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The Review Resource for Sound Professionals

January 2008 | Vol. 14 Issue 01

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The Global Microphone Economy



In the 12 years of *Pro Audio Review*, the magazine has published an annual microphone issue in 11. And a lot has changed.

In January 1996, names such as Shure, AKG, Neumann, Sennheiser, B & K (now DPA), Crown, beyerdynamic, Schoeps, Microtech Gefell and Electro-Voice were predominant, coming out of the US or Europe. At the time, Audio-Technica and Sony were the major Japanese mic players.

Small companies such as Audix (US and Asia), Oktava (Russia) and Nady (Japan) were just bubbling under, but there were very few notable Chinese brands.

Later, you had names such as Rode, Studio Projects, ADK and Marshall bringing in value/performance Chinese mics.

Today, the microphone landscape is *truly* global. You still have mics from the US, but the huge numbers of players from Asia — and to some degree from Europe, as Latvia seems to be a hot bed of mic tech these days — seem to have taken the limelight.

The Chinese mic technologies have come a long way, with some models rivaling the European products in reproduction. The made-in-China boom, of course, has forced prices down in the lower-to-mid market, to the point that you can now get a condenser for under \$70. You can get a really *good* Chinese mic for \$200. Move up a hundred dollars or so and you can have a *great* mic.

PAR endeavors to reflect what is in the current marketplace, so on the cover this month you see mics from European players Violet Design and Blue, *se*'s premium California-designed, Chinese-manufactured sE2200A, and David Royer's Mojave Audio MA-100 (built here in the US, offering an excellent small tube condenser).

Check out the reviews, and also *PAR*'s Microphones Buyers Guide on p. 66. I am sure that if you need a mic, *PAR* has information on the model you're looking for.

PORTABLE RECORDER MANIA

An update on portable recorders with CompactFlash memory: they are coming out of the proverbial woodwork. The latest I have preliminary info on includes manufacturers TASCAM, Yamaha and Olympus.

Set for April availability, the Yamaha PockeTrak 2G (\$449) is hardly bigger than a MacBook remote, but features a long-life nickel-hydrogen battery (up to 19 hours). It features 2 GB of built-in memory, USB 2.0 download capability and high-quality built-in, adjustable mini mics, as well as external connections. It also includes a custom version of Steinberg's Cubase for working with the recorded audio files on your computer.

The first version is said to be 44.1 kHz/24 bit, not 96 kHz like several other competitors. But I was told there will eventually be a 96 kHz capable version.

The Olympus LS-10 (\$399), does sport 24 bit/96 kHz, as well as 2 GB internal Flash memory, SD card slot, built-in mics and, gulp, tiny speakers. It also has the 1/8-inch stereo mini-jack interface typical of these handheld-sized digital recorders. No digital I/O, however, like the M-Audio MicroTrack II (S/PDIF in, \$499), or the slightly more expensive Sony PCM-D50 (S/PDIF optical I/O). However, it does have a USB port and Steinberg's Cubase LE 4 included. It uses two AA batteries (12 hour operation).

The TASCAM DR-1, priced competitively at \$399, includes built-in mics, 1 GB Flash card and long-life lithium battery. The separate mic capsules are said to be ideal for recording anything from broadcast to Podcast to high-quality music, though it is not 96 kHz capable (44.1 kHz, 24 bit).

I am glad to see this niche of personal recorders is getting even more competitive. Broadcasters, musicians, field recordists and others will have a wider array of products from which to choose. Stay tuned for *PAR*'s in-depth reviews on this new crop of recorders in an upcoming issue.

John Gatski is founding editor and publisher of Pro Audio Review.

Evaluating audio products for professionals in commercial recording, broadcast production, audio for video/film, project studios, live sound, contracting and multimedia.

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WAS THIS FROG A PRINCE?

I was looking forward to reading the review of the Korg MR-1000 (PAR 12/07, p. 56), since I have been looking for replacements for my tape-based digital recorders. I had hoped the recorder would get the full measurement treatment, and was disappointed to see the primary evaluation method was recording frogs in North Carolina. I would have liked to have seen some measurements, because Korg's own specifications (posted on the company's website) leaves me with doubts about the MR-1000's value when making DSD or 24/96 recordings. Korg's spec's state the typical S/N (A-weighted) is 96 dB, which is equivalent to 16 bits. It also states that the operating level for the balance inputs is +4 dBu, but the maximum input level is only +16 dBu (which is only 12 dB of

headroom and not adequate for the live concert music types of recordings I do). To be sure, the MR-1000 has many other desirable features, but there appears to be some significant limitations in the electronics that severely limits the abilities of the recording formats.

Charles Repka
 Owner, CR Recordings
 East Windsor, NJ

MR-1000 Review Author Tom Jung Responds: Since my review I have recorded a bluegrass band, a gospel group, solo harpsichord, solo cello ... and my opinion has not changed; I've only grown more fond of the MR-1000. One thing you need to be aware of is that DSD converters do not always measure as well as PCM, because much of the noise is at high frequencies, usually between 40 - 60 kHz depending on sample rate and noise shaping used. If you are not interested in the benefits of DSD, I'm sure you will find many PCM recorders with more impressive published specifications. However, I would be surprised if you could find one at this price point that *sounded* as good. The MR-1000 is unique, portable and in a class by itself. I strongly suggest you *listen* to it.

Feedback

We want to hear from you. Send your comments to letters@proaudioreview.com. Please include name, city, state and job title and firm in the email. For product submissions, contact Tony Ware at tware@nbmedla.com.



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STUDIO

The latest news and products

NEW PRODUCTS

KRK ERGO Room Analysis/Correction System



Following the notable release of the VXT and E8B Powered Monitor Series, KRK Systems reveals ERGO (Enhanced Room Geometry Optimization), a digital room analysis and correction system. With ERGO, KRK joins the increasing number of high-end manufacturers offering acoustics correction processing for monitoring systems. However, KRK's ERGO is not bound to only KRK monitors; users can plug in any active

or passive monitors that they like. And ERGO is only coupled with a PC via FireWire when performing room analysis; all correction processing is within ERGO, so it will work anywhere — PC or no.

PRICE: \$799.

CONTACT: KRK Systems | ☎ 954-316-1580 ☞ www.KRKERGO.com.

SOLID STATE LOGIC Pro-Convert DAW Translator Software



Much excitement circles around Solid State Logic's Pro-Convert, the Digital Audio Project Translator software application for moving sessions from one DAW environment to another. It is compatible with over 40 different application, including conversion to and from Pro Tools 7.x. According to SSL, Pro-Convert is simple to use. It provides an "Audio Tool" audio file format batch converter; a frame accurate offset feature; "Housekeeping"

features for cleaning up project; fade curve translation control; Pan and Volume automation curve conversion; and includes Track Markers and PQ Data, as well as a Search & Replace missing audio function. According to SSL, Pro-Convert technology evolved from "EDL Convert" by Cui Bono Soft; SSL offers upgrades to EDL Convert buyers through the company's web shop.

PRICE: \$699.

CONTACT: Solid State Logic | ☎ 212-315-1111 ☞ www.solid-state-logic.com.

EUPHONIX MC Control/Mix DAW Controllers



The Euphonix brand and the company's high-end bred technology finally enter the grasp of any pro user with the Artist Series MC Control/Mix DAW controllers (Control pictured). The surfaces are comparatively small, but offer

unlimited potential when working with most professional DAW applications. Euphonix collaborated with Apple, Steinberg, MOTU and Apogee Digital on the effort, and features include varying touch-sensitive rotary knobs, motorized faders, Ethernet port, footswitch jack, automation keys and high-res OLED displays. MC Mix will work with Digidesign Pro Tools HD, LE and M-Powered; Apple Logic Pro, Soundtrack Pro, and Final Cut Pro; Steinberg Nuendo and Cubase; MOTU Digital Performer; Propellerheads Reason; Ableton LIVE — virtually any software application.

PRICE: \$999.99 (Mix); \$1,499.99 (Control).

CONTACT: Euphonix | ☎ 650-855-0400 ☞ www.euphonix.com.

ULTRASONIC HFI-580/780 Headphones



When some people don headphones they want to tune out the world. Others, meanwhile, want to enter a whole new world. And with these new closed back models from Ultrasonic you can do both, with top-notch isolation and evocative sonic separation. The HFI-580 (50 mm Mylar driver, 10 Hz – 22 kHz) and HFI-780 (40 mm gold-plated driver, 10 Hz – 26 kHz, pictured) feature the new S-Logic Plus, benefiting from acoustically designed earcups and dampening/driver/bufferboard synergy first implemented in Ultrasonic's \$1,500 flagship Edition 9 'phones. The

new models pull double duty, working for session tracking (the 580 best for drummers/bassists, the 780 for keyboardists/guitarists/vocalists), while also proving adapt at later monitoring what consumers will get out of the mix (club/pop tracks for 580, film and game scores for the 780).

PRICE: \$199 (HFI-580); \$249 (HFI-780).

CONTACT: Ultrasonic USA | ☎ 615-599-4719 ☞ www.ultrasonicusa.com.

Renowned for curriculums in electronic music production and recording, Tempe, Arizona's Conservatory of Recording Arts & Sciences is also well known for needing a massive store of cables and adaptors. Luckily, Hosa has 1,400 interconnects in its catalog, many of which have been incorporated in programs.

The University of Southern California's Thornton School of Music uses full recording sessions with industry professionals and studio musicians to conduct scoring exercises and scoring mixer Bob Fernandez leads these sessions with an arsenal of Neumann M 150s, M 149s, TLM 170s and Sennheiser MKH 40s and 8040s.

As this is the unofficial educational edition of the Studio News, here's one more such blurb: The New England School of Communications in Bangor, Maine has a six-control room facility stocked with 150 microphones, including Crowley & Tripp Studio Vocalist and Naked Eye ribbon microphones (pictured with Executive Director of Audio David MacLaughlin).



This next blurb may have nothing to do with education, per se, but it does celebrate people making the grade. Producers/engineers Jerry Harrison, Robert Carranza and David Kahne have all been nominated for 2007 Grammy Awards, and all use Dangerous Music equipment during (2-Bus analog summing units, Dangerous Monitor, Dangerous MQ and/or Dangerous Master) during recording, mixing, mastering and/or post.

SHOTGUN MICROPHONE



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The DPA 4017 offers outstanding clarity and linearity in dialog applications and when used for miking acoustic instruments on a live stage.

The 4017's wide dynamic range and high SPL handling capability allow this mic to excel in virtually any recording or reinforcement application.

DPA 4017

The microphones for sound professionals with uncompromising demands for audio accuracy.

DPA 
MICROPHONES

by Russ Long

Mojave MA-100 Small-Diaphragm Condenser Microphone

This sonically distinct, pleasing tube model stakes another rightful claim for David Royer.

David Royer is best known for his Royer Labs ribbon microphone designs. But in 1985, before there ever was a Royer Labs, he founded Mojave Audio in the garage of his home. At that point, Mojave Audio was a one-man, custom pro audio gear shop. During the '90s, David Royer's custom Mojave products were used on tons of well-known recordings.

Fast forward to the new millennium, and the introduction of the large diaphragm, vacuum tube MA-200 gave the world access to Dave Royer's tube circuit design genius. Mojave's sophomore prod-

uct release is the Mojave MA-100. The \$795 MA-100 is a small diaphragm, vacuum tube condenser microphone with interchangeable cardioid and omni directional capsules.

As the latest in a line of successful microphone designs by Royer, the MA-100's "cathode follower" design allows the mic to be used on high SPL instruments such as drums and guitar amplifiers, as well as the more common applications of a small diaphragm, vacuum tube condenser microphone — on acoustic instruments, cymbals and piano.

As a long time fan of small diaphragm tube microphones I was excited. Although several companies have followed Mojave's lead in this field over the past year, the MA-100 was the first new mic in this class upon its introduction.

| FEATURES

The MA-100 measures 5.5- x .75-inches, and weighs .4 pounds. It has a frequency response of 30 Hz – 18 kHz +/- 2.5 dB, and offers a choice of cardioid and omni capsules, each with a hand-selected .8-inch diameter, 3-micron thick diaphragm. The mic utilizes high-quality Jensen audio transformers and military-grade JAN 5840 vacuum tubes

(pentode wired as triode, operated as a unity-gain buffer stage).

The microphone's performance is reminiscent of classic small diaphragm tube condenser microphones such as the Neumann KM 53a or the Schoeps M221B. The mic's sensitivity is -37 dB re 1V/pa and the maximum SPL is 134 dB. The microphone has a 450-ohm impedance (transformer balanced), and its distortion is less than .4-percent @ 140 dB SPL. Self-noise is less than 16 dB.

The mic's power supply can be set for either 115- or 230-volt operation via an external switch, and the power requirement is approximately 10 watts. Each MA-100 microphone, power supply and cable set is burned in for 24 hours, then carefully tested and evaluated before being packaged in its protective case. The

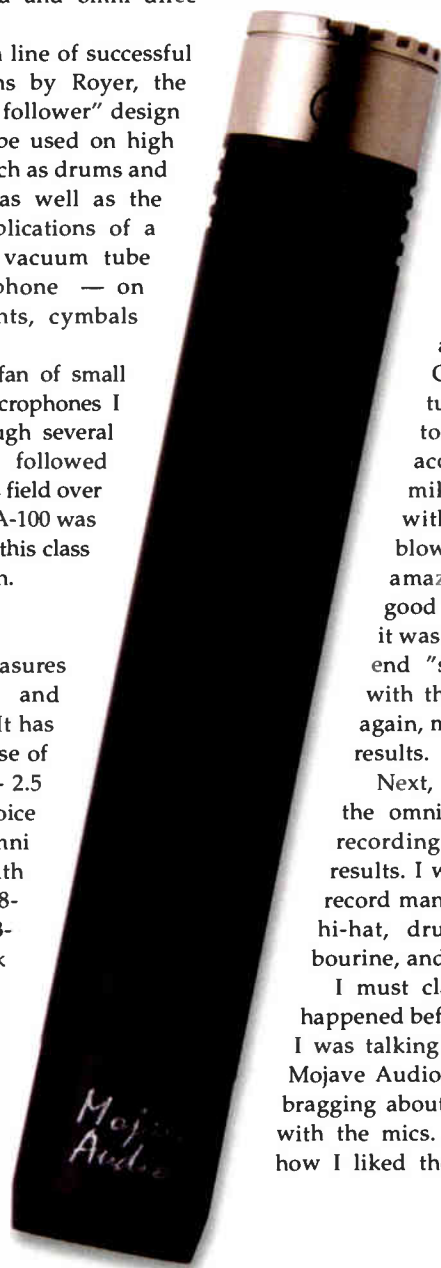
complete MA-100 package weighs seven pounds and includes the 14- x 11- x four-inch rugged carrying case, power supply, mic clip and cable.

| IN USE

I was most anxious to put this mic to work on acoustic guitar. An AKG C-28 (small diaphragm tube) has long been on the top of my list of favorite acoustic guitar mics, yet I miked up a Taylor 514-CE with the MA-100 and was blown away. The sound was amazing; it had everything good that the C-28 had, except it was quieter and had more top-end "sparkle." I tried the mic with the omni capsule and was, again, more than pleased with the results.

Next, I put a MA-100 pair with the omni capsules to the task of recording piano. Again, fantastic results. I went on to use the mics to record mandolin, dobro, violin, cello, hi-hat, drum overheads and tambourine, and was never disappointed.

I must clarify that this evaluation happened before my MA-100 revelation. I was talking with Dusty Wakeman — Mojave Audio's president — and I was bragging about the results I was getting with the mics. So he quizzed me about how I liked them on snare and toms. I



FAST FACTS

APPLICATIONS

Studio, project studio, broadcast, post-production

KEY FEATURES

Interchangeable cardioid and omni capsules with hand-selected .8 inch diameter diaphragms; measures 5.5- x .75-inches and weighs .4 pounds; 30 Hz – 18 kHz +/- 2.5 dB frequency response; high-quality Jensen audio transformers and military-grade JAN 5840 vacuum tubes (pentode wired as triode, operated as a unity-gain buffer stage); package includes a 14- x 11- x four-inch case, power supply, mic clip and cable

PRICE

\$795

CONTACT

Mojave Audio | ☎ 818-847-0222
🌐 www.mojaveaudio.com

shamefully admitted that I hadn't used them on snare or toms, as I was hesitant about damaging the mic. He assured me they could take it.

In my next tracking session, I put the MA-100s on toms and I was truly blown

away. If there has ever been a magic tom mic, it's the MA-100. They require almost no EQ and the sound is simply stellar. On my next tracking session, I used them on kick (just outside the rear head) and on the snare; once again, I was blown away. The only problem I've had with snare and toms is if the drummer puts his hat too close to his snare, or if he plays with his cymbals extremely low, then the mics are prone to pick up quite a bit of the hat and cymbals. This has been a problem a couple of times, yet I've been able to work around it by taping a small piece of foam to the top of the mic to dampen the problematic sound.

With my fear of using the MA-100 on high-volume sound sources dissipated, I went on to try it on electric guitar and had good results, though my best guitar sounds were attained through blending the MA-100 with its cousin, the Royer R-122 ribbon.

Overall, I would have to say that the MA-100 is a fairly "colored" mic. If a neutral mic is what you're looking for, the MA-100 probably isn't for you. That said, the MA-100 sounds fantastic. Its coloring

The MA-100 sounds fantastic. Its coloring is musical, and there was never an instance that I didn't like what the mic did to the color of the sound source.

is musical, and there was never an instance that I didn't like what the mic did to the color of the sound source.

| SUMMARY

The Mojave Audio MA-100 Small-Diaphragm Tube Condenser microphone boasts a unique design that allows a high-SPL capacity, yet still maintains the finesse to capture the subtlest of nuances in a performance. This makes it the perfect addition to any studio or engineer's microphone collection. With a reasonable price tag, it's worth buying two or three.

Russ Long, a Nashville-based producer/engineer, owns The Carport recording studio. He is a regular contributor to Pro Audio Review.

PRODUCTPOINTS



- Quiet
- Rich, full sound with nice top-end "sparkle"
- Admirably handles high-volume sources



- When used on drums, it is susceptible to bleed from cymbals
- Overall sound is not completely neutral (although it is "colored" musically)

SCORE

Under the flag of Mojave Audio, Royer Lab's David Royer has invaded the small-diaphragm condenser market.

Hear it at NAMM Show!
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by Rob Tavaglione

Blue Woodpecker Active Ribbon Microphone

This unique microphone made of aluminum and wood is a rare bird, indeed.

Cue eerie music as Rod Serling's voiceover begins...

"You are about to enter another dimension. In this wondrous land of imagination, microphones are made of wood, ribbon transducers sound more like condensers, and they require Phantom Power. It is an area that we call the Blue Woodpecker zone."

Crossing over into different materials, Blue has introduced a new dimension of microphone. And even if the above intro is silly the featured mic deserves a serious look.

| FEATURES

The Woodpecker (\$1,299) employs a hand-made aluminum ribbon (pressure-gradient design), with Class-A, discrete, custom-made electronics that require 48V phantom power. Beyond its traditional figure-eight polar pattern, Woodpecker boasts many untraditional features for a ribbon. Specs include a 20 Hz – 20

kHz frequency response, 22 dB self noise (A-weighted), 50-ohm impedance and a maximum SPL of 136 dB. A beautifully finished sleeve of wood surrounds the chassis, nicely packaged with a solid brass shock mount and cherry wood storage box.

| IN USE

The Woodpecker nicely picked up a steel-string acoustic Taylor guitar, excelling at translating accurate mids and clean definition; a rolloff of 2 – 3 dB at 10 kHz making things much smoother. The active electronics provided a hot output requiring only +30 dB at the mic preamp, whereas an AEA R92 ribbon (a modern but not active ribbon counterpart) needed +55 dB. However, I could noticeably hear the high-pitched noise floor of the Woodpecker, which may limit its flexibility with extremely quiet sources.

I tried the Woodpecker on both a close-miked 12- x five-inch maple snare and a djembe hand drum with very good results. The snare sounded perfectly crisp and not at all boxy (like thru the R92) with nice, flat mids and a touch of room ambience. The djembe sounded really "in your face" with a super-defined slap, although the bottom thump was a little understated. Tambo didn't work so well, as it exhibited sizzly top and aggressive transients that were a little distorted and just too pointed. At this point, I discovered a pronounced asymmetry in the two lobes of the polar pattern, the rear being darker, almost nasal, with a rolled-off top end.

The much-anticipated vocal test yielded no surprises. If you like detail, defined consonants

and sibilance, then you will love the Woodpecker. Its lean and accurate low/mids will flatter baritones and basses without "pillowy" hype or a blurring of low notes; sopranos will definitely want to look at a conventional ribbon for a kinder, gentler sound. With a tenor, I patched in some compression and aggressively EQ'd both the Woodpecker and R92 to taste, achieving polar-opposite vocal sounds that were both exceptionally good, especially with the room "air" that ribbons so nicely pick up. In this application, trying the rear lobe might be interesting; just EQ out that little mid-bump for a very smooth, creamy VO sound.

With powerful alto vocalist Leahanne Woods in the studio, I was able to try the Woodpecker with a Manley TNT mic preamp, offering a variety of preamp combinations quickly and easily. The solid-state side proved to be sonically interesting and versatile, as different impedances brought out subtle colorations of the Woodpecker; 600 ohms offered pronounced (but noisy) top/bottom, while 2,400 ohms offered flatter with less noise floor. I was delighted with newfound smoothness and needed thickness in the low/mids.

Loud guitar didn't turn out too well. A cranked 50-watt Marshall amp and a close-miked speaker (six inches from the cone) recorded distorted and brittle. The manual recommends a distance of 12 inches or more, and suggests clean sounds are captured better. I concur. Yet, despite some clipping, the ribbon was undamaged — a testament to its durability.

| SUMMARY

As you can see, the Woodpecker defied my expectations in many ways. With a sharp transient response, extended high-end and unhyped bottom end, it seemed much more like a condenser than a ribbon. Although the hot output of active electronics is welcomed, the noise floor was a little more than I expected, so you may have to position the Woodpecker close to the source and watch gain structure. I must say that the Woodpecker's striking look, combined with an excellent shock mount and fine wooden box, makes for one overall sexy package. If chosen for just the right application, this mic can really shine. Your client's ears, and eyes, will definitely be impressed.

Rob Tavaglione owns Catalyst Recording in Charlotte, NC, and (at 44) is finally married!



FAST FACTS

APPLICATIONS

Studio, project studio

KEY FEATURES

Hand-made aluminum ribbon; wood chassis sleeve; Class-A, discrete, custom-made electronics; phantom powered; maximum SPL of 136 dB; included solid brass shock mount and cherry wood storage box

PRICE

\$1,299

CONTACT

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new age



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by Stephen Murphy

sE Electronics 2200A Condenser Microphone

This updated version of one of sE's earliest models may well become The People's Mic.

In the last several years, California-based sE Electronics has earned industry admiration for its line of reasonably priced, high-quality microphones and supporting products assembled in its dedicated Shanghai facility. This was accomplished through a focus on design creativity, production quality control and responding to user needs. A prime example of all of the above can be found in the large-diaphragm sE 2200A (\$399), a successful reworking of one of sE's earliest releases, the 2200.

FEATURES

The original 2200 was remarkable primarily for its low entry price, which provided access for those on lower-budgets to an all-around quality large-diaphragm mic. The significantly improved 2200A now flips that equation on its head: its high-quality sound becomes the draw for its use — even, in other words, when other more expensive and well-suited mics are on hand — and its street price of around \$300 is a more than welcome bonus.

The cardioid-only 2200A utilizes the one-inch gold vacuum plated Mylar diaphragm

used in several other sE offerings (including its predecessor). Two mini toggle switches on the matte gray band just below the grille engage or bypass the 10 dB pad and 100 Hz high-pass filter.

The improvements over the original release are the result of a mic-equivalent "full-body makeover" that included circuit design, higher-spec components and improvements to internal stabilization and resonance dampening. The manufacturer-provided 2200A specifications state frequency response of 20 Hz – 20 KHz (no dB tolerance given), sensitivity of 14.1mV/Pa: (-37 ± 1.5dB), and 200-ohm impedance. Equivalent noise level is a respectable 17 dB (A-weighted), and the mic can handle a maximum sound pressure level of 135 dB (1 kHz at 0.5-percent THD).

IN USE

Though it had been some years since I used the 2200, I could confidently say that, upon my first listen of the 2200A, sE had made some significant improvements in the design. To be more specific, it was one of those moments where, facing down a recently arrived review mic first time, I came to the pleasant realization that I would actually be able to use — and even look forward to using — the mic on actual sessions. Another good sign: The brand new 2200A provided for review was an impressively close sonic match to a few-years-old 2200A at the studio in which I was currently working.

The two previously unacquainted 2200A's ultimately proved to be a great stereo pair — in XY configuration, close-miked — for triple-tracking a four-part R&B backing vocal section. This was also a good test of the mics' overall character — repeated layering of tracks using

the same mic(s) quickly reveals and compounds poor mic and/or room characteristics. But the resulting tracks in this case were perfect, and required little EQ to achieve the close, sweet and smooth layered-chorus sound called for.

At about six inches from a source, the 2200A had a touch of low-end bump that was perhaps best described (on page) as full-bodied and pleasant, thanks in part to a reciprocal dip that smartly started just before things got boxy. The mic also exhibited a gentle (2 dB-ish) lift that began ramped up in the 2K range and remained there, plateau-like, into the upper reaches of the mic frequency range. Like any other vocal mic, the 2200A was not ideal for every voice type; in general, I tended to employ the mic on more mid-range-heavy vocalists, where it simultaneously helped to round out and add air to the takes.

The mic could certainly be used on more than just close-miked vocals, though that is what I found to be its most appropriate application. Along with many other cardioid-only mics in this price range, this mic also suffered from an exaggerated degree of change in frequency response as a function of distance from the source (I am referring to distances beyond the typical proximity effect range). I would definitely favor its use on, say, a seated solo instrumentalist over a dynamic performer (movement-wise) or as an ambient/distance mic on a group source.



FAST FACTS

APPLICATIONS

Studio, project studio, broadcast

KEY FEATURES

Cardioid condenser; one-inch gold vacuum plated Mylar diaphragm; 100 Hz low-cut filter; 10 dB pad; locking-swivel shockmount; aluminum flight case

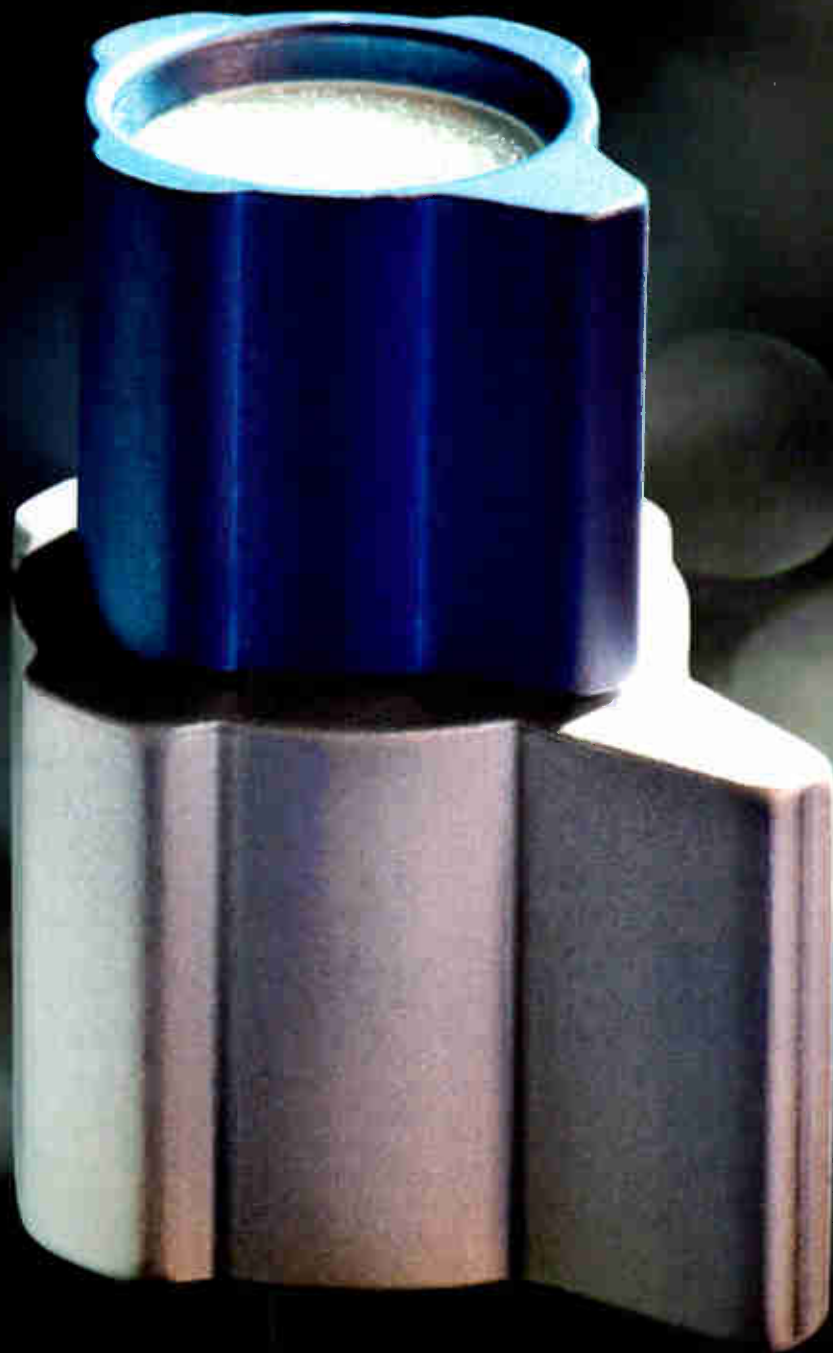
PRICE

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World Radio History

by Russ Long

Violet Flamingo Magic Ear

This “shockingly good” large diaphragm condenser uses a brow-raising capsule shape.

Although the company have been around since 2003, Violet Design's products have only been available in the US for slightly over a year. Violet Design manufactures all of its microphones in Latvia, and, although there are some exceptions, the majority of the mics are cardioid condensers and available as either a "Standard" or "Vintage" type.

The Flamingo Series is Violet Design's flagship product, and is designed for uncompromised recording. The series is available in four different configurations: the Flamingo Standard, the Flamingo Vintage, the Stereo Flamingo and the Flamingo Magic Ear. The Stereo Flamingo is a phantom-powered condenser mic, while the other three Flamingo models are vacuum-tube designs. The Flamingo Magic Ear (\$7,418) uses a large, oval-shaped capsule that provides a unique, full character that is perfectly suited for vocals.

Violet claims that the irregular shape of the Magic Ear's transducer removes circular resonances and reflections, resulting in a warm,

clean, natural, resonance-free tone. In comparison, the Flamingo Standard uses a side-address, dual-diaphragm electrostatic capsule tuned to provide the character of a modern tube microphone with an extended top end.

In addition to the Magic Ear, I had a Flamingo Standard during this review period. With exception to their capsules, the Magic Ear and the Standard are identical.

FEATURES

Violet Design takes meticulous efforts when it comes to component selection, plus electronic and acoustical design; the computer utilizes its own handmade electrostatic brass body capsules with gold-sputtered 6-micron Mylar diaphragms. Every Violet capsule is carefully tensioned and tuned to provide an excellent transient response and high SPL handling capability. The microphone's electronics are all fully discrete, Class A designs, resulting in a flat frequency response, high output and minimal noise and distortion.

The physics behind the Flamingo Series are unique, with an emphasis on minimizing acoustic resonances and reflections that color the sound, all in a beautifully crafted tool. The mic incorporates a hand-selected 6267 vacuum tube that is mounted inside a heat sink on an isolated internal shock mount. The Magic Ear's large custom-wound Permalloy humbucking audio transformer balances the output signal, isolates the

microphone from external interference and adds additional warmth to the sound.

The Flamingo Magic Ear has a cardioid polar pattern with a rated impedance of 1,000 ohms and an output impedance of 100 ohms (the suggested load is > 250 ohms). The mic's frequency range is 20 Hz - 20 kHz with a sensitivity @ 1,000 Hz of 26 mV/PA. The signal-to-noise ratio DIN/IEC 651 A-weighted measures 87 dBA with an equivalent noise level of 7 dBA. The Maximum SPL for the mic (<0.5 percent @ 1,000 Hz) is 134 dB and the preamplifier's dynamic range is 127 dB. The mic weighs in at just over two pounds.

The Magic Ear includes a power supply, XLR-7M cable (to connect the mic to the power supply), and a beautiful velvet-lined

wood box. Its power supply is a sequential, soft-starting unit that protects the tube from excessive currents while cold and mutes the audio until the tube has stabilized. After being switched on, the supply provides stabilized DC voltage with limited current for tube heater's protection. Only after heating the cathode, the stabilized plate and polarization voltages begin to rise from zero until full nominal of application voltages. The audio output of the microphone is muted until end of above sequential starting process. Sequence is under changing LED indicator control, but a digital display shows actual plate voltage. The supply's output connector uses gold-plated contacts for noise-free termination.

The Flamingo's large, acoustically transparent head ensures the source audio remains as unaffected as possible. The combination of massive body, internal capsule shock mount, integrated head shock mount and the included compact external shock mount works together to reduce rumble and outside infra-



FAST FACTS

APPLICATIONS

Studio

KEY FEATURES

Ear-shaped capsule; gold-sputtered 6-micron Mylar diaphragms; fully discrete, Class A circuitry designs; 6267 vacuum tube; cardioid polar pattern; sequential power supply

PRICE

\$7,418

CONTACT

Violet Design/FDW Worldwide |
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sonic interference, as well as mechanical shocks. The Flamingo microphones can be purchased in matched stereo pairs to provide perfectly balanced stereo recordings.

| IN USE

In my mind, microphone capsules are sup-

PRODUCTPOINTS



- Unique, full character, perfectly suited for vocals
- Minimized acoustic resonances
- Visually inspiring



- No selectable pickup patterns

SCORE

This fledgling Latvian high-end mic manufacturer has established an uncompromising performer in its flagship product.

posed to be round; there may be a few exceptions — like the square capsule of the Milab 96b — but they're at least supposed to be symmetrical. So, I was skeptical of the Flamingo Magic Ear. Upon close examination, I discovered the capsule was shaped as much, if not more, like a liver than an ear; my skepticism grew as I prepared to listen to the "Magic Liver."

How surprised I was to discover that I actually love the sound of the Magic Ear, as it sounds shockingly good on virtually everything. I used it to record acoustic and electric guitars, violin, tambourine, shaker and the sound of eclectic musician Jason Goforth's lap steel ... and was never disappointed.

This said, the recording of lead vocals is clearly the strength of the Magic Ear. The mic has a slight upper midrange boost that tapers off in the higher frequencies; this adds a superb presence and air to vocals without increased sibilance. Its bottom end is tight and full. Overall, the microphone has a very natural sound. The microphone worked equally well with male and female vocals. Not only is the Magic Ear sonically pleasing, but it is visually inspiring — this truly makes a differ-

ence with many artists.

It wasn't a concern on vocals, but on several occasions while recording various instruments, I found myself wishing the mics had selectable pickup patterns rather than being locked into a cardioid pattern. To me, this is the only negative of the microphone.

The Flamingo Standard proved to be a slightly different animal; it performed equally well in every instance — except for vocals. Depending on the singer, I occasionally had some sibilance issues with the Standard (these were easily resolved with the dbx 902 de-esser). I found that the Standard had a bit more air than the Magic Ear, while the Magic Ear had a touch more upper-mid presence.

| SUMMARY

Physically, sonically and aesthetically, the Flamingo Magic Ear is a truly distinctive microphone. Although its price tag is steep, it is worth consideration for a studio looking to expand its audio pallet.

Russ Long, a Nashville-based producer/engineer, owns The Carport recording studio. He is a regular contributor to Pro Audio Review.



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by Alex Oana

URS Plugins Classic Console Strip Pro

Even those with a good plug-in arsenal will find these emulators a most unique piece previously missing from their DAW toolkit.

If you're like me — someone who has 17 brands of EQ, 41 types of dynamics processors and 10 analog harmonics emulators in your DAW — you probably don't need another EQ or compressor plug-in ... that is, unless it's Unique Recording Software's Classic Console Strip Pro, part of a new school of plug-ins that does things *very unlike* the old way of doing them. Actually, the CCSPro is like the old way of *thinking*: from an analog domain perspective. URS truly went back to the drawing board and made the \$1,199 CCSPro go where no plug-in has gone before; and, of course, the virtual world is vastly more flexible than the solid state.

When it comes to my wishlist DAW

(Desk of Audio Wizardry), I've always wanted something akin to "skins" — I want to decorate the walls of the GUI I stare at for exactly one-third of my waking life. Taking that a step further, I'd like to be able to make Pro Tools look like a Neve, an SSL 4k E or an API.

Various companies make great emulations of each of the above classic console channels, and these can be inserted within the virtual mixer. But no DAW has yet to offer plug-in integration to the extent where one could select groups of channels and say, "Drums will be SSL; electric guitars, Neve; acoustics, API;" etc. I dream of in-depth DAW maker/plug-in manufacturer collaborations for creating console configurations. I'd love to be able to think, "I'd like to mix at Abbey Road today," and, at the touch of a button, the mixer is loaded with Chandler EMI channel compressors, EQs, and line amps and stereo bus compressor. What if you could take an existing session and load a *mixer* preset — input transformers, compressors, EQs, line amps in busses, and master bus inserts? Luckily for me — as well as anyone like me — Unique Recording Software's Classic Console Strip Pro's CCSPro gets us awfully close to that.

Emulating different input stages, tape sources, compressor sections, EQ sections and filters, and summing busses, CCSPro architecture allows for newly developed input stages, EQ and compressor models to be added with future version updates. This is not unlike adding to your impulse response library. The URS Classic Console Strip Pro is the first plug-in that would allow users to replicate the architecture and affecting gain stages of a classic console, or a hybrid console of one's own creation.

My first exposure to URS plugs was on a friend's PT|LE system in 2004, when I saw a GUI that looked suspiciously like a favorite API graphic EQ on the screen. I'd had plenty of experience with the real thing,

and I was skeptical because it was at a time when certain manufacturers marketed plug-ins purported to emulate the operation of the classic hardware originals, when, often, the most impressive similarity was the design of the GUI; frequency corners, points and slopes or compression knees applied to a digital EQ algorithm do not an effective emulation make.

I didn't really go in-depth with those first URS recreations, but I had a good feeling about the URS Classic Console Strip Pro before I even downloaded the license. It wasn't the email from their very helpful sales director Bobby Nathan, explaining the painstaking care and constant testing period of a year-and-a-half. It wasn't his admission of improved proprietary methods for analyzing the original hardware versions. It was just a feeling. Actually, it was more



than a feeling. We're in a new era of plug-ins, thank God. Lately, I'd had enough positive experiences with analog modeling plugs — such as Waves SSL, Crane Song Phoenix, Massey and Guitar Rig — that I believed URS could have something special on offer with the Classic Console Strip Pro. And I found I was right.

FEATURES

It would be possible to compare (not that I'd want to undertake it) each of the CCSPro's input stages, compressors and EQ types to their real world doppelgangers. According to URS, the company did exactly that, and tweaked the programming until a golden-eared expert panel could not distinguish between real and emulation. On the one hand, that's an important motivation for the prospective buyer and a reference point for those who have experience with the analog originals. On the other hand, any option, or thousands of options, is only meaningful if it performs well for you.

Here's one for the true engineers out
URS continues on page 20 ►

FAST FACTS

APPLICATIONS

Studio, project studio, post-production

KEY FEATURES

TDM, RTAS, AU, VST, Macintosh and WinXP; sample rates 44.1 - 192 kHz; 30 selectable input stage algorithms; 60 selectable compressor/limiter starting points, pre- or post-EQ; five selectable EQ algorithms for each fully sweepable parametric band channel filters; pre- or post-compressor or sidechainable de-esser and ducker; interactive signal flow display section

PRICE

\$1,199 TDM and \$599 Native

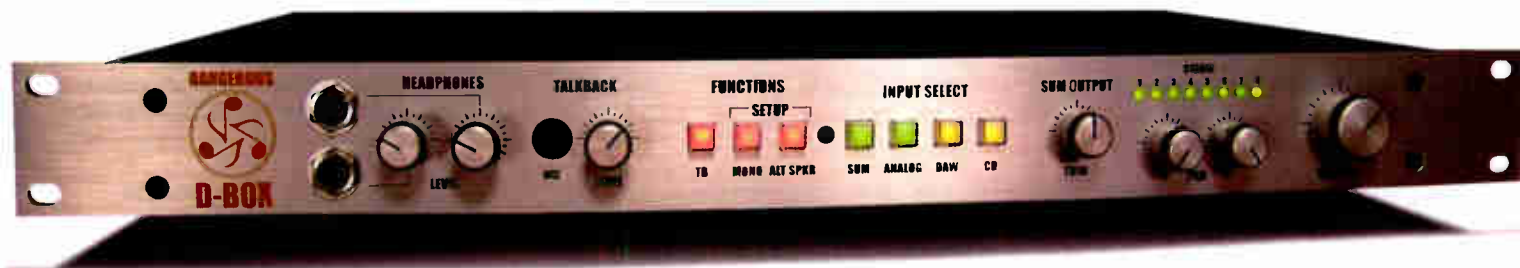
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there: How many total options do you have if you multiply 30 input stages x six compression types x five EQ models? I'm pretty sure the answer is around a little more than a lot. The input stage of a console is the gain stage where the tape or echo return first hits the desk. Lots of times, on the large and all discreet consoles, this is a transformer. The CCSPro provides choices of input transformer, tape or a combination to make your tracks sound like they were recorded to tape and mixed through a console. Would you prefer 15ips or 30ips? Two-inch or half-inch tape? American- or British-style transformer? How about tubes in your signal path? The CCSPro answers each one of these questions with a very capable feature.

With three of five inspired by famous English console EQs, there's a whole lot of love for the UK in the CCSPro's EQ section. The two American EQ offerings entice us to Pultec onto a dark desert highway of vintage tonal possibility. URS can't use the

actual names of the original equipment after which they are modeled without paying some hefty license fees. But, in the case of the EQ, URS's method of describing the era and country of origin makes those names a giveaway.

Here's my own decoded guide:

1951 Program EQ - Tube = Pultec
 1967 Console EQ - American 4-Band = API
 1970 Console EQ - British 3-band Class A = Neve 1073
 1972 Console EQ - British 4-band Class A/B = Neve 1081
 1980 Console EQ - British 4-Band = SSL 4000E

(I admit I had to do a touch of research to verify my suspicions.)

The compressor models reveal their inspiration with dead giveaways: "Stressor" (can you say "Distressor?") and "Tube Child" (you don't mean "Fairchild,"

do you?) and so on.

How are these compressor models created? There's a nuance to the statement I made before about the six compressor types; the six main types are created by combining various input stages with certain settings on their "custom-designed versatile channel compressor." Versatility comes from the variability attack, release and knee characteristics. This is how they arrive at "60 compressor/limiter starting points" — this is where we get a peek around the curtain at "The Wizard." It would not only be technically daunting to make exhaustive models of every possible setting on 60 known compressors and limiters, but how does one program continuous variability into the plug-in's execution of those models? The URS solution is to create a platform through which key compression characteristics can be offered as a highly flexible user experience.

Every other plug-in manufacturer could take a page from URS' innovative implementation of routing and bypass of individual components. It's easy to see the order in

On several songs in my mastering session, the CCSPro did what no other plug-in, or combination of plug-ins, can do. In this world, when you find a tool that keeps on bringing solutions, you get attached to that tool.

which each stage comes and bypasses them individually or as a group from one centralized location.

| IN USE

I highly recommend reading through the well-thought out and clearly written URS CCSPro information page (available at www.ursplugins.com) for an overview of what you're getting (and getting into). They even list specifications as if the CCSPro were hardware. But this is a hardware unit of your dreams, going far beyond the flexibility a single piece of hardware could ever do in the real world. I say this because the CCSPro's overwhelming number of options might have the capacity to, well, overwhelm. Before taking my first try with the CCSPro, I purposely did not educate myself on or research the functionality

URS continues on page 22 ►

THE PERFECT MIX

hear back.

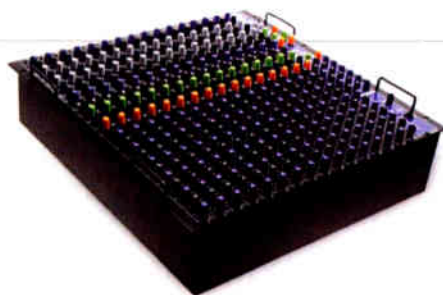
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mix back.

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World Radio History

of this plug. If I can't understand the nuts and bolts of an EQ/compressor plug-in, in a few minutes, there's something wrong. And URS's extreme number of options has proved, so far, to be creatively enabling as opposed to overwhelming and therefore disabling.

I spent a half-hour auditioning various settings on just a kick drum. Reassuringly, every new option amongst the input stages, the compressor and EQ models each sounded obviously different than the next. It's pretty easy to A-B when A and B are distinct. A, B and the rest are also, as it turns out, useful sounding. I messed around with my own settings and got to a place I was happy with. Then I saved my setting and loaded up "Kick Huge."

Manufacturer's presets are a funny thing; most of the time the source used to create the preset bears no resemblance to what you've got to work with, which makes the preset useless. Sometimes the preset gets you pretty close and, most importantly, lets the user in on the line of thinking behind ways to most effectively use the options at hand.

I tweaked "Kick Huge" for a bit and ended up with a kick sound that is 10 times fatter and punchier than the one I started with. There's one significant feature missing, though: a gate ... and I know most of these consoles didn't have gates, but it would round out such a dynamics powerhouse as the CCSPPro. Highly functional gates are a dime a dozen though, so I instanced a Digi Expander/Gate Dyn3 and achieved exactly what I needed.

If it sounds great on drums, maybe it's not going to sound good on anything else,

| UPDATE

As this review went to print URS announced its free 1.1 update for CCSPPro on Mac OSX PPC and Intel. New features include an Input Stage Lock Function, which allows the Input Stage to be Locked from being changed by the Compressor Starting Points, and seven Auto Release Algorithms digitally recreating the most popular Vintage Compressor Program Dependent Release and Auto Releases modes (eliminating pumping and breathing compression artifacts).

— Tony Ware

right? Wrong; I was pleasantly surprised to the contrary. An "IronA" American class A transformer input stage followed by a FET 20 compressor model with a high-pass filter in the side chain and a wide bandwidth bump at 178 Hz with the 1972 EQ model, and a smaller presence boost at 2.6k with a 1970 British EQ model did the trick as a great enhancement to an already-well recorded vocal. I played with the mix of the input transformer and found that 100 percent was just the right amount. I love that you can take it to 200 percent, which is like nine more than 11. Or, you can start at 0 percent and blend in just the amount of input stage effect desired. In mastering, I found that a little goes a long way.

One of the most telling measures of an EQ's quality is the high frequency response. I made a 10 dB boost at 8 kHz with the SSL-type 1980 EQ, and a 2 dB boost at 16.7k with the Neve 1073-type 1970 EQ on overheads; I tracked with Royer R121s that sound present and silky without the least bit of harshness. The URS CCSPPro did an amazing job of adding cutting clarity to a guitar group without becoming unpleasant (and in a way my Waves SSL couldn't get away with).

Thank goodness I just happened to be mastering the new Kid Dakota record while reviewing the URS CCSPPro. I used a couple of different input stage models, bus compression, and a touch of EQ on several of the songs; the tube stages proved their weight in virtual gold for several of the mixes by giving me tonal and dynamic enhancement I could have never replicated with all my EQs, compressors, and harmonics generators.

In the case of the URS Classic Console Strip Pro, any sonic criticisms I have levied against plug-in emulations of hardware just aren't fair. For whatever they may lack in digitally cloning analog sounds, they make up in their powerful flexibility and economics. There was never a Neve 1073 with total recall and automation on every knob and switch. I'd be lucky if I could buy a couple bands of EQ from a 1081 for the price of the whole URS Classic Console Strip Pro.

| SUMMARY

After mixing just one song with it, I consider the CCSPPro indispensable to my mixing goals. If you had to have just one EQ and compressor plug-in for mixing, the URS CCSPPro may be the only one you need. Is it

wise to fall so hard so fast? Could mastering reveal its flaws? On several songs in my mastering session, the CCSPPro did what no other plug-in, or combination of plug-ins, can do. In this world, when you find a tool that keeps on bringing solutions, you get attached to that tool.

I tried A-B-ing what I understood to be the URS' preset version of the Waves SSL bus compressor, as the Waves SSL channel strip EQ was the first time I had ever enjoyed EQing in the box after seven years of trying. It seemed in the end the Waves SSL was "more huger" and punchier. But the URS EQs are just as satisfying as it offered a broader palette of tones. And I could make a strong argument for the URS being a better value through its offering of a greater number of inspiring sonic possibilities than the Waves SSL; I don't see a Stay Level, or Tube Tech, or 1176 complete with *all-buttons-in* preset on the Waves SSL. On top of that, it's exciting that, despite its myriad tonal possibilities, the Classic Console Strip Pro represents only a portion of the entire range of compressor and EQ models in the URS lineup.

If any have read my reviews for *Pro Audio Review* of the Phoenix or Tape Head plug-ins, you know I love them. But — of course — nothing sounds like tape but tape (just like the back of my ATR Magnetics T-Shirt says). A console is a console and an emulation of one inside your DAW is emulation. The URS CCSPPro just happens to be an *inspiring* emulation.

Some mean to reassure the purchaser of their DAW bundles' value by offering with it "thousands of dollars worth of plug-ins for free." You know, trying to fool us with a mass-of-crap plug-ins just isn't going to fly any more. I'm specifically talking about plug-ins whose only worthwhile attribute is their visual similarity to the analog equivalent.

The Classic Console Strip Pro is in a totally different league, written for experienced artists who know what the real thing, created to educate up-and-coming audiophiles about the lineage of digital recreations, and all the while it delivers delicious sonic results. The Classic Console Strip Pro steps up as a product that is wonderful sounding and incredibly versatile with room to grow, designed right in.

Alex Oana is looking forward to the revolution.

| REVIEW SETUP:

Mac G5 dual 2.0, Digidesign Pro Tools HD3, M&K 1611P ears (2).

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World Radio History

by Heather Johnson

Finding the MIDI Ground

Ever since Dave Smith of Sequential Circuits posed the standard in 1981, Musical Instrument Digital Interface (MIDI) has played a consistent role in music production. Originally developed as a means for various electronic musical instruments to synchronize and communicate with one another, both home and commercial recordists use MIDI sequencers and interfaces in nearly every stage of the production process, from songwriting to mixing. Heck, MIDI technology is used in lighting and design, and even theme park rides.

Even today, when music production software has become so powerful that musicians

can collaborate from separate continents, and alter their sounds to unrecognizable proportions, MIDI has managed to keep pace. It's used as a production tool and delivery medium and serves as an information highway of sorts for engineers, producers, songwriters and composers to expand their creative capabilities.

Pro Audio Review spoke with a handful of industry professionals who shared glimpses into their personal technological choices that exhibit some of the myriad uses of MIDI.

TALKING HOUSE PRODUCTIONS

Talking House Productions, a private production company in San Francisco, offers its

signed artists and its in-house producers a venerable playground of virtual, analog and digital instruments throughout its three-room facility, not to mention a stunning array of outboard equipment, microphones and other gear. The control rooms all share a large live room and several isolated spaces around the perimeter of the facility; however, it's not uncommon for bands to record in the very live art gallery adjacent to the studio. Every room has sight lines to at least 80-percent of the remaining areas. Studio A features an expansive SSL 9000 K, while studios B and C contain Digidesign ICON D-Command ICON control surfaces.

Talking House producers compose in MIDI, on laptops, or on an acoustic guitar or piano.

Because of the variety of production styles percolating throughout the facility, Talking House offers a variety of vintage keyboards alongside the latest sequencers. The live room contains a Yamaha DC-7 MIDI Grand, while other cherished on-site possessions include a Hammond B3 with Leslie, Wurlitzer and Rhodes electric pianos; Korg Triton, Trinity, Karma and vintage DW-8000 synthesizers; Roland Juno-6 and JX-3P synthesizers, and a



"...one of the best-sounding vocal mics I have ever heard."

Chris Neville,
DownBeat Magazine

"Stereo Flamingo captured the entire frequency range of the [drum] kit with amazing clarity and accuracy."

Chris Neville,
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Studio A's control room at Talking Heads Production, featuring an SSL 9000 K.

"groovy" Baldwin Fun Machine. Other digital tools include Korg TR Racks, Roland JV-1080s, a Studio Electronics SE1 and a Speck XSum. Two Muse Receptors reside in Talking House's central machine room to help man-

age a vast assortment of plug-ins. Producer John Paulsen, president of Talking House Productions, uses MIDI as part of his songwriting toolbox. Traditionally a napkin and acoustic guitar-type writer, Paulsen recognizes the creative leeway that MIDI-enabled equipment allows. "It's great to have an arrangement concept in your head, try it out, and hear it work right away," he says. "On the piano, I can play rhythmically what I want, with the emotion that I want, capture it using MIDI, and then move the notes around in Pro Tools

to come up with a full arrangement."

When Paulsen writes for one of his clients, which range from singer-songwriters to heavy rock bands to jazz outfits, he uses the Pro Tools |HD3 system for audio and MIDI recording, and uses both keyboard and GUI commands to send and receive audio from the Muse Receptor. Paulsen worked in this manner during his recent collaboration with performing songwriter Kerry Gulbranson.

"I started by creating a palate of instrumental sounds that I wanted to have across the entire album, and populated the Muse interface with the instrumentation that I thought the album should have," says Paulsen. "As I approached each song, as a new texture or a new instrument occurred to me, I put that into the interface and then re-saved that under the song name, so that every time I pulled up that song in Pro Tools, I pulled up that same song in the Muse Receptor. Pro Tools talks to the correct channels on the Muse and pulls up the correct patch. It's a very quick 30-second step."

Talking House works with a variety of San Francisco Bay Area-based rock, pop, jazz and

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MIDI Continued From Page 25

roots artists — many usually preferring a straightforward, organic recording approach. However, certain situations do arise that require a bit of digital assistance. Paul Ruxton, Talking House's Creative Director/Producer, used MIDI to add an orchestral backdrop to pop-punk band Mud's song "Psycho."

"In order to make it sound as believable as possible, I sketched out the original part on a workstation keyboard with a multi-orchestra patch," says Ruxton. "I then started composing each part a section at a time, broke it down to an instrument at a time, and recorded each section or each instrument one at a time in MIDI using plug-ins as a sound source. We ended up with the equivalent of a 35- to 36-piece orchestra and used up to 180 tracks! It was a pretty intense MIDI composition, and involved a solid week and a half of sitting in this room by myself composing each line one at a time and recording them into Pro Tools."

Like Paulsen, Ruxton used the Muse Receptor to manage all of his sounds for the Mud track. "Instead of loading all the plug-

ins on the computer, which just bogs it down because they're so memory intensive, the plug-ins are all on the Receptor, with its own processor and its own hard drive that's accessible through MIDI," he says. "All of the plug-ins live in one box, and you can open all of them if you want. You're limited only by the amount of plug-ins you install."

During another session, Ruxton composed a horn arrangement in MIDI, and then printed a reference file and MP3 for the musicians. However, the horn players also needed a score, something he couldn't do with Pro Tools. Instead, he exported the MIDI files out of Pro Tools and into Logic Pro to utilize that DAW's scoring features. Ruxton solved this problem easily enough; however, compatibility issues between various systems continue to surface when dealing with MIDI files.

JEFF WOLPERT, DESERT FISH

Jeff Wolpert, a four-time Juno Award-winning producer and engineer who has worked on albums from Cowboy Junkies, Loreena

McKennitt and Holly Cole, among others, does most of his tracking sessions at Kick Audio, the studio he co-owns and has affectionately dubbed the "world's largest project studio." The 2,400 square-foot facility offers a large recording area with 14-foot ceiling, and a control room featuring a Yamaha DM2000 console, Pro Tools|HD3 Accel system, racks of outboard gear, a 5.1 surround sound system comprised of Genelec 1031 monitors and about 40 well-chosen mics. When it comes time to mix, however, Wolpert jets over to Desert Fish, his mix studio in Toronto, Ontario.

As with Kick Audio, Desert Fish features a surround system, this one comprised of JBL LSR6300 series monitors. He runs Pro Tools|HD Accel 4 off of a Mac Pro 8 Core 3.0 GHz computer. A Pro Tools Control 24 serves as his main control surface, and a JL Cooper Surround Panner acts as his pan controller. The Mac is networked to a PC with an Asus motherboard, which he uses to run Cubase, Wavelab 6 and Nuendo, among other programs. "I have a version of almost everything that runs, so that I can interpret any file format I receive," he says.

One of his most frequently used pieces of software is Melodyne 3.21, a program that allows the user to edit audio soundwaves in a piano-roll interface. Melodyne can be used for pitch-shifting, time-stretching, correcting intonation, and restructuring melody, tempo or timing of a particular piece. "Plus, it has a fabulous ability to convert audio to MIDI," adds Wolpert.

MIDI mainly comes into play during Wolpert's mixing sessions, particularly when he decides to add a part or two, or otherwise embellish the existing tracks. Wolpert recently produced and engineered an album for The Canadian Tenors that featured an acoustic fiddle track. When listening to the rough mixes, the artist thought that a couple of instrumental parts — bagpipe and whistle — would make a nice addition to the track.

"Trouble was, we were at the end of the record and for various reasons, we couldn't go back and bring in more players," recalls Wolpert. "So I took the fiddle part and opened it up in Melodyne, and used Melodyne to convert it to MIDI. Then I found a tin whistle sound from Propellerhead Reason's Refill called 'Ethnic Instruments,' transferred the MIDI to the correct octave so the doubling would sound right, and used those in the track. Reason was running as a ReWire application. So we had the MIDI from Melodyne going into Pro Tools, triggering Reason to play the bagpipe and whistle parts along with

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the fiddle during the mix. We ended up with two new parts that didn't exist before — and live in the mix."

Wolpert also used Melodyne, in conjunction with MIDI, to create a part accidentally left out of a live recording session in Beijing, China, for the director David Woo's film *Iron Road*. "We recorded a lot of traditional instruments, and there was one part out of two hours and 70 pieces of music that didn't get recorded," says Wolpert. "But there was another cue, where the musician played the same lines in the same key, but in a completely different tempo, and in a different octave. I used Melodyne to create the missing part out of that existing cue, and it's in the movie now."

Wolpert also searches for new sounds using Kontakt 3, Reason 4 or his wide variety of plug-ins. He may run Kontakt 3 in Pro Tools as a sample player, with the MIDI track running the software tracks during the mix. He does most of his recording at 88.2 kHz, which makes for easier conversion to 44.1 kHz.

In addition to using MIDI to plump up tracks in the mix, Wolpert occasionally creates MIDI tracks for reference. For example, "If there's no band involved, I may record drums last instead of first," reveals Wolpert. "I may use MIDI drums for a while, and then replace those sounds if I'm working with a live band."

Wolpert's recent project with blues harmonica player Carlos del Junco may not involve much work in MIDI, but there's always the slim chance of a last-minute addition or tweak. "It's the kind of tool that comes into play when you're mixing and decide, 'Gee, I'm missing something here; let's just make it,'" admits Wolpert.

DOYLE DONEHOO, RADAR MUSIC

MIDI is the driving force for the myriad sample-based instruments used by Doyle W. Donehoo, a composer and producer for video games and mixed media. A former software engineer and manager, Donehoo operates out of San Jose, Calif., the heart of high-tech haven Silicon Valley and a stone's throw from leading game manufacturers such as Sony Computer Entertainment America (SCEA) and Electronic Arts, among others. Donehoo's virtual orchestral compositions include games such as *America's Army*, *Sniper!*, *Savage II*, and *Black Stone*, among others. He's currently wrapping up a yearlong project for a forthcoming game, and is heavily involved with a new high-profile game to be released later this year — both of which keeps his heavily equipped workspace running at peak capacity.

Donehoo's studio contains eight computers, with one running his master DAW, Cakewalk's Sonar 7, in stereo and 5.1 surround. The remaining slave workstations run Gigastudio, Kontakt, Reason, Absynth and an array of additional soft synths and virtual instruments. To get a clear visual of his compositional work, three 19-inch flat panel monitors are run off his main DAW to create one continuous desktop to display his many MIDI and audio applications. Preferred sample libraries include the Garritan Orchestral Strings (GOS), Kirk Hunter Virtuoso Series Brass Library (VSBL) and Strings, Vienna Symphonic Library, Sonic Implants Strings, Westgate Studios Woodwinds and Project SAM, while Native Instruments' various products get frequent use, as well. For track recording and mastering, Donehoo uses Sony Sound Forge, Sony Vegas and Cakewalk Sonar.


Nearly all of Donehoo's hardware — including an Akai 5000 sampler, keyboards and rack synths such as a vintage Korg DW800 and DSS1, Ensonic ESQm, Roland MKS-50 and other outboard equipment including MIDI-controlled audio gear — are controlled directly by the main DAW through a MOTU AV. All of his slave computers, which mainly run Kontakt and Gigastudio, are controlled over the LAN network by MIDI over LAN.

Because so much of his work involves virtual instruments and sample libraries, Donehoo works off of a semi-permanent template of nearly 300 MIDI tracks, then adds or subtracts sounds and instruments depending on the project.

"When I start a project or I have an idea that I'm proposing, I load my myriad libraries into the various computers and boot up my main DAW, which communicates to all of the other instruments over the network or through the MOTU interface," says Donehoo. "Then I'll start up Gigastudio in the DAW, which in turn fires up the Sonar sequencer with my current standard template. All of the instruments are then at my fingertips. I can then compose right there, by performing the music with my main MIDI controller and then editing the parts with the piano roll editor, or just entering the notes one by one in the piano roll editor while editing, changing and just composing—whatever it takes. There's not much difference between writing software and writing music. It's all about taking very simple things, like notes or software instructions, and building them up into something complex."

Aside from offering powerful MIDI pro-

MIDI continues on page 37 ►



2007 ProAudio Review REVIEWER'S PICK

Joe Chiccarelli
talks Royers

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by Stephen Murphy

SSL XLogic SuperAnalogue X-Rack, Part II

The flagship of SSL's rack-mount movement is the XLogic SuperAnalogue X-Rack modular system. Its scalability adeptly positions the X-Rack as an attractive addition to smaller personal production studios, larger commercial facilities, and everything in between.

SSL offers the following modules for use in the X-Rack system: a mic/line input amp, a channel EQ, a channel compressor/gate, an eight-input summing module, a four-input line return module, a master buss summing/monitoring module, and, introduced at the 2007 AES show, a VHD mic/line input amp and a stereo bus compressor module.

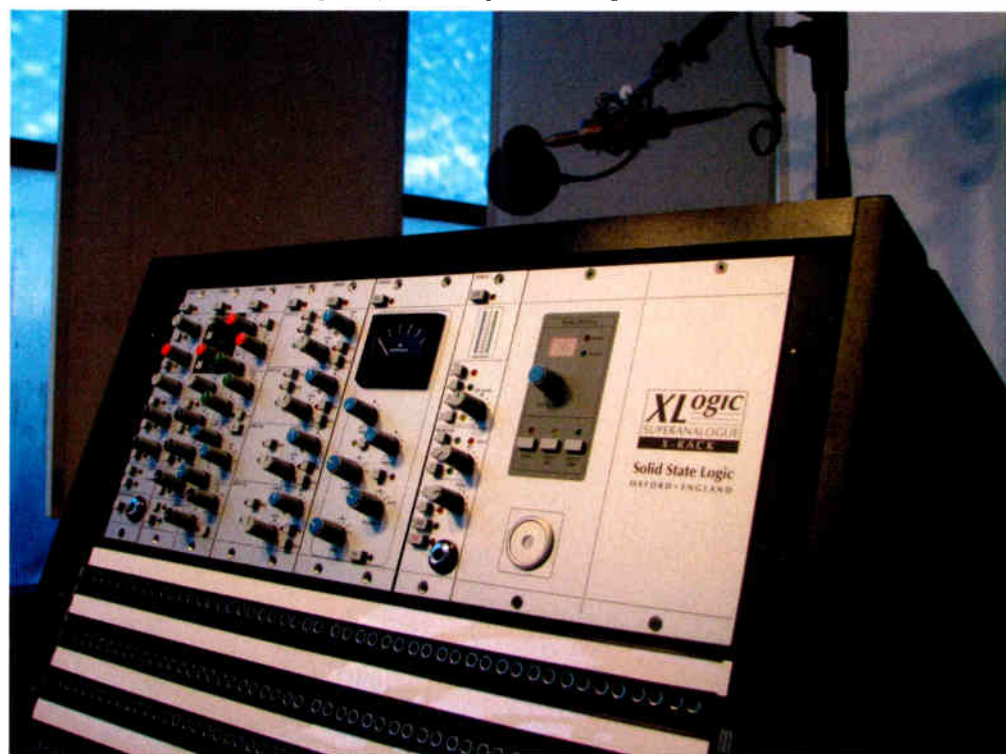
In the December issue, *PAR* looked at the X-Rack chassis (\$1,895) and overall system, the unprecedented power that SSL's trademark Total Recall brings to this rack system, the Duality-derived four-band parametric EQ Module (\$895), and the XL 9000 K compressor-plus-gate Dynamics Module (\$895). This hands-on coverage of the complete X-Rack modular system continues with a focus on its recording- and mixing-oriented modules and system capabilities.

MASTER BUSS MODULE

The Master Bus Module (\$1,145) is the rack-scale equivalent of an SSL console center section. When the module is added to an X-Rack system, it enables access to the X-Rack's built-in MIX, REC (record) and AFL stereo busses. All mic and line input modules in an X-Rack (and all linked X-Racks) are capable of assignment to the busses without patching. In short, the MBM transforms an X-Rack system from a box full of discrete modules to a self-contained mini-SSL mixer.

The Monitor section enables monitoring of the MIX buss, REC buss or EXT external input source. A particularly handy feature is that any combination of the three sources can be simultaneously selected (for monitoring a DAW 2-mix plus live inputs via the MIX buss, for example).

As usual, AFL supersedes the monitor selection when a solo button is depressed. The AFL level sent to the monitor amp is adjustable



Racking up the sweet modules of the XLogic SuperAnalogue

via rotary control, and a LED indicates an active solo state.

Two sets of monitor outputs are provided (for ALT/main speaker selection), as are a front-panel headphone output (fixed gain, fed by the main monitor level control), and monitor DIM (level-adjustable), CUT and MONO functions. A 12-segment stereo bar graph provides measurement of the monitor signal prior to the output level control.

The separate Mix section of the MBM features a MIX buss master level control and an INS button that brings the half-normaled balanced insert loop into the circuit. Here again, SSL included a couple of excellent extras: a SUM REC button adds the REC buss to the

MIX buss and, likewise, an INS SUM adds the insert returns (without breaking the normal) to the MIX buss. Going beyond, a MON button routes the selected monitor source(s) to the MIX buss output (precluding the MIX buss signal). These three extremely useful input summing/routing options push the overall system's level of flexibility ever closer to a full console.

Clearly, an impressive amount of planning and design work went into the Master Bus Module's features and its internal-path integration with relevant modules. I was very impressed with the power and flexibility this module brings to the overall system and any buss-enabled modules installed. Unless you plan to configure an X-Rack as a bank of dis-

crete insert EQ and/or dynamics processors (nothing wrong with that!), the Master Bus Module is an essential purchase for the system.

MIC INPUT MODULES

SSL offers a choice of two different mic input modules for the X-Rack system: the original Mic Amp Module (\$895) and the recently-released VHD Input Module (\$995). Each module offers some unique features in addition to a set of shared ones.

The Mic Amp Module's SuperAnalogue input section is ported from the SSL XL 9000 K, and features a variable-impedance mic preamp (continuously variable between 1.2k ohms and

SSL continues on page 32 ►

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10k ohms) providing up to 75 dB of gain, as well as a high-Z front-panel unbalanced instrument input with switchable ground lift (for hum reduction) and a balanced line input with dedicated gain control (adjustable ± 20 dB around nominal 0dB/+4dBu default).

The VHD Input Module's expressive input section features the same electronically balanced variable-impedance (1.2k ohms or 10k ohms selectable) mic preamp and Variable Harmonic Drive circuitry as found on the Duality console. On this module, the line gain control has been reconfigured as a ± 24 dB Mic/Line output trim control. There is also a rudimentary compressor section consisting of a threshold control and in/out button (and derived from the notorious E-Series "Listen mic compressor," originally used to prevent overload on the studio communications mic return to the console, but popular as a gadget dynamics tool in the '80s, most notably used for bombastic drum room effects). The novel VHD control introduces a variable blend of 2nd- and 3rd-order harmonic distortion and, as I found on the Duality console, provides a useful range of transistor- and tube-like overdrive effects when desired.

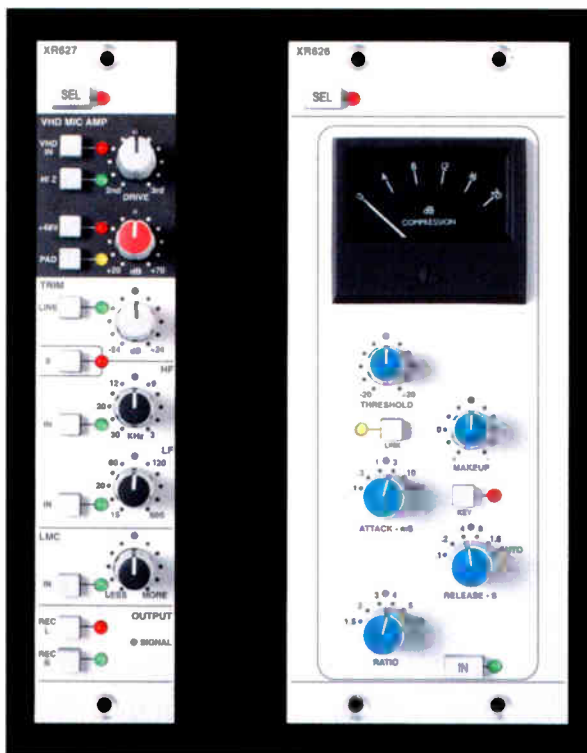
Common features on both modules include a 20 dB pad, phantom power, phase reverse, a dual-band shelving filter section (see the lit for specs as the modules differ slightly), a tri-color signal level LED and L/R REC buss assignment buttons.

So, which module should you get? I found both modules in their most streamlined configurations were capable of producing a high-quality signal, and provided a useful set of staple tracking tools that included the much-appreciated dual-band shelving filters with per-band engage switches. The VHD module and its eponymous harmonic distortion circuit is perhaps the better choice for more creative approaches to recording, and the built-in basic compressor circuit was handy for light dynamics duties (or overt compression effects at lower thresholds).

I found that, through use of the pad and high-impedance setting, line inputs could be comfortably routed through the mic input for use with the harmonic distortion circuit. On the other hand, the original mic amp module was the better choice for most of my needs because its continuously adjustable impedance was a great match for the wide variety of mics I tend to use, plus the front-panel Hi-Z 1/4-inch input and variable line input amp were ideal for my usual variety of instrument sources.

LINE INPUT MODULES

Like the mic amp offerings, SSL offers two line input modules that boast similar core functionality, while also providing unique feature sets. In this case, the two modules pit number of inputs (Eight-Input Summing Module, \$895) against per-input control (Four-Input Line Return Module, \$965). Both modules are designed to be used with the X-Rack Master Module and take full advantage of the bussing features built into the X-Rack system. Like the Master module — and unlike all the other modules in the system — both line input modules use dual multipin DB25 connectors to pro-



SSL X-Rack VHD Input and Stereo Bus Compressor Modules

vide access to respective inputs and insert sends/returns. Though the per-channel balanced wiring scheme follows the TASCAM spec, those using multipin-to-XLR snakes (as opposed to direct-to-patchbay wiring) will need to reconfigure some connector sexes.

The Line Return module is outfitted with four full-featured mono input amplifier sections. Each input amp has full access to the X-Rack's three internal stereo busses via a record/mix bus assign switch (REC) and a solo (post level/pan) assign switch. A level control varies input gain from infinity to +10 dB (with an indent at unity gain), and rudimentary level monitoring is available via a tri-color LED.

Each input also features a stereo pan control and a balanced, half-normaled insert loop with associated engage/bypass switch (INS).

According to SSL, the Eight-Input Summing Module was developed in response to requests from X-Rack users for a high-count line input module for use with multichannel audio interfaces, external sub mixers and synthesizers. The module's inputs are configured as four fixed-unity gain stereo pairs that can be routed only to the stereo Mix bus (via an "On" button). Each pair maintains stereo-respective direct routing (left-to-left, right-to-right) to the stereo Mix bus, though a per-pair Mono button sums the L/R inputs and feeds both bus channels with the sum at unity. The first two input pairs feature a half-normaled stereo insert loop that can be engaged or bypassed via the INS switch.

Throughout my use, both types of line input modules proved to have appropriate uses dictated by the specific circumstances. Clearly, the Summing Module is the most affordable option for building an analog summing solution for use with DAW stereo submixed outputs, or bringing in additional two-track sources for monitoring. Its lack of per-input level/pan controls and solo functions are an understandable trade off for double the inputs, and are generally unnecessary for the above uses. The glaring absence of record bus assigning, however, was particularly limiting, and made for some frustrating situations when paired with the highly flexible Line Return Module (in an admittedly complex record/mix/monitoring configuration). Where I was usually amazed by the wealth of features included, this proved to be the only real puzzling omission I found on any individual module.

STEREO COMPRESSOR MODULE

Finally there is the last module in the X-Rack range, the Stereo Bus Compressor Module, which exacts quite a toll financially with its list price of \$2,495. Additionally, it occupies double the real estate of any other module. That said, this is a top-quality stereo compressor (based on XL 9000 K Series bus dynamics processor) that features SSL's SuperAnalogue ultra-high bandwidth circuitry throughout.

The module features six-position rotary

switches for its set of standard Attack (.1 to 30mS), Release (.1 to 1.6S plus program-dependent Auto setting) and Ratio (1.5:1 to 10:1) sidechain controls; the threshold and gain make-up controls are continuously variable. A large lighted analog meter displays compression amounts in a 0 – 20 dB range.

Note that, while the Stereo Compressor Module does have an engage/defeat button (IN), this functions not in the usual manner but instead by connecting the sidechain signal to the dynamics VCA (which is always in circuit whether active or not).

In addition to its stereo set of XLR I/Os, two Key Input XLRs plus a respective external Key select button are provided. A separate Link button allows the operations of multiple X-Rack Stereo Compressor Modules to be internally linked for multichannel/surround use. Like the single-channel Dynamics Module, the internal linking (and the dual external Key inputs) function in a summing manner, whereby the channel with the highest level drives all linked compressors.

One of the features that makes this compressor a joy to use is its variable threshold knee point that changes dependent upon the Ratio setting; the net result is a form of auto-compensation that maintains (to a point) the perceived "loudness" of the signal. In all applications in which I used this module, I was impressed with its quality and operation, which held its own against my regular (and similarly priced) favorites. Its price (and width) and the availability of other high-end bus compression options (including some that allow for separate channel operation for non-stereo use) would be major purchase considerations for me. Personally, I'd more likely save the room for a couple more X-Rack mic inputs in the box, though for others the Stereo Bus Compressor may make the perfect cherry for top of their X-Rack layer cake.

SUMMING IT UP

In case you haven't picked up on it yet (from this or the first half of *PAR's* X-Rack First Look), I am, in a word, enthralled with the Solid State Logic X-Rack system. But before I let them completely off the hook, indulge me in an "At the Movies"-type wrap up so I can share some tips, some generalities and a few pit falls to avoid, noted during my hands-on experience with the complete system.

Right out of the box, I was thoroughly impressed with the main rack system from a design, module installation and overall configurability standpoint. The inclusion of Total Recall and Master Module MIDI control/implementation sent my opinion through the roof, and it did not diminish throughout the several-

month evaluation period.

There were, however, a few bumps in the road: I initially configured the X-Rack as a recording system for use with a DAW system, with the common goal of providing multiple discrete inputs to the recorder, while monitoring splits of the live inputs and a DAW mix feed (of already-recorded tracks) through the Master Module. I was surprised that the mic inputs had no channel output level (CHOP in SSL speak) to control level to the record bus (the only assignable bus from the mic input modules) for adjusting monitoring balance; likewise, there was no pan control. It became clear that the Line Return Module is required as an intermediary in order to effectively use the X-Rack in this manner. Everything I did that involved simultaneous recording and monitoring was completely smooth once I got beyond that.

Actually, there was one other oddity that I hadn't counted on: there are no provisions for sends in the total system design. Not the end of the world, obviously, but I was surprised.

I found the routing/summing options enabled by the Master Module (and its insert and external input) to be exceptionally flexible. That, combined with the Total Recall system


and the range of modules available made the X-Rack overall experience truly reminiscent of working with a full console — something that gave me great pleasure. It certainly helps to have a good patchbay system paired with the X-Rack, especially if the Master Module and line input modules are in use. I was fortunate to have been provided with the AudioLot Mixbay which proved to be the ideal companion, which was reviewed independently and ran adjacent to Part I of this review (again, see *PAR* 12/07).

The X-Rack is equally adept in its simplest configuration as block of inputs preamps, EQs or dynamics processors, or in a complex and inclusive recording, mixing and monitoring system configuration that approaches the functionality of a full-frame SSL console. The SSL X-Rack is a towering accomplishment due to its range of modules, its extremely well thought out internal bussing, external integration, easy expandability and some truly unexpected (in a rack system) features.

PAR Studio Editor Stephen Murphy has over 20 years production and engineering experience, including Grammy-winning and Gold/Platinum credits. His website is www.smurphco.com.

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Drumming Up a Kickn' Mic Sound



Photo credit: Doug Rowland

by **Strother Bullins**

Pro Audio Review's January issue regularly dedicates much of its editorial space to microphone reviews and new microphone technology. It's an ideal way to start the year for a product reviews magazine; after all, audio professionals christen sessions with a choice of microphone, or microphones, to cover crucial sound sources.

In the spirit of yearly renewal (and synergistic editorial coverage), I turn the focus of this month's column toward microphone selection, and, specifically, something I feel I'm qualified to rant about: choosing mics for drum tracking.

FULL DISCLOSURE — YES, I'M REALLY A DRUMMER

The only reason I became involved in pro audio in the first place was because I was a drummer. And I still am. Sure, I found more happiness in this field than I imagined was here, yet what keeps me so closely tied to a core purpose of improving the art of audio recording is as simple as two and four, or kick and snare.

Naturally, I place a lot of importance on drum sounds, and when I have a chance to review new mics, I can't help but immediately think, "I wonder how this works on snare" ... or kick, or hats, or whatever else I may prefer to hit with a stick, a mallet or my hands.

Luckily, the latest microphones that I have accepted the responsibility to review have proven to be remarkable for recording drums. So here's an X/Audio "review" of what I've been using lately, and why I didn't put these mics away after only one session.

Hell Sound PR Series Microphones

Like any star of any industry, the famous (and sometimes infamous, at least in the eyes of their competing peers) of pro audio manufacturing know their audience, or customers. As far as I can tell, Bob Heil is one of those all-knowing folks, who not only builds products that can be made to perform the way people want them to, but also builds products that sound that way upon plugging it in. My case in point is an amazing Heil microphone trio — PR 40, PR 30 and PR 20 dynamic microphones — on drums.

FEATURES

First, the PR 40 uses a 1 1/8-inch dynamic, end-fire generating aluminum element with a super-cardioid polar pattern, which handles huge SPL levels. Frequency response is 28 Hz – 18 kHz with a slight bump at 2.5k, which begins its slow taper down at around 4.5k, finally touching flat response at around 12k.

Similarly, the PR 30 uses a dynamic, end-fire generating element with a super-cardioid polar pattern, yet at a diameter of a 1 1/2-inches. It too can handle high SPL. It provides a 40 Hz – 18 kHz response and has a slight upper midrange bump (but is flatter overall and back to 0 dB around 7k). Heil recommends the PR 30 for many uses, specifically recording guitar amps/speaker cabinets.

Finally, the PR 20 is a handheld-style super-cardioid dynamic with a frequency response of 50 Hz - 18 khz and, like the PR 40, a 1 1/8-inch aluminum element. It features a 2k to 5k bump, yet is otherwise flat, frequency-wise. Heil recommends the PR 20 as the "best" live sound vocal microphone and "absolute best" snare drum microphone.

All Heil mics are built in the USA — Fairview Heights, Illinois, to be exact. The mics are attractive, yet look rather common. Most notably, Heil

microphones offer an exceptional cost-to-quality ratio: the PR 20, PR 30 and PR 40 list for only \$179, \$299 and \$375, respectively.

IN USE

The PR 40's "bouquet of midrange articulation," as Mr. Heil refers to it, "bring(s) gorgeous speech and instrument reproduction without the use of outboard equalization." Let's make sure to include percussion — most notably kick drums — in that description; Heil does specifically recommend the PR 40 for kick, and, no kidding, it's gonna be all you will need for your kick in rock drum tracking sessions.

I realize that I may be bold with this statement, as the industry is ripe with choices to mic a kick drum. But I have used nearly all of the best ones — or so I thought — before I tried a PR 40 on the thick-shelled birch 22-

inch drum I've been miking for well over a decade. From

lower-end and simple, cheapie dynamics to high-end, esoteric choices that cost more than all the drum equipment I personally own, nearly every mic you can imagine has captured this kick. And it happened on every format you can imagine: Ampex/Quantegy 456, 499 and GP9, plus BASF/EMTEC two-inch analog tape at all IPS and levels; all kinds of multi-track digital recorders (Otari DTR-900, Sony 3348, etc.); and nearly all DAWs (just name one) up to 24 bit/96 kHz. On top of that, there were even more and completely interchangeable variables in all the various signal chains. You get the drift (and my muscles ache thinking about it).

Yet, out of all these sessions, I never remember anyone putting up a microphone on the kit and sitting down in front of the studio monitors for everyone in the room to say, "Yeah!" before some EQ tweaks or plugging some snooty box into the chain to tape or DAW. However, with the PR 40, this same kick — centrally miked a half-inch off

X/AUDIO continues on page 36 ►



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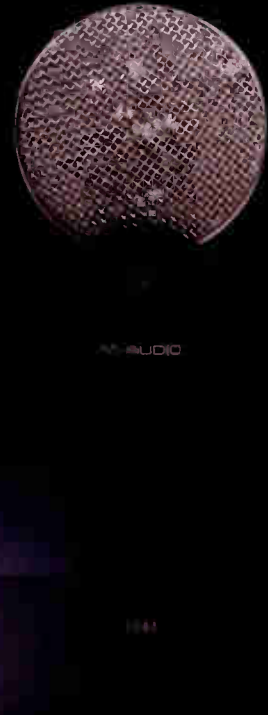
Solaris™

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Award-Winning Technology with Classic Soul

M-Audio microphones balance the best qualities of history's greatest mics with modern technology in a new generation of unique recording instruments. As a result, pros like Patrick Leonard, Joe Barresi and Carmen Rizzo are stowing their premium-priced antique mics back in their cases, along with the inherent hassles of fragility, bulk, tube noise, erratic reliability and mismatches. Designed in the U.S.A. and hand-assembled in state-of-the-art facilities, M-Audio mics feature evaporated gold diaphragms, solid brass capsules, gold-plated electronics, and ultra-low distortion and signal-to-noise specs. With sound that's both familiar and fresh, M-Audio microphones bring new finesse and flexibility to even the most robust collections.



M-AUDIO

www.m-audio.com

World Radio History

he front head (an Evans Retro Screen, acoustically-transparent offering no extra sustain) — was truly good to go. Immediately. Since I first put it on the kick and I haven't stopped since), even the most persnickety musician/producer/engineer I work with doesn't immediately lean over my shoulder to punch in channel EQ. (Of course he wants to, but at least he waits, listens for a minute or two, then keeps his normal deconstructive tendencies to a minimum ... it's all about small victories, folks, small victories).

How would I describe the sound of the PR 40 on kick? It's essentially pre-EQed, it's never wrong, and it has all the aural info you'll want for later use. Did I say never wrong? For rock kick, absolutely. For other pop styles, your mileage may vary ... however, I doubt it.

On snare, the PR 30 shares much of the same story that I have attributed to its big brother's relationship with a kick drum. The PR 30 is fat and snappy on a medium tension snare drum and gives body to thinner snare drums. I can attest that it is round and complex, yet transient, on double-headed toms, 10-inch to 16-inch diameters.

The PR 20 is great on snares, too. I only had one PR 20, so I didn't try Heil's dual PR 20, top-and-bottom technique on the snare, but it did elegantly make its presence known when it was switched with a Samson Q8, my favorite "SM50-something" substitute. Yes, the ubiquitous yet special top-end metallic bite of the most popular snare mic in the world isn't naturally present in the PR 20. Many times, that bite may be called for (or it could be that so many artists are just so used to it they want to hear it because of habit, I guess). But with some EQ, the PR 20 can sound that way, too. What's so special about the PR 20 is that it sounds much like that 'working man's microphone" carefully sculpted via good EQ by one hell of a talented working man. In other words, it's a no-brainer on snare 'cause I won't have to mess with it much, if at all.

SUMMARY

Between the PR 20 and PR 30 on snare, I prefer the PR 30; rock music production is one hell of an impressionistic art, and I'm into painting some fat images these days. Again, as in the case of the PR 40, your mileage may vary, but I doubt that you'll brown on what a PR 30 can give you to work with as any given project evolves past the basic tracking stage.

CAD Equitek E60 Cardioid Condenser Microphone

Together, condenser microphones, drums and drummers have always made me a bit nervous. It's no wonder, though, as for years I've heard engineers half-jokingly say, "Now, don't hit that one," while pointing to their obviously prized, dainty-looking pencil mic located just inches from where I plan to smack the crap out of a pair of hi-hats. This has fueled phantom-powered/percussion pairing paranoia.

Now, almost a year after discovering the relatively inexpensive CAD Equitek e60, this fear has been nearly conquered. It's not that I haven't found other good, small diaphragm condensers that can take a whack or two, or decent ones that won't break the bank if you have to replace it. I just suspect that the immediate comfort of the e60 is visual; to my eyes, it looks like a midget Sennheiser 421 with a Neumann KM 184 hiding inside of it. The e60 is literally a cute, gold and silver small diaphragm condenser sparkling inside a tough-as-nails black grille, housed inside a scratch-resistant, "rubberized" urethane finished body.

FEATURES

The CAD e60 is a front-address, externally biased, cardioid condenser microphone featuring a 16 mm, 24-carat gold-splattered capsule with a 10 dB non-capacitive pad and four-position high-pass filter at flat, 40 Hz, 85 Hz and 122 Hz frequency settings. It is equipped with a standard threaded mic stand adapter as part of its body. According to the e60's published frequency response, its mostly-flat frequency performance gets hilly around 4 kHz, rises to its highest peak (+5 dB) at 8 kHz, and dips nearly back to flat at 15 kHz. It can handle an impressive 140 dB SPL. I found that the latter feature, an ability to handle loud level sources, is one of the e60's main attributes.

IN USE

During my evaluation period with the e60, I have used it on hi-hats, cymbal spots (mainly ride cymbal), toms of all sizes, snare, overheads and room, even close-miked guitar amps. It worked well for each sound source and seemed to like EQ tweakage, even when dramatic and/or surgical.

While recording basic tracks with drums, bass guitar and electric guitar, a guitarist and I found the e60 useful, if not for a main rhythm guitar sound, for a crunchy, detailed track to mix in with the dynamic mic we chose to use. But I found the e60 to be *most* useful on toms; its inherent frequency-based signature seemed to bring the toms to life against a backdrop of solid (and dynamic mic captured) kick and snare. I

used four e60s on four toms in one particular session; as a result, the toms congealed as a four-note, very melodic instrument with a signature transient "style," if you will. CAD reports that the e60 offers great performance on horns, and judging from how it treated these toms, I can see how that would be an accurate statement.

Finally, I must note that the e60 lists for \$299, but I've seen them recently advertised "on sale" in buy-one-get-one-free deals, as well as deep discounted sale prices. With that in mind, if you're in the market for a good, solid condenser that can take full sonic blasts (and the occasional solid stick hit), move quickly and accordingly.

SUMMARY

I have recorded many drum sessions over the past few months with this random pairing of dynamic and condenser



microphones: the Heil PR 20, PR 30 and PR 40 with CAD e60 condensers (when and where I felt condensers fit the bill). So far, I have found no reason to use anything else for recording rock drum tracks, other than a beloved Shure KSM 141 pair as X/Y overheads. Together, this mic collection has responded well to all sorts of treatment, especially heavy, rock-friendly compression, and the mics have delivered the full-frequency goods needed for modern pop productions with Technicolor sheen.

As you can probably tell, I am mainly impressed with the Heil microphones. That's because if any instrument screams for good dynamic microphones, it's kick and snare. We've all had many good choices in dynamics over the years, yet — specifically with the PR 30 and PR 40 — you could say we drummers now have the ultimate choice.

Strother Bullins is the Reviews and Features Editor for Pro Audio Review.

STUDIO

| Feature

MIDI Continued From Page 28

gramming features, Sonar 7 is also one of the more affordable DAWs on the market, a key concern among independent engineers and electronic musicians. "These days a lot of the

| JOCKEYING FOR MIDI MAPPING

In the audio world, not thinking on the exact same wavelength, or at least not in the exact same waveform, is what sets artists and/or producers apart. But in the studio or stage it's more imperative that everyone work through similar channels, at least. That's where MIDI (Musical Instrument Digital Interface) comes in, and not just for composers and engineers. MIDI has become an indelible, indispensable companion to digital DJing; in fact, MIDI could almost mean Mixable Input DJ Interface the way the protocol has been integrated into a range of laptop-friendly USB and FireWire devices.

With the ability to assign functionality to nearly any knob or fader, programs such as Native Instruments Traktor 3.3 (native-instruments.com) and Ableton Live 7 (ableton.com) are enjoying near seamless integration with a range of low-latency controllers. Allen & Heath makes the XONE:3D (xone.co.uk), with not only traditional LINE/MIC/PHONO mixer functionality and built-in filters/EQ, but also Traktor transport controls for up to four simultaneous virtual decks. Korg, meanwhile offers the Ableton-intended ZERO8 Live Control Console (korg.com) with eight channels of AUDIO + MIDI input/output, integrating mic preamps to FX manipulation. M-Audio offers the X-Session Pro for two-channel toggling, as well as the Xponent, dedicated to the company's Torq software (just upgraded to 1.5, viewable at m-audio.com). And at NAMM 2008 DJ industry stalwarts Stanton just announced the SC System (enterthesystem.com), featuring an expandable, tactile deck and mixer.

Those are just some recent examples. As DJ-gear MIDI controllers continue to bridge the gap between performance and production, *Pro Audio Review* will dedicate space in upcoming issues to explore this market, which is quickly shedding its adolescence.

— Tony Ware

sequencers do the same job," observes Donehoo. "For my type of work, the most cost-effective approach is through Sonar and PCs, because PCs are easier to build and are ultimately disposable as they become obsolete. So for people like me who come from a technical background, I'd rather deal with the hands-on approach and build things myself to have better control over everything."

Hardware and software manufacturers continue to expand and upgrade their prod-

ucts' MIDI sequencing and programming features, and their ability to communicate with one another continues to evolve, as well. With that, those mixing, recording or writing music have more tools at their disposal than ever before. Use them wisely.

Heather Johnson is a San Francisco-based journalist and author whose books include If These Halls Could Talk: A Historical Tour Through San Francisco Recording Studios.



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been boomy bass in every room. It has happened for so long that I've just gotten used to it. Once I installed all 10 LENRDs in the control room, however, I quickly moved my monitors back in and that "mud" was gone! The bass was still there, but now it was really tight, exhibiting extreme lows much better.

The wooden SpaceCouplers came in a box of six, and the standard procedure would have been to hook them all together and fly the entire ensemble from the ceiling. However, track lighting hardware precluded that arrangement, so the Auralex consultant spec'd them as three separate pairs. Check out the snapshot labeled as Figure 3 to get an idea what they look like.

The principle behind the SpaceCoupler is as follows: Russ Berger developed a technique to loosely couple spaces within spaces in order to sculpt high-quality recording rooms out small footprint rooms. If one puts broadband absorbers (such as the 96 AudioTile foam pieces installed in my control room) around the lower portion of a small room's walls — say, in the bottom eight feet — and leaves the upper portion of the walls "hard," a live reflective area above a lower deader one has been created. SpaceCouplers placed horizontally just above this eight-foot audio "line of demarcation" sep-

ORIGINAL DUFAY DESIGN BY BERGER ... VIA COCKTAIL NAPKINS

Well before any Auralex additions, Russ Berger had a hand in designing Studio Dufay ... way back in 1989!

To abridge a very long story, when I was teaching recording at MTSU back in the late '80s, MTSU contracted the Dallas architectural firm of Joiner, Pelton and Rose to design the university's new Mass Communication building. Russ Berger was in charge of the studio design component of the project. As the building complex was being completed, I was planning to leave MTSU for a teaching job in the Northeast and, as a little "going-away" present, Russ sketched out plans for my new home studio on some cocktail napkins, promising me that his associates at JP&R would work with him to flesh out those plans in detail. Little did I know then that our MTSU gig would help give Russ the impetus to leave JP&R and start his own company — the now world-famous Russ Berger Design Group. And, later, an old Yale grad school buddy of mine, Dave Bumor (now working at JP&R as a staff architectural acoustician) would help my Massachusetts builder and I draw up the actual blueprints for my then-new digs.

— Dr. Fred Bashour

arate the height of the room into two areas, with a controlled aperture and redirect sound energy into the upper portion of the room where it is diffused. Sound then returns to the primary space — again redirected by the SpaceCouplers — and creates a smooth-sounding reverberation tail.

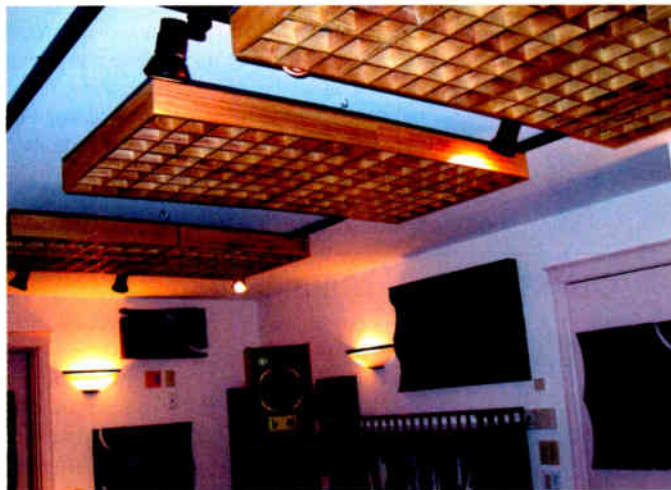
In the control room, however, the concept needed to be modified. The Auralex consultant specified that the SpaceCouplers be "filled" with foam inserts — which consisted of a single piece of 24 x 24 foam, but made with different depths, cut to fit inside each of the 64 chambers of the SpaceCoupler. So, the foam absorbs some of the energy going up to the ceiling, but not all of it, and at different frequencies. What does make it up there is still diffused and comes back to be reflected again. The result is now there is a nice, smooth reverb tail in the room during, say, shouts or hand claps — a characteristic that was not there before the "clouds."

SpaceCouplers are handmade out of solid Paulownia wood, which is often used in musical instrument construction. Auralex claims its properties "give a very natural feel to the room that is pleasant to be in and conducive to maximizing creativity." Like all Auralex products, SpaceCouplers are treated with fire-retardant chemicals; on the one hand, you can rest assured that this very lightweight wood isn't going to go up in smoke in a hurry but, on the other hand, the same fire-retardant chemicals, when combined with the light wood stain used on the SpaceCouplers, sometime produce a slightly "mottled" effect. In other words, don't expect the finish on these wooden "clouds" to look like that on \$5,000 audiophile speakers.

Auralex's instructions advise hanging SpaceCouplers with monofilament fishing line, chain, etc. — whatever works. But since the Auralex consultant's specs were quite specific to suspend them three inches from the ceiling, those options seemed pretty difficult to implement. I found a large collection of used stainless steel shower curtain hooks that were exactly the right size, screwed some eyes into the ceiling and attached the shower hooks between them and the SpaceCouplers' mounting hardware. Done!

Next, it was time for the AudioTile ShockWave foam pieces. They arrived in a cardboard box the size of a coffin, and are best left in the box until ready to use. There are four

different shapes, with thicknesses also varying from one to four inches; a person who's spatially inclined can combine these in a large number of cool designs. The AudioTiles' varying thicknesses provide varying degrees of absorption at different frequencies, and the fact that the user can arrange them in different patterns (with wall space between) allows a means of blending absorption, diffusion and reflection. (For



SpaceCouplers, wooden "clouds" bringing sunny acoustic times.

some other ideas of the myriad design possibilities, check out the very bottom of auralex.com/partsience/audiotile.asp.)

The aforementioned Auralex .pdf "Room Analysis" showed only the generic arrangement of the AudioTiles in what I call "double onion" mode. For this project, various kinds of squares, rectangles and other neat shapes were made out of them, while still adhering at least to the "spirit" of Auralex's recommendations.

Next was the gluing process. The glue, a typical aerosol spray adhesive called "Foamtak," doesn't smell all that bad with windows open. But I did learn a lot during the installation process.

It's best to glue your pieces together first before attempting to mount them on the wall. I made that mistake when I put the first purple MegaLENRD up by the ceiling in the northeast corner, and then tried to mount the second one underneath it. It would have been so much simpler to have stuck them together first. After that little lesson, the regular LENRDs in the south corners went up much more easily ... and without a 16th-inch gap between them (due to the effects of gravity). There would have been no way to mount the 96 AudioTiles to the walls without gluing their "sub-assemblies" together first. (With due credit to Auralex, I did find a set of printed instructions in the AudioTiles box which advised me to do this. If only I'd read this sheet before I tried to mount the two huge

AURALEX continues on page 70 ►

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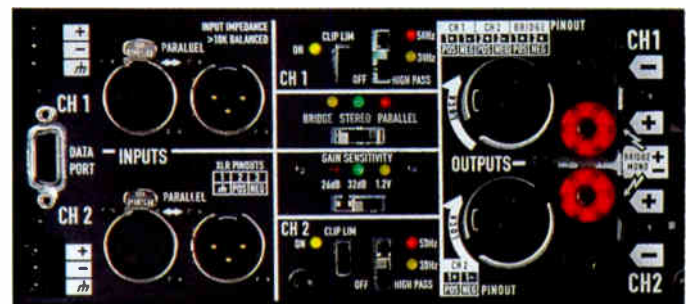
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by Dan Wothke

Inter-M IMX-824 Mixing Console

Heads will turn, and backbones will strengthen, thanks to this flexible, hefty, and swell-sounding analog live mixer.

As digital consoles become even more widely available at all price points, new analog desks are introduced far less, or so it seems. However, Inter-M — a prolific yet relatively unknown Korea-based company with great designers and low cost/high-yield manufacturing techniques — has released the IMX series, an analog mixer line offering impressive features found in much more expensive and larger consoles.

FEATURES

The IMX-824 (\$6,959.95) is a 139-pound, split-layout console with dimensions of 58.1- x 8.7- x 28.7-inches. The layout of the board is very familiar with no major surprises.

Per channel strip and starting at the top of the board is the input section, with switches for -48V Phantom Power (which is backlit), -26 dB pad, phase flip, gain control knob and a high-

group is color-coded and can be set to pre or post; 1-4, 5-6 and 7-8 are grouped together. Blending the channel between the L/R and Center buss is available via the Blend knob followed by Pan. The scribble strip separates Pan and a red backlit Mute button. All of the lit buttons on this board are LED backlit and really stand out. When Mutes are controlled by one of the four mute groups, the buttons are a dimmed red. The mute group assignment buttons are also backlit in red and are located at the bottom right of the 100 mm fader. At the very bottom right of the channel is the Solo button, also backlit, but yellow in color. To the direct right of the fader are dark grey buss assignment buttons. Busses 1 through 8 are in pairs of two, with LCR and Mono assigned to their own button.

In addition to its 24 mono channels, the IMX-824 also has two stereo channels. Gain, phase flip (right channel only) and L+R sum-

Mix L/R/C. Six stereo returns are controlled by short throw faders with full buss assignment, basic equalization and +4 or -10 level selectors. Returns 1-4 have two knobs fixed pre to auxes 1 and 2, while returns 5 and 6's knobs are fixed pre to auxes 7 and 8.

The eight aux return knobs follow convenient color codes, matching the aux sends on the channels. Green backlit AFL buttons and a Blue backlit Group/Aux Flip button follows. When engaging Group/Aux Flip, the board immediately changes function and becomes a very capable monitor console. Four matrix sends accompany every buss, L/R and Center output with the option of making the sends pre. Built-in utilities include a sweepable oscillator from 50 Hz to 9 kHz, pink noise and routing assignments, which are shared with the Talkback switch.

FAST FACTS

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KEY FEATURES

24 mono channels with Phantom Power, four-band EQ with two sweepable mid frequencies and swept HPF, eight aux sends with pre-fader switching, direct output, full LCR or L/R and mono routing, 100 mm fader, four mute groups and four segment LED metering; LCR panning; two stereo input channels; "fader flip" functionality; four matrix outputs; six stereo returns; optional VU-11 meter bridge

PRICE

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Eight Group faders follow (LCR and Mono assignments) each with LCR and Mono assignments — Mute and AFL. Finally, the L/R faders and the Center fader are each accompanied by a Mute.

Monitoring and Phones level are in the last section with the four Mute group masters, each a red backlit button. I was fortunate to have the optional VU meterbridge attached to the board. I relied more on the VU metering, while taking brief glances at the LED segment metering.

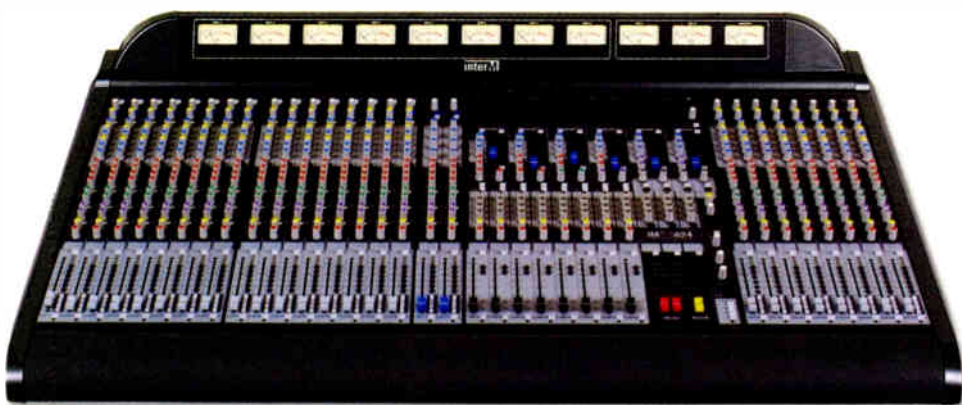
INTER-M continues on page 44 ►

pass filter ranging from 20 Hz to 400 Hz and respective In switch. Next in line is the four-band Baxandall-style EQ, with both high- and low-shelving EQs set at 12 kHz and 80 Hz, respectively. The two middle bands are semi-parametric, allowing for the frequency and level to be adjusted; all of this revolves around one little button that is the most important for the EQ: the In button.

Next are eight Aux sends, and each aux

ming accompany a slimmed down EQ (no sweepable mids, fixed frequency) and the same aux feeds. At the top right of each fader is a four-segment LED with the first green indicating signal around 12 dB below nominal level, second at 0, yellow indicates +12 and, finally, our good friend red.

Between the first sixteen channels and the last eight is the center section. The top starts off with a 16-segment LED per Group output and



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Designed as a complete studio package, the TubeFire8™ is shipped with Steinberg's Cubase LE 48-track for both Mac and Windows operating systems making it a truly plug and play recording solution, although it is compatible with many popular ASIO and Core Audio based applications.

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ART's TubeFire8™ packs eight quality second-generation discrete Class-A vacuum tube microphone preamps in a single rack space audio interface with balanced I/O and FireWire connectivity.

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ART's microphone preamps provide clean quiet gain while maintaining incredible transparency through the input stage. The eight balanced outputs of the TubeFire8™ can be driven from either the analog microphone preamp inputs making the TubeFire8™ an in-line eight channel tube preamp, or from the internal high quality D/A converters making it a high quality multi-channel audio output for your PC.

Full Input Control & Low Latency Monitoring

Every input channel offers both XLR input and 1/4-inch TRS balanced input with 70dB of gain. All inputs have -10dB Pad, High Pass filter, Phase Invert clip indicators and a wide range LED meter to monitor the preamp levels. The eight balanced outputs can be summed to an integrated headphone output providing either a mono or stereo mix function for low latency input monitoring and for monitoring audio playback from the computer.

Features

- Shipped with Steinberg's Cubase LE 48-track (for both Mac and Windows operating systems)
- 8 x quality second-generation discrete Class-A vacuum tube microphone preamps
- 8 x XLR & 1/4-inch TRS Combi-jack Inputs
- 2 x 1/4-inch instrument jack Inputs (CH1 & 2)
- 8 x 1/4-inch TRS balanced Outputs
- 1 x 1/4-inch TRS headphone jack
- 8 x Input Gain / Channel Level / HPF / Phase Invert
- 8 x Channel Metering (4 bar led graph w/ clip indicator)
- 44.1KHz, 48KHz, 88.2KHz, 96KHz Sample Rates
- 24-204KHz External sample rate
- 44.1K, 48K, 88.2K, 96K, 176.4K, 192K Internal sample rates

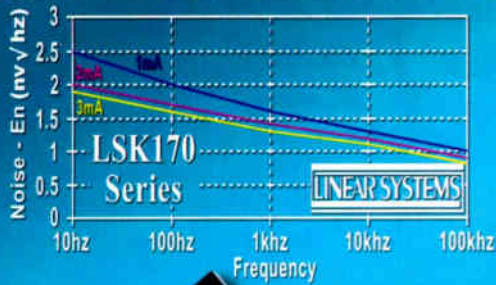
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LIVE

REVIEW

INTER-M Continued From Page 42

The IMX-824 is powered by a 2U supply, which can be set up with another power supply for redundancy. The front of the unit has indicator LEDs for +48V, -18V and +18V. Accidentally hitting the power button is all but nullified with the nice half-inch frame around it.

The back of the board is self-explanatory, though, I did miss having the channel numbers silk screened on the back when plugging everything in (there is a scribble strip available for manual labelin).

From top to bottom, the back panel starts with 1/4-inch insert send/receive, which share a TRS connector, 1/4-inch direct output, Hi-Z input, and a XLR for microphone input. The direct out can be routed from pre-EQ, pre-fader, pre-insert and post-large fader (factory default), depending on the setting of internal jumpers. Aux Pre-Signal Source can also be customized to either Pre-Fader, Post-EQ (factory default) or Pre-Fader, Pre-EQ. By default, the Aux Send Pre signal is muted with the channel mute, but can be changed with a jumper. Each bucket of eight channels can be removed via four screws. The rear of the center section came with no surprises, and I was appreciative of the RCA playback inputs and record outputs.

One additional note about the board is its color scheme of the knobs, which kind of reminds me of looking down at the top of a crayon box — all reds and blues and greens and purples. The more I used the board, the more I appreciated the vast color coordination. In the Houses-of-Worship world, having things color-coordinated is a great tool in training volunteers and helping them to feel comfortable, just knowing that the first red knob turns up the monitor and the last purple knob feeds the CDR. This singular example of Inter-M's attention to detail on the IMX-824 is a testimony that can only be a result of years of experience. This same attention to detail is also apparent on the silk screening of the board; two shades of grey are used to help the ocean of buttons have boundaries for quick identification.

| IN USE

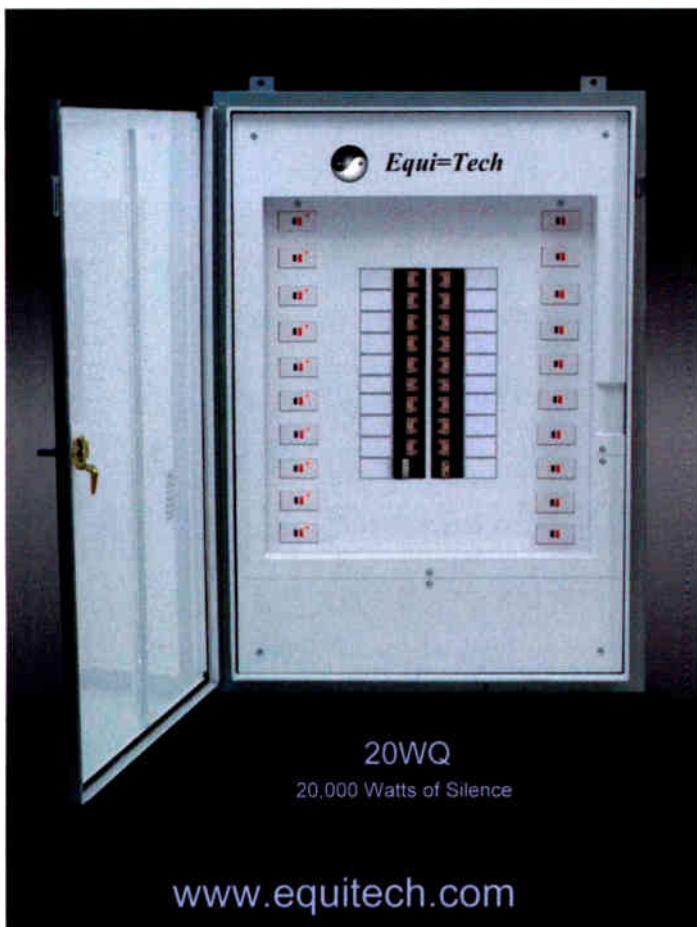
I was called upon to mix for an event — a weekend retreat in the back hills of Tennessee — so I decided to employ the IMX-824 for my initial test drive. The weekend's focal points included a full band and a speaker for teaching sessions. The only outboard equipment I took along was a Yamaha SPX990 and a dbx 160X for the main mix. The site provided all speakers and amps — suspended JBL 12-inch speaker enclosures and a pair of 15-inch subs powered by a hodgepodge of amplifiers — with a Rane crossover, everything wired in mono.

Unlike the Mackie that is typically used for remote setups, this board is simply too big for one person to handle. This is not necessarily a negative, but it should be noted that if the end user is going to cart this around, they *will* need at least one helper. The upside to the IMX-824's large size was that it does not feel at all cluttered.

Truth be told, there is really nothing new with new analog consoles. The basic functions are generally all the same, so the only differences between consoles reside in their construction, routing and sound.

With that in mind, I decided to use the board "cold" — in an unfamiliar room, without the assistance of a manual, and without even going through the board ahead of time, though I did allow myself a bit of extra time to make sure everything was properly routed. My train of thought was this: if an analog board is well laid out then it should not require any preparation to use.

One shortcoming of the IMX-824's color scheme was with its routing buttons; those charcoal gray buttons were hard to read in a dark environment. This could somewhat be assisted with a little console light, but I did not have that option, so I resorted to a flashlight/lamp combo. Even



in daylight, the buttons were hard to read due to the color and the viewing angle. An adjustment in the design by putting a small white band around the bottom of the routing buttons would assist users in easily identifying what is routed where. By pressing in the button, the white band would disappear and be easier to identify which routing button is depressed.

There is a point in every mix where things

PRODUCTPOINTS



- Easy to navigate
- Operates as FOH or Monitor Board
- A mix's "sweet spot" is easily attained
- Good sound



- Hard to Identify Buss Routing Assignments
- Due to weight and size, not ideal for a small tour or mobile system

SCORE

This new name in mid- to large-scale live mixers sounds good, is built well, and rivals industry standards.

come together to start working. Consoles can either become your best ally or cause you to fight just to find the pocket. Here, the Inter-M quickly became my ally. When the band was up and running at full speed and levels were set, there was a moment when everything just came together. The EQs were quickly dialed in, fader moves seemed flawless and the pocket was just right. It was fun to mix and the many positive comments I received after the weekend confirmed the fact. To me, such positive feedback speaks a lot about a console and — in a room that was completely foreign to me — the Inter-M was certainly speaking my language.

The primary designers of the board — YU Miya-zaki and David Dearden — are audio professionals of a respected pedigree, having served other respected pro audio firms as Midas, Soundcraft, DDA and Audient, just to name a few. Early reports even heralded the sound of the IMX-824 comparable to industry-standard boards by the aforementioned manufacturers. So, I was determined to do some side-by-side comparisons between the EQ and pre-amps of the IMX-824 Inter-M's and those of the Soundcraft and Allen & Heath mixers, two desks I have easy and regular access.

My testing — compiled by piping my favorite MP3 through the board while setting level and different EQ styles, then recording them to CD for comparison — confirmed what

my mix had already suggested: this board sounds good. In the tests, the Allen & Heath GL2400 was at a clear disadvantage, especially in the high mids, as it truly seemed to be harsh in direct comparison (I suspected, however, there would some noticeable differences seeing that the A & H is half the price of the IMX-824). For me, the true test was comparing the Inter-M with a Soundcraft K2, which I have come to love the K2 over the years. And the Inter-M was easily in the same class.

SUMMARY

With the IMX Series, Inter-M has created a mixer line that can stand on its own four feet — in sound quality, build quality and flexibility. Any permanent install or mid-level to large tour in need of a flexible board, whether for front-of-house or monitor position, would do well to have the IMX-824 or its bigger brothers.

Dan Wothke is the media director of Belmont Church in Nashville.

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RX1200 FEATURES

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by David Rittenhouse

QSC PL380 PowerLight3 Amplifier

This analog amp offers a powerful 8,000-watt argument as to why QSC is a go-to name in live sound reinforcement.

BENCH TEST | Page 50

QSC is a name that has been around for some time now. At one point or another, potentially everyone in the industry has been exposed to at least one or more of the company's products. Now that market

FEATURES

The PowerLight3 upgrades the PowerLight2 series, adding and refining

24 pounds.

The PL380 also supports remote control through QSC's QSCControl BASIS networked audio platform and the DataPort at the rear of the amp. The PL380 is shipped with an 18A/30A Twist-Loc power cable to a Neutrik Power-Con at the amp. All of the common amplifier and load/power protection of short circuit, open circuit, thermal, RF and DC fault is also there, along with on/off muting and active in-rush limiting.

IN USE

I had the opportunity to use the PL380 for several months. The first thing I did after opening the box was to change out the Twist-Loc power connector to a regular 20A Edison. This way, I could use the amp in any situation that might pop up (and they did pop up more frequently



penetration continues with the new QSC PowerLight3 series amplifiers — or, as QSC puts it, "the ultimate analog amplifier."

FAST FACTS

APPLICATIONS

Live reinforcement, permanent installs

KEY FEATURES

8,000 watts (two channels driven at 2 ohms at 4,000 watts per channel); Class D; QSC reactive "Back EMF"; XLR inputs with Neutrik and 5-way binding post outputs

PRICE

\$3,599

CONTACT

QSC Audio | ☎ 800-854-4079
➤ www.qscaudio.com

some appreciated functions. The new PL380 (\$3,599) is QSC's flagship model, with an output of 8,000 watts (two channels driven at 2 ohms at 4,000 watts per channel). The PL380 is rated as a Class D switching power supply amp. This amp features QSC's reactive "back EMF," which recycles the unused energy back to the power supply to produce an AC efficiency of up to 85 percent, keeping AC power demand to a minimum.

The PL380's frequency response is rated from 20 Hz to 20 kHz ± 0.2 dB. Maximum distortion is rated at 0.20 percent from 4 to 8 ohms, with noise rated at -104 dB. Input sensitivity is adjustable from three settings: 26 dB (5.27V), 32 dB (2.67V), and 1.2V (39.1dB) with input impedance set at >10k ohms. The Damping factor at 8 ohms is rated at 200. All of the standard input and output connectors are on the amp: XLR inputs with Neutrik and 5-way binding post outputs. The front panel of the PL380 is common with most other QSC amps, with attenuation knobs from each channel (the standard LED "Christmas Tree" of signal). The PL380 sits in only two rack spaces, and weighs in at a respectable

than even I would have wanted).

I found the PL380 very robust in the fact that it was lightweight, yet very powerful. I was able to run it as an extra sub amp, or as an extra amp for additional front fills on multiple shows. I loved the fact that QSC utilized the back panel connections to work with whatever could be thrown at them. Having both binding post and Neutrik outputs and parallel XLR inputs made things easier when adding it in to existing systems, like I did without the need of additional, sometimes flimsy, adapters.

The PL380 sounded great, clean, and quiet (when it needed to be). I used this amp on a large, last-minute Latin concert where I had to add two more EAW SB850 subs per side. The PL380 held up, and even sounded beefier and punchier than what I already had in my racks. With 2,500 watts per channel at 4 ohms, the PL380 exceeded my expectations. It was also good to find out that I could drive this amp hard for hours without it having any problems.

The next time out was on a simple

QSC continues on page 48 ➤

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William Beckett, The Academy Is...

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OM6



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corporate "talking heads" gig. I needed to add some front fills in, as the hotel ballroom was wider than I was expected. I knew I did not need an amp as powerful as the PL380, but it was what I had left in the shop. Needless to say, the PL380

sounded great and powered Community Veris 6s just fine. I even used it to power some EAW JF100s for a lobby plasma screen presentation at a corporate ballroom show, and sent it out once with a DJ and some full-range speakers just to see what it would do. It responded great. Yes, it was some serious overkill, but it proved

end to full range cabinets, with more power than you would need for anything in almost every arsenal. It ran cool and quiet and never thermaled, never shut down, and never left me hanging.

| SUMMARY

Today, there are more amplifier choices flooding you than you can wrap your head around or even have time to audition. QSC's PL380, however, stands out as a

PRODUCTPOINTS



- Powerful
- Lightweight
- Great utility amp



- No DSP without additional gear

SCORE

Overall, a powerful improvement over the older series.



its versatility. Since then, I have used the PL380 on almost every show as my total utilitarian amp — I'd just grab it and go!

At every show, the PL380 outperformed almost everything else I owned. The sonic quality was fantastic, from subs to high

simply great product at a great price, offering the "Swiss Army Knife" of amps.

David Rittenhouse is the senior sales executive and A1 engineer at Event EQ in Baltimore, MD, and a regular contributor to PAR.



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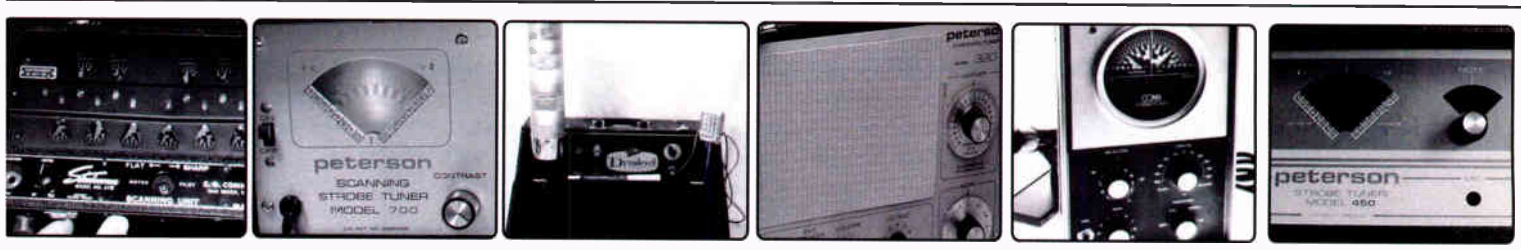


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BENCH TEST

QSC PL380 Power Amplifier

BENCH MEASUREMENT DATA

Maximum Power (1 kHz, 1% THD) (See Notes)

Stereo 8-ohm loads	1.4 kW, 31.5 dBW
Stereo 4-ohm loads	2.3 kW, 33.6 dBW
Stereo 2-ohm loads	3.0 kW, 34.8 dBW
Bridged 4 ohm load	6.0 kW, 37.8 dBW

Dynamic Output Power

Stereo 8 ohm loads	1.8 kW, 32.6 dBW
Stereo 4 ohm loads	3.6 kW, 35.6 dBW
Stereo 2 ohm loads	6.0 kW, 37.8 dBW
Bridged 4 ohm loads	12.0 kW, 40.8 dBW

Dynamic Headroom

Stereo 8 ohm loads	1.1 dB
Stereo 4 ohm loads	1.9 dB
Stereo 4 ohm loads	3.0 dB

THD+N at near rated power (20 Hz - 20 kHz)

Stereo 8 ohm loads	<0.02% @ 1.0 kW, 20 Hz - 2 kHz
	< 0.6% @ 1.0 kW, 20 kHz
Stereo 4 ohm loads	<0.05% @ 1.5 kW, 20 Hz - 2 kHz
	< 1.0% @ 1.5 kW, 20 kHz

THD+N at 10W output (20 Hz - 20 kHz)

Stereo 8 ohm loads	< 0.08%
Stereo 4 ohm loads	< 0.1%

Damping Factor, 50 Hz re 8 ohm 206

Output Impedance magnitude at:

50Hz	38.8 milliohm
1 kHz	57.4 milliohm
5 kHz	196.7 milliohm
10 kHz	393.9 milliohm
20 kHz	867.9 milliohm
Input Impedance	14.7 kilohm

Frequency Response, 4-ohm load

20 Hz - 20 kHz +/- 0.0 dB
- 3 dB at < 10 Hz, 58 kHz

Voltage Gain, 8-ohm load, vs. gain setting

26 dB	21.2X, 26.5 dB
32 dB	41.8X, 32.4 dB
1.2V	92.1X, 39.3 dB

Sensitivity for 0 dBV, 8-ohm load

26 dB	133 mv, -15.3 dBu
32 dB	67.7 mv, -21.2 dBu
1.2V	30.7 mv, -28.0 dBu

Sensitivity for rated output, 1.5 kW, 8-ohm

26 dB	5.17 V, 16.5 dBu
32 dB	3.62 V, 13.4 dBu
1.2V	1.12 V, 3.2 dBu

Output noise, 32 dB gain setting, Ch1/Ch2 (essentially gain setting independent)

Wideband	110/200 mV -28.2/-23.0 dBW
A - Wtd	816/852 uV -70.8/-70.4 dBW

Signal to noise ratio re: 1.5 kW into 8 ohm, 32 dB gain setting

A - Wtd	102.4 dB
---------	----------

Channel Separation, 20 Hz - 20 kHz

Ch 1 > 2 , Ch 2 > 1	> 50 dB
---------------------	---------

Power draw @ idle 153 W, 0.58 PF, 2.2A

Notes: Unless otherwise noted or implied, all measurements are made with 8-ohm loads from the balanced XLR inputs, stereo mode with the volume set to maximum and gain set for 32 dB. Both channels driven for all distortion and power measurements. Measurements made on one channel are made on channel two.

Power output measurements were limited by the regulation and resultant voltage drop under power of my AC supply.

BENCH MEASUREMENT COMMENTARY

The QSC PL380 is one brute of an amplifier! This most powerful of the PL series utilizes both a switchmode power supply and a Class D switching power amplifier circuit. This one definitely exceeded the regulation capacity of my external AC supply fed from a sub-panel outside of my lab. My load resistors could take it for the relatively short time of the distortion vs. power tests.

Class D amplifiers in general have an out of band high frequency response that is a function of load impedance value due to their necessary LC output filters. The PL380 has this

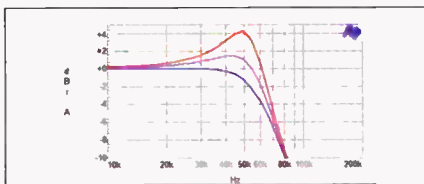


Fig. 1: Frequency response at the 1W/8 ohm level as a function

relatively controlled. This is shown in Fig. 1 for frequencies greater than 10 kHz and loads of open circuit, 8, & 4 ohm. Low frequency response was very extended. This is plotted in Fig. 2 along with the response of the two low-cut filter positions of 30 & 50 Hz.

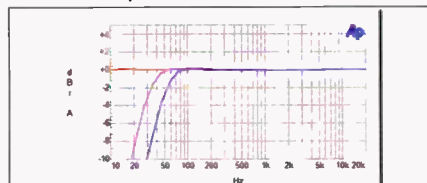


Fig. 2: Frequency response of the Low and High cut filters. Red = Flat, Magenta = 30 Hz low cut, Blue = 50 Hz low cut

THD+N for a 1 kHz test signal and for 8, 4, and 2 ohm loading in the stereo mode are shown in Fig. 3. Distortion is reasonably low and noise dominated up to about 10W and

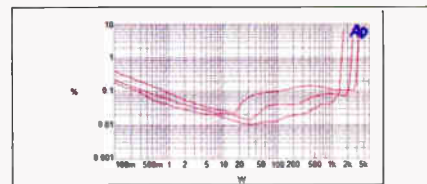


Fig. 3: THD+N of 1 kHz signal vs. power output for 8, 4, & 2 ohm loading, bottom to top at 100W

then begins to rise with 8-ohm loading. The lower impedance loads cause more distortion above the 10W level which is not surprising. As mentioned above, my AC supply couldn't hold the voltage up enough under this VERY high amperage load to make the rated power at the lower loads. But still, 3 kW per channel ain't bad! No doubt the amp would meet it's ratings with a maintained 120V AC line input.

Plotting THD+N as a function of frequency and power for 4 ohm loading, distortion is low up to about 2 kHz, where it begins to rise and gets to pretty high values above 10 kHz at the 1.5 kW and higher levels. The 1 & 10W levels are noise dominated.

The damping factor vs. frequency shows an unusual, in my experience, increase in DF below about 50 Hz.

In terms of Channel separation, unusual is the more or less flat nature of the separation vs. frequency. Much more usual is a characteristic that rises with frequency due to capacitive coupling in the signal circuitry.

— Bascom King

BETTER

Yamaha LS9-32



NEXO PS Series Loudspeakers
(PS10 shown)



TOGETHER

With Yamaha's LS9 digital mixing console and NEXO's PS Series loudspeakers, things couldn't sound better. The LS9 offers 16 or 32 channels, a virtual effects rack and a USB recorder/player. NEXO's PS Series demonstrates superior sound quality in a passive loudspeaker, reducing your amplifier budget and offers a unique asymmetrical horn pattern. Combined together, the LS9 and PS Series show how easy it is for two of a different name to become one and the same.



P.S. — For a limited time, with the purchase of an LS9-16 or LS9-32, a set of NEXO PS Series loudspeakers (any PS8, PS10 or PS15 model) and the appropriate TD controller (PS8U-TD-V2, PS10U-TD-V2 or PS15U-TD-V2), receive a Yamaha XP5000 (US MSRP – \$1249.00, Canadian MSRP – \$1361.00) or XP7000 (US MSRP – \$1499.00, Canadian MSRP – \$1634.00) power amplifier free-of-charge.

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Products must be purchased through an authorized Yamaha Commercial Audio Systems, Inc. dealer. To locate a dealer, please visit www.yamahaca.com and click "Locate a Dealer" at the top of the page.

To redeem your XP power amplifier, please visit www.yamahaca.com and print out the "Yamaha/NEXO Better Together" Promotion Redemption Certificate located on the home page. Fill in the appropriate information and

mail the Certificate along with a copy of your receipt(s) from the authorized dealer to Yamaha Commercial Audio Systems, Inc., 6600 Orangethorpe Avenue, Buena Park CA 90620, Attention: Yamaha/NEXO Better Together Promotion. Upon receipt and if you qualify, Yamaha Commercial Audio Systems, Inc. will send you an XP power amplifier. Please allow 6-8 weeks for delivery.

Promotion takes place from December 1st, 2007

to March 31st, 2008. Receipt(s) must be dated between December 1st, 2007 and March 31st, 2008. Customers have until April 30th, 2008 to mail in their Promotion Redemption Certificate and receipt(s). Certificates post-marked after April 30th, 2008 will not be honored. The Promotion Redemption Certificate must be properly submitted in order to qualify for the giveaway.

CONTRACTING

The latest news and products

NEW PRODUCTS

AURALEX ACOUSTICS EcoFriendly StudioFoam



As the world is going Green, so is Auralex, who now offers the EcoFriendly StudioFoam line of acoustic control products. According to Auralex, EcoFriendly StudioFoam is the first truly environmentally friendly acoustic absorption material on the pro audio market. Its physicality includes soy components, "reducing petroleum-based chemical usage by up to 60 percent," says Auralex, and is

manufactured without CFCs. And, no, customers are not limited to hues of green; the EcoFriendly StudioFoam line is available in all the same Auralex color choices of the original StudioFoam line. Best of all, it still meets (and exceeds) Auralex's acoustical and fire standards, and there's no increase in cost to Auralex consumers or dealers.

PRICE: Varies by project, contact manufacturer.

CONTACT: Auralex Acoustics | ☎ 800-959-3343 ↪ www.auralex.com.

ATLANTIC TECHNOLOGIES IWCB-727 THX Select2 In-wall Speaker



Looking for the range of a floor-standing speaker but with the flexibility of an install? Then think inside the box, if the box is the IWCB-727, the industry's first THX Select2-certified closed-box in-wall loudspeaker. This 2-1/2-way design features two 6-1/2-inch carbon fiber woofers and a 1-inch Low Resonance Tweeter that reach down into mid-range frequencies when mounted in the sealed MDF enclosure, eliminating the acoustic variability of open-back designs. A trio of acoustic controls allow performance to be tailored to the room, including

Directional Vector Control of the tweeter, a High Frequency Energy switch to compensate for bright or dull acoustics, and a Boundary Compensation toggle for mid-range compensation of sound colorations from ceilings and side walls.

PRICE: \$1,000 each.

CONTACT: Atlantic Technologies | ☎ 781-762-6300 ↪ www.atlantictechnology.com.

FURMAN Merit-x Series



Here's a powerful argument for equipment protection and AC filtration: products that are value-conscious! These new rackmountable power conditioning solutions feature a higher joule rating, increased AC noise filtration for a lower noise floor, a more robust chassis and wall-wart outlet spacing to accommodate bulky power transformers. The M-8x provides eight real-panel convenience outlets and a "Protection OK" light. The M-8Lx adds pull-out light tubes with dimmer knob. And the M-8Dx (pictured) adds a laboratory-grade front-panel digital voltmeter for monitoring.

PRICE: \$70 (M-8x); \$110 (M-8Lx); \$150 (M-8Dx).

CONTACT: Furman | ☎ 707-763-1010 ↪ www.furmansound.com.

SYMETRIX Zone Mix 760



Delivering optimal features and I/O (12/6) for restaurants, hotels, sports bars and nightclubs, this paging and music management system has received a 2.1 upgrade to its already rich feature set. External control support has been extended to the entire Modular ARC family, allowing wall panels to function as self-contained paging stations with zone groups and push-to-talk. The ability to create preset

toggles is now incorporated, and additional fader/mute linking capabilities are introduced.

PRICE: \$1,499.

CONTACT: Symetrix | ☎ 425-778-7728 ↪ www.symetrixaudio.com.

Already reinforcing sound ideas through Kids Rock Free opportunities, among other outlets, the Fender Center for Music Education recently demonstrated the value of proper acoustical treatments by installing Auralex Elite C24 ProPanels, SonoFiber and more spot treatments to the Rhythm Lounge indoor performance center (pictured).



Implementing an opposite tactic from above, the Landmark Church of Christ in Montgomery, Ala., used the phasing, intelligibility and pattern control of Danley's SH-50 speakers (as well as QSC amps and Ashley Protea DSP) to upgrade while eliminating the need for separate acoustic compensations.

Also looking for heavenly sound: Emmanuel Presbyterian Church in San Jose, Calif., which used Symetrix' SymNet DSP (BreakOut12, 8x8 and ARC-K1 units) as the heart, backbone and transport of its new facility's system (which includes Shure wireless mics, Aviom inputs, a Yamaha digital console, plus EAW and Tannoy speakers).

The historic Jefferson Hotel in Richmond, Virginia recently implemented an upgrade in several widely used event spaces by installing six Tannoy CMS12 TDC ceiling monitor systems, 20 CMS801 DC full-bandwidth, high-power ceiling monitor systems, five compact CMS801 DC loudspeakers and six CMS601 DC loudspeakers, plus a Lab.gruppen C20:8x8-channel power amplifier, Blamp AuciaFlex digital backbone and Middle Atlantic Rack.

And New York's Radio Center Music Hall helped bring in the Rockettes' 75th anniversary by adding on-stage monitoring from a dozen L-Acoustics ARCS cabinets.

**“The Serato Rane Series Dynamic EQ
is fantastic. This is one tool I want to
take with me **everywhere.**”**



:: GREG NELSON, FOH: Pearl Jam and Incubus

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IN THE CONSOLE OR IN THE RACK

by Dan Wothke

XLNT Idea Nexis 100AP CD/DVD Publisher

This CD/DVD burner/printer can burn up to 50 full-color CDs and hour — an excellent idea, indeed.

For many facilities — studios, publishing houses, churches, etc. — it is becoming commonplace to have the capability to produce high-quality CDs and DVDs in-house. This can help with production costs, especially with lower-quantity product runs, and allows for quick turn-



around of finished media. XLNT Idea has developed a few new products especially for this purpose, including the Nexis 100AP.

| FEATURES

The \$1,595 Nexis 100AP CD/DVD publisher is an all-in-one unit for burning and printing ink jet-ready CDs and DVDs. The unit includes a robotic arm to handle all of the loading and unloading of the media from the loading basket, which can handle up to 50 CD/DVDs and has an optional upgrade to double the capacity.

The inkjet printer uses non-proprietary inks (Lexmark #26 and #27), which are widely available and provide for a cost-

effective printing solution. The 4800 dpi print resolution makes for ultra crisp and clean printing — especially when using glossy coated media — and is capable of printing all standard ink jet-printable media types, including Watershield, Waterguard, waterproof and smearproof CD/DVD media. Business card and mini disc printing is possible with optional add-ons from XLNT Idea.

Two software titles are included with the package: Disc Direct, the interface for burning media with some advanced customization options, and Disc Studio, a straightforward design program for the artwork including printing clip art, text and graphic tools. Disc Studio is not required to use for the layout, but I found the best results by importing any graphics into the software before printing; this assures that the layout lines up correctly with the media.

The standard burn types supported by the Nexis 100AP include Data, Audio, Mixed, Disc to Image, Disc to Disc, Streaming and Auto Insert. Disc Direct also allows the linking of a Disc Studio image to the file, so the printing and burning are managed from one interface. Its software also offers standard options for formatting and verification. File Tree modes include ISO9660 Level 2 and Joliet, and there is an ISO image mode that includes Sub Channel Repair, which will attempt to repair any errors found on the disk.

The unit ships with all necessary cabling, including USB cable, ink cartridges and some blank sample media.

| IN USE

The unit fits nicely on a desktop measuring in at 9.5- x 19- x 17-inches, and weighs only 16 pounds — only a slightly larger

footprint compared with a standard ink jet printer. There are only two external buttons on the unit: error notification and power on/off. Although I could not see a speaker, there is clearly one in there; the unit has alert levels that would rival an alarm clock as I could hear the notification alert from down the hall. Compared to the alternative of not knowing the machine was waiting on my intervention, the loud beeping is a plus. If the noise is not a good fit, its sonic prompt can be disabled via the software interface (like many other features on the unit).

USB 2.0 is the communication interface for the unit, and the installation of the Nexis was as simple as installing any USB printer. The drivers and necessary software were included with well laid out instructions.

Once connected to the computer, the CDR/DVD-R drive and printer appears on the local computer. For Apple users, only printing is supported: burning is currently not possible. The built-in Sony Optiarc AD-5170A burner is stated to provide a maximum of 18X for DVD±R, 6X for DVD±RW, 8X for DVD±R DL and 48X for CD-R. Slower speeds are available via drop down menu, if necessary. The on-board buffer for the Nexis defaults to 160 MB, but can also be customized to meet a user's specific need.

The alignment process for the ink jet cartridges was a bit difficult, only because the arrow images that are used for alignment were a little hard to read. I looked at the book to see what the recommendations were, as

XLNT IDEA continues on page 56 ►

FAST FACTS



APPLICATIONS

Studio, Duplication Facilities, Houses-of-Worship

KEY FEATURES

Four-color photo-quality printing; 4800 dpi resolution; USB 2.0 connection; one-button tray load mechanism; included media adapters; non-proprietary inkcartridges; one year warranty

PRICE

\$1,595

CONTACT

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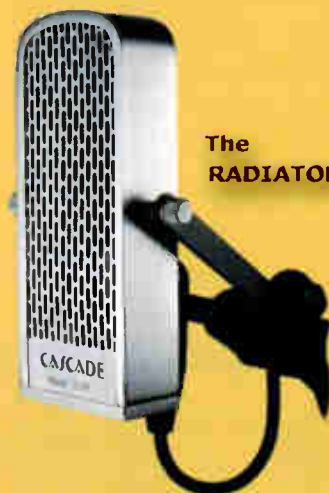
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when looking at the disc it was hard to see the differences between the closest options. Fortunately, the defaults seemed to be match

PRODUCTPOINTS



- Non-Proprietary Ink Jet Cartridges
- Robotic Arm was very accurate - no mispicks
- Hands Free operation



- Print alignment graphics hard to read
- Disc Direct application occasionally locked up when canceling a job
- Print-only functionality for Apple users
- No networking capabilities

SCORE

The Nexis 100AP is an ideal automated duplication system for an audio and/or video workstation where the look of finished CD or DVD media is important.

up and no fine tuning was necessary.

Under the hood, the Nexis 100AP consists of a supply basket on the left and a receiving basket on the right. Each basket is easily removed and notched to help assure the user has reinstalled correctly. Even with the notch, I did have a couple of instances where I thought the basket was in correctly until I heard a very unhappy robotic arm jamming. Only once did I have to run the utility to realign the arm, and after doing so I had no problems. Extra care was then taken to verify the baskets were seated correctly.

At the center of the unit is the DVD/CD burner, and above that is a tray for printing the media. Once a job had been queued, the robotic arm does the work for you by picking up the media, dropping it in the appropriate location (depending on if the job requires burning, printing or both) and then places the media in the receive tray. I tested with many styles of media and not once did I experience an inaccurate pick. If the burn or print fails in any way, the arm places the

media in the middle — not in the receive tray. This happened only once with me, and I was glad that the error was caught then placed in a different location. I sent many duplication jobs to the unit, both DVD and CD, and each time it performed as expected.

A major plus of the Nexis 100AP is that there were no misfires with pulling the CDs through the unit. I have had this problem using glossy media on belt-driven units. On the Nexis 100AP, the mechanism that picks up the disks actually grabs them from the center point, so the finishing surface of media is a mood point.

SUMMARY

The Nexis 100AP would be a good candidate for a facility where having the ability to do a quick one-off or a longer run with a hands-off approach is a major plus. And the color printing at 4800 dpi resolution will quickly become a favorite over other options, especially the old paper label or faithful standby black Sharpie.

Dan Wothke is the media director of Belmont Church in Nashville.

OFTEN COPIED, NEVER EQUALED

The advertisement displays a collection of Groove Tubes audio equipment. At the top, a row of microphones is shown with labels: HARDTOP (FET Condenser Microphone), CONVERTIBLE (FET Condenser Microphone), GT30 (Mid-Speed Diaphragm Class A FET Condenser), GT40 (Mid-Speed Diaphragm Tube Condenser), GT50 (Large Diaphragm Class A FET Condenser), GT60 (Large Diaphragm Tube Condenser), GT57 (Large Diaphragm Class A FET Multipattern), GT67 (Large Diaphragm Tube Multipattern), MD1B FET (Large Diaphragm Class A FET Condenser), MD1B TUBE (Large Diaphragm Tube Condenser), and VELO 8 (Velocity (Ribbon) Microphone). To the right, a larger microphone is partially visible with a -10 dB label. Below the microphones are three audio processors: THE BRICK (a rack-mounted unit), GLORY COMP (a compressor), SuPRE (a preamp), and VIPRE (a preamp). The Groove Tubes logo is prominently displayed in the bottom right corner.

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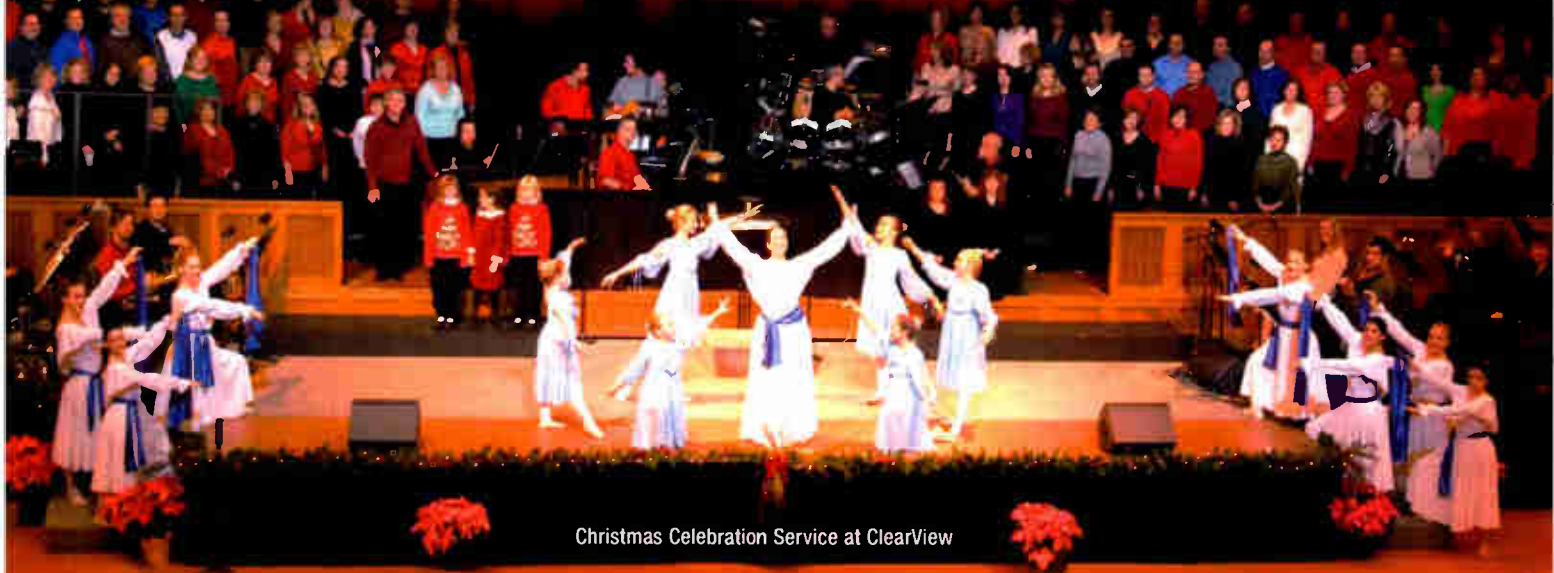


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A ClearView of Reverberant Space: Taming the Acoustics of a Multi-function Ministry

by Dan Wothke



Christmas Celebration Service at ClearView

Monday — Room in the Inn overnight outreach for homeless in the Nashville area.

Tuesday, Thursday and Friday — Outreach for Youth basketball practice.

Wednesday — Teaching and classes.

Saturday — Four hours of basketball games followed by teardown of equipment and setup of 750+ chairs and final preparation for Sunday.

Sunday — Two services for over 1,200 people.

This is a typical week for the main sanctuary at ClearView Baptist Church in Franklin, Tenn., not even including the many other ministries that meet on the multi-building campus. The main sanctuary at ClearView is an actual basketball court, complete with polyurethane-coated

wood floors, hoops and backboards, both mobile with wheeled platforms and suspended from the ceiling.

Yes, the facility serves many purposes throughout the week. But, when Sunday arrives, the primary purpose of the facility is realized with two contemporary worship services. Michael Smith is the Associate Pastor of Worship at ClearView, and between he, his technical staff and a multitude of dedicated volunteers ClearView completes its continuous transition on a weekly basis.

The church has tripled its growth in the past 10 years, and to add in more chairs has continued to remove walls to open up pockets around the rectangular shaped sanctuary (roughly 50- x 84-feet). Each pocket has Tannoy 18W delay speakers with dbx DriveRack processing. Mackie SA1232 mains are rigged from the main trusses — about 27-feet high, one on each

far end and two in the middle — and have been in service over the last decade.

Audio-wise, however, a new dawn is emerging, with JBL VRX932 enclosures leading. For subwoofers, the JBL SRK728 enclosures are slated to replace the current Mackie Fusion, currently located under the far ends of the stage. The middle portion of the stage — where the band leader, vocalists and minister deliver the message — is on large wheels, allowing it to be rolled back under the band portion to create additional floor space. All of this adds up to a lot of footage needing to be filled with heavenly sound, even as the original acoustics bring things back down to Earth.

LONG-TERM APPROACH

One of the first steps in the evolution of the 18-year-old facility was to hang a thick, black movie theatre-style curtain

CLEARVIEW continues on page 60 ►

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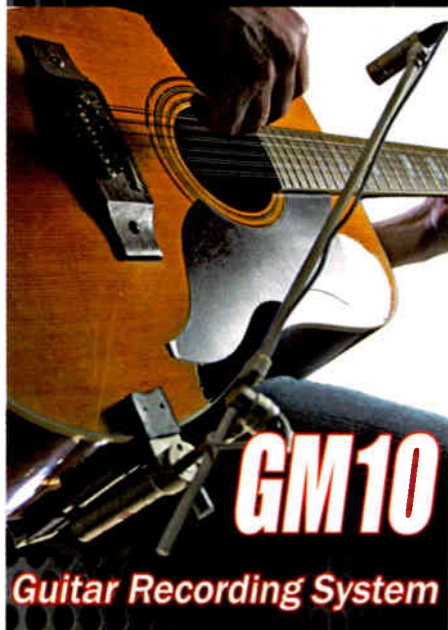
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along the back wall to cover the brick surface. From there, an Aviom headphone system for musician in-ear monitoring was implemented. Aside from the benefit of level control, another major plus for using the in-ear system was communication. The band leader has a headset microphone that is routed only to the channel on the Aviom; this allows him to talk directly to the band during worship. Michael leads the congregation and cues the band leader, and that is passed on to the band via the microphone. To confirm all is communicated well, Michael has the same microphone fed into his mix and,

Both Mikes agree that the treatment of the walls, especially the rear wall, has a great impact on the musicians, who, before, were constantly battling with the slap for the flat surface, just 50 feet in front of them.

during special events, he will wear a lavalier microphone for communicating directly to the band.

The only stage monitors are on the obtruding center portion of the stage, and are used for background vocalists. For the choir, the team decided to “break” a pair of Bose self powered column speakers ... according to Bose, at least. The tight field of coverage that the Bose offered made it the perfect fit to hang from the ceiling at the front of the stage and point down towards the choir stands. Two of these were able to cover the area for the choir. Regarding the “break,” the Bose components were removed from their bases, which is neither supported nor recommended by Bose. However, by removing the base (which serves as the amp) they were able to extend the cabling to reach behind the curtain and attach it to

the bases hanging on the back wall.

With the quick turnaround regularly required in the room, the sound booth is located in the back right corner (stage perspective) and is a unique design. It is built upon a one-inch steel-reinforced platform and pivoted in the back corner, allowing the platform to twist out into the sanctuary on Sunday AM and then back into the pocket so that it is out of the way during the week — no cables to disconnect, nothing to adjust. The rear wall is full height, so when the sound booth is spun into the dormant position, no stray basketballs find their way into the booth during the week.

SEVEN-YEAR COMMITMENT

Consider all of the factors: the growth of the congregation, the full band plus occasional choir and orchestra, the modifications to the room that would help control the slap, and the amplified stage volume. All of these items were a great help, but still did not resolve the issue with the amount of slap produced in the congregational part of the sanctuary. Once the leadership decided that they would remain in this facility for at least the next seven years, they decided to take the step to treat the walls.

The primary challenge was the upper 20-foot portion of the entire room — pri-



When it comes to acoustic treatments, let go of all hang-ups except for the ones that hold up the panels.

marily painted drywall, a hard and reflective surface that doesn't play well with 90-plus decibel live music, even louder when the orchestra participates. Michael began

calling upon local contractors for initial visits. After reviewing bids — and factoring in cost, aesthetics and effectiveness — ClearView decided on Auralex Acoustics through a local dealer, Corner Music in Nashville.

The Auralex panels consisted of six on the front walls, 18 on the rear and 10 on each side: four- x eight- x two-foot panels with beveled edges, 44 in total. ClearView had an entire color palette to choose from, and decided upon "Light Moss" fabric to match the vibe of the room.

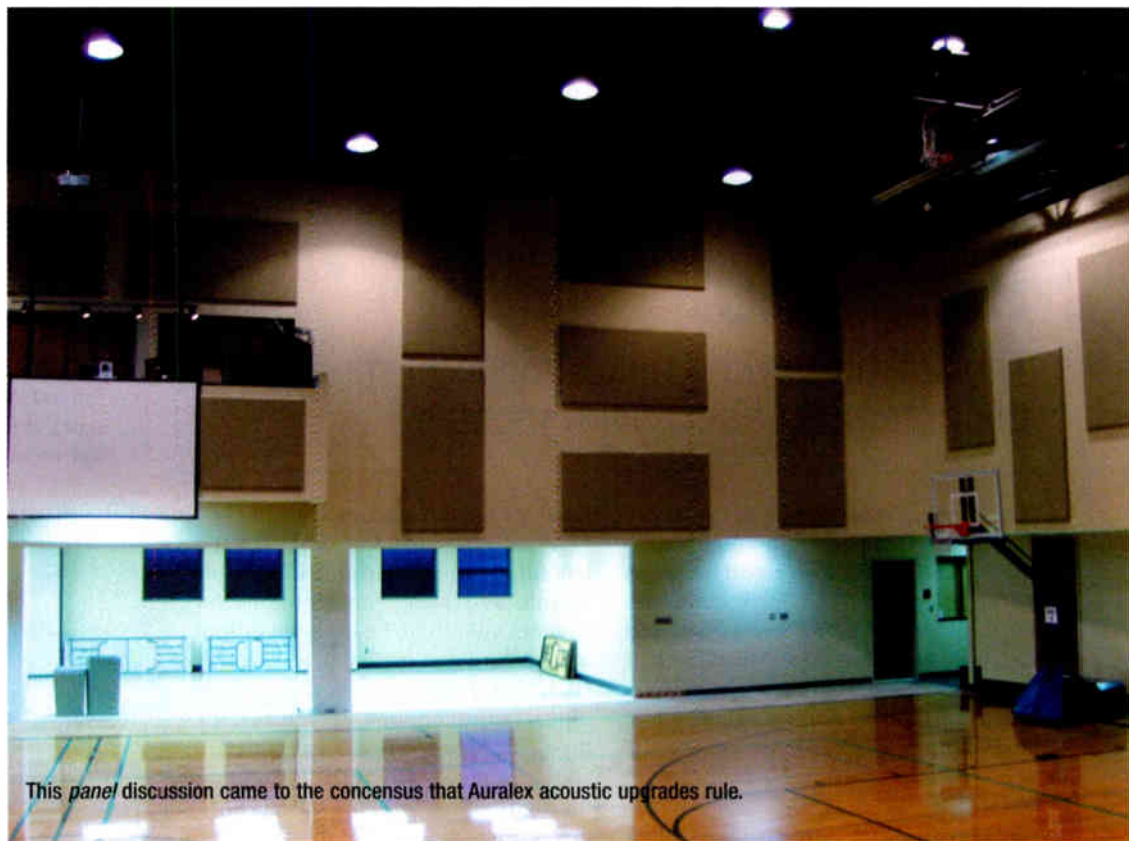
The exact layout of the panels was completely up to ClearView, as long as the correct number of panels was on each wall. Michael sat down with Microsoft Visio (a straightforward program for easily creating room layouts, among other purposes) and toyed with different designs, ultimately determining a pattern that would work aesthetically.

The mounting of the panels was painless; first of all, the price included installation, and, secondly, each panel is hung in the drywall with a fish hook-type anchor. This hanging method assured ClearView that panels can be removed or relocated if necessary and, due to no use of adhesives, will not damage the panels or the walls. This will allow, for example, experimenting with the total number of panels or configuration of the panels on the side walls in order to dial back in some of the natural decay of the room.

How much did this Auralex aesthetic and acoustical upgrade cost? Total package including consultations, diagrams, panels and installation was in the \$12k range, which equals approximately \$272 per panel. And Michael has been extremely pleased with the results, both in sound and aesthetics. He noted that it changed the look of the room tremendously; unless you gander up at the two baskets suspended near the ceiling, you don't notice it is a gym on Sunday AM.

To the company's credit, Auralex overachieved. Because of the non-abrasive mounting style of its panels, experimentation with the room's new acoustics is easy. During my visit at ClearView, I noticed bass trapping was absent from the room and Mike credits that to the natural diffusion in the corners and the pockets off of the main room. Both Mikes agree that the treatment of the walls, especially the rear wall, has a great impact on the musicians, who, before, were constantly battling with the slap for the flat surface, just 50 feet in front of them. As for the wood floor, it is not an issue on Sundays due to the use of the fabric coated chairs and the best absorbent of all: a church full of people.

Dan Wothke is the media director of Belmont Church, located in Nashville, Tenn.



This panel discussion came to the consensus that Auralex acoustic upgrades rule.

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by John Gatski

M-Audio MicroTrack II CompactFlash Stereo Recorder

This 24-bit/96-kHz micro recorder maximizes the potential of sub-\$400 models.

Despite the plethora of more expensive (and flashier) CompactFlash-based stereo recorders, and a few lower cost ones as well, the M-Audio MicroTrack continues to be a favorite among recordists and musicians. Now the new MicroTrack II sports features and upgrades that address most of the negatives of the original, while coming in at the same \$399 list price.

FEATURES

The MicroTrack II now comes in black plastic, which houses the familiar palm-sized recorder. The new model sports most of the same features, including recording to compact flash, up to 24-bit/96-kHz WAV or MP3 encoding, a T-electret stereo microphone, internal battery power, TRS 1/4-inch input for mic or line, and a handy S/PDIF digital

input for use with other converters.

Menu functions are accessed via a left side button, the right side Enable button, and front panel buttons for channel gain, line/headphone output gain, record and track delete. The tiny GUI blue screen shows the various input/output options, as well as track time, bit/word length, gain meters and battery strength. Toggling through the menu items reveals various settings and system modes.

The new features that will interest most professional recordists include a revised input gain structure that does not overload as easily as the original, faster USB 2.0 file transfer to the editing computer, longer recording capability (over 2 GB), 48-volt Phantom Power for larger condenser mics, location markers for Broadcast Wave files, and an analog limiter with bypass. Other new features are customizable file folders, CF memory test, adjustable backlight and the ability to monitor the S/PDIF input while recording.

Those familiar with the original will notice there is no longer a right-side sensitivity switch for line in or microphone inputs — just the phantom power switch, hold switch, screen brightness and menu switches.

The MicroTrack II package includes the T-mic, earbuds, a small carrying case, adapter, USB cable and manual, and can sometimes be had for close to \$300.

IN USE

The original MicroTrack took some getting used to — with its various button pushes to get it to record, play and stop — and the new one's basic operation is the same.

What I really liked about the MicroTrack

II was its ability to take higher-level inputs through its line input; the original could not record a fixed output of a CD player without clipping, requiring external attenuation.

Also appreciated were the speedy USB 2.0 file transfer, the brighter screen, and the ability to mark files (which can then be renamed on computer). Another change I liked was the unit's automatic pause mode when recording was engaged; the original one required a separate push of the engage button after the record button was pushed.

From PAR's previous bench tests of the original MicroTrack (in the August 2007 issue), it was apparent that its high-resolution capability was very good. To test the



MicroTrack II I sampled the output of high-end universal players (SACD or DVD-A), recording several 24-bit/96-kHz acoustic guitar stereo recordings on the new one. They sounded pretty darn good via the internal DAC and headphone amp, as well as line out via its RCA unbalanced output.

Many pros may use the A/D to record, then transferring the tracks to a computer

M-AUDIO continues on page 65 ►

FAST FACTS

APPLICATIONS

Field recording, Broadcast

KEY FEATURES

CompactFlash, Microdrive support; up to 24-bit/96-kHz WAV or MP3 encoding; multi-part recording beyond 2 GB capacity; T-electret stereo microphone; internal battery power; TRS 1/4-inch input for mic or line; SPDIF digital input; 48-volt Phantom Power; USB 2.0

PRICE

\$399.95

CONTACT

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by Stephen Murphy

SignVideo ENG-44 Field Production Mixer

All signs point to "great buy" for this full-featured, four-channel mixer.

Portland-based SignVideo Ltd. has manufactured and distributed made-in-the-USA video production and duplication tools/accessories since 1993. Its product range includes a utilitarian variety of video distribution amplifiers and dub switchers, as well as some more specialized entries.

From an audio standpoint, easily the most remarkable item in SignVideo's catalog is its four-channel field mixer, the ENG-44. Retailing for just \$529, the ENG-44 and its well-appointed feature set adroitly fill a void in the market where industry standards retail for two to three times its price.

FEATURES

SignVideo ENG-44 designer Roger Marin apparently took a Cook's tour of the

FAST FACTS

APPLICATIONS

Location audio production

KEY FEATURES

AC/DC-operable four-channel in/two-channel out mixer; inputs are mic/line selectable; per-channel phantom power, high-pass filter and L/C/R pan switch; 10-segment VU meters; output compressor/limiter (internally adjustable); dual headphone outputs; balanced and unbalanced outputs (mic/line level); tape return monitor; 30-day satisfaction-guaranteed trial period

PRICE

\$529

CONTACT

SignVideo | ☎ 503-236-0000
 ☞ www.signvideo.com

most popular field mixers and developed a product that not only covers the rudimentary requirements, but also incorporates a few features plucked from the best.

The ENG-44 has four switch-selectable mic/line inputs on XLR connectors (2 k-ohm input impedance). Each input has a corresponding continuously variable level potentiometer, a left-center-right pan switch, a 100 Hz high-pass filter (6 dB/octave) and a +48V phantom power switch.

The balanced main left/right XLR outputs are fed from the mixer's stereo master output control; the L/R outputs can be globally set to either line or mic level. The same output buss also feeds separate 1/8-inch stereo (unbalanced) mic- and line-level "auxiliary" outputs. At line level, balanced and unbalanced outputs have 600-ohm impedance.

A headphone monitor pot feeds both a conventional 1/8-inch stereo jack on the front of the unit (10-ohm output impedance) and a second XLR phones output (carrying L/R information, not balanced) for running a long cable to a boom mic operator or producer. Two unbalanced 1/8-inch stereo jacks provide aux input to the mix bus (line level, fixed) and a tape monitor input for auditioning the return back from a deck or camera. The latter features independent L/R input level adjustment via recessed trim pots, and can be discretely monitored at the headphones output via a front-panel mix/tape-return selector switch.

The ENG-44 weighs in at 2.25 pounds loaded with four AA batteries. The unit can also be powered via an external supply of 9-18 VDC. The external power input accepts a 2.1 x 5.5 mm center-positive coax-type connector, and is protected against potential reversed polarity damage.

The range of professional field mixers for the professional ENG and film/video production market is fairly small. Yet the

expectations for these "one chance to get it right" products are unusually high, especially in the build quality and ergonomic departments.

There are only a handful of industry-respected "usual suspects" from which to choose and prices tend to be commensurately high, with two-channel models starting just under \$1,000 and four-channel models in the \$2,000 - \$3,000 range (there are additional models that push beyond \$4,000). Naturally, production engineers form a tight bond with their trusted mixer: it literally and figuratively becomes an appendage and extension of themselves when they pick up the PortaBrace.

Based on name recognition and perception-by-price alone, SignVideo's ENG-44 doesn't fit into the first-call picture. It can, however, fit in nicely as a capable and quality backup — a CYA luxury that smart



ops should seriously consider based on its feature set, minimal weight and extremely low cost.

Don't feel sorry for the ENG-44; it is perfectly positioned to fill the affordable four-channel mixer void and provide real field production audio operations to the new and exponentially growing HDV production set.

IN USE

My experience using the ENG-44 for this review spanned two phases. First, I was in my studio under (reasonably) controlled circumstances using a variety of mics that included Sony ECM-77 and ECM-88 wired lavs, Lectrosonic M152 lavs (with LM transmitters and Venue receivers), an ElectroVoice RE-20 and a Shure KSM-44. For the second phase I took the ENG-44 (feeding a Zoom H4 and Sony HVR-Z1) out to an office location and on the streets for some location shoots using the Lectro lavs and a Sennheiser ME66 on a fish pole.

During the tests and in mock-post, I was completely impressed with what SignVideo and designer Marin were able to accomplish. Specifically, I was impressed by the

PRODUCTPOINTS



- Outstanding value
- Impressive sound quality
- Very good limiter
- Flexible I/O complement



- Combined L/R front-panel output control
- No channel mutes or solos
- No discrete left- or right- channel audio monitoring

SCORE

An excellent addition to the location audio backbone that won't break the spine or bank.

clear and quiet preamps, its surprisingly pleasing compressor-approaching-limiter (its knee/ratio falls somewhere in between), and its capable feature set. The unit had no trouble providing consistent phantom power to a full complement of aperature-hog condensers, even for extended lengths running on four AAs.

From an ergonomic standpoint, the

ENG-44's dual curved 10-segment LED VU meters were fast and easy to follow (a recessed VU brightness switch provides both normal and near-blinding settings), the limiter indicator was well in sync with its action, and the front panel knobs felt secure and smooth, with a healthy amount of stay-put resistance. The headphone amp proved capable of comfortably driving a set of Sennheiser HD280 phones (64 ohms), but I wouldn't recommend a much higher load for noisy situations.

Some other welcome features were the secondary XLR headphone feed (though a level control would be even more welcome), the built in slate capability, and the redundant stereo line output (on mini). It was also nice to find that the compressor threshold is internally adjustable, as are the left, right and tone generator outputs – though I recommend calibrating these before hitting the road, as there are over a dozen screws to contend with.

| SUMMARY

There are some useful features found on several (but not all by any means) of the ENG regulars that are not incorporated in

[The ENG-44] is perfectly positioned to fill the affordable four-channel mixer void and provide real field production audio operations to the new and exponentially growing HDV production set.

the ENG-44, but that wish-list version would carry a much higher premium.

As it stands, you really can't go wrong with the SignVideo ENG-44 as a backup to a first-call favorite or as the audio core for lower-budget independent production outfits. It boasts an impressive sound quality and circuit design, a beyond-utilitarian feature set, it's made right here in the States, and its absolutely affordable.

PAR Studio Editor Stephen Murphy has over 20 years production and engineering experience, including Grammy-winning and Gold/Platinum credits. His website is www.smurphco.com.

BROADCASTING

| Review

M-AUDIO Continued From Page 62

for editing/conversion to an external player format feeding a separate DAC. This is where the MicroTrack II really shined. Despite its low cost, and its streamlined "plastic" feel, this device recorded quality high-res audio. The 24-bit/96-kHz files

played back via computer with the Lavry DA10 or the Benchmark DAC1 revealed nicely separated, smooth transients that were close to more expensive separate A/D recordings of the same music.

Custom Martin guitar recordings, using the included T-mic, were amazingly good, with detailed stereo image, rich mids and adequate bass. From the recording, you wouldn't know it's courtesy of a plug-in mini-mic set.

PAR's bench tests of the original MicroTrack showed dynamic range and signal-to-noise measurements well above 90 dB, plus good low-level converter linearity down to -100 dB; it wasn't true 24-bit, but in the real world that's very good numbers for a \$300 recorder. According to the manufacturer, the MicroTrack II posts even better specs. And this can certainly be heard, as the overall sound through headphones is quite revealing, with pleasant, welcomed warmth.

Other functions that I liked on the MicroTrack II included the defeatable analog limiter that works pretty well for those who need a safety for eliminating any harsh digital clipping. And USB 2.0 now eliminates the need for an external card reader for speedy transfers to computer.

The MicroTrack II still maintained an internal rechargeable battery-powering scheme,

which runs down in about 45 minutes in the 96-kHz recording mode. But the MicroTrack II now allows recording and charging simultaneously, and allows USB power at any time. I would like to see M-Audio change the power system to user-replaceable, like the Sony D50 or the Zoom H4. For about \$50, however, you can connect the MicroTrack II to those external USB battery packs and more than triple recording time.

| SUMMARY

Despite stiff competition among Flash-based recorders currently on the market, I still have to recommend the MicroTrack II for those who don't want to spend more over \$350 for a handheld recorder. It's not the sturdiest feeling recording device, but its converters sound very good and its easy to learn how to use. The TRS-balanced input capability is a better way to bring outside analog in, and the T-mic is quite good for recording those rehearsals or even a real gig. PAR's original MicroTrack, despite some loss of battery resiliency and the paint peeling off from repeated removal from its case, still works fine, and the MicroTrack II should show equal hardiness.

John Gatski is publisher/executive editor of Pro Audio Review.

PRODUCTPOINTS



- Great sound
- Revised input gain range
- Speedy USB 2.0 connection
- T-Mic



- No user replaceable battery

SCORE

Still the best under-\$350 handheld for high-res recording.

M-AUDIO Pulsar II

FEATURES: Small-capsule condenser; 3/4-inch, 6-micron Mylar evaporated gold diaphragm; solid brass backplate and body; Class-A FET; switchable 10 dB pad, 80 Hz high-pass filter; thermal diaphragm treatment; wooden storage box, windscreen and clip; available in matched pairs.

PRICE: \$199.95.

CONTACT: M-Audio at 866-657-6434, www.m-audio.com.



HOLOPHONE H3-D

FEATURES: Six-channel (L, R, C, LFE, LS, RS) discrete multi-directional mic "array" for 5.1 channels; 20 Hz - 20 kHz response on five channels, 20 Hz -100 Hz on LFE; Phantom Powered; single cable terminates in six Neutrik XLR connectors.

PRICE: \$1,695.

CONTACT: Holophone at 416-362-7790, www.holophone.com.



HEIL SOUND PR 35

FEATURES: Cardioid; large 1.5-inch diameter dynamic element; internal Sorbothane shock mount. 40 - 18,000 Hz; output level of -52.9 dB @ 1000 Hz; two position roll-off switch; mounting assembly; hard shell attaché-style case.

PRICE: \$249.

CONTACT: Heil Sound at 618-257-3000, www.heilsound.com.



CASCADE FAT HEAD II

FEATURES: Hand-tuned aluminum ribbon; symmetrical design, true figure-8; center-field technology; "balanced audio input"; 30 - 18,000 Hz; 165 dB max SPL; 156 dB +/- 2 dB sensitivity; polished nickel, also available in black; super-wide radian grill; premium shockmount; quality wood box, or upgrade aluminum case.

PRICE: \$199.

CONTACT: Cascade Microphones at 360-867-1799, www.cascademicrophones.com.



SONY ECM-957PRO

FEATURES: "Turning capsule" for vertical or horizontal orientation; built-in MS (Mid-Side)

decoder offers selectable 90-degree or 120-degree stereo width; single 1.5 V AA battery equals 200 hours operation.

PRICE: \$449.95.

CONTACT: Sony Pro Audio at 1-800-686-SONY, www.sony.com/professional.



AVANT ELECTRONICS CV-12

FEATURES: Interchangeable tube mic; dual 32mm capsules; -10 dB pad; 80 Hz roll-off switch; multi-pattern power supply with nine selectable patterns; custom Retro Shock mount; cables, padded wood box; aluminum road case.

PRICE: \$499.

CONTACT: Avant at 909-931-9061, www.avantelectronics.com.



CROWN CM-311A

FEATURES: Differoid head-worn electret condenser; cardioid; fully adjustable headband and boom; pop filter; wired to 9V battery belt pack (can also use Phantom Power).

PRICE: \$546.

CONTACT: Crown Audio at 574-294-8200, www.crownaudio.com.



SHURE KSM9

FEATURES: Condenser; cardioid, supercardioid patterns; dual gold-layered, low-mass Mylar diaphragms; advanced suspension shock mount; Class A transformerless preamp; gold-plated internal, external connectors; XLR Output Durable aluminum housing; 50 Hz - 20 kHz.

PRICE: \$850.

CONTACT: Shure at 847-600-2000, www.shure.com.



SE ELECTRONICS Gemini II

FEATURES: Cardioid pattern; dual-tube; 10 dB pad; 100 Hz roll-off; brushed aluminum power supply; locking shockmount; flight case.

PRICE: \$1,499.

CONTACT: sE/Sonic Distribution 617-623-5581, www.sonicus.net.



cardioid mics; 40 Hz - 20 kHz; gooseneck mounts; magnet bases; XY/ORTF stereo holder with extension; suspension mounts; windscreens, shock mount.

PRICE: \$3,899.

CONTACT: DPA Microphones at 866-372-6427, www.dpamicrophones.com.



AEA R92

FEATURES: Large ribbon geometry for close-up use, extended high end capture; flexible positioning system; integrated shockmount.

PRICE: \$900.

Contact Audio Engineering Associates at 800-798-9127, www.ribbonmics.com.



SENNHEISER MKH 8000 Series

FEATURES: RF condenser technology with a compact, modular form factor; omnidirectional (8020), cardioid (8040), supercardioid (8050) models with two modules - microphone head and separate XLR module; frequency response ranges from 10 Hz - 60 kHz, 30 Hz - 50 kHz; extremely high SPL; windscreen, clip, aluminum transport case.

PRICE: \$1,299 (each set).

CONTACT: Sennheiser at 860-434-9190, www.sennheiserusa.com.



NEUMANN KMD Digital Mics

FEATURES: Modular KM 183 D, KM 184 D, KM 185 D models with integrated DSP combine omnidirectional, cardioid, supercardioid capsules with the KM D output stage, A-to-D converter for no coloration and absolute transparency.

PRICE: From \$2,149.

CONTACT: Neumann at 860-434-9190, www.neumannusa.com.



CROWLEY AND TRIPP "el Diablo"

FEATURES: Ribbon featuring proprietary Roswellite advanced material for high-SPL handling.

PRICE: \$2,750.

CONTACT: Crowley & Tripp at 508-231-4515, www.soundwaveresearch.com.



MXL Genesis

FEATURES: Tube condenser; large cardioid

BUYER'S GUIDE | Microphones

capsule, 6-micron gold-sputtered diaphragm; hand-selected Mullard 12AT7 tube; 100 Hz 6 dB roll-off and -10 pad switches; 48V Phantom Power; 24-karat gold-plated grill.

PRICE: \$799.

CONTACT: Marshall Electronics at 310-333-0606, www.mxlmics.com.



BLUE Woodpecker

FEATURES: Powered aluminum ribbon; Class-A discrete electronics; 20 Hz - 20 kHz; Figure 8 pattern; 114 dB dynamic range.

PRICE: \$1,299.

CONTACT: Blue Microphones at 818-879-5200, www.bluemic.com.



RED Type A

FEATURES: EC88 tube mic system with nine interchangeable capsules; transformerless Class-A discrete amp circuit; Powerstream power supply; custom flight case, shock mount.

PRICE: \$1,345 with Lollipop capsule (additional capsules \$249 - \$849).

CONTACT: Red Microphones at 818-292-8631, www.redmic.com.



CAD e70

FEATURES: Condenser; cardioid, omni capsules; low-mass 1/2-inch gold-sputtered diaphragms; transformerless; dual high-pass filter at 75, 150 Hz (6 dB per

octave); dual pad at 10, 20 dB; 20 Hz - 20 kHz; -38 dBV (13mV) @ 1Pa sensitivity; max SPL 150 dB; shockmount, clip.

PRICE: \$299.

CONTACT: CAD Professional Microphones at 440-349-4900, www.cadmics.com.



ELECTRO-VOICE Cardinal

FEATURES: Condenser; cardioid; Class A discrete ultra-low noise circuitry; 35 - 20,000 Hz; 12 - 48 volt Phantom Power.

PRICE: \$269.

CONTACT: Electro-Voice at 952-884-4051, www.electrovoice.com.



MOJAVE AUDIO MA-100

FEATURES: Small-diaphragm condenser; three-micron capsule; cardioid and

omnidirectional patterns; 30 Hz - 18 kHz +/- 2.5 dB frequency response; Jensen audio transformers; military-grade JAN 5840 vacuum tubes; four-inch case, power supply, clip, cable.

PRICE: \$795.

CONTACT: Mojave Audio at 818-847-0222, www.mojaveaudio.com.



PEAVEY PVM 46 Diamond Series

FEATURES: Diamond-coated diaphragm for increased durability, response; Neodymium iron boron magnet; hyper-cardioid polar pattern; 15 dB (typical) front to back rejection; 45 Hz - 16 kHz frequency response; ultra-high sensitivity (-51 dB); 140 dB maximum SPL.

PRICE: \$199.99.

CONTACT: Peavey at 866-443-2333, www.peavey.com.



LAWSON Tube/FET Combo

FEATURES: Modular system; L251 Quick Change capsule; L47MP MKII Quick Change capsule; FET and tube electronics.

PRICE: \$3,400.

CONTACT: Lawson at 615-269-5542, www.lawsonmicrophones.com.



VIOLET DESIGN Flamingo Magic Ear

FEATURES: Ear-shaped capsule, minimized acoustic resonances; cardioid polar pattern, perfect for vocals; gold-sputtered 6-micron Mylar diaphragm; fully discrete; Class A; 6267 vacuum tube; sequential power supply.

PRICE: \$7,418.

CONTACT: Violet Design/FDW Worldwidet 608-227-2040, www.violetusa.com.



ADK S-7

FEATURES: Low-noise Class A cardioid condenser; 150 SPL-wonder, designed for drums, cabs, "front of mix" vocals; transformerless, symmetrical output; electronics from Vienna/Hamburg Edition; two-way pad, two-way HP filter.

PRICE: Est. Street Price \$300.

CONTACT: ADK at 503-296-9400, www.adkmic.com.



Mojave Audio

Brought to you by David Royer



On the MA-100

"The sound was amazing. It has everything good that the C-28 has - except it's quieter and it has more top end sparkle."

Pro Audio Review

On the MA-200

"Rich, warm, open, works well with practically any instrument or vocal - the MA-200 is a wonderful sounding microphone that is well made, well packaged and unbelievably priced. It is a great consideration to any studio or engineer looking to broaden their sonic pallet."

Pro Audio Review

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Burbank, CA.

ATI M100 ULTIMIKE

FEATURES: Single-channel; 48-volt Phantom Power; servo-stabilized, extremely low noise instrumentation amplifier input; +22 dBm transformer output; switchable gain and limiting.

PRICE: \$489.

CONTACT: ATI Audio at 856-719-9900, www.atiaudio.com.



MILLENNIA Media HV-3R

FEATURES: Eight-channel; remote controllable; 48-volt; Polarity, Mute, Link switches; Gain control in 1 dB steps 8-69 dB range; AELogic software for Ethernet operation; Pro Tools|HD-compatible MIDI control protocol; 130 volt, DC, HROE output, AD-R96 Digital Output options.

PRICE: \$5,149.

CONTACT: Millennia Media at 530-647-0750, www.mil-media.com.



D.W. FEARN VT-2 Vacuum Tube Preamp

FEATURES: Two-channel; 48-volt Phantom Power; gain controls; switchable 20 dB input pad; setting for very low-Z mics; VU meters; all Class-A triode design.

PRICE: \$3,900.

CONTACT: D.W. Fearn at 610-793-2526, www.dwfearn.com.



BLUE Robbie

FEATURES: Single-channel; Class-A discrete ECC88 tube, transformerless input stage; ultra-low noise (-131 dB); high headroom (34 dB); 48V Phantom Power; 10 Hz - 100 kHz.

PRICE: \$1,299.

CONTACT: Blue Microphones at 818-879-5200, www.bluemic.com.



SM PRO AUDIO EP84

FEATURES: Eight-channel; modular PCB design; 48-volt Phantom Power and insert points per channel; ultra-wide dynamic range and low noise; phase reverse; -20 dB pad and 80 Hz low cut filter per channel; optional ADAT module; freq. response 20 Hz - 20 kHz.

PRICE: \$339.

CONTACT: SM Pro Audio at www.smproaudio.com.



VIDEOQUIP MP-2 Dual

FEATURES: Two-channel; +48V Phantom Power; 25 - 60 dB gain controls; locking XLR inputs; two balanced analog outputs per channel, level control; removable screw clamp terminal block output connectors; clipping indicators; -120 dB hum+noise; 1/2 RU.

PRICE: \$420.

CONTACT: Videoquip Research, Ltd. at 416-293-1042, www.videoquip.com.



CRANE SONG Flamingo

FEATURES: Two-channel; 48V Phantom Power; sweepable gain in 6 db steps to 66 db gain; discrete Class A; attenuation; phase reverse; "Iron," "Sound" effects; original setting, one to match large diaphragm condenser mics.

PRICE: \$3,125.

CONTACT: Crane Song at 715-398-3627, www.cranesong.com.



A-DESIGNS AUDIO Pacifica

FEATURES: Dual mono solid state; custom wound input and output transformers; 72 dB gain; Direct Inject HiZ; phase switch; pad switch; 48-volt Phantom Power; 1RU.

PRICE: \$2,250.

CONTACT: A-Designs Audio at 818-716-4153, www.adesignsaudio.com.



TC ELECTRONIC Studio Konnekt 48

FEATURES: 24 input, 24 output Firewire I/O; Built in DSP and speaker management; 4 Impact II mic preamps; ADAT I/O; 24bit/192 kHz; Remote Control with talkback; includes Resfilter, Assimilator and Integrator Plug-ins.

PRICE: \$1,499.

CONTACT: TC Electronic at 818-665-4900, www.tcelectronic.com.



PRISM SOUND Maselec MMA-4XR

FEATURES: Four-channel; Phantom Power; mute; phase invert; gain control; low noise and distortion; transparent.

PRICE: \$4,750.

CONTACT: Prism Sound at 973-983-9577, www.prismsound.com.



TRUE SYSTEMS P-SOLO

FEATURES: Single-channel; balanced dual-servo, high-dynamic range transformerless design; internal linear AC power supply; high-impedance instrument input; high-pass filter; Phantom Power; dual analog outputs; four-level metering.

PRICE: \$695.
CONTACT: TRUE Systems/TransAudio at 702-365-5155, www.transaudiogroup.com.



DAKING Mic-Pre IV

FEATURES: Four-channel; 1RU; Class A; all-discrete transistor circuitry; transformer balanced inputs/outputs; all relay switching with gold bi-furcated contacts; switchable Phantom Power; 20 db pad on mic input; three inputs, mic-line-instrument; continuously variable gain control; 20-segment VU meter.

PRICE: \$3,150.
CONTACT: Daking/TransAudio at 702-365-5155, www.transaudiogroup.com.



API 512C

FEATURES: Mic/line/instrument preamp; low noise (-129 EIN); 65 dB of gain; Phantom Power; switchable polarity; -20 dB pad; XLR, 1/4-inch connectors, rear panel mic access.

PRICE: \$795.
CONTACT: API at 301-776-7879, www.apiaudio.com.



ART TubeFire 8

FEATURES: Eight-channel tube preamp; FireWire; 44.1 - 192 kHz; gain and output controls; eight combo inputs; eight TRS outputs; 48-volt Phantom Power; phase invert per channel; selectable output; headphone monitor output.

PRICE: \$699.
CONTACT: Applied Research and Technology/Yorkville at www.artproaudio.com. tri-segment LED display for clear metering.



CHANDLER LIMITED Germanium

FEATURES: Single-channel; 48V Phantom Power; phase reverse; pad; "thick" switch; "feedback" control; switchable LED meter.

PRICE: \$1,050.
CONTACT: Chandler Limited at 319-885-4200, www.chandlerlimited.com.



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STUDIO

| Feature

AURALEX Continued From Page 39

MegaLENRDs!)

As for the spray glue, it really sticks! After the 30-second setting time on each surface, the first time the two surfaces come together will be permanent, so be guided accordingly! And you have about one second to remove a stray spray from the wrong place on the foam before it's there forever. The spray glue nozzle is really cool, with three different possible thicknesses. Just remember to keep wiping it down with a turpentine-dotted rag after spraying each piece.



It tis better to be foaming on the walls than foaming at the mouth.

Plus, Goo-Gone removed excess bits of the orange-colored FoamTak from places on the walls where it didn't belong.

HOW DID IT SOUND?

After hanging the SpaceCouplers first, then various LENRDs and AudioTiles on the south end of the room, I hurried to put my monitor speakers back in.

The control room's top set of speakers is a pair of first generation Manley Tannoys, which means they have the original Tannoy 10-inch coaxial drivers (unobtainable today) along with vintage "Mastering Lab" crossovers. Underneath are placed original circa-1978 audiophile IMF transmission line monitors.

By themselves, the IMF monitors are a bit reticent, but sound lovely and smooth on classical programs. However, driven in parallel with the Manley Tannoys, the IMF's transmission line woofers really kick in and present a tremendously deep low end that simply eludes the Tannoys, while the Tannoy's aggressive coaxial tweeter completely swamps anything coming from the IMFs above its woofer range — a great synergy. The speakers built into the

cabinet are IMF SACMs.

The amplifiers used to drive the speakers are highly-modified McIntosh MC 75s (each using a pair of 811 output tubes, which are directly-heated triodes) and a four-bus tube mastering console, custom-built by Bruce Seifried of Éclair Engineering (manufacturer of the famous "Evil Twin" direct box), who also tweaked the McIntosh amplifiers and installed the original control room wiring infrastructure in the early 1990s.

After auditioning the monitors in the tracking room where the speakers were stored during the installation process, then hearing them a few minutes later in the newly made-over control room, I was ecstatic. The results were, in a word, amazing!

The sounds of the two environments were almost the same! Actually, the control room was better, since no normal-sized mid-field speakers can push enough air to properly fill the tracking room's huge space. The monitors' low end now sounded completely seamless, with no mid-bass boom. And they sounded equally good at all volumes, including when I cranked them so loud I couldn't stand to be in the room for long. Those LENRDs sure work!

More than just the new-found low-end smoothness,

the Auralex treatment also gave the presentation of my monitor speakers an amazingly deep, wide and tall soundstage I'd never heard from them before. The highs were also much more mellow — sort of like the difference between a good ribbon mic and a bad condenser one — undoubtedly due to the controlled absorption and diffusion. I'd listened to these speakers in this room for over 10 years, and I'd never heard my own recordings sound this detailed and precise. Nothing else had changed in my monitoring setup except the room. I was even tempted to say that the monitoring environment should be considered one's most important piece of gear.

While I wanted my tracking room to have "personality" — to possess a big sound so I can record grand pianos, chamber ensembles, small choruses, etc. — I needed my control room to sound neutral, so that I'd be able to accurately monitor what my mics were picking up in the next room to construct a euphonic mix. And I was pretty sure I had achieved this.

To test another way, I asked my daughter to bring her violin into the "new" control room and tell me what she thought of the sound.

"Boring" was her simple reply after playing for a minute or so.

To me, that was exactly the right answer; she wants to hear her instrument in a big room with nice, natural reverb, which is why she (and everyone else) loved playing in the tracking space. I, on the other hand, wanted to be able to hear what was going on in that space while monitoring in my control room, without superimposing a second sonic personality onto the sound.

WHAT'S NEXT?

Having established a nice-looking, smooth-sounding control room, it seems logic to put some equipment (besides monitors) back in. But some things don't need to be rushed.

The last thing I want to end up with is the cluttered feeling from which I've finally escaped. So, nothing goes back without a really good reason. It's looking like the machine room directly underneath the control room is going to get a lot more crowded.

CONCLUSION

In my opinion, the money spent on these Auralex products was a much better investment than a comparable amount spent on another mic, preamp, suite of plug-ins ... actually, any other piece of gear I can think of. I thank the Auralex folks (and Russ Berger, of course) for designing a line of products that a keyboard player like myself can install, which can transform an ordinary bedroom-size control room into a smooth-sounding, inspirational place in which to work.

Dr. Fred Bashour holds a Yale Ph.D. in Music Theory, and currently performs as a jazz pianist and church organist. During the past 25 years, he has received credits on hundreds of recordings released on over a dozen labels. He has also been a regular contributor to Pro Audio Review since its second issue.

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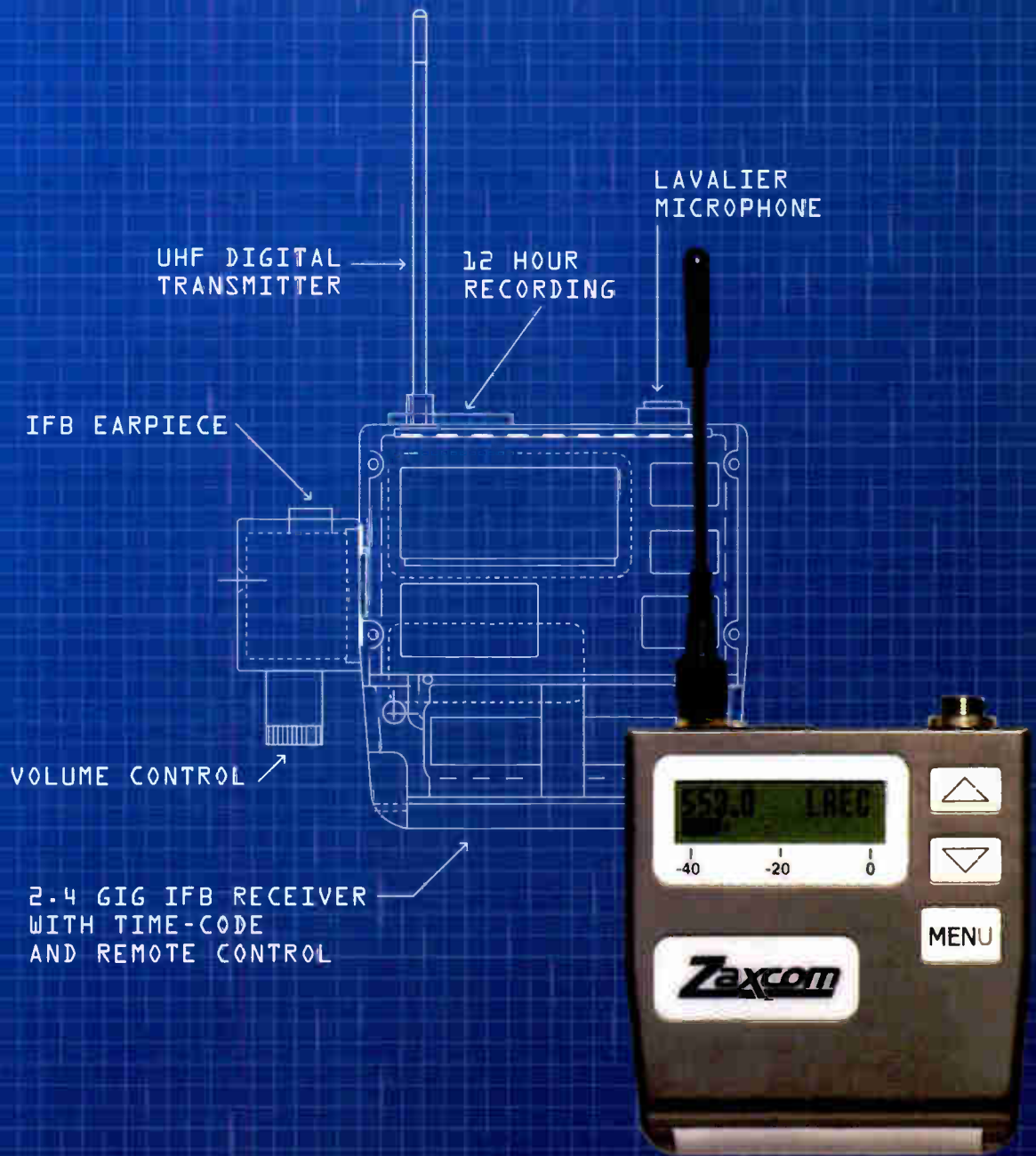
MegaLENRD Bass Traps -
two (2) per box - \$399.00/box

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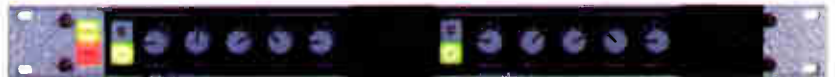
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“The Curtain Falls” | Evol Intent



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SINGLE ENGINEERS: The Enemy, Knick and Gigantor

SINGLE MIX ENGINEER: Gigantor

MASTERING: Gigantor

SINGLE SONGWRITERS: The Enemy, Knick and Gigantor

CONSOLE: 32-channel analog Mackie 8-Bus

RECORDERS AND DAWS: Apple Logic Pro, Ableton Live, Propellerhead Reason, Otari MX-5050 two-track analog

MONITORS: Mackie HR824 and Yamaha NS-10

VOCAL PRE-AMPLIFIER (AARON DALBEC): Mackie (8-Bus Series)

VOCAL MICROPHONE (AARON DALBEC): Rode NTK Tube condenser microphone

SELECT PROCESSING, HARDWARE AND SOFTWARE: Universal Audio UAD-1, Apogee Rosetta 800 and George Yohng’s W1 Limiter VST plug-in

ENGINEER’S DIARY

Originally formed in Atlanta, Evol Intent is an Intelligent Dance Music/drum-and-bass trio comprised of The Enemy (Ashley Jones), Knick (Nick Weiller) and Gigantor (Mike Diasio). Together, these innovative aural sculptors meld music, distorted sound and intricate beats into songs that some attempt to categorize – as “glitchcore,” for example, among other descriptive terms. However, one listen to the group’s collective work reveals one fact quite clearly: any subgenre-based classification can hardly describe the depth of Evol Intent’s intricate work.

For the group’s latest release — the debut full-length *Era of Diversion* — Evol Intent made a conscious effort to “break out of the drum-and-bass trap,” explains Gigantor, who also handles the brunt of the group’s engineering duties. “We realize that we’re a bit more popular overseas than we are here in the States, and hopefully this record will take us to a broader audience.”

The majority of “The Curtain Falls,” the first single from *Era of Diversion* — came to life with in Propellerhead Reason. “Reason is beautiful,” offers Gigantor. “You can flawlessly open up files [cross-platform] ... and always have it work.” The group also relied upon Ableton Live before the tracks were transferred to Apple Logic Pro for final prep and mixdown. “I also have a Mackie 32/8 analog mixer, which has these great EQs — it can give you nasty, killer sounds when you push them. For standard drum and bass stuff, I use the mixer. For everything else, I mix in the box using Logic Pro. Also, I use the Universal Audio UAD-1 plug-ins; I just love it, especially its LA-2A emulation.”

“The Curtain Falls” — a dystopic, politically charged track — showcases MC talent such as Cypher Linguistics and Aaron Dalbec of hardcore punk band Bane. “Aaron of Bane wailed into my Rode NTK Tube condenser microphone, which I ran into the Mackie,” recalls Gigantor. “The Apogee Rosetta 800 — my baby — took it straight to the DAW. The LA-2A emulation from the UAD-1 was my vocal compressor of choice. A UAD-1 Pultec EQ gives it a bit of air.”

Strother Bullins is a North Carolina-based freelance writer specializing in the professional audio, music and entertainment industries.



Evol Intent, Gigantor in the middle

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 - Iron Maiden
 - John Cale
 - Joss Stone
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 - Kanye West
 - King Bolden, film
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 - Klaus Landsberg
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 - Mormon Tabernacle Choir
 - Moscow International House of Music
 - MTV Canada
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 - North by NorthEast Music Festival
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 - RAI, Italy
 - Real Madrid (Soccer)
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 - Robert Margouloff
 - Sam Roberts
 - Sandia Labs
 - Sapporo (TV) - Japan
 - Shakira
 - Teatro Municipal do Rio de Janeiro
 - Televisione Svizzera Di Lingua Italiana
 - The Kentucky Derby
 - The Church of Scientology
 - Three Superbowls
 - TNT HDTV
 - TSN HD
 - TV Asahi -Japan
 - TV Azteca (Mexico)
 - Universidad Francisco Marroquin
 - University of Central Florida
 - Van Morrison, Grand Ol' Opry
 - Warner Music Group, Flaming Lips
 - Waterman, Andrew
 - Whitesnake
 - 47th and 48th Grammy Awards
- And the list goes on...