

"This is the first time the four of us have made a record together since the '80s," Lukather says. "We had all worked on things together, but this

is the first time we were all encouraged to write and do a project as a unit. And I brought CJ in. I thought he'd be a great guy to keep us, A) motivated and he gets great performances, and B) keep us from killing each other—because we get very passionate about our feelings about stuff."

"I always felt that if I'm not in some way pissing the other guys off, I'm not doing my job," Porcaro interjects.

"You did a great job," Lukather says. They all laugh.

Vanston says when there were disagreements, his role was "Switzerland." "A little arbitrator, a little Dr. Phil," he says. "I found a way of, 'I hear what you're saying,' and 'I hear what he's doing, let's put your chocolate in his peanut butter.'" But, he says, the final call was always a vote. "This isn't some band of 25-year-olds from Iowa where I would say,

"This is how we're doing it," Vanston says.

He adds that even though he's there to honor the vision of the band, sometimes, "You have to, more than gently, suggest things. There's a little bit of marriage counselor built into the job. After 35 years together, it's a marriage. They've been together since high school."

And, he says, sometimes even the late, original member Jeff Porcaro was considered when there was a tie. It was: "Jeff would have hated that part.' Jeff was in the room."

Original bassist David Hungate returned after 33 years for a couple of tracks, and to tour. "It was the perfect thing," Porcaro says. "It felt like coming home. As far as Mike [Porcaro, bassist] hearing about it, too, there was no one more excited, so that put a smile on his face."

"If we couldn't have Mikey, man, for Hungis to come back was great," Lukather adds.

Mike Porcaro joined Toto when Hungate departed in 1982, shortly after the release of *Toto IV*, but was forced to retire from the band when he was diagnosed with ALS in 2007. Hungate's pocket on "Holy War," "China Town" and "The Little Things" will definitely conjure up a familiar musical feel for Toto aficionados.

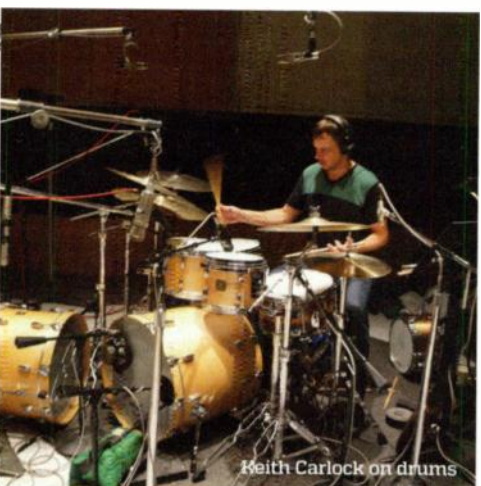
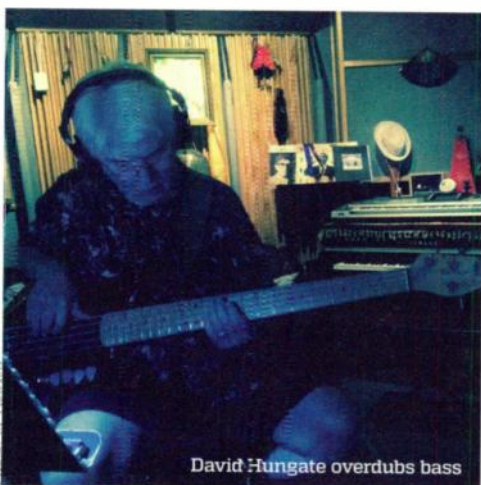
Add that to Steve Porcaro and David Paich's prolific keyboard parts, guitarists Lukather's searing solos, the signature Joseph William vocals and lush Toto harmonies and *XIV* is *IV* in the 21st century. And, yes, there is a song title on this album by that name.

It's also no coincidence that producer Vanston grew up playing Toto covers in Lansing, Mich., and then cut his musical teeth as a session player in a rhythm section in Chicago that was called "the Toto of Chicago." The album bears that, along with a serendipitous meeting with the late Greg Ladanyi when Vanston moved to L.A. in 1988. Ladanyi had helmed four Toto albums, including *Toto IV* and he became Vanston's best friend and a mentor of sorts.

Through Ladanyi, Vanston was soon in the studio making records with one Toto member or the other, and before he knew it, he was playing keyboards on "The Other Side," on *Toto's Kingdom of Desire*.

"There I was in the studio with Steve Porcaro and David Paich, two of my biggest keyboard heroes in life," Vanston says. "They dug what I did."

Years later, while Vanston was making records for Harry Shearer of *Spinal Tap*, he called Lukather to play on those at the Treehouse. He loved what he heard and asked Vanston to start producing his solo records. After two of those, "All's Well That Ends Well" and "Transition,"



the band brought CJ in to produce and mix their 35th anniversary *Live in Poland* DVD, a hugely successful project worldwide that was released in 2014. *Toto XIV* will be released in North America on March 24.

INTO THE TREEHOUSE

This time around, the record began with demos, which everyone brought in and "which were pretty ridiculous," Vanston laughs. Williams did a lot of writing with Paich, and Lukather and Vanston wrote at the Treehouse, while Porcaro brought his own in. The recording was done piece by piece, with everyone in the small, homey room.

"The demos are the masters these days," Porcaro says. "We're not chasing after demos anymore like we used to. We're able to keep it all now. Whereas that magic used to be typically on a cassette that we'd be playing for each other, now it's on a separate track."

"It's so great because you're originally writing music and you capture something," Lukather adds. "There's a lick and a way you play, a sound that you maybe didn't think about too much when you did it and it was magical. And we can transfer different things and take everybody's stuff and say, 'Let's use that bit from here,' and there's no need to redo things."

They all agree that the epic production piece "Great Expectations" was somewhat of a challenge, with a lot of different sections.

"I've always looked at it like it's the musical version of a big budget motion picture," Williams says. "We make Star Wars movies. We don't make small indie movies."

After the demo rundowns, Vanston says, recording typically started with the drum groove and a basic keyboard or guitar track next. "Then a vocal idea and then we'd start building," he continues. "We would build some harmonies on top of that, a second guitar part, an acoustic part, an acoustic piano, some synths and start sprinkling the fairy dust on."

When they cut electric guitars, Vanston describes the scene with him at his station and Lukather behind him on a stool, "like we're riding a motorcycle and he taps me on the shoulder when he wants me to stop, like he's

driving a tank. It's very low-tech and homey."

Vanston says he mixes throughout the entire process—something he learned from Ladanyi—and is always messing with sounds and levels while he's recording, in the moment. For instance, he says: "EQing the vocal... 'Oh, the vocal is a little tubby. I'll put some EQ on that. I'll put a little

compression on it, put cool reverb. Oh, wait, we want to have an echo on that one word? Well, let's do that, I'll put it on another track.' Why would I want to tear all that down and start again at the end of the project? It's valid work at the moment with everybody in the room, all being captured. It's so powerful. All those creative decisions are being logged and documented. Then the next time I pull the song up, it sounds great."

"And when we add the drums, the songs are already nearly there," Vanston says. "We mute the machine drums we used that oftentimes sound really good, we drop the real drums in and there are some adjustments with the bass. The same with the real bass. A lot of the demos had synth bass as placeholders."

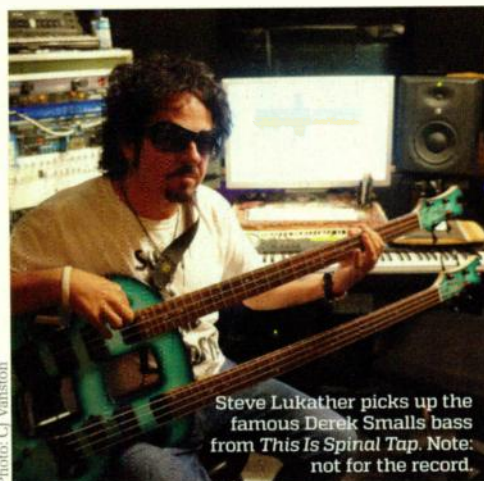
He can't understand why anyone would do it any other way. "My God, you're making mix moves—'That's cool, put that up, that's great,'" he says, as if they're recording. "So now, six months later, I'm going to pull that fader down? I'm writing automation moves all the time."

Vanston works in Logic, as do Porcaro, Paich and Williams. "I absolutely love Logic," he says. "It's so much more of a musician's tool than Pro Tools. Pro Tools is a great tool for engineers, but it doesn't compare to Logic as a musician's tool. Logic is so deep in its musical plug-ins. I think some people feel that Pro Tools is the industry standard so they have to use it, but when they get over here and see me working Logic, I can't tell you how many times people go, 'How did you do that?' For instance, the swipe comping in Logic is phenomenal. There are so many great features."

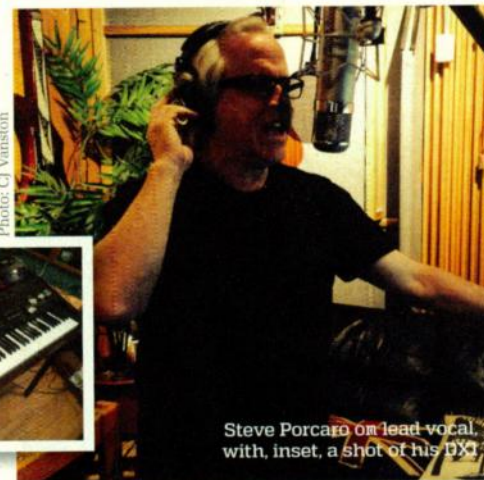
"Some guys have \$60,000 in their Pro Tools rigs, so they feel they have to protect that, but they don't need all that hardware anymore," he adds. "You used to need all that because computers weren't powerful enough, but now these computers are the brain. Roughly 80 percent of the record is stock Logic plug-ins. I use Universal Audio plugs—their stuff is fantastic—but the tools that come in Logic are ridiculous. This is a \$200 program, but if it were \$20,000, I'd pay it. Don't tell Apple that!"

He is also regularly using a plug-in called EZ Mix from Toontrack, a Swedish company.

"They have people put together chains of 8 or 10 plug-ins—a gate with a



Steve Lukather picks up the famous Derek Smalls bass from *This Is Spinal Tap*. Note: not for the record.



Steve Porcaro on lead vocal with inset, a shot of his DXI



David Paich overdubbing piano

limiter with an EQ with a multiband compressor, then into a tape simulator with a little flanger on it with a split reverb. These presets would take you 20 minutes to put together. It ships with hundreds of these presets designed by guys like Chuck Ainlay, Neil Dorfsman and Mark Needham. You basically put in acoustic guitar and here's 75 gorgeous or quirky presets for acoustic guitar that you can bang through. When you're looking for something different to mess up the sound a little bit, EZ Mix is a killer plug-in."

The main mic preamp throughout was a Universal 6176, used for most of the vocals. "Either with a 47 or an Audio-Technica 5040," Vanston says. "We used a Schoeps on some of the acoustic guitar tracks and also the Shure KSM44—that sounds fantastic. Then we used a 57 for the electric guitar. If Steve Lukather is happy with his guitar sound, I'm happy with it. And I have two Neve 1073s that we used a lot on the keyboards. I've got a Neve 8801, which is a great preamp that I like."

Vanston's interface is an Apogee Converter with an Apogee clock and that goes into a MOTU 2408 audio/MIDI interface. "It is pretty pedestrian, but it's not inducing its own sound because I'm using the Apogee for the conversion and clock," he says.

He is also a big fan of his Mackie Control, calling it his MVP of hardware.

"That's one of the big reasons we're always mixing," he says, "because my Mackie Control is there all the time memorizing every fader move I do. That's a great piece of hardware. I see guys that work without a hardware fader pack and I don't know how they do it. Mixing with a mouse, that's crazy. Plus, it's small and to the side. I don't have to dominate the whole landscape. I'm a keyboard player, so my keyboard is my center device."

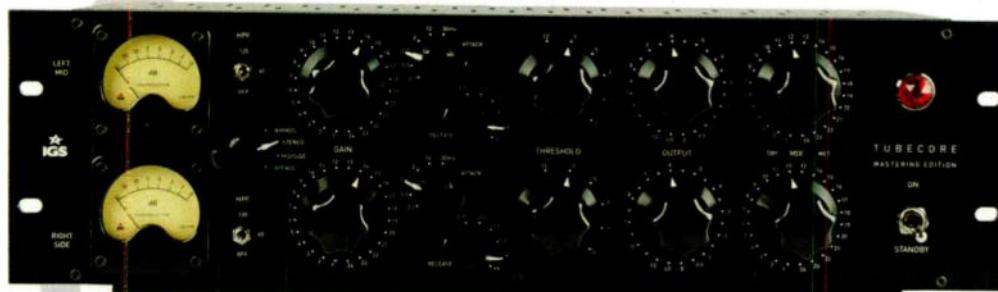
Monitoring at the Treehouse is through his beloved JBL 6300 Series speakers. "Greg Ladanyi started me on those," Vanston says. "They are so fabulous. I use them with the matching LSR6312SP subwoofer. When my mixes come out of here and I go to mastering, they hardly touch them. The EQ curve is nailed. They don't color the sound. It's a nice rich sound, no ear fatigue."

There are five sets of Audio-Technica M50 headphones for everyone to hear the same thing at their own listening station, each powered by an Aphex HeadPod 4. "I got them for the whole room, so when we do vocals, which we do right in the middle of the control room, everyone is hearing the same sound and everyone could control their own volume," Vanston explains. And everyone could have a say in an intimate and

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Engineer Csaba Petocz at Capitol Studio B center, with Chandler Harrod, right, and Williams and Lukather behind them.

Photo: CJ Vanston

easy atmosphere without complications like talkback buttons.

"It was, 'I dig that, but why don't you change the sound a little bit,' and there were last minute lyric changes and it was a band vibe," Vanston explains. "For instance, David Paich leans toward the rock and bluesy stuff. I figured being the keyboard player, he would go for the more melodic harmonically rich stuff. It was actually Steve Lukather and Steve Porcaro who were more those guys."

Most of the work was done in that one room at the Treehouse, with the exception of overdubs at David Paich's and Steve Porcaro's and the drum recording of Keith Carlock at Capitol Studio B, engineered by Csaba Petocz (Korn, Metallica, Tori Amos, Vince Gill, Ben Folds, Stevie Nicks, Elton John, Sting). Petocz says his objective on the drum sound was not to "redefine a band that had been making awesome records forever."

On the kick drum he placed a Sennheiser 421 and a Yamaha subwoofer, and on the snare drum a Shure 57 with another Shure 57 underneath. On the hi-hat he switched between a Neumann KM 84 and Shure SM81.

"For overheads I used a pair of AKG C12As," Petocz says. "Tom mic's were 421s and for room mics I had a 47 mono room mic very close to the drums, halfway between the kick and the snare. Then for the more traditional room mic drum sound, I used a pair of U 67 Neumanns and occasionally a C-24 from the back, just sparingly. They all went through the beautiful vintage 8068 Neve console, the best sounding Neve in town. And some compression on the snare when it needed it, but only slightly. Then what I did is go direct out when I could instead of busing it, just for that added purity."

Everyone loved what Petocz and Carlock did on the record, which Vanston calls their "Sgt. Pepper's."

ONLY THE BEST

Lukather admits that while this album was an obligation, they rose to the challenge. "Once we got into it, we said, 'If we're gonna do this, let's make a great one,'" Lukather says. "A lot of people say bands our age don't have any good ideas left, they used them all up. We said, 'No, no, no,' we gotta break down that myth, and we had CJ to push that little extra performance thing and get the best out of us. We didn't accept any second-rate performances, and we really pushed each other to our limits."

And no matter how much pissing each other off they did, at the end of the day, each musician has respect for one another.

"Sometimes you piss somebody off into a great performance. Paich is famous for getting that out of me," Lukather says. "It's like you put five bulls in a ring with one cow, the cow being the end result of the music. We all want to 'have our way' with the cow."

Again, they all laugh, and say that a sense of humor also gets them through the process.

"At the end of the day, as much as heads bump and tempers flare, we all want it to be as good as it can be," Porcaro says.

The longevity matters. It began so long ago in San Fernando Valley. A couple were even brothers and all of them grew to become brothers.

"We've known each other since high school," Lukather says. "We've been through every good and bad time that any people could imagine in any one family." ■



At Universal Mastering, surrounding mastering engineer Peter Doell.

Photo: Nick Weston

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\$100,000 ANTE IN THE ANALOG GAME

By Wes Maebe

There seems to be a trend for creating music that is akin to building with Legos. Sounds are chosen from vast libraries, divided in bar segments and then copied along to make up a full song. On most mix sessions that come across my desk, dynamics, EQ and effects plug-ins are on everything, and most settings are picked from preset folders. But rather than rant about the glory of analog, I'm using my \$100,000 to build a studio.



SSL XL Desk

GROUND CONTROL

The centerpiece of my studio is going to be a fairly sizable console.

Because I'll be mixing out of the box, I want something that has plenty of physical faders to work on. After weighing up size, budget,

customization abilities and sound, I'm installing the new SSL XL Desk (\$19,995), which will give me 16 mono and 4 stereo channels. All channels are assignable to four individual mix buses, there's a stereo cue for headphone mixes during tracking, two additional mono auxiliaries for effects sends, two more stereo return inputs, inserts, and direct outs on each channel.

The coolest feature on this console is that it boasts 18 500 Series slots. You can buy this desk fully loaded with SSL EQs; however, I need more versatility and flavors, so I'm choosing an empty console.

The XL also has a comprehensive monitoring section that allows me to spec two sets of monitors with level control, dim levels and speaker selection. Remember that legendary Phil Collins roomy drum sound? This beast comes equipped with that heavy Listen Room Mic Compressor circuit.

Now let's load up my 18 500 Series slots!

SOME SIDE DISHES

The XL comes with 16 empty slots. Slots 17 and 18 come fitted with the famous SSL Bus Compressor. This is an extremely useful workhorse compressor, so I'm going to leave that right there.

Eight of the SSL's channels come equipped with Variable Harmonic Drive preamps. Because I'll be mostly recording full-band lineups, I'll need more pre's. In addition to the SSL slots, I've added Rupert Neve Designs' beefy R6 (\$569) rack. This unit will host most of my extra mic preamps.

To add some extra flavor to the eight SSL preamps, I'm choosing Crane Song Syren (\$1,200) for its ability to adapt to the sound source. The Rupert Neve Designs 517 (\$850) will give me a lot in a small box. It comes armed with a gentle compressor, a mic/DI blend for old-school signal blending straight to track, and the RND Silk tone control. I'm also adding a pair of 512cs (\$803.25 x 2 = \$1,606.50) for that fat and

punchy API sound.

The last couple of units in the R6 will be special pre's: AEA RPQ500s (\$584 x 2 = \$1,168). The R6 is packed, but I need a few more to complete my recording channels.

The last pre is the Meris 440 (\$549). This unit was designed with recording guitar in mind. It features an effects loop so I can record with my favorite pedals in the chain.

I'm adding the Chandler REDD.47 (\$2,295), which is a re-creation of Abbey Road's EMI REDD.51 console valve line amps. It packs a punch and is a no-nonsense box: Input gain, Output, Fine Gain trim and Rumble Filter.

I'm also choosing the brand new Manley Force (\$2,250), which is four Manley Core high-voltage tube preamps in one.



Manley Force



Crane Song Syren



Meris 440

UNDER THE HOOD

Before I dive into outboard and microphone selections, let's have a quick look at what I'll be using to record.

My DAW will be Pro Tools 11 (\$699). "Why not 12?" you ask. Version 11 is now well and truly tested. Pro Tools 12 is imminent and will have some really cool features like the Avid Cloud Collaboration. But for now, I have work to do and can't lose time being an early adopter to flush out any potential bugs. I'll get going with a stable system and then upgrade.

The desk has 24 fader inputs, 20 mic pre's and a few extra ins, so I'm going to need an interface rig capable of handling all this. Universal Audio's Apollo 16 (\$2,999 x 2 = \$5,998) will do just that. I'll get two of those and cascade them, giving me 32x32 analog I/O.

We keep hearing about lower production budgets, labels cutting costs, artists funding the recordings themselves. It all boils down to tighter project timelines. I may find myself mid-mix when I still need to do a bunch of overdubs. That means my console channels are in use, so I've added a Rupert Neve Designs 5059 (\$3,749) summing mixer. This will give me extra recording power and may also come in handy on complex mixes that fill up the board.

Considering that my console doesn't have automation and

most automation will take place within the DAW environment, I've incorporated an Avid Artist Control (\$1,499) for multifader and plug-in automation control.

ALL MY DUCKS IN A ROW

To fill the rest of the 500 Series slots on the XL Desk, I've picked a selection of mix tools: EQs, compressors and a couple of effects to complement my outboard arsenal.

My EQ selection provides a variety of colors: API's 550b (\$1,000.75) and 560 (\$803), a pair of Crane Song Insignia (\$1,299 x 2 = \$2,598) tube EQs, the classic Great River 32EQ (\$775) version of the famous Harrison 32 console, a Rupert Neve Designs 551 (\$850), Cartec's FE-Q5 (\$1,099) and a Maag EQ4 (\$849) for that sensationally high air band. I'll also have a pair of extremely versatile Louder Than Lutoff Chop Shops (\$369 x 2 = \$738). These are marketed as EQs, yet they are more like old-school analog synth filter circuits. They're frequency-based sound shapers and are invaluable tools when it comes to kicks and snares and dealing with problematic audio.

The onboard dynamics will be taken care of by a cool family of compressors. First up is the API 525 (\$1,000.75), which glues everything together. Roll Music's RMSMC5 Valvop (\$975) tube optical compressor will give me that warm opto sound,



ATC SCM45A Pro

and Louder Than Lutoff managed to fit an amazing version of the famous 1176 in a 500 DIY module. Fit the Implode Colour Module (\$129) in a DIYRE Colour Palette (\$125 x 2 = \$250) and I'm golden.

While I'm modding that DIYRE unit, I'll also add the Pulse (\$99) to give me tape delay. I'll fill the last slot on the console with the Eventide DDL500 (\$899).

With a couple of delays on board, I'd like to keep the effect duties out of the box. The Bricasti M7 (\$3,695) covers reverb, and I'm throwing in a creative curve ball with Solo Dallas' Shaffer Replica (\$999). This box was designed with the AC/DC guitar sound in mind, and it excels at that. I can use it to distort vocals and add bite to boring in-the-box sounds, be it guitars or keyboards.



API 512c

PICK 'N' MIX

Whether recording as a purist without dynamic processing and EQ or shaping sounds at the start, my studio is going to need some extra firepower.

Compressors have individual characters and behaviors. Empirical Labs' EL8 Distressor (\$1,349) is a great all-around unit. With its fast release times, it's become a drum favorite. The ADR Compex F760-RS (\$2,750) has the ability of bringing vocals out in busy rock productions, and Manley's Variable



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Little Labs Pepper

Mu (\$3,960) has that smooth, warm glue to gel mixes together. EQ-wise, I'm adding a couple of stereo units for overall mix or group EQing. The SKnote Ferro (\$1,199) and Rame (\$1,299) combination provides Pultec-style high, mid and low bands, with additional stereo (Mid & Side) processing. Speaking of Pultec, we all dream of owning a pair of EQP-1As. At about \$9,000 apiece and a potential high-maintenance cost, it's a bit out of range. Enter Warm Audio to the rescue! Its EQPWA (\$699 x 2 = \$1,398) will get me as close as possible for a fraction of the vintage price. Rounding out my equalization family is the Little Labs iVog (\$500). The low end of a mix is the toughest job. This bass resonance tool will bring out kicks and bass guitars and make them sound huge.

Phase coherency is key. When putting a bunch of mics up, ultimately there will be some phase issues. Little Labs IBP's (\$600) variable phase adjust will solve those problems. I'm also adding the company's Pepper (\$660) unit because it's the box to use when dealing with lots of guitar pedals, phase and re-amping. It'll allow me to beef up pedal levels so I can use them as pro mix effects, amongst other things. The DK-Technologies DK1 (\$2,310) meter will help keep on eye on all levels and phase.

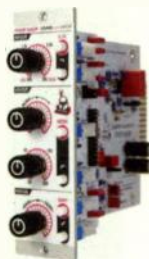
GET IT RIGHT AT SOURCE

GET IT RIGHT AT SOURCE

Nothing will help more at the mix stage than getting the recording right from the start. I'm going to put a mic collection together that covers a complete rhythm section, vocals and pretty much any acoustic instrument.



AEA R88



Louder Than Lifftoff Chop Shop

In my dynamic section I have the AKG D12 VR (\$499), designed for kick drum applications. It provides a nice round and punchy sound. The versatile Sennheiser MD 421s (\$379.95 x 3 = \$1,139.85) are great for toms, guitar cabs and horns. I've also added a Sennheiser e 609 (\$99.95; the modern version of the 409) as an alternative for electric guitars.

Now for the all-time favorites: Shure's SM57 (\$99 x 4 = \$396) for top and bottom snares and guitar amps, and an SM58 (\$99). Sometimes singers feel more confident holding a mic while singing. The 58 makes them feel as if they're onstage performing. To supplement the dynamics, I'll need some condenser microphones.

Advanced Audio Microphones have prided themselves on building vintage-inspired mics using modern technology. These mics sound warm and open at a fraction of the cost of their predecessors. Both the CM67se (\$965) and CM251 (\$995) sound big and crisp and are brilliant for vocals, acoustic guitars and horns. I've added a CM414 (\$379),

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~ **Tommy Lee**
Founding member - Mötley Crüe.



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~ **David Rideau**
Engineer/producer - Janet Jackson, Sting, TLC, George Duke and Jennifer Lopez.



"The Primacoustic is up and kicking butt at my new studio in Santa Monica. I love the way the control and tracking rooms sound now... and so does everyone that records here!"

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

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

based on the original AKG 414. It'll be cool as an additional mic on snares and deliver a nice zing on acoustic guitars.

For extra color, the **BeesNeez Elly FET** (\$1,380) can be used on vocals and also as an extra kick mic; it also works well on bass cabs and uprights. To secure a killer sound on the bass (and any instrument that can be DI'd), I'll be using **Rupert Neve Designs'** brand new **RNDI** (\$269) box.

For small-diaphragm condensers I'm choosing an **AKG C 451 B** (\$499), which is useful on acoustics and is generally known as the "magic hi-hat mic." The **Neumann KM 184** (\$849.95) pairs up nicely with the C 451 B. With its slightly rounder sound, it equally comes in useful on acoustics, hi-hats and snares.

I may also need a kick mic with more click and attack for rock and metal applications. That's where the **Shure Beta 91A** (\$239) half-cardioid will shine.

Completing my mic cupboard is **AEA's R88** (\$1,795) stereo ribbon. The **R88/RPQ500** combo gives me an extreme amount of frequency control, which makes this setup ideal for drum overheads, string sections and pretty much any kind of stereo situation.

ANALOG IN, ANALOG OUT

Now that I have some amazing gear, I need to be able to actually hear it.

Starting with headphones, I'm choosing **Audio-Technica ATH-M50s** (\$169 x 4 = \$676), fed by a **Simon Systems CB-4** (\$445) to fulfill studio fold-back duties.

In the control room, **ATC's** transparent **SCM45A Pros** (\$11,490) are the main monitors, with a pair of the new **Tannoy Reveal 502s** (\$180 x 2 = \$360) as the small-format reference. Studio reference headphones will be **Grado's** amazingly transparent **PS1000** (\$1,695), complementing the ATCs.



Grado PS1000



Corsair Ryemageddon

IT'S A WRAP

And finally, studio work can get tense at times, and we all need time to chill and blow off some steam. A couple of spirited rounds of **ping-pong** (\$399.95) on our new table will do the trick. I'll have to implement a no-smashing rule, of course.

This is a lot of gear, and the majority will last me an entire career. Recall is the biggest thing digital has going for itself. A full analog mix recall takes some time, but there's nothing that sounds as warm and emotional as a sound hitting tubes, capacitors and resistors.

The \$117.30 that I have left over will go toward a bottle of **Corsair Ryemageddon** (\$60) and a couple of Kobe beef T-bone steaks (market price) to celebrate the completion of my analog studio.

TOTAL: \$99,882.70

performance, amazing results!



"I put up Primacoustic Broadway Panels on the walls and MaxTraps in the corners. The difference was amazing... the room went from unruly to tight and controlled!"

~ **Daniel Adair** Drummer - Nickelback.

"Not only does my room sound amazing, it's also really beautiful!!!"

~ **John Rzezniak**

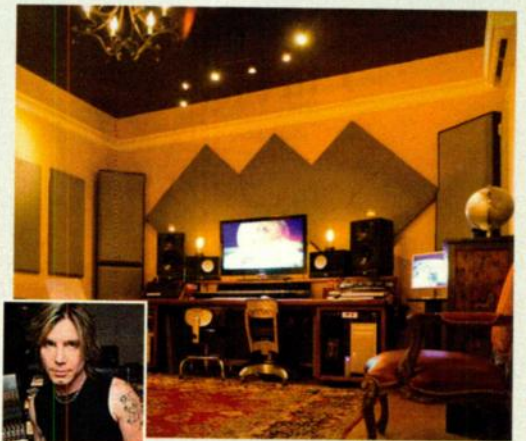
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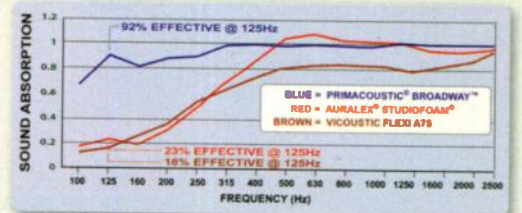
"We've got a mixture of bass traps, diffusion and clouds and the result was phenomenal. It ended up costing less than 25% of the custom solution and it turned out very cool."

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

Primacoustic Broadway™ high-density glass wool acoustic panels perform well where the others fail, in the critical low frequencies.



"Not only does my room sound amazing, it's also really beautiful!!!" ~ **John Rzezniak** - Goo Goo Dolls.



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World Radio History

A WORLD OF SCORECRAFT \$50,000 TO BUILD GAME COMPOSING AND SOUND DESIGN STUDIO

By *Markkus Rovito*

Listen to the majesty of that full-orchestra arrangement. Is it from the new Christopher Nolan movie or the latest *Call of Duty*? If we're going by the music alone, you really can't tell the difference between a big-budget popcorn flick and a big-budget first-person shooter. However, as the composer, your life in games could be a lot different. You have to handle different styles and tasks equally well and may need to adjust quickly from working on an epic game to a gamey app. You're an orchestral composer, an EDM producer and a sound designer at the same time. You have to be ready to deliver 24-bit/96kHz audio mixed for 5.1 surround, as well as compressed audio made for smartphone speakers.

As this jack-of-all-trades, you need a well-rounded studio with a few key items for specific purposes. We assume you have either a nice Mac or Win-

dows computer to get started—the nicer the better, because we're about to throw some heavy hitters at it. All prices listed are common street prices.

DAW/CONTROL SURFACES

If you're a staff producer, chances are you're using Pro Tools, and if you're a hired gun, chances are you'll want to use what the production houses use: Pro Tools! We pair up **Avid Pro Tools 11** (\$699, Mac/PC) with the beautiful and comprehensive **Avid C|24** (\$9,995.95) control surface/interface for handling all of your recording, editing, routing, mixing and monitoring needs.

To break up your workflow, let's throw in an alternate DAW with plenty of instruments, effects and novel tools that pack a big punch without denting the budget. For Mac users, the recent **Apple**



Sequential Prophet-6

Logic Pro 10.1 (\$199) update adds many new sounds, drum design, beat creation and other tools focused on EDM and hip-hop production, as well as an enhanced mixer. For Windows, **Image-Line FL Studio 11** (\$199) is loved for its versatility and all-in-one workflow.

For editing, batch processing, rendering and other handling of huge amounts of sound files, game audio



Vienna Symphonic Library Vienna Instrument Super Package - Standard

pros love the workflow and results of Steinberg Wavelab 8.5 (\$499, Mac/PC) multitrack editor and mastering program. It includes audio restoration and spectrum analysis features.

We're choosing MIDI controllers based in part on their integration with Native Instruments Komplete 10 (included below). The NI **Komplete Kontrol S61** (\$699) keyboard feels essential for Komplete users, as it integrates browsing, hard-mapped controls, a great arpeggiator, key and scale keyboard modes and useful LED feedback for all the of the Komplete instruments. Besides being a MIDI pad controller for all your software, NI **Maschine** (\$599) includes its beat-production software for composing either stand-alone or as a plug-in instance in your DAW, and it integrates well with all of the Komplete plug-ins.

mann KH 120 (\$1,499.90/pair) 100W bi-amped studio monitors sound amazing and offer a wide sweet spot with its Mathematically Modeled Dispersion.

Besides composing bass-heavy music, you'll need to work through many hours of creating booming low-end explosions, impacts and other deep ambient effects that occur throughout big action games. You can reduce ear fatigue by monitoring with excellent



Avid C|24

Continued on p. 66



Sound Devices 722

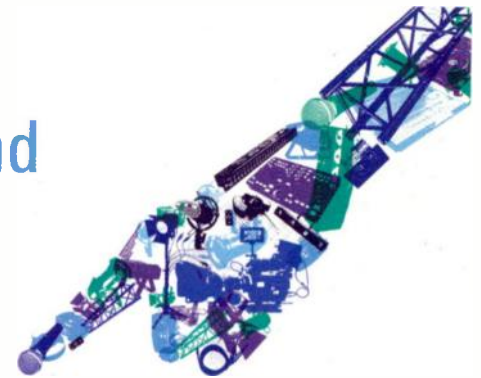
MONITORING

You're going to have to be able to switch back and forth between 5.1 surround-sound mixing for big-budget console games and stereo audio for other purposes. The professional monitor section on the C|24 control surface makes that easy. Console and computer games have become bastions for high-resolution audio in this MP3 world, so we can't skimp on the monitors for game audio. For surround, the **Genelec 8320.LSE Surround SAM - 5.1 Studio Monitor Kit** (\$4,750) packages five 8320A bi-amped near-field monitors with a 7350A subwoofer. Its Smart Active Monitor technology lets the system optimize itself for levels, timing and equalizing of room response anomalies.

The union of Klein & Hummel studio monitors with Neumann's leading transducers and supreme build quality has been a winning proposition. The Neu-

prolight+sound

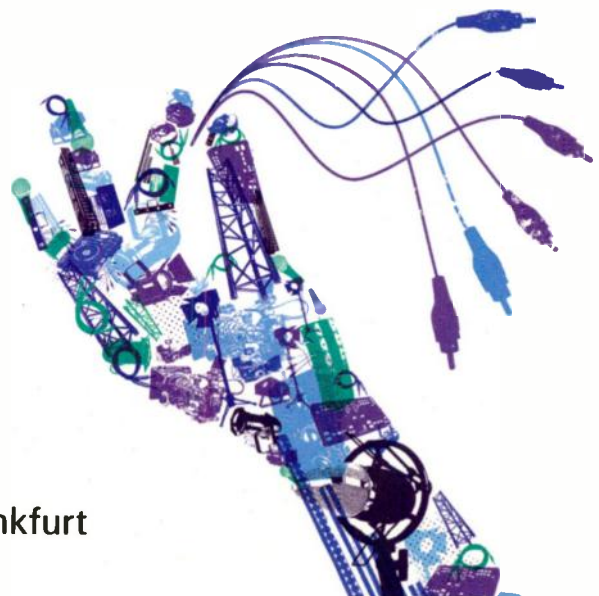
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STUDIO MONITORS ON THE GO

COMPACT, POWERFUL SPEAKERS FOR THE MOBILE ENGINEER

by THE MIX EDITORS

Mixing, recording and editing audio in tight spaces has never more prominent than right now. Home studios, tour buses, hotel rooms, editing suites and anywhere else high-end decisions are made are a perfect fit for the speakers in this month's roundup of desktop monitors. The speakers listed here are active and less than 12 inches tall when oriented properly, meaning you can pack 'em, ship 'em, set them up, and quickly be ready for action in a mobile or installed environment such as an OB truck, edit suite, tour bus or hotel room. Note: There are a few models—such as the Avantone MixCubes, Pelonis Model 42, Emotiva Airmotiv 5, Equator D5, and others—that have been out a few years now, but are equally worthy.



ADAM F5

The F5 offers a stated frequency range of 52 Hz to 50 kHz, plus comprehensive control. The monitor is equipped with a Room Equalizer for high (>5 kHz) and low (<300 Hz) frequencies and an overall volume control on the rear panel. It also incorporates a highpass filter, to be used in conjunction with a subwoofer, and XLR/TRS/RCA inputs. Two Class-A/B

amplifiers with 50 watts RMS/70W Music drive the F5, which helps the monitor to provide a vibrant, deep bass response and a maximum SPL of 106 dB per pair.



ALESIS ELEVATE 5

Alesis Elevate 5 active studio speakers use technology adopted from Alesis' award-winning Monitor One and M1Active professional studio monitors. Promising full lows, clean highs and a detailed stereo image, the speakers

incorporate 5-inch woofers, 1-inch silk-dome tweeters and dedicated power amps, all housed in custom wood cabinets that are magnetically shielded. The Elevate 5s also include a built-in power supply, front panel volume control, a bass-boost switch, rear-mounted RCA jacks, a 1/8-inch stereo jack, and a single 1/4-inch to 1/4-inch cable.



ATC SCM25 PRO

The SCM25 Pro is a compact active three-way studio control monitor designed for positioning on a meter bridge, and also rack-mountable for broadcast applications. ATC's soft dome outputs midrange frequencies, while

the bass driver is hand-built in-house, using a carbon paper cone with

high excursion capability. Onboard amplification features the company's Class-A/B MOSFET output stage delivering 150W/60W/25W; all three stages are fed by 4th-order critically damped crossover filters with phase compensation.



BAREFOOT MICROMAIN45

The Barefoot MM45 is a three-way active monitor with controls for equalization contour and an input level stepped attenuator. The MM45 tweeter has

a 1-inch ring radiator, advanced geometry motor, and rear waveguide chamber, with 180W Hypex amplifier. The midrange drivers have two 2.5-inch aluminum cones, advanced geometry motors, and ± 2 mm linear excursion, with 180W Hypex amplifier. The woofer has an 8-inch aluminum cone with high linearity motor, and ± 13 mm linear excursion with a 250W Hypex amplifier.



BEHRINGER NEKKST K5

The 100W NEKKST K5 features separate amplifiers for the 5-inch glass-fiber woofer and 1-inch silk-dome tweeter, which are enhanced by designer Keith Klawitter's Advanced Waveguide technology. K5's rear panel features switches for adjusting high- and low-frequency response. Independently controlled limiters protect both the woofer and

tweeter against overload. The K5 accepts XLR, TRS and unbalanced RCA connectors. Behringer also offers the Studio 50 USB 100-watt digital monitor speakers, which combine USB and analog connectivity in a bi-amped, 2-way speaker configuration.



BLUE SKY EXO2 SATELLITE

The eXo2 from Blue Sky International is an active 2.1 desktop speaker system comprising a pair of two-way satellite speakers, a subwoofer and a desktop HUB remote. Each of the satellite speakers has a 3-inch cast-

frame woofer with a neodymium motor structure and a 1-inch fabric neodymium tweeter. The remote HUB has two large knobs for controlling system gain and subwoofer level. The subwoofer houses the amplifier and connectors, and offers XLR/TRS combo inputs and a stereo RCA input. The subwoofer has an 8-inch paper cone to produce frequencies as low as 20 Hz.

Gibson



Gibson Les Paul Reference Monitor

Gibson
BRANDS

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DYNAUDIO BMS COMPACT MKIII

The BMS mkIII features an extended-excursion 7-inch woofer with pure aluminum voice coil, 1.1-inch soft dome tweeter with pure aluminum voice coil, 50W LF and 50W HF RMS Class-D amplifier with DSP crossover, 118dB SPL peak power output, input sensitivity switch (-10/+4dB range), a stated frequency response of 42 to 24k Hz, and extended bass with BM9S II or 14S II precision subwoofers. Its HF, MF, LF analog

room filters allow for flexible positioning, and highpass filters at 60/80Hz provide for subwoofer adaption.



EVENT 20/30

The 20/ 30 monitor combines three discrete drivers with a new waveguide assembly to house the speaker's midrange and high frequency drivers, as well as optimize audio dispersion and power response characteristics. For the critical mid-

range, a 3.5-inch cone transducer was engineered using a pressed pulp and polypropylene cone, combined with an optimized magnetic circuit. The driver is loaded onto a shallow waveguide that results in increased sensitivity and output while generating very low distortion artifacts.



FOCAL TWIN 6 BE

The Twin6 Be is part of Focal Professional's SM6 line. One of the two 6.5-inch woofers works in the mid-low band, whereas the other reproduces from 40 to 150 Hz. This

creates a bass that preserves all the signal dynamics, without any masking effect in the midrange. The Twin6 Be can be installed vertically or horizontally to respond to the space requirements of each studio.



FOSTEX PX-5

The PX-5 is a two-way active monitor offering a stated frequency response of 20 to 20k Hz (± 2 dB), and is equipped with 5.2-inch woofer and 1-inch tweeter powered by digitally controlled 35W and 18W power amplifiers, respectively.

The speakers use a FIR-type "Digital Network Filter" that is designed to ensure linearity. Each speaker includes a 0.3dB-step tweeter level control, an incremental LF roll-off adjustment and an overall level control.



GENELEC 8320A

The compact 8320A Smart Active Monitor includes Genelec Loudspeaker Manager (GLM Version 2) control network and software, which allows adjustments of all aspects of monitor settings and full system control. Genelec AutoCal

automatically aligns every monitor for level, timing and equalization of room response anomalies. The 8320A features Genelec MDE and DCW technologies, a flow optimized reflex port and reportedly very neutral frequency response.

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GIBSON LES PAUL REFERENCE MONITORS LP4

With its unmistakable front panel woodwork, Gibson's Les Paul Reference Monitor Series is offered in three models, all featuring carbon-coated titanium tweeters, non-woven carbon woofers and Class-D amplification power; the LP4 sports a 1-inch diamond-like carbon-coated titanium tweeter and a 4-inch midrange woofer. The monitors feature a two-way, bi-amped design, and include high, midrange and low EQ knobs, balanced XLR and unbalanced RCA inputs, and wood veneer fronts that recall the long-running Gibson Les Paul electric guitar.



KRK ROKIT 5 G3

KRK's ROKIT 5 G3 powered monitors include a 1-inch soft dome tweeter and 5-inch glass-Aramid composite woofer. The G3 delivers highs up to 35 kHz, vocal clarity and extended bass response. The proprietary bi-amped, Class-A/B amplifier grants SPL up to 106 dB. The ROKIT waveguide is designed to ensure detailed imaging in the listening position. The front-firing bass port reduces boundary coupling to allow flexible positioning in the room while the engineered surface reduces diffraction distortion.



JBL LSR305

JBL Professional's 3 Series studio monitors incorporate JBL's patent-pending Image Control Waveguide found in its flagship M2 Master Reference Monitor. The LSR305 promises a response of 43 to 24k Hz and a peak SPL of 108 dB. With a complex contour employing engineered ridges, the waveguide optimizes the phase relationship of the loudspeakers, and also the blend of directed and reflecting sound arriving at the listening position. The 3 Series' long-throw woofer and its damped woven composite tweeter are designed to reproduce the powerful transients and micro dynamics of any mix.



MAudio BX5 CARBON

The BX5 Carbon studio monitor offers 80W Class-A/B bi-amplification and is equipped with a 5-inch woven Kevlar LF driver and 1-inch natural silk dome tweeter. The tweeter's waveguide has been enhanced to provide an expansive sweet spot and superior stereo imaging. Pinhole-mounted LED placement cues help locate and light up the sweet spot to ensure proper speaker placement. The BX5 Carbon's Acoustic Space Control, a series of calibration switches, helps provide optimal acoustic conditions for tracking, mixing and monitoring anywhere.



"I can't think of dollars better spent than on the IsoAcoustics.... the M2 stands are simply da BOMB!!!"

—Frank Filipetti, Grammy Award-Winning Producer

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—John Paterno, Grammy Award-Winning Engineer/Mixer/Producer

"I found when using the IsoAcoustics stands under my NS10s that I had an easier time mixing due to a more stable stereo image and clearer bass frequencies."

—Elliot Scheiner, Grammy Award-Winning Recording & Mixing Engineer

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MACKIE MR5MK3

Mackie's MR5mk3 powered monitors sport an enhanced waveguide system that minimizes diffraction and reflections to yield a wider sweet spot. Offering 50 watts of Class-A/B amplification matched to the 5.25-inch polypropylene woofer and 1-inch silk-dome tweeter, the MR5mk3 delivers high output with controlled low-frequency performance. Mackie MRmk3 Series monitors provide two levels

of bass boost, plus a boost/cut for high frequencies, so users can fine-tune the speakers' frequency response to a specific room. The MR5mk3 also has balanced XLR and TRS connectors, plus an RCA.



NEUMANN KH120 DIGITAL

Based on the KH 120 A launched in 2010, the KH 120 D is equipped with an additional BNC input for AES/EBU or S/PDIF formats (24-bit/192 kHz). The KH 120 D also features digital delay for both analog and digital inputs, enabling the monitor to be used for demand-

ing tasks requiring time alignment, with a maximum delay of more than 400 ms. It features a Mathematically Modeled Dispersion waveguide flexible acoustical controls, analog Class-A/B amplifiers, analog and digital input formats, and a range of mounting hardware.



PMC TWOTWO.5

The twotwo Series models are true compact reference monitors with ATL bass loading technology. All models are designed and built in Britain, and share the same core design and features; the model number refers only to the approximate size (in inches) of the bass driver, with larger numbers denoting increasing cabinet volume, greater bass extension and higher SPL capabilities. The twotwo.5 is 11.65

inches high and 6.1 inches wide, and offers consistent response in either vertical or horizontal orientation. It has twin Class-D amplifiers.



PRESONUS ERIS E5

The compact Eris E5 has a 5.25-inch, Kevlar low-frequency driver, mated with a 45W Class-A/B amplifier; and a 1-inch silk-dome tweeter powered by a 35W, Class-A/B amplifier. It generates a peak 102dB SPL. Frequency response is rated at 64 Hz to 22 kHz. Eris models have individual balanced XLR and 1/4-inch TRS input connections in addition to unbalanced RCA inputs. A four-position Acoustic Space

switch controls a second-order shelving filter, centered at 800 Hz, that provides three attenuation points, allowing users to control the bass response. A highpass switch sets the low-frequency cutoff to be flat, 80 Hz, or 100 Hz.



QUESTED S6R

Designed to partner with the SB10R subwoofer in a three-way system, the S6R is easy to position where space is limited, and offers a low frequency response that is more than adequate for many applications. When an extended bass

response is required, the infinite baffle cabinet design facilitates perfect integration with SB10R subwoofer, which Quested states will extend the frequency response down to 25 Hz.



SAMSON MEDIA RESOLV RXA5

The RXA5 employs a bi-amplified design, ensuring dynamic headroom and reducing intermodulation distortion. The monitor is constructed of solid MDF with a vinyl-wrapped finish. At the core of the

RXA5 (70 watts, 50 to 27k Hz) is Samson's newly developed Air Displacement Ribbon Tweeter. The 2.5-inch aluminum tweeter's corrugated ribbon design is said to be able to move four times the air of a stan-

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standard dome tweeter. The speaker's 5-inch copolymer woofer with butyl coating forces a fast recovery and quick transient response for tight, low-end performance.



SONODYNE SRP 500

The SRP 500's enclosure is made of pressure die cast aluminum, and the silk dome tweeter is nested in a custom waveguide to produce on- and off-axis linearity and a wide, detailed soundstage. A new 50+50W bi-amplifier drives the transducers (5.25-inch Kevlar woofer); maximum SPL is measured at 104 dB. DSP with high quality AD/DA is

employed for the crossover and also provides the 0.75dB step calibrated HF and LF room compensation EQs at the rear. The SRP 500 accepts both XLR and TRS balanced inputs.



TANNOY REVEAL 502

The powered Reveal 502 monitor's 75-watt bi-amplified module and active crossover filter ensure maximum power and tonal clarity from its 5-inch LF driver and 1-inch soft-dome "Poke-Resistant" tweeter, along with adjustable volume and EQ controls, and

balanced and unbalanced inputs. The rear panel has an Independent gain control, along with an HF trim control, to allow fine-tuning. Its tuned front-firing bass port allows near-wall placement and ensures optimal LF performance.



TRIDENT HG3

The midrange HG3 speaker is mounted in an isolated, 6-inch diameter, damped, inert cylinder, with a 1/2-inch

closed-cell wall thickness, to eliminate edge diffractions and woofer interaction. The cylinder also houses the 1-1/8 inch silk dome tweeter, its crossover (set at 320 Hz and 3,500 Hz), plus the midrange and tweeter level controls. A separate 60W amplifier drives the cylinder midrange and treble components. The Trident HG3 power amplifier section is made up of three high-powered MOS amplifier modules, noted for their low distortion, wide bandwidth and low noise levels.



YAMAHA HS5

All HS Series full-range models are two-way bass-reflex bi-amplified and feature a new high-resolution 1-inch dome tweeter designed for extended high-frequency response with very low distortion up to 30 kHz. Also equipped with a newly designed, high-power woofer, HS Series monitors deliver clearly defined bass even at high output levels. HS monitors also offer room-control and high-trim response controls that let users tailor the

monitors to the room for optimal response. XLR and TRS phone jack inputs accept balanced or unbalanced signals. ■



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SETTING STANDARDS SINCE 1975

MIX REGIONAL: NEW ENGLAND

CHILLHOUSE STUDIOS MERGES WITH DEVOTION RECORDING

Will Holland
(left) and Jim
Kearney



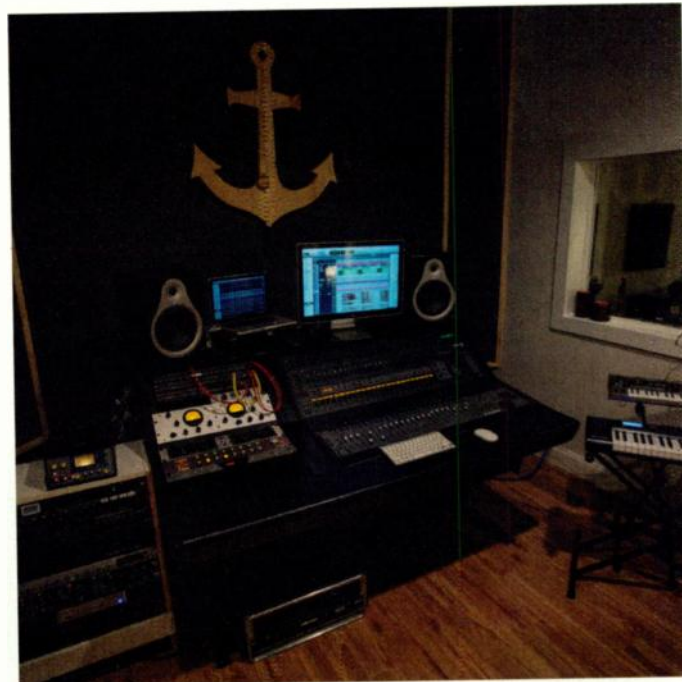
Chillhouse Studios in Charlestown (Boston), Mass., recently announced its merger with local Boston producer/engineer Jim Kearney and his Devotion Recording. Kearney moved into the Chillhouse facility in February and brought his entire studio's worth of gear and equipment.

The merger nearly doubled the selection of outboard gear, microphones, guitar and bass equipment, including gear by API, Manley, A-Designs, Groove Tubes, Quad Eight Electronics and many others, along with more software selections.

Meanwhile, Chillhouse owner Will Holland has been busy engineering the following projects: Debut album (co-written and co-produced by Holland) for pop-country artist Brittaney Brannock (winner of Grammy-sponsored Teens Make Music songwriting contest); mixing/mastering of live tracks recorded at the Berklee Performance Center for reggae band Matt Jenson and The Liquid Revolution (produced by Jenson), as well as tracking and mixing two songs; editing and mixing for jazz tenor saxophonist Carlos Averhoff Jr.'s latest CD *iRESI*, which features Aruán Ortiz on piano, Francisco Mela on drums, John Lockwood on bass, and guest artist Greg Osby (produced by Averhoff); tracking vocals and mixing/mastering two songs for indie-electronic trio Orchids (produced by Alex Fio, Nicole Marie, Leah V); and material for DAVE Crespo and SPO (produced by Crespo).

Kearney engineered the project *Live@Devotion*—an in-studio video Web series for *Absolutepunk.net*—featuring the post-hardcore band Actor|Observer (episode 1) and alt-punk/rock band Wrong Body (episode 2). For each episode, a band performs two original songs. Kearney tracked the project live, and video was shot and edited by ExitSense Media.

Kevin William Records Debut EP at Anchour Studio



Boston-based artist Kevin William did a live recording and video session at Anchour Studio in Windham, Maine. William, who is also vocalist for post-hardcore band *Exiting the Fall*, created a different sound with this indie/folk EP, full of powerful lyrics, soothing melodies and grandiose arrangements.

"We wanted the recording to be an authentic representation of Kevin's energy and knew it needed to be dark in tone, but also have a sense of urgency in the sound," says Stephen Gilbert, managing director at Anchour Studio. "And best of all, it needed to be recorded and mixed start to finish in four hours to hand off to our film crew. For us, it was all about getting the sound right at the beginning without any second-guessing." You can watch the session and other live sessions at anchourstudio.com/sessions.

Gear-wise, all of usual suspects were present, but the band notably brought some great gear of their own, such as a Veritas Guitars Portlander running into a Bad Cat amp and a 1950s Ludwig kit. "For dynamic processing during the session, we kept it simple and used Summit TLA-50s and a Rockruepel Comp 2," Gilbert says. "For most pres we were running Focusrite ISA 110s. Our drum overheads, room mics and bass ran through UA 2-610s."

Gilbert said they usually sum the mix through a Dangerous 2-bus all running into a Rockruepel Comp 2 before going back into the DAW. But because they needed to finish quickly, they mixed entirely in the box.

Once the track was done, Gilbert and team drove the band to a remote location—a loft in back of a country barn—to start filming. "The location was really vibey and had awesome lighting," Gilbert says. "But the freezing temperatures were a problem. It was so cold that in-between takes, we were keeping the band and crew alive with hot soup, coffee and wrapping them up in heavy blankets. We had the time of our lives and everything happened in one day!"

SESSIONS: NEW ENGLAND



From left: Tucker Martine, Bob Ludwig, Jim James

GATEWAY MASTERING, PORTLAND, MAINE

Mastering engineer Adam Ayan recently worked on the following projects: Carrie Underwood's *Greatest Hits: Decade #1*, produced by Mark Bright, engineered by Derek Bason; Bruce Springsteen's *The Agora, Cleveland 1978*; and *Boyhood Original Soundtrack* (for the Golden Globe-winning and Oscar-nominated film *Boyhood*). Mastering engineer Bob Ludwig recently worked on the following projects: Alabama Shakes' 2015 release, produced by Blake Mills, engineered by Shawn Everett; James Bay's 2014 EP, and 2015 debut album *Chaos and The Calm*, produced by Jacquire King, engineered by Michael Brauer; and My Morning Jacket's *The Waterfall (Erase Traces)*, produced by Jim James, engineered by Tucker Martine.



Joan Wasser

Guilford Sound is hosting an analog tape recording workshop with Larry Crane and Speedy Ortiz June 25-29, 2015. Workshop applications are due April 9. Visit guilfordsound.com for more info...The studio is also nearing completion on its year-round housing facility, designed by Ryall Porter Sheridan Architects to meet LEED Gold certification. The artists' residence has a living roof, a fully equipped kitchen, a lounge and porch, and five suites (each with a private bath) that sleep 5-10. Doors open May 1...In session news, Josh Quillen (of So Percussion) recorded and mixed a solo steel drum album, with Dave Snyder engineering...Joan Wasser (of Joan as Police Woman) and Benjamin Lazar Davis worked on new material, with Snyder engineering.



From left: Jay Bowman, Michael Franti, Ian Callahan, Carl Young

CARRIAGE HOUSE STUDIOS, STAMFORD, CONN.

Bill Laurance and Michael League (both of Snarky Puppy) tracked a full rhythm section and a large string and horn section for a new album, with Ruddy Cullers engineering, and Laurance and League producing...Elise Testone worked on an upcoming release, with Ian Callahan engineering and mixing...Michael Franti worked on a project with Sonna Rele, with Callahan engineering...Johnny Winter was in the studio working on *Step Back*, with Brendan Muldowney, Mikhail Pivovarov, Callahan, and Nick Wells engineering...Rachael Sage worked on *Blue Roses*, with John Shyloski engineering...FORQ worked on new material...Joe Scarborough worked on an upcoming release with engineers Angelo Vasquez, Callahan, Pivovarov, and Nick Wells...Upcoming projects include those from John Scofield (with producer Jay Newland) and Sammy Figueroa (with engineer Richie Corsello).



Paul Mocado and Halley Rose

TROD NOSSEL STUDIOS, WALLINGFORD, CONN.

Andrew Loog Oldham worked with Trod Nossel artist Beau Badrick and producer Darlene Cavalier on *The Rolling Stones Songbook Volume II* (Oldham also produced)...Phil Perry worked on *Better Man*, Chris "Big Dog" Davis producing and Sunny Kelley engineering...Mike DelGuidice worked on new material (DelGuidice also produced)...Jane Zhang did rehearsal sessions for her tour...R. Kelly worked on an upcoming untitled LP, with Ian Mereness engineering...Halley Rose worked on a new EP, with Cavalier producing and Paul Mocado engineering...Brian Smith, voiceover talent for PBS, worked on the documentary *Last Days of the Coliseum*, which is the story of the New Haven Coliseum and its impact on the music industry. Rich Hanley produced and Chris Sellas engineered.



The Halo Studio A

The Halo is the studio of writer/artist/producer Darren Elder and producer/mixer/engineer Jonathan Wyman, located inside a restored 5,000-square-foot post-and-beam barn from the early 1800s. The following artists have recently visited The Halo: The Pretty Reckless, with Wyman recording and mixing; Jubilee Riots, with Wyman producing, recording and mixing; Joni Fatora, with Wyman mixing; Crusoe, with Elder co-writing; The Mallett Brothers, with Wyman producing, recording and mixing; Guster, with Wyman mixing; and When Particles Collide, with Wyman and Elder producing, and Wyman recording and mixing.

Q DIVISION STUDIOS, SOMERVILLE, MASS.

Jon Butcher worked on his latest album, *Two Roads East*, which features famed bassist Lee Sklar and Jon Butcher Axis bandmates Chris Martin and John Anthony. The project was produced by Butcher and engineered by Pat DiCenso...Phil Ayoub was in the studio recording overdubs with keyboard player Ben Zecker, with Ed Valauskas producing and DiCenso engineering.



Phil Ayoub

Rocking Horse Studios' Brian Coombes Nominated



Rocking Horse owner/producer Brian Coombes

Photo by P.T. Sullivan

Brian Coombes, owner/producer at Rocking Horse Studios in Pittsfield, N.H., has received his second Producer of the Year nomination from the New England Music Awards. His work with local artists Pat & the Hats, the Dusty Gray Band and Tristan Omand led to the nomination. Coombes will be performing with Pat & the Hats (and guest performer Greg Hawkes) at the award ceremony, which is scheduled for Saturday, April 18 at Showcase Live in Foxborough, Mass.

In other Rocking Horse news, Greg Hawkes (keyboardist for the Cars) was at the studio adding his textures to the new Pat & the Hats record, *Fake It Til You Make a Hit*, which is produced and engineered by Coombes. Pat & the Hats have been nominated for Best Pop Act at the New England Music Awards. Additionally, noted session drummer Jonathan Mover (Aretha Franklin, Alice Cooper, Shakira, Peter Frampton, Celine Dion, Elton John, Beastie Boys, Joe Satriani) has been at Rocking Horse working on various projects.

RobairReport

REDEMPTION AND THE PERSONAL STUDIO



By Gino Robair

The semester was nearing its end when one of my students showed up after missing class for most of the term. During the first few weeks, she was very enthusiastic and showed promise, but then she disappeared. But just as suddenly, she was back, and I asked where she'd been.

"Jail. I stole a car..."

I smiled and lightheartedly added, "Don't do that!" so that she understood I wasn't judging her. But I also realized that I had no idea what her life was really like. All I can do is introduce her and the other young people in our Music Industry Studies program to the joy, satisfaction and career opportunities that come with a solid skill set in music production.

As we all know, art (and for the purposes of this discussion, music) has the ability to transform lives. Discovering that you have marketable skills in songwriting, recording, engineering or producing will have a profound impact on your future.

I've had the privilege of teaching in community colleges for more than a decade, and I have seen how powerful affordable education can be in boosting self-confidence and opening doors for a section of the population that has no other opportunities. Of course, my classes involve music technology. Many of the young adults that take my class have a deep connection to music but no economic advantage, and there are few (if any) opportunities in a market where jobs for unskilled labor are hard to come by. But when music is their passion, and there is a resource to explore the options, they have a fighting chance.

In the best-case scenario, these men and women discover their voice through the use of technology, whether it involves producing beats, recording or mixing. And if they can get their hands on a computer, they immediately have a personal studio. With so much information online, they may already have an idea of what they want to do by the time they enter my classroom. They often have experience putting together some kind of media using freeware, shareware or, not surprisingly, cracked copies of big-name products.

The software piracy issue—we talk about that. In fact, it is very easy to get the point across when you turn the conversation around to focus on the student. If I ask them what they hope to achieve in this business, fame and fortune are among the top items. Fine, but how are you going to make a living if the majority of your listeners are illegally downloading your music, or streaming it online where you earn little or nothing, depending on the source of that stream? The issues involving Spotify and Pandora come up, and I help demystify the business models.

When the discussion circles back to the software issue, and I mention that the products we use are created by real people, like the students themselves, the seeds have been sown. That's just the tip of the iceberg, but the curriculum doesn't stop there.

Colleges at this level have an educational priority called Student Learning Outcomes, which detail the skills that each student should have at the end of each semester course. Of particular importance is the ability to "demonstrate professional behaviors required in the music industry." That includes arriving on time, following through on projects, and meeting deadlines. It's the stuff that we, as professionals, expect from our colleagues, but often take for granted. Yet, if it wasn't for the boot-camp environment of this level of instruction, where would these young folks learn what is expected of them when they enter the music industry?

START LOCAL. THINK GLOBAL

Success begins locally, in the neighborhood, where the budding professional can go through the R&D phase of their life. And once these young people discover that their music-related skills can be monetized (to borrow a distasteful bit of corporate jargon), they quickly put them into action. Perhaps they start by selling beats to local producers, or maybe they have a microphone and an interface and record their friends at home using a low-cost DAW.

A former student, still in high school when he took my class, was already hard at work, charging \$10 an hour to track vocals over the beats that friends would bring in. And business was booming.

"Maybe it's time to raise your rates," I suggested.

"Naw, people won't pay much more."

"Try it," I replied. He did—\$15 an hour—and it worked. Since then, he has saved up enough for a mic upgrade and purchased a quality stand-alone channel strip. And he is now attending a recording arts program.

This is the power of the personal studio—no matter how informal—to transform lives. I like to think of it as the metaphorical garage where big players such as Hewlett Packard and Apple began (except that even the big players in the music industry still occupy the garage, albeit using high-end gear).

These days, everyone who dreams of making a living at music has access to many of the same tools the pros use. A few of them will graduate into the big leagues, while others may never get farther than their garage. But having access to creative tools, and a self-awareness of their skills, can be enough to help them find a healthy alternative. ■

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- Ⓐ Native Instruments Maschine Studio Groove
- Ⓑ sE Munro Egg 150 Studio Monitors
- Ⓒ Behringer X32 40-Channel, Digital Mixer
- Ⓓ Neumann TLM 102 Large-Diaphragm
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- Ⓕ Neumann TLM 107 Multi-Pattern Large Diaphragm
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LOGIC PRO X 10.1

New Look, VIs and Mixer Upgrades

In the first major version upgrade since the summer of 2013, Logic Pro X 10.1 (\$199 new, free upgrade) offers many improvements, including a new Drum Machine Designer plug-in with 10 new Drummers. Other improvements include a Retina-ready display, a new Brush Tool in the Piano Roll Editor, plus new view options in the Piano Roll Editor which let you see more notes in less vertical space and help identify drum sounds by name. Mixer upgrades include automation that can now be part of a region, not just the track; VCA faders; Relative and Trim Automation modes for fine-tuning existing automation; and remote control of microphone and other input settings for compatible audio interfaces.



AMPHION ONE15, ONE18 AND TWO18

Passive Studio Monitors

Handmade in Finland, the Amphon One15, One18 and Two18 are passive monitors that offer 5.25, 6.25 and 6.5-inch woofers, respectively, passive radiators at the rear and a 1-inch titanium tweeter. Each of the units crosses over at 1,600 Hz and mounts the tweeter in a white waveguide, giving the units a unique and modern look. The speakers are \$1,000, \$1,500, and

\$2,000 each, respectively. Companion amplifiers may be purchased from Amphon, including the Amp 100 mono (\$650), Amp 100 stereo (\$1,300) and Amp 500 stereo (\$1,800).



MANLEY FORCE PREAMP

4-Channel, High-Voltage Tube Gainer

Hand-wired in California using silver solder and audiophile-grade components, Manley's FORCE

(\$2,500) is a 4-channel, high-voltage, vacuum tube microphone preamplifier incorporating proprietary hand-wound Manley Iron mic input transformers and 12AX7 vacuum tube amplifying stage operating from 300 V rails. Each channel includes a high-impedance, 1/4-inch instrument input as well as an XLR microphone input. Front panel controls feature a 120Hz highpass filter, variable input-level pad, polarity invert, selectable +48V phantom power, and a high/low gain switch. Also included are seven-segment LED meters for each channel and a universal power supply accepting any voltage or frequency from anywhere in the world.



APOGEE ELECTRONICS GROOVE

Portable USB DAC/Headphone Amp

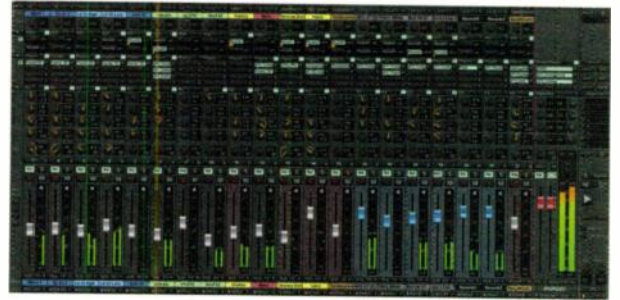
For quality listening on the go, Apogee has released Groove (sTBa), a new portable USB DAC and headphone amp for Mac or PC. Groove's innovative circuit design provides an even distribution of output power across the audible frequency spectrum, correcting impedance imperfections often found in entry-level headphones and powering even the most demanding high-impedance headphones. Features include USB 2-to-micro connection for Mac and PC, operation up to 24-bit/192kHz audio, 1/8-inch analog output for connecting to headphones or speakers, ESS Sabre DAC, asynchronous clocking, multicolor LEDs for status and level indication, and top panel buttons for adjusting output level and muting.



OVERSTAYER STEREO.FIELD.EFFECT COMPRESSOR

Classic FET Gain Reducer

The Overstayer Stereo.Field.Effect compressor features classic stereo FET compression with single controls. Features include discrete harmonics circuitry promising rich color and character, an integrated sidechain filter and tone shaping, parallel blend control, multiple ratios for subtle control to harder limiting, nonlinear mode offering extreme punch and energized compression balanced with additional harmonics. The single-rackspace unit offers a transformer-balanced discrete output stage and external power supply with rugged 5-pin XLR connector and IEC cable.



SAMPLITUDE PRO X 2 SUITE

Restoration, New Plug-ins and 70GB Library

Samplitude Pro X 2 Suite from Magix (\$999, or \$599 crossgrade) is loaded with new features, including a high-quality analog compressor (am|track) with simulation of tape machine saturation effects, a transient designer (am|pulse), a tube preamp/channel strip (am|phibia), and a mastering dynamics tool (am|munition) with compressor, limiter, clipper and M/S editing. There is a 70GB premium sound library including drums, percussion, acoustic and electric guitars and basses, pianos, organs, brass, saxophones, synthesizer, a complete symphonic orchestra and more. Also onboard are real-time restoration tools such as a DeClicker/DeCrackler, DeClipper, DeNoiser, Brilliance Enhancer, and Spectral Cleaning, plus new loudness metering with values adhering to EBU R128/ ITU-R BS.1771 with warnings if the value goes over or under the target values.



FOCUSRITE CLARETT INTERFACES

Four I/Os with Pre's and More

The new Clarett range of interfaces from Focusrite feature Thunderbolt I/O offering latency under 1 ms. The I/Os operate up to 24-bit/192kHz sample rates and feature new Clarett mic preamps that replicate the impedance and transformer resonance of the original ISAs, promising clarity and the signature sound for which Focusrite has become famous. The range is made up of four devices; the 2Pre (10-in/4-out, \$499.99), 4Pre (18-in/8-out, \$699.99), 8Pre (18-in/20-out, \$999.99) and the flagship 8Pre X (26-in/28-out, \$1,299.99). This latter, dual-rackspace interface features extended ADAT I/O, MIDI I/O, and separate rear panel inputs for mic line and instrument, as well as dedicated phantom power, polarity invert and a highpass filter on every channel.



ISOACOUSTICS APERTA SPEAKER STANDS

Cost-Effective, Great-Looking Isolators

IsoAcoustics Aperta (\$240) is a stylish and sleek new aluminum acoustic isolation stand for medium-size professional studio monitors and bookshelf speakers for home entertainment and hi-fi applications. Aperta uses the company's "floating design" and features a unique integrated tilt adjustment that enables the user to dial-in the optimum tilt angle. The stands come in silver or black with an overall size of 6 inches (w) x 7.5 inches (d), and are meant to handle speakers weighing up to 35 lbs.



OCEAN AUDIO SIGNATURE ONE

High-End Channel Strip

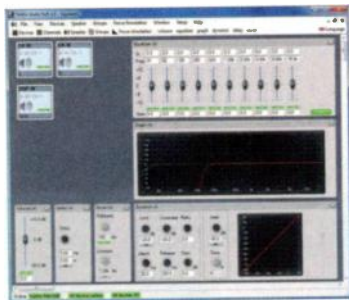
The Signature One from Ocean Audio (\$2,069) features a transformer-coupled mic/line preamplifier, 4-band equalizer and FET-based compressor. The preamp offers a custom-designed input transformer, a Burr Brown amplifier and may be adjusted from -10 dBm up to +60 dBm, negating the need for an input pad. The EQ offers four swept frequency ranges providing control from 40 Hz to 15 kHz. The high and low ranges are switchable between peaking and shelving, and there is continuously variable boost and cut of ±15 dB with a center "0" detent position in each range. There is also a separate and continuously variable highpass filter that sweeps from 30 Hz to 350 Hz. There are separate in/out for the preamp, plus independent inputs for the EQ and compressor, offering many multi-use and signal-flow options.

New Sound Reinforcement Products

FOHNN AIREA

Networked, Intelligent SR System

Fohhn, the German company that specializes in professional loudspeaker systems for both mobile and fixed-installation sound reinforcement, has released the AIREA intelligent sound and audio network system (\$TBA). The system features integrated DSP, and 2-channel Class-D amplifiers promising maximum dynamic range, linear frequency response and absolute protection. Other features include a fully parametric equalizer, delay, dynamics and crossover where each speaker can be customized and adjusted individually. The AIREA master modules come with AES/EBU I/O with components connected by a single conventional network cable supplying power, two channels of digital audio, and remote control signals from the master module to each individual speaker.



RYCOTE CYCLONE

Next-Gen Windscreen

The Rycote Cyclone (\$699) takes microphone wind protection to the next level. The windshield basket design uses a magnetic Z-Locking System that can be quickly opened and closed using just one hand. Reassembly is automatic, as components magnetically snap into alignment. The structure features an aerodynamically efficient asymmetric shape, and it is covered with the new-age 3D-Text material providing reduced surface turbulence and acoustic impedance resulting in a reduction of wind noise that makes a fur cover unnecessary. Rycote's Lyre microphone suspension reduces the bulk of shock and handling noise, which is also included in the Floating Basket Suspension.



SATORI

A Digitally-controlled True Analog Monitoring and Summing System



- ✓ Precise stepped relay volume control
- ✓ Analog summing allowing easy mixing
- ✓ Extremely flexible routing



- ✓ Versatile talkback capabilities
- ✓ Four independent headphone outputs
- ✓ User-friendly Input/Output offset trimming



SHURE DESIGN STUDIO

Custom Bling for Live Mics

The Shure Design Studio is an intuitive online platform enabling BLX and GLX-D Wireless System users to customize their handheld microphones. Select models are available in six solid color options—white, silver, gold, pink, blue and red—for \$29 (plus shipping and handling). Additionally, visitors can create custom units by selecting from an extensive library of patterns and designs, or by uploading their own text or graphics. Custom designs are available for \$79 (plus shipping and handling). The custom and color handles are easy to install and remove by simply unscrewing the standard black cover and replacing it with the new cover. Comes with a 90-day warranty.

SONNOX LIVE BUNDLE PLUG-INS

Five for the Road

Customized for use with Avid touring consoles, the Sonnox LIVE Bundle Plug-ins (\$949) includes the Oxford EQ, Oxford Dynamics, Inflater, TransMod and Oxford Reverb. Also included is the SuprEsser DS AAX DSP plug-in for Avid S3L users. Mac and Native licenses are not included in this specially priced Avid Live console bundle. The equivalent cost of HD-HDX bundle including Native Licenses is \$1,674.





the
RETRO
Profile

“Choose a job you love & you will never work a day in your life.”

Favorite Movie: *The Godfather 1 & 2*

Favorite TV Show: *The Sopranos*

Favorite Vegetable: *Collard greens... “OG kale” before it was cool*

When I’m not in the studio, I’m: *At the beach!!*

My greatest accomplishment: *We will never reach the mountaintop, so enjoy the climb...*

Every Retro piece is amazing & they’re all in use everyday. Just picking one, it has to be the Sta-Level. It’s my must use on bass because it provides that rich glue as well as on vocals since it is one of a few pieces of gear that can elegantly compress 30db and you don’t hear it. The Sta Level is a beast!

-Ross Hogarth (Keb’ Mo’, Van Halen, Ziggy Marley)



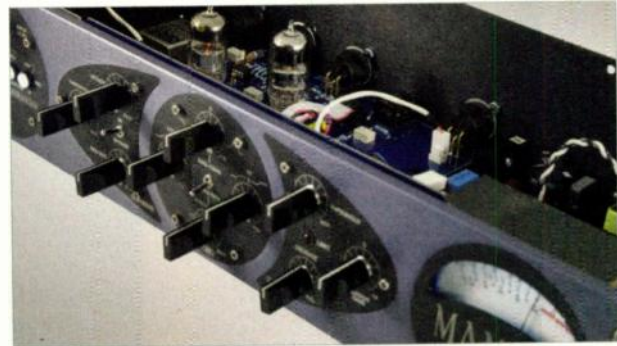
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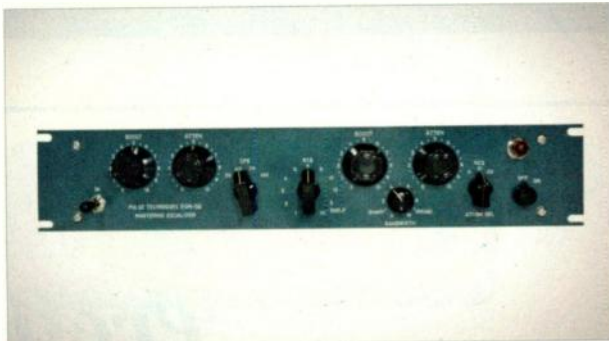
PURPLE MC77

The MC77 sacrifices nothing in bringing you the classic tone, feel and warmth of the original Urei 1176



MANLEY CORE

ELOP comp, tube & custom xformer pre, Baxandall EQ. FET limiter, handmade in USA: classic Manley at a breakthrough price



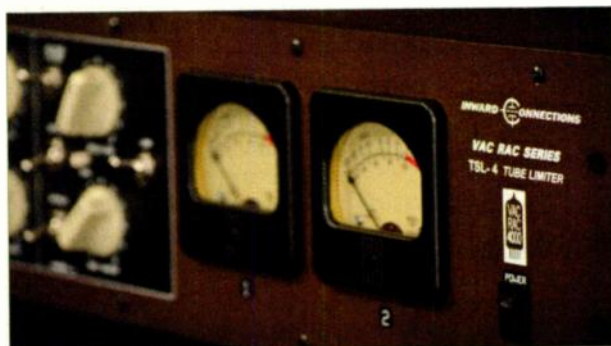
PULTEC EQM-1S3

Based on the EQP-1A3, the EQM-1S3 mastering EQ advances the recording process with even more high band frequency options



NEUMANN U47 FET COLLECTOR'S EDITION

From kick drum to vocals and everything in between, allow the U 47 fet to bring its signature sound to your recording



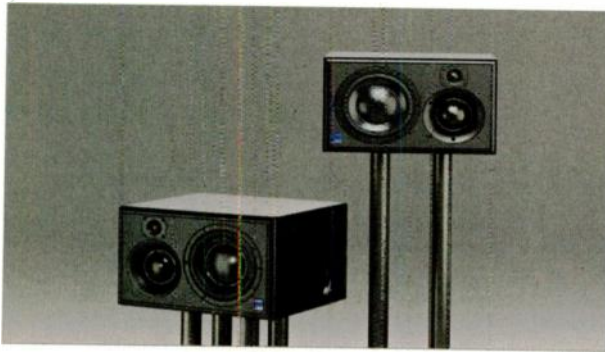
INWARD CONNECTIONS TSL-4 VAC RAC

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FOCAL SM9

A flexible active monitor design that lets you switch speaker configurations on the fly



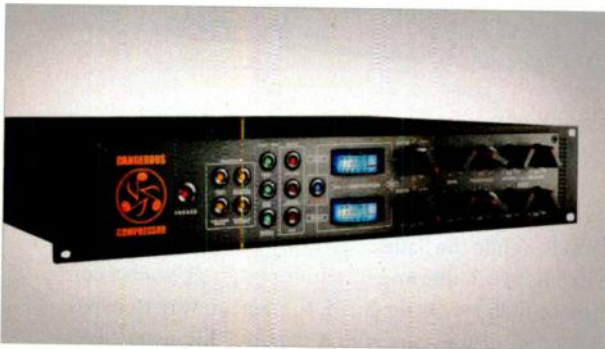
ATC LOUDSPEAKERS 25A

"ATC: Always The Champion. I will not record without them. The best studio monitors. Period." – Lenny Kravitz



UNIVERSAL AUDIO APOLLO TWIN

UA's new 2x6 Thunderbolt audio interface reinvents desktop recording once again, complete with real-time UAD processing



DANGEROUS COMPRESSOR

Simple, transparent and powerful; the striking new dynamics processor from Dangerous levels the playing field



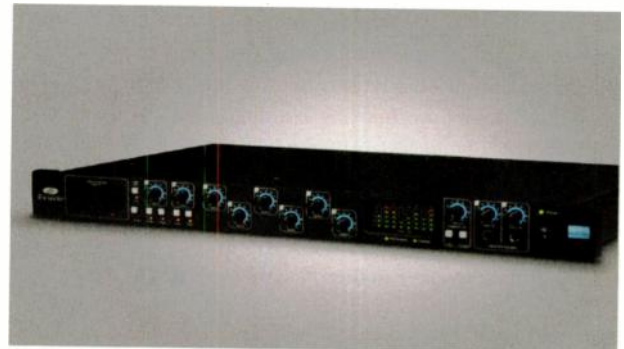
COLEMAN AUDIO PHONE MIX DI

Innovative new studio tool, lets you patch & mix an instrument DI with playback audio from your mobile device



LYNX HILO

AD/DA converter plus headphone amplifier offering control, performance and connectivity never before available



FOCUSRITE SAFFIRE PRO 40

Professional 20-in/20-out FireWire interface with 8 famous Focusrite preamps - the best-sounding interface in its class

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Tech // reviews

FOCUSRITE SAFFIRE PRO 24, 26 AND 40



Early on, Focusrite earned the respect of audio pros with the release of serious, professional mic preamps, consoles and rackmounted channel strips. Some pros were disappointed when the company started playing to project studios, feeling that their early offerings in that market fell short of the sound quality associated with the Focusrite name. In recent years, however, Focusrite has blurred that line and delivered great sound at modest prices, pleasing engineers at all levels. On top of that, their innovation doesn't stop at sound quality, but has embraced connectivity and flexibility in the digital domain. The new Saffire line includes the Saffire PRO 40, PRO 26 and PRO 24. Each is designed to connect via FireWire 400, and they are among the first multichannel interfaces to provide Thunderbolt connectivity.

While Apple computers continue to provide FireWire ports, others have phased them out, choosing Thunderbolt as an alternative. This has left many engineers turning to USB 3 interfaces. However, sharing the USB bus between hard drives and interfaces can lead to unnecessary bottlenecks. Having two buses to handle data has always been handy, and now, using a FireWire-to-Thunderbolt adapter, the Saffire drivers can interface with a FireWire-free PC.

SAFFIRE PRO 40

The Saffire PRO 40 packs a good amount of I/O and connectivity into a single-rackspace unit, while also offering plenty of opportunity for expansion. The PRO 40 offers eight analog inputs and 10 analog outputs. Also included are a pair of Toslink I/O connectors as well as coax S/PDIF I/O and MIDI I/O on standard 5-pin DIN connectors.

The analog inputs each have a corresponding five-segment LED meter on the front panel. They each connect using XLR/TRS 1/4-inch combo jacks, two of which are mounted on the front panel, the other six on the back. All eight inputs are designed to accept line-level signals through the 1/4-inch component, and the first four can be made to amplify high-impedance, unbalanced, instrument-level signals, as well.

Each also offers a phantom-powered mic preamp, accessible through the XLR. While the Saffire MixControl application allows a user to switch between line and instrument signals when a connection to the 1/4-inch jack is detected, there is no way to bypass automatic selection of mic versus line signals. This seems to be the trend with gear using these types of combo connectors. This, unfortunately, forces the user to choose one or the other when wiring the back-panel connectors into a patch bay.

The back panel also includes a group of eight 1/4-inch output connectors, seemingly designed for taking splits or stems out through an analog mixer, routing to outboard effects, or building individual mixes to feed different headphone amplifiers. There is also a dedicated pair of 1/4-inch "monitor" outputs, designed to feed active monitors or a power amplifier. The level sent to these outputs can be controlled using a knob on the front panel; the front panel also features two headphone jacks, each with their own level controls. Signals can be piled onto the buses feeding any of these connectors by using the Saffire MixControl application.

Saffire MixControl features attractive graphics and clear labels. As is typical on FireWire and USB interfaces, the designers have taken into account that larger sessions will require higher DAW buffer settings, which will lead to latency in monitoring. The included MixControl software mixer allows the combination of low-latency input signals with latent DAW returns. While the inputs are A/D-converted before hitting the mixer, there is no noticeable delay. Besides mixing

TRY THIS

The Saffire line makes it easy to create combined interfaces that can be recognized as a single unit. This can be done with many other units using Mac's Core Audio driver. With your devices connected, simply go to the Audio window of Audio MIDI Setup. Click on the "+" sign in the bottom left and choose Create Aggregate Device. Give your device a name. In the pane to the right, check the inputs and outputs you want to include and choose which device will be the clock master. In your DAW, change your Playback Engine or input and output devices to the one you just created.



INTRODUCING THE RESIDENT AUDIO T4

The world's only four-channel bus-powered Thunderbolt™ interface. Twice as fast as USB 3.0 and 20 times faster than USB 2.0, the T4 is the most advanced, near-zero latency audio interface ever.

System requirements: Mac®: recommended Mac OS X 10.9 Mavericks or higher | Windows® (select PCs)
Supports ASIO, Core Audio, Windows Audio Session API (Windows 8)
Available Thunderbolt port required (Thunderbolt cable included)
Thunderbolt is a trademark of Intel Corporation in the U.S. and/or other countries.



residentaudio.com

inputs with outputs, the Mix-Control panel allows more flexible control over multi-channel monitoring setups. In the software, analog outputs could be grouped into stereo, stereo-plus-subwoofer, quad, 5.1 or 7.1, and then controlled by the monitor knob. It's nice to see interfaces with enough I/O to accommodate surround actually take advantage of the opportunity to do so.

The optical connector can be used for S/PDIF as well as ADAT. The coax is meant for straight, 2-channel stereo S/PDIF signals, but does support encoded AC3 streams. Both types of digital connection can be used simultaneously, so potentially you could use four S/PDIF channels, or eight ADAT signals plus stereo S/PDIF, for a total of 10 digital inputs and 10 digital outputs. On top of that, the PRO 40 has two Thunderbolt-compatible EIE1394 FireWire 400 connectors, so one can be used to connect to the host while the other is available for daisy-chaining another Saffire unit. When linking two PRO 40s, you have access to the 16 available analog inputs, plus 20 digital inputs, all of which will be recognized as one giant interface by a DAW.

For the review, I received all three interfaces, along with Focusrite's OctoPre Dynamic, an 8-channel mic preamp with an ADAT optical output. Connecting the PRO 40 and the OctoPre built a powerhouse of 16 analog inputs, with 16 mic pre's, all housed in two rackspaces. When I first made the optical connection, it occurred to me that there was no dedicated BNC wordclock connection, so I would have to clock through the optical cable itself. While embedded clock signals, especially through an optical cable, are not known to be the steadiest, Focusrite's engineers have taken great care to ensure the tightest clocking between multiple devices using the Jet PLL low-jitter, high-resolution clocking system.

I wound up using the Saffire's internal clock as the master and slaving the OctoPre to it. I pressed the clock selector on the OctoPre and it didn't lock within a few seconds, so I tried the opposite configuration. I had the same unresponsiveness. After switching back and forth a few times, it locked in the original configuration and never gave me another problem.

Having 16 inputs can be great for tracking things like drum kits or larger ensembles, but I most appreciated it when doing setups on a smaller scale. Often with smaller interfaces, you just accept the fact that going from a bass pass, to a guitar overdub, to a vocal overdub, you'll just change the setup before each layer. It's so beneficial to the flow of a session to have everything set up in advance

PRODUCT SUMMARY

COMPANY: Focusrite
PRODUCT: PRO 40
WEBSITE: www.focusrite.com
PRICES: \$499.99 street
PROS: Good amount of I/O with expandability. MixControl plug-in is brilliant. Very good-sounding unit.
CONS: No dedicated BNC wordclock connection. No way to bypass automatic selection of mic versus line signals.

and just jump from element to element with no downtime. When tracking acoustic guitar, I was pleasantly surprised by the "sound" of the preamps. Given the number of them and the size of the unit, it was quite clear that there were no tubes or transformers. For an op amp, there was a lot of character in the lower mid-range and bottom end. The bass was really tight, and there was a greater clarity in the midrange than what is usually heard from units in a similar price range. It's hard to say which played a greater role in the transparency of the top end: the analog circuit topology or the converters. Either way, there certainly wasn't a trace of the digital grit often found with lower-price converters. There was a clear, articulate sound that some might find a little dark, but I found preferable to the cheap, harsh, artificial top end that some preamps and converters will use to create the illusion of detail.

This worked really well when tracking a bass through one of the instrument inputs. The bottom was full without being loose, and each note popped through the mix while tracking. The recorded sound took well to EQ, and a slight low-mid scoop with a subtle bump on top really helped the bass cut in the overall mix. Because the original sound didn't seem to have been subjected to a pre-fab EQ, my subtle adjustments were able to stay natural sounding and never grainy or abrasive.

Cutting vocals on top of a track that already had a lot of layers and effects required a little action in the Saffire MixControl software. Everything was labeled clearly, and the metering painted a clear picture of which signals were active. It was a snap to build a headphone mix with the appropriate amount of playback-to-input ratio. I later realized that I could instantiate the MixControl plug-in right in the Pro Tools mixer and switch the track to input monitoring there. This is innovative. With so many peripherals offering a software mixer panel in a separate app, you would think this would be a more common implementation, and it was certainly welcome here.

Taking all of this into account, the PRO 40 on its own is a great interface, but the building potential is probably the most exciting feature. The idea that four rackspaces filled with a pair of PRO 40s and a pair of OctoPres could give you 32 channels of totally usable input at a completely reasonable price tag is very exciting. If you are looking to build a portable rig for tracking bands in their practice spaces, or live performances, this would be a very solid option. ■

Brandon T. Hickey is a regular Mix contributor.

SAFFIRE PRO 26

The PRO 26 has a slightly reduced feature set relative to the PRO 40, but a lot of the core components are the same. It's smaller—the same footprint as a 13-inch MacBook Pro, so it sits nicely beneath the computer on a desktop.

Here, six analog inputs are available, with six balanced outputs. Any of the six inputs can accept line-level signals, but the first four can also work with microphone or instrument signals. The first two have front-panel TS/TRS connections for instrument and line-level signals, respectively, and a pair of rear-panel XLR jacks. The next two have XLR/TRS combo jacks on the back panel, and the last two are simply 1/4-inch TRS jacks with no gain controls. The front panel has one headphone jack, five-segment LED meters for each of the inputs, and a monitor control knob. Given the six available analog outputs, the PRO 26 can also support monitoring up to 5.1, using the front-panel monitor knob as a control room level.

While coax S/PDIF is offered in both input and output, optical digital is input-only. The optical input still supports ADAT optical and SMUX, in addition to S/PDIF. This means you could still add an 8-channel mic preamp with a digital out for 14 analog inputs, though two of them will require you to provide your own mic preamps. The PRO 26 has only one Thunderbolt-compatible FireWire 400 port, so you cannot chain two of these units together off of a single connector on your computer. You can, however, chain a PRO 26 to the extra FireWire 400 port on a PRO 40, and once again, DAWs will see them as a single interface.

My experience with the PRO 26 was very similar to my experience with the PRO 40. I was impressed when recording instruments like distorted electric guitar or tambourine, which have the potential to get harsh when captured by lower-price converters or preamps. The fine line between being able to cut through a mix, and being savagely bright, was toed very nicely.

SAFFIRE PRO 24

The PRO 24 is the micro version of the other two interfaces. Actually, micro might not be the word, as it's pretty large for its class and took up a good amount of space on the desk. The PRO 24 shrinks its price tag by offering just four analog inputs and six analog outputs. Two of the inputs are line-only, and two offer mic, line and instrument compatibility through a pair of TRS/XLR combo jacks. Coax S/PDIF in and out are provided, but ADAT-ready optical connectivity is offered only on the input side. Also, like the PRO 26, there's a single FireWire connection and a single front-panel headphone jack with volume control.

I tried to make the PRO 24 my go-to portable interface. I needed to record some quick Foley for a short. One of the biggest challenges for any pre or interface when recording Foley is keeping the self-noise down, and the PRO 24 did a great job. I was recording footsteps and cloth for a wider outdoor shot, and it was simple to get the top end to sit in the scene. The no-hype top end of the Focusrite preamps made for an easy job.

Using it as my portable monitor controller proved to have mixed results. The lack of an optical output lost it some points right away. Using the analog outputs with the onboard volume control or connecting headphones showcased the above-average D/A converters, with a reasonably good stereo image and a pleasant amount of detail.

Due to its rather large size and inability to be more universally compatible, the PRO 24 would not be my first pick for an all-around, everyday interface. If you are looking for an inexpensive unit to stay connected and track voiceovers, vocals or simpler applications, the preamps sound very nice, and the monitor controller gets the job done well.

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IZOTOPE RX 4 ADVANCED

Streamlined Operation, New Leveler, Loudness Modules

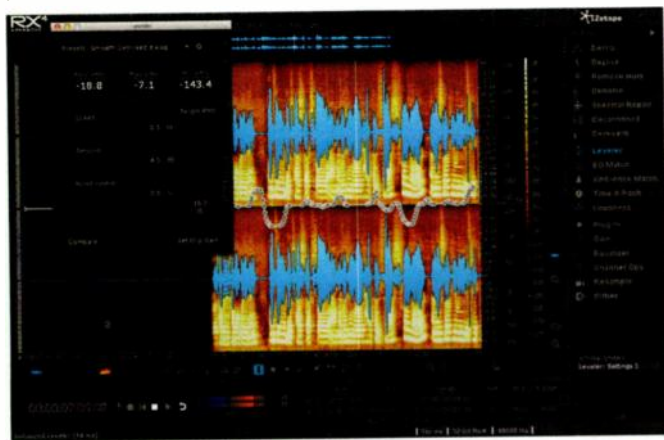


Fig. 1: RX 4 Advanced's standout Leveler module creates a clip-gain envelope, shown here as daisy-chained small circles strung along the horizontal midline between channel panes in the display area.

In its time, iZotope RX3 Advanced offered the most comprehensive suite of noise-reduction software—available as a stand-alone application and as bundled plug-ins—for post-production sound, along with extensive metering, time- and pitch-shifting processors, resampling facilities and other invaluable tools. RX 4 Advanced (\$1,199) adds several workflow accelerators used to comply with various loudness standards and to quickly adjust level, timbre and ambience in tracks.

I reviewed Version 4.0.1 of RX 4 Advanced (its plug-ins in AU format) using Digital Performer V. 8.06 and an 8-core Mac Pro running OS X 10.9.5. For a refresher on RX 4 Advanced's legacy features, check out my review of RX3 Advanced in the May 2014, issue of *Mix*.

STREAMLINED INTEROPERABILITY

RX's Spectral Repair plug-in—which was a bit of a kludge in previous releases—has been discontinued, made obsolete by the new RX Connect plug-in and alternative DAW interoperability. Roughly half of leading DAWs use RX Connect as a synchronized bridge to the stand-alone RX 4 Advanced application; you first select in your DAW the audio clip you wish to process, then launch RX Connect. Other DAWs (including DP) use RX 4 as an external editor: In DP, for example, you choose the RX application as DP's external waveform editor and then open a region in RX via DP's Audio menu.

No matter which protocol your DAW uses, after the RX application opens you can edit the selected clip using any processing (not just Spectral Repair) it provides. Different (fast and simple)

methods are used, depending on your workstation, to return the processed clip back to your DAW in perfect sync with the original clip. Because some DAWs (including Pro Tools) monopolize the system's audio drivers, an additional plug-in dubbed RX Monitor is included to enable hearing the RX application's output; RX Monitor interacts with your DAW like an instrument to play the RX application's audio through the DAW's driver.

The updated Remove Hum plug-in and module—all modules belong to the standalone application—include an Adaptive mode that analyzes your audio and automatically notches out fundamental hum-related frequencies that change over time (such as in audio for a scene that was shot in multiple locations).

The updated Time & Pitch module provides an option to run Radius processing in real time, for those tasks in which you need fast processing. The tradeoff is lower quality than with offline processing (which is still available).

NEW MODULES

The new Leveler module uses a compressor with automatic make-up gain to curb fluctuations in signal level. Use its Target RMS slider to adjust the K-weighted RMS level of your clip. The Speed slider alters how quickly gain is adjusted. Drag the Amount slider to limit the maximum amount of gain (boost or cut) that can be applied, and raise the Noise slider to reduce potential pumping when breathing or other broadband noise occurs during gaps in dialog. You can view the gain changes that Leveler applies and edit them by dragging up and down one or more nodes at once on a graphical curve (dubbed the Clip Gain envelope; see Figure 1).

The new Loudness module automatically applies a fixed amount of gain to your entire clip (or a selected region) to instantly make it comply with a specific standard, such as BS.1770, selected from a drop-down menu. Alternatively, you can use two sliders to manually set the desired loudness (in LKFS units) and maximum true peak level of the clip. A post-limiter is automatically applied as needed to meet the selected true-peak spec.

The new EQ Match module applies static equalization to purportedly make one region's spectral balance conform to that of another. Simply select a region (such as a phrase in a VO track) that sounds great, click Learn, select another

TRY THIS

DP can send only one region at a time to an external editor such as RX 4 Advanced. If you want to send an entire track containing non-contiguous soundbites, first make a time-range selection in DP for the entire track and select Merge Soundbites (option-shift-M).

Capture the Music

Affectionately referred to as the "lollipop," the SCX25A is perfect for miking vocals, guitars, pianos and acoustic instruments. The mic's unique design includes a patented capsule suspension system that minimizes acoustic reflections and diffractions to provide a pure sound with exceptional detail. Whether in the studio or on stage, the Audix SCX25A delivers the right sound every time.



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region that sounds bad, and click Process. EQ Match lets you save spectral profiles as presets, speeding your workflow.

The Ambience Match module does for noise what EQ Match does for timbre, with one caveat: It can't decrease the amount of ambience that already exists in a selection; it can only increase it. This is an invaluable tool for matching an ADR track's ambience to that of the recording being replaced. You simply make a selection of the noise in the live recording, click the module's Learn button, make a selection in your ADR track where you want the same-quality noise added, drag the Trim control to adjust the level of the ambience to be added, and click Process. Noise snapshots can be saved as custom presets.

IN POST-PRODUCTION SESSIONS

I used RX 4 Advanced extensively while working on five video projects containing many dialog tracks, music and B roll. The new Leveler module gave me excellent results easily and exceedingly fast, smoothing levels no matter the track's spectral balance. It controlled boomy-sounding peaks beautifully, often precluding the need to de-boom using multiband compression. With moderate settings—the Amount control set no higher than 4 dB—I got more natural-sounding results than when using my go-to compressors and limiters. After rendering the processing, I could mouse-drag one or more nodes at once in the automatically generated clip-gain envelope to alter Leveler's gain changes in select spots (see Fig. 1).

The Loudness module conformed my mix to any of seven different loudness standards with just a couple of mouse clicks—a real timesaver. Using the Ambience Match module, I could capture the room tone on a dialog track and add it to another track that sounded too dead; a trim control let me adjust the level of the ambience ± 6 dB without affecting the level of the dialog. Listening to the generated ambience in isolation, it was apparent it was synthesized. But in the mix, it worked inconspicuously if applied sparingly to tracks in select, short gaps.

I tried a couple dozen times to use EQ Match to smooth spectral balances on dialog tracks, but I always found I got better (and more predictable) results using a combination of static and dynamic equalization plug-ins.

Any editing performed on tracks in the RX application is destructive once sent back to DP (overwriting the original file everywhere it occurs in DP), a disadvantage compared to working with RX 4 Advanced's nondestructive plug-ins. Overwritten files initially played back as—and looked like, in DP's Sequence Editor—full-scale, broadband noise in DP; rebooting DP would always permanently restore pristine playback, but I'd sometimes also need to bounce the file to a new track to restore proper waveform display. This appears to be a bug in DP, not in the RX application.

On startup, the RX application would often arbitrarily reroute consistent output assignments to different MOTU I/O boxes or banks—sometimes to those disabled in the MOTU PCI Audio Setup utility. And I often heard distracting crackling noises and clicks while working with the application, especially while previewing a module's processing. (An associate of mine confirmed hearing the same artifacts using RX 4 with a different system.) Thankfully, the artifacts did not print when files were overwritten back to DP; nor did they ever occur when using the RX plug-ins.

PURCHASE IN ADVANCE?

iZotope also offers a less-expensive “standard” version, which doesn't include the Der-verb, Deconstruct, Leveler, Loudness, EQ Match, Ambience Match, Radius RT (Time & Pitch) and Insight (metering suite) modules and plug-ins. It also lacks the center-channel extraction and azimuth alignment features for the Channel Operations module and some extra controls for Denoiser, Spectral Repair and Declick. Many of these additional features included with the Advanced version have proven to be indispensable in my work; they are well worth the extra cost.

If you work in post-production sound, restoration or audio forensics and don't already own RX3 Advanced, buying RX 4 Advanced is an absolute must—if only for its incredible legacy plug-ins. If you can tolerate the RX application's intermittent routing and monitoring problems, the Leveler and Loudness modules make an upgrade from RX3 Advanced worthwhile. ■

Mix contributing editor Michael Cooper is a recording, mix, mastering and post-production engineer.

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sE ELECTRONICS SE X1 T MICROPHONE

Large-Diaphragm Tube Condenser for the Studio



pad and highpass filter starting at 100 Hz (down -3dB at 60 Hz). The microphone is fatter than most tube mics, having its own distinctive, wide shape, and will not fit into most other shock-mounts. The construction of the metal chassis feels solid and is finished with a special acoustic-damping rubberized paint to help with chassis resonance. The mesh grille contains two different types of weave, and I had issues with the grille being softer than I am used to. In my experience, when placing the X1 T into its shock-mount, I needed to hold the grille portion in order to slide the mic in and secure the base. Because of its softness, the grille can become bent and dented rather easily.

I tested the X1 T using a Great River MP-2NV preamp through a vintage Ashly SC55, then an Apogee A/D into Sequoia recording at 96 kHz. Monitoring was through a Mytek Stereo192-DSD D/A into Neumann KH monitors.

The first recording involved a Guild solid-wood acoustic, with maple sides and back. The X1 T gave a full and up-front sound. In comparison with a few of my favorite large-diaphragm mics, the X1 T definitely had a boost to the low-midrange in the 150 to 225Hz range.

SE Electronics' reputation for creating microphones offering quality beyond their price has been buzzing in the industry for a while now. sE makes its own capsules, which are built and tuned by hand; then, tubes and other components are specially selected. The X1 T reviewed here is the tube version of the company's X1 large-diaphragm studio microphone. In a sidebar, I also review the sE SPACE Reflexion Filter, a portable acoustic control and isolation unit for use in challenging and noisy environments.

OUT OF THE BOX

The X1 T is a great looking microphone. It ships with a hard-shell case, separate power supply, quality 7-pin connector, 15-foot cable and mic clip. I also received the sE isolation pack that contains a windscreens and shock-mount (sold separately).

The X1 T is a cardioid, tube microphone with a built-in -10dB

The cardioid pattern was wide enough to capture a balance of tones, much like the AT4050 we used in comparison. Compared to an ADK AS1TC Tube condenser, which costs three times the price, the X1 T's tone was much fuller in the low-midrange but less airy on top. The ADK was more even and had a silky sheen that the X1 T did not exhibit. I used the X1 T on a few sessions where I needed the extra fullness that this microphone provides.

I then tried the X1 T on vocals, and as with any vocal microphone, it really depends on the voice. Overall the mic was full and rich sounding, and always upfront. I found that it really shined on male rap vocals. The low-end fullness mixed with its bump in the 4kHz range worked perfectly to set the vocals boldly in a mix. The same held true for voice-overs. The HPF worked well here in conjunction with the low-midrange tone of the mic.

I did not have such good results using the Isolation Pack. The shock-mount for the X1 T is large and plastic, and the windscreens



SE SPACE REFLEXION FILTER

sE has been building various models of reflection filters for years. SPACE is large and needs a firm and solid mic stand. Its newly designed mounting hardware not only mounts SPACE to the stand, but also holds the microphone.

In the first test I wanted to see how SPACE isolated the microphone from room noise. I set up in the control room at Eclectica Studios with all the equipment, computers and the Mini Split AC unit running. I set the proper recording level on the Great River mic pre so my voice would peak at my standard -10 dB. The AC unit is very quiet, and to-

gether with the computer fan noise brought up the control room's noise floor by 6 dB at the mic's position. With the microphone mounted by itself, Sequoia's Peak/RMS metering showed a noise floor of -62.8 dB. With the SPACE setup, the noise floor dropped to 66 dB.

Next, I set up inside a 90-degree corner made of glass. Speaking into the corner produces a flood of reflections back to the performer's position. Recording the X1T without the SPACE yielded the expected results: a lively hollowness to my voice. I added the SPACE back to the stand and recorded the voice-over part again. The result was fantastic. My voice was focused, and the reflections were no longer captured. My voice also regained its fullness and clarity—definition returned to the recording, along with the polished quality of an announcer. I did not realize how much tone was missing from my voice until I compared it to the version using SPACE. Bravo!

PRODUCT SUMMARY

COMPANY: sE Electronics
PRODUCT: X1T
WEBSITE: www.seelectronics.com
PRICE: \$399
PROS: Warm, full and upfront. The price.
CONS: Does not fit well in third-party shock-mounts. Delicate grille

I then mounted the X1T in a shock-mount that comes free with a \$69 MXL budget microphone and the rumble was drastically reduced. I found the windscreen to be lacking as well, easily letting through plosives.

At \$399 street, the X1T is a great deal. I would recommend this

microphone to anyone needing a fat-sounding, upfront microphone for VO work or vocals needing an LF presence with an edge in the 4kHz vocal range. The Isolation Pack provides a good fitting shock-mount but I was not thrilled with its performance. ■

mounts to the shock-mount. If the singer touches the shock-mount, the handling noise is evident in the signal path. My test for shock-mounts has always been to set up the mic for recording, and then jump up and down in the room to see how much vibration is transmitted all the way to the capsule. Using the sE shock-mount, there was the same amount of rumble compared to not using one at all.

microphone to anyone needing a fat-sounding, upfront microphone for VO work or vocals needing an LF presence with an edge in the 4kHz vocal range. The Isolation Pack provides a good fitting shock-mount but I was not thrilled with its performance. ■

Tim Dolbear is an audio engineer and producer at Eclectica Studios in Austin, Texas.

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Continued from p. 39

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MICS & RECORDING

Game audio geeks take their field recordings seriously. You can get whole batches of deliverable sounds from a good field recording session, so when you're out to do it big, look toward the **Sound Devices 722** (\$2,679) 24-bit/192kHz portable digital recorder with 160GB hard drive, two XLR inputs and excellent mic-pres. For impromptu recording, keep the pocket-size **Zoom H5 Handy Recorder** (\$269) on you at all times. The 24/96 SD card recorder includes its own interchangeable mics.

A well-rounded trio of mics begins with the **Sennheiser MKH 416** shotgun (\$999.95) for field recording. It features excellent directivity and optimization for outdoor broadcasting and recording.

Next, you'll want a good all-purpose condenser mic like the **Neumann TLM 107** (\$1,699.95) multipattern large-diaphragm condenser. Classic Neumann sound, five polar patterns and a three-position highpass filter helped this mic win a 2015 TEC Award.

When you're a one-stop game audio shop, you should be prepared to record voiceovers, and the **Electro Voice RE27N/D** (\$499) specializes in voiceovers with the proper human balance between warmth and intelligibility. It's also a multipurpose dynamic mic suitable for capturing amps, drums, singers, etc.

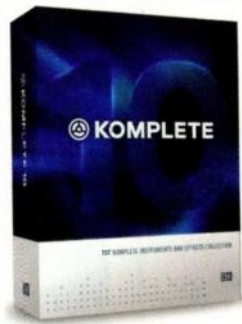
Put that Thunderbolt 2 port to excellent use with a massive hard drive like the **12TB LaCie 8big Rack Thunderbolt 2** (\$1,599) rackmount drive for recording and storing/backing up samples. Besides generous storage, you'll enjoy its transfer speeds of up to 20Gb/s, RAID 5/6 security and dual Thunderbolt 2 ports for daisy chaining up to six Thunderbolt devices.

OTHER HARDWARE

We always like to divert at least a portion of the budget to great analog gear that can inject some character and sheen into sounds that you can't otherwise achieve.

Analog synths have always created buzz, literally, but the latest buzz-board of the analog synth revival comes in the form of the **Sequential Prophet-6** (\$2,799), sequel to the immortal Prophet-5. The new 6-voice polyphonic synth has a fully analog signal path with added digital dual effects engines and analog distortion. A newly designed oscillator section, modern conveniences like MIDI and USB connections, and some other feature enhancements make it a true bridge to the past.

For warming up, glossing over or polishing any sound, track or full mix, you can run it through the **Rupert Neve Designs Portico II Master Buss Processor** (\$3,995). This 2-channel compressor/limiter/stereo field



Native Instruments Komplete 10 Ultimate



Genelec 8320.LSE Surround SAM - 5.1 Studio Monitor Kit



Neumann TLM 107

processor includes the same Class-A signal processing as in the immaculate 5088 mixer.

SYNTHS, PROCESSORS AND SOUNDWARE

Including everything from industry-leading synths and samplers, creative effects, mastering processors and hundreds of gigabytes of sounds for orchestral instruments, acoustic and electronic drums, ethnic instruments and guitar/bass/keys, **Native Instruments Komplete 10 Ultimate** (\$999, Mac/PC, AAX/AU/RTAS/VST/stand-alone) could get you through entire projects all on its own.

However, we'll supplement Komplete with a few other unique instruments that bring their own flavors. The **Xfer Serum** synth (\$189, Mac/PC, AAX/AU/VST) breaks the game open on wavetable synthesis; its stunning graphic wavetable editing and ability to easily import and create your own wavetables makes its possibilities endless. As an industry standard for all styles of electronic music, **Lennar Digital Sylenth** (\$160 approx., Mac/PC, AU/VST) virtual analog synth made its reputation on excellent sound and an extremely powerful, yet extremely usable interface that allows fast, creative patch-creation.

The days of game music being all 4- and 8-bit sounds are long over, but not forgotten. **Plogue Chip-sounds** (\$95, Mac/PC, AAX/AU/RTAS/VST) rules the roost as the best and most comprehensive vintage sound chip emulator, re-creating the bleeps and squelches of old Amiga, Atari, ColecoVision, Intellivision, Commodore 64 and many other machines.

Dive into the **iZotope Studio & Repair Advanced Edition Plug-In Bundle** (\$1,499) for a world of high-end mastering, mixing, audio repair and vocal processing, including Alloy 2, Nectar 2, Ozone 6 and RX 4 Advanced. You'll find them great for sound design, as well as pristine production.

Loaded with compressors, EQs, guitar amps, stompboxes and many radically creative effects, **Waves Sound Design Suite** (\$1,400 Mac/PC, AAX Native, RTAS, AudioSuite, VST, AU) bundles 36 monster plug-ins.

Of the eight plug-ins inside **Soundtoys Native Effects Plug-in Bundle** (\$495, Mac/PC, AAX/RTAS/AudioSuite/VST/AU), game sound designers especially revere the Crystallizer granular echo processor and the De-capitator analog saturation tool.

Finally, we've saved room to go all out on the coveted **Vienna Symphonic Library Vienna Instrument Super Package-Standard** (\$6,199, Mac/PC, AAX/AU/RTAS/VST/stand-alone) über collection of orchestral strings, woodwinds, brass, percussion, keyboards, organs and other "Elements." This gathering of 275,000 separate recordings has set the bar for orchestral virtual instruments and will help you put the professional stamp on your game compositions.

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Subscriptions Anyone?



By Kevin Becka

It's nothing new. You're likely reading Mix because you have a subscription. It's based on a mutual agreement. You pay up front and we provide monthly content we believe will engage you and keep you coming back year after year. Just recently, audio companies like Avid, Slate Digital, Cakewalk, and Audionamix have opted into software subscription models. Again, nothing brand new. Microsoft introduced the Office 365 platform in 2011 for business users, then rolled it out for consumers in 2013, and Adobe's Creative Cloud bowed for their customers in 2014. These models shut the door on traditional ownership of applications for consumers and businesses alike. But with audio, it's different, or is it?

Debate on the forums varies. Jstr on GearsLutz said: "There will be plenty of companies not doing subscription (sic). And then we will know who cares about their customers and who is gripped by greed and delusions." And ANR2011, who answered, "This seems like a good idea for those who can't afford to buy tons of plug-ins." The focus early on seems to be about the financial stake, and rightfully so. It's new. But there are also hidden benefits in the notion that you can now buy into software simply to collaborate with others on a project basis. Next month I'll look at this from the user side.

For now, some are cautiously accepting the idea, while others on a tight budget don't want another monthly bill. But maybe we just don't get it?

First, the math: Let's say Zorg.com promises monthly releases, updates or new plug-ins for \$30 per month. Minor updates and bug fixes are a given nowadays, so that's not incentive enough, but new plug-ins and features? It depends on the difference between the cash outlay and what you'd spend on the products. Also, you have to love everything the company makes and anticipate new releases, or you have to absolutely need the software to make a living (aka, a ubiquitous platform everyone uses). Then it either makes sense, or you're stuck, depending on how you look at it.

With Slate Digital's Mix/Master Bundle, the Website promises you'll get everything Slate Digital makes, plus "tons of new plug-ins throughout the year for free as long as you subscribe" for \$19.99 a month. You can start and stop the subscription at will, you keep what you've got, and you can restart any time without penalty. You also get a free iLok if you opt-in (\$49.95), and as an incentive to stay with the program for a year, you'll get a coupon for \$200 to use in

the Slate store. But if you've got it all, what's left to buy? I guess you could opt out and use the \$200 as a bonus to buy something outright and move on. By the way, you don't have to use the Mix/Master Bundle model at all—it's optional.

Avid launched Pro Tools 12 at NAMM in January along with its subscription model. The Website's descriptions of the different options available for Pro Tools purchases leave room for confusion. There's a monthly subscription with updates and support starting at \$29.99/month, an annual upgrade plan with updates and support starting at \$199, an annual subscription with a 12-month license with updates and support starting at \$299, and perpetual licenses including 12 months of updates and support starting at \$899. I asked Avid's Segment Marketing Manager Andrew Wild to clarify. He said: "With Pro Tools 12, you can buy it outright as you always have, or subscribe. Subscription offers the lowest startup costs and is active only during the term of the contract. A perpetual license costs more up front, but is less expensive in the long run and provides a non-expiring license." You can also buy a year's worth of service and upgrades for \$199 if you're a current owner. This all means you can have it both ways: You can buy Pro Tools as you have in the past, or a version with a "use by" date. This is great to know, but I had no chance of understanding this from the Website.

Michael Hoover, president of the Cakewalk division of Gibson brands, explained its model. Rather than compiling new features on a shelf in anticipation of a yearly major release, they looked at a membership model as a way to get new features out as they're developed. It's a shorter, repeating learning curve for the customer that they see as a winner. Hoover: "Customers who purchase [SONAR] up front have a perpetual license, and 12 months of access to bug fixes, tech support, feature updates and exclusive content. Those who pay monthly have 12 months' access to the software, free updates, features and content. After making 12 consecutive payments, they keep what they've received. At the end of 12 months, both prepaid and monthly customers can choose to renew at a discounted rate." The catch, if any, is if you're monthly and choose to opt out prior to the initial 12 months, the software then reverts to demo mode (no save, no export) and you lose updates, features and new content.

With other options available, companies should be wary. It's a game of promises, promises on one side and wait-and-see on the other. In a largely tough financial climate for music creators, ultimately it's the wallet that decides whether subscriptions are a go, or a no. ■

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