In This Issue!

- Violet Designs Flamingo Magic Ear
  Unique Capsule Design!
- Mics from sE, Mojave and Blue!
  Transducers Big and Small!
- QSC PL 380 Power Amplifier
  Excellent Price/Watt Ratio!
- M-Audio MicroTrackII Recorder
  Low Price, Better Features!
Audio-Technica is proud to introduce its all-new M2 and M3 Wireless In-Ear Monitor Systems. Both systems are equipped with earphones offering a proprietary Audio-Technica dynamic driver with richly detailed high-fidelity sound. Plus, you can adjust your own mix on stage with Personal Mix Control that offers volume & mix control of two independent signals at the receiver.

Crystal-clear personal audio
Hear yourself clearly on stage

Avoid feedback
Get cleaner, more articulate house sound

Create your own monitor mix
Choose between mono, stereo, and Personal Mix Control

Be kind to your ears
Experience articulate audio at lower SPLs

Take a listen to Audio-Technica M2 & M3 Wireless IEM Systems. There's never been a better time to transform your on-stage experience.
Two touring amplifiers. One tough decision. With the introduction of Yamaha's TXn Series, built-in DSP is now at your fingertips. Both series drive at 2 ohms (UL Listed), providing mega power to virtually any line array system. We lay out the facts. You make the call.

**Tn Series**
- Three Models — T3n, T4n, T5n running respectively at 1900W, 2200W and 2500W per channel into 2 ohms
- Compatible with NEXO line array systems
- EEEngine amp technology reduces power consumption up to 50%
- Remote control and monitoring via Yamaha's ACD1 amp control device
- Removable handles
- Easy air filter maintenance

**TXn Series**
- Three Models — TX4n, TX5n, TX6n running respectively at 2200W, 2500W and 3000W per channel into 2 ohms
- Built-in DSP speaker processing
- Option of Ethersound, Cobranet and various other formats through an MY-Card slot
- EEEngine amp technology reduces power consumption up to 50%
- TCP/IP networking for monitoring and control
- Analog and digital AES-3 inputs
- Removable handles
- Easy air filter maintenance

When you need help, time zones shouldn't matter. Yamaha provides coast to coast 24/7 technical support. With dedicated staff and regional service centers, assistance is around the corner. If we can't fix it over the phone, we'll put a part or a person on the next plane out. It's that simple.
INSIDE THIS ISSUE

STUDIO

8 Studio News and New Products

10 Mojave MA-100
Small-Diaphragm Condenser Microphone
by Russ Long

12 Blue Woodpecker Active Ribbon Microphone
by Rob Tavaglione

14 sE Electronics 2200A
Condenser Microphone
by Stephen Murphy

16 Violet Flamingo Magic Ear
by Russ Long

18 URS Plugins Classic Console Strip Pro
by Alex Oana

24 Finding the MIDI Ground
by Heather Johnson

30 | FIRST LOOK
SSL XLogic SuperAnalogue X-Rack, Part II
by Stephen Murphy

34 | X/AUDIO
Drumming Up a KIckn' Mic Sound
by Strother Bullins

38 | INSTALLATION PROFILE
Auralex Acoustics Systems Transform Studio Dufray
by Dr. Fred Bashour

LIVE

40 Live News and New Products

42 Inter-M IMX-824 Mixing Console
by Dan Wothke

46 QSC PL380 PowerLight3 Amplifier
by David Rittenhouse

CONTRACTING

52 Contracting News and New Products

54 XLNT Idea Nexis 100AP CD/DVD Publisher
by Dan Wothke

58 | WORSHIP AUDIO
A ClearView of Reverberant Space: Taming the Acoustics of a Multi-function Ministry
by Dan Wothke

BROADCAST

62 M-Audio MicroTrack II CompactFlash Stereo Recorder
by John Gatski

64 SignVideo ENG-44 Field Production Mixer
by Stephen Murphy

DEPARTMENTS

6 | PUBLISHER'S PAGE
The Global Microphone Economy
by John Gatski

66 | BUYERS GUIDE
Studio Microphones

68 | BUYERS GUIDE
Studio Preamplifiers

74 | SINGLE SLICE
Evol Intent "The Curtain Falls"
by Strother Bullins
Lexicon Reinvents Reverb

PCM96 Reverb/Multi-Effects Processor
28 New and Legendary Lexicon Reverbs, Delays, Models and Effects
FireWire Streaming — DAW Automation and Control

To find out more about the PCM96 visit lexiconpro.com
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 a long way, with some models rivaling the high-end market.

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’s 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 gaining 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.
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 specs 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.
The latest news and products

NEW PRODUCTS

KRK ERGO Room Analysis/Correction System

Following the notable release of the VXT and EBB 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.

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 PO 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.

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).

ULTRASONE 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 Ultrasone 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 Ultrasone’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 adept 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).
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.
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 product 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
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 tapping 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 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.

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.

| PRODUCT POINTS |

- 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.
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.

<table>
<thead>
<tr>
<th>FEATURES</th>
</tr>
</thead>
</table>

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 unusual 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.

<table>
<thead>
<tr>
<th>FAST FACTS</th>
</tr>
</thead>
</table>

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
Blue Microphones | 818-879-5200 | www.bluemic.com

and sibilance, then you will love the Woodpecker. Its lean and accurate low/mids will flatten baritones and basses without “pilowy” 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.

<table>
<thead>
<tr>
<th>SUMMARY</th>
</tr>
</thead>
</table>

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!
PowerH SERIES
the new age of power

Up to 7 kW, only two rack units high, and weighing a mere 14.5 kg! With the PowerH Series, Dynacord has opened a new chapter in the history of professional high-powered power amplifiers. The 3-stage grounded bridge Class H topology and an extremely stable, state-of-the-art floating switchmode power supply guarantee the ultimate in efficiency, absolute reliability, and audio performance of the very highest quality.

PowerH power amplifiers are ready for integration into IRIS-Net™-based networks. Retrofittable remote modules allow complete system supervision and remote control combined with DSP-functions that include ultra-precise FIR filters and optimized algorithms for loudspeaker protection.

Telex Communications: 12000 Portland Avenue South, Burnsville, MN 55337
phone: 1.800.392.3497 fax: 1.800.955.6831

World Radio History
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 to 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).

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

$399

CONTACT

sE Electronics/Sonic Distribution | 617-623-5581 | www.sonicus.net

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.

SUMMARY

I found the sE 2200A to be quite impressive — not just in the, "Hey, this inexpensive mic actually sounds quite good!" way, but also because it proved itself as a worthy and welcome addition to a mic collection that already offered many tempting options.

The 2200A is an ideal main vocal mic for those working on smaller budgets and starting to grow their mic collection. As an option for those more interested in an affordable multipattern large-diaphragm mic, I can now happily recommend sE's Z3300A, to which I was just introduced and had the pleasure of using throughout more recent sessions.

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

recording consoles • mic preamps • equalizers • compressors • plugins

www.apiaudio.com
301.776.7879
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-
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 supposed 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 ink 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 difference 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-sesser). 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.
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 Pro Tools 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 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...
The D-Box features everything you need to turn any DAW into a fully functional, professional recording and mixing studio.

From 8 channels of the world-renowned DANGEROUS MUSIC ANALOG SUMMING technology to a programmable MONITOR CONTROL section with 2 speaker outputs, 2 digital inputs with ONBOARD D/A CONVERSION for digital sources, talkback, 2 headphone outputs, and an auxiliary analog input, the D-Box is the missing link between your computer and your music.

THE ULTIMATE DAW COMPANION
Full specs and feature set available @ www.dangerousmusic.com
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 discrete 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.

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

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.

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 >
Introducing the Berliner CM-33 set. A stereo hand-matched pair of small diaphragm condenser microphones.

The next in a long line of successful pairs!

BERLINER MICROPHONES

Capturing the Sound Of the Future!

WWW.BERLINERUSA.COM

1-888-MIC-THIS (642-8447) • 208-545-0446 (FAX) • ©2007 BERLINER USA, INC.
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 CCSPro. Highly functional gates are a dime a dozen though, so I instanced a Digi Expander/Gate Dyn3 and I'm specifically talking about plug-ins whose only worthwhile attribute is their DAW bundles' value by offering 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 just 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 CCSPro 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 Onna is looking forward to the revolution.

| REVIEW SETUP: |
| Mac G5 dual 2.0, Digidesign Pro Tools HD3, M&K 1611P, ears (2). |
She won't go on til we go on.

LeAnn Rimes performs with Shure KSM9/UHF-R® Wireless. And nothing else.

www.shure.com
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, DownBeat Magazine

"5 Stars out of 5!"

Mike Lawson, Apple Pro Audio

"Wow."

Dana Gumbiner, TapeOp Magazine

"Violet Design has a winner on its hands."

Randy Poole, ProSound News

violetusa.com
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 manage 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 textures 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 MIDI continues on page 26
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.”

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 Palmer 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, bagpipes and some sort of accordion 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 MIDI continues on page 28 »
UNDISPUTED
HEAVYWEIGHT KINGS OF
MICROPHONES
A HUGE VARIETY OF MICS FOR ANY APPLICATION

Choose from 76 separate brands:

CALL 800.356.5844 TODAY
SHOP ONLINE AT FULLCOMPASS.COM
REQUEST YOUR FREE 400-PAGE CATALOG
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 harp 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 (VSL) 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 DW8000 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 >>**
PRODUCTION

THE PROFESSIONAL’S SOURCE

real world solutions from industry professionals!

www.bhproaudio.com

800-947-1182 | 420 Ninth Ave. New York 10001 | We Ship Worldwide
he 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 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 Buss 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-
Where will your inspiration hit?
MXL has a portable solution to capture the moment

When you demand quick, easy, high-quality recordings, look no further than MXL® USB Microphones. Our USB mics are Plug & Play, and offer gold diaphragm capsules with world class sound - complete with travel case, stand, and 10-foot USB cable.

The perfect solution to podcasting or on-the-fly recording.

MXL® USB Mic Mate™
- Studio quality USB Microphone Preamp
- Supplies 48V Phantom Power for condenser mics
- Plug and record with your favorite software
- No special drivers required
- Fully balanced low noise analog front-end
- Analog gain control
- Compact travel size 0.85” OD x 5.75” Long
- Heavy duty diecast metal construction
- Free MXL USB Recorder Software for instant 2-Track recording available from our website
- Lead-free (RoHS compliant)

Adapt any existing mic to USB

Great Recordings Begin
800-800-6608 / www.mxl-usb.com
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 0 dB/+4 dBu 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 provide 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-normalized 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-normalized 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 tradeoff 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-ly 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.
Drumming Up a Kick'n' Mic Sound

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.

Helix Sound PR Series

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).

Helix recommends the PR 30 for many uses, specifically recording guitar amps/speaker cabinets.

Finally, the PR 20 is a handheld-style supercardioid 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 multitrack 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 ©
The new vintage.

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
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 musicianproducer/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 'R 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 top 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 'R 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. I can attest that it is round and corny, inside a tough-as-nails black grille, housed in a scratch-resistant, "rubberized" urethane finished body.

I IN USE

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 smash 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-sputtered 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 wily 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 source levels, 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

Programming 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 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 products' 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.

---

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 (kone.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 geared 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
When it comes to room acoustics, there's almost always room to improve. So, sold by the reputations of Auralex Acoustics and acoustician Russ Berger of Russ Berger Design Group, I spent $3,000 and seven weeks mounting permanent Auralex acoustical treatments to a studio control room's ceiling and walls.

First, I moved every single item that wasn't either nailed down or run through one of the two dozen large grommeted holes in the floor — gear representing 15 years of acquisition and clutter. Then, with the assistance of an Auralex consultant, I installed room treatments to handle absorption (soaking up of some undesirable sound reflections, both broadband and low frequency) and diffusion (scattering the sound waves so that they don't group together). This article will detail each step, and explain the way in which treatments can fit into controlling reflected sound waves.

**ROOM TO MOVE**

The tracking space in the home studio in question features a 40-foot vaulted cathedral ceiling, double 5/8-inch construction, beech wood floors, etc., and sounds absolutely wonderful. The adjoining control room, however, measures 18-feet 1-inch x 11-feet 7-inches x 7-feet 9-inches — i.e., a typical home bedroom size, probably not unlike many project studios, though possessing "proper" dimensional ratios than isolation, due to cost compromises make during the building process. The only reason it sounds halfway decent at all is that it became very crowded with gear — certainly not the best way to accomplish absorption and diffusion!

Sound waves generated in a room radiate outward, from source points to the room's boundaries. There, they are reflected and proceed to interact with each other; much like ripples in a pond. The three types of sound wave reflections are classified by which direction sound is being reflected in a room, from one hard surface to another.

The most troublesome type of reflection is "axial mode." In this one, sound reflects from wall to opposite wall, or from floor to ceiling. In a nutshell, axial mode is the reason that certain frequencies (especially bass) add up and subtract in various places in a room, especially when one has dimensions, which work out to be multiples of a smaller one. Naturally, a cubic space is the worst for exhibiting axial mode tendencies. Corners of rooms also cause many problems by boosting the apparent amount of bass by as much as 9 dB, which gives the impression that we have three times as much bass as we actually do — not good for accurate mixing!

**THE AURALEX PROCESS**

When a potential customer considering a project approaches Auralex Acoustics through the company's website, an Auralex product specialist requests a blueprint or floor plan of the room. The specialist then proceeds to make product recommendations in the form of a pdf, which superimposes these products upon a simplified version of the customer's floor plan. Please see Figures 1 and 2, a hand-drawn floor plan of the control room to be upgraded and Auralex's "Room Analysis" recommendation, respectively. In this case, Auralex even asked for snapshots. (For more details on the Auralex design process, please visit auralex.com/pfx.)

The Auralex consultant then recommended three product types for the control room: one from the company's standard line (eight LENRDs and two MegaLENRDs) and two from the new Russ Berger-designed pArtScience line (96 AudioTiles and the SCREEN6 System featuring a set of six SpaceCouplers with all appropriate joining/hanging hardware).

**THE INSTALLATION**

The LENRD acronym stands for "Low-End Node Reduction Device." Low-frequency sound waves are so long — and thus so strong — that they're the toughest to control. LF traps substantial enough to control the bass nodes (bumps in a room's frequency response) have always been expensive but, apparently, the engineers at Auralex figured out a way to give these triangular-shaped foam gizmos an absorption coefficient of 1.24 at 125 Hz, which is quite remarkable. The MegaLENRDs — which, at two feet on a side, are twice as wide as the standard LENRDs — absorb all the way down to below 50 Hz.

Whenever I've put speakers up, there has...
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” separate 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 some other ideas of the myriad design possibilities, check out the very bottom of auralex.com/partscience/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 AURELEX continues on page 70 >
NEW PRODUCTS

AKG D 4 Instrument Microphone

Among many of the new microphones unveiled at NAMM 2008, the AKG D 4 is notable. It is a mid-to-upper level dynamic microphone with a knack for rigorous on-stage use, as it is designed for use on drums, percussion instruments, wind instruments and guitar amps. It features patented Varimotion diaphragm technology, custom-built capsule mounting, a spring steel wire-mesh grill, and an all-metal body. Its package includes an integrated stand adapter and mounting bracket.

PRICE: TBA.
CONTACT: AKG Acoustics | 818-920-3212 www.akg-acoustics.com

OLYMPUS LS-10 Linear PCM Recorder

Olympus is not known as a big name in pro audio, but with its new LS-10 Linear PCM Recorder it could soon become one. The moderately small (5.33-ounce) LS-10 records stereo, 24-bit/96-kHz linear PCM digital audio, as well as .WAV, MP3 and WMA files, with its built-in high-sensitivity, low-noise cardioid microphones. It offers 2 GB of built-in memory and a SD removable card slot. Olympus promises 12 hours of operation via two AA batteries of two optional Ni-MH rechargables. An external AC power supply is also available. A USB connector allows file transfer to Windows or Mac users. The total package includes Steinberg Cubase LE 4 software, a carrying case, USB cable, audio cable, windscreen, strap and 2 AA batteries.

PRICE: $399.99.
CONTACT: Olympus | 888-553-4448 www.olympusamerica.com

QSC GX Series Amplifiers

Accentuating the company’s 40th anniversary celebration, lauded amp manufacturer QSC offers the GX Series of affordable professional amplifiers. The company’s two models, the GX3 and GX5 eight-ohm amps, are rated at 300 and 500 watts respectively, have toroidal power supplies similar to QSC’s RMX Series, and offer GuardRail technology for high-level distortion prevention. GX3 employs a Class B output topology; GX5 is a two-tier Class H design. According to QSC, GX Series amps are the smallest in their class “at almost half the depth of the competition” and are “the lightest linear amplifiers among competitive offerings at 25 pounds.”

PRICE: $399.95 (GX3); $499.95 (GX5).
CONTACT: QSC Audio Products, Inc. | www.qscaudio.com

IK MULTIMEDIA StompIO USB Floor Controller/Interface

Sound quality is one area in which musicians are quick to put their foot down. It’s got to sound good or it’s got to go! Now IK Multimedia offers up a product that sounds good on the good, and that you can put your foot down on, to boot. The robust, metal StompIO is an advanced USB floor controller + audio interface + modeling software bundle, which gives full control to the “Powered by AmpliTube” software included (AmpliTube 2, Ampeg SVX, AmpliTube Jimi Hendrix, AmpliTube X-GEAR and AmpliTube Metal, shipping in March). With a Class A DI, all-analog, console-grade design (featuring 10 switches, six knobs, eight IN/OUT connections and MIDI), plus low-latency drivers, several thousand customizable, recallable gear combos and an expression pedal, this modular rig is road- and DAW-ready, just add computer and ax of choice.

PRICE: $1,049.
CONTACT: IK Multimedia | 954-846-9101 www.ikmultimedia.com

Touring the world in support of her ninth album, Tori Amos added a Digidesign VENUE and Pro Tools LE System to her American Doll Posse. Engineer Mark Hawley chose the D-Show console, D-Show Sidecar and dual Stage Racks for front-of-house mixing and high-quality multitrack recording capabilities, making a near-instantaneous final mix of each performance for download within hours of each show.

For his annual tour of Florida, singer/songwriter Jose Feliciano chose Martin Audio W8LC line arrays, W8LM down-fill speakers and LE1200 monitors, plus a Yamaha PM5D-RH digital console, QSC PowerLight and Crown amplification, a KT DN9848 digital system controller and KT DN3600 equalizer.

Gearing up for the current Velvet Revolver worldwide tour, Slash, well, slashed a part of his rig out, using a Lectrosonics IS400 switching system for his 14 guitars in place of wires.

Providing sound for Montgomery Gentry in Arcadia, Fla., DB Sound and Lighting Systems chose a sound system of 16 D.A.S. Audio 38A line arrays (pictured).

Lorie Line’s 80+ date “The Glory of Christmas” tour made sure it wasn’t a silent night thanks to 14 NEXO GEO S1210s, two S1230s, 24 S8’s, Alpha S2s, PS 8, 10 and 15 Series, NX242, NXE24 and WX241, five PS-TDV2 controllers and a Yamaha M7CL-48 console.

When it was time to get the Led out at the O2 arena in December 2007, 13 Turbosound TFM-350 wedges, a pair of TFM-450s and six Flashlight mid-his provided the monitors for Led Zeppelin’s reunion.

40 | Proaudioreview | January 2008
We worked hard on the PL380.
Now let's go out and play.

If owning the ultimate 8000 watt, Class D amp is your idea of fun, you’re going to love the PL380.

Introducing the efficient, lightweight and well-protected PL380. It’s powerful enough to handle even the largest drivers while delivering well balanced high and low frequency performance. The PL380 replaces existing amps without affecting signal delay and converts up to 85% of AC power into audio power—that’s half the losses, half the heat of competitive Class D amplifiers.

Most importantly, the PowerLight™ 3 offers something no other Class D can: QSC quality, performance and value.

A full selection of input and output connectors. Switched LEDs show your settings at a glance.

Passionate About Sound

For more information call 1-800-854-4079 or visit us at qscaudio.com
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.

<table>
<thead>
<tr>
<th>FEATURES</th>
</tr>
</thead>
</table>

The IMX-824 ($6,959.95) is a 139-pound, split-layout console with dimensions of 38.1 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-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-mixing 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

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.

**FAST FACTS**

**APPLICATIONS**
Front-of-house or monitor mix positions for Touring or Installation (Theaters, Clubs and Houses-of-Worship)

**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**
$6,959.95

**CONTACT**
Inter-M Americas | 866-636-5795
tt www.inter-m.net

INTER-M continues on page 44 >

---

by Dan Wothke
The ART TubeFire8™ delivers the best of all worlds in one tube driven digital audio interface package. Ideal for any recording application, the TubeFire8™ adds eight incredibly warm tube driven microphone or line inputs and eight balanced outputs to any FireWire equipped computer.

Complete FireWire Based Studio Solution
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.

Class-A Tube Design
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.

Versatile I/O
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

We have delivered leading edge products with exceptional tone and versatility which have gained the loyalty of musicians and sound engineers worldwide - on the road, in nightclubs, arenas, recording studios, auditoriums, churches, basements, garages, bedrooms - wherever there’s a need to capture your creativity or amplify it, ART is a brand you can trust.
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 labeling).

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 CD. 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.

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 flvfX-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 muted 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 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.

**PRODUCT POINTS**

- 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.*

| 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.

---

**RX1200 FEATURES**

- 1200w RMS - four 300w amps @ 4Ω for L, R & monitor speakers
- Freq. Resp.: 20 - 20 kHz with less than 1% THD
- Peak, Protect LED's, Speaker Guard™ protection
- Four 7-band graphic EQ's - L, R and Monitor 1&2
- Bal. XLR mic & 1/4" inputs
- CH 1-6 1/4"- input switch to Insert
- Channel Level controls with Mic Pre controls
- Two Monitor Sends - Channel Pan
- Active Channel EQ - LQ, MID, & HI
- Two 24-bit effects processors with 256 effects each
- Reverb, Echo, Flanger, Chorus
- Adjustable parameters for each effect
- Effects assignable to Monitors with level controls
- Main L-R Tape IN/OUT, Ext loop IN/OUT
- Outputs: XLR L-R & Monitors • Subwoofer
- +48v Phantom Power switch for condenser mics
- Road Warrior™ case with latching latches
- Size: 8.72H (5U) x 19"W x 8"D, 50 Lbs

**RX1200-LM15 SYSTEM**

- RX1200: 12 Channels, 1200w RMS (four 300w amps @ 4Ω for L, R & 2 monitor mixes)
- LM15: 15" 475w 2-way, heavy-duty loudspeakers

**CARVIN**

Pro Sound • Guitars • Amps

CARVIN.COM • DIRECT SALES 800-854-2223 • FREE CATALOG • FREE DVD

---

** Carry your entire 12 Channel Mixer/Effects/Amp rig in one hand! **

Carvin is the only company that provides 12 channels in a compact mixer with 4 amps and enough processing to replace a host of outboard gear. This system is perfectly matched with a pair of 2-way LM15 loudspeakers for the highest quality sound attainable.
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.

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

Penetration continues with the new QSC PowerLight3 series amplifiers — or, as QSC puts it, “the ultimate analog amplifier.”

<table>
<thead>
<tr>
<th>FEATURES</th>
</tr>
</thead>
</table>
| The PowerLight3 upgrades the PowerLight2 series, adding and refining 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 24 pounds.

The PL380 also supports remote control through QSC’s QSCircle BASIS networked audio platform and the DataPort at the rear of the amp. The PL30 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 inrush limiting.

<table>
<thead>
<tr>
<th>IN USE</th>
</tr>
</thead>
</table>
| 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 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.>
These Mics Give You More.

William Beckett, The Academy Is...

More clarity.
More gain before feedback.
More ability to handle high SPL.
More separation of sound.
More articulation.
More consistency.
More durability.
More natural sound.
More style.

What more do you need?
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 simply great product at a great price, offering the “Swiss Army Knife” of amps.

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

| SUMMARY |

David Rittenhouse is the senior sales executive and A1 engineer at Event EQ in Baltimore, MD, and a regular contributor to PAR.
Celebrating 60 years of the most precise tuners in the world

Come Celebrate With Us at NAMM: Booth #5990

708.388.3311
www.PetersonTuners.com
BENCH MEASUREMENT DATA

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

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Power (W)</th>
<th>Impedance (dBW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stereo 8-ohm loads</td>
<td>1.4 kW</td>
<td>31.5 dBW</td>
</tr>
<tr>
<td>Stereo 4-ohm loads</td>
<td>2.3 kW</td>
<td>33.6 dBW</td>
</tr>
<tr>
<td>Stereo 2-ohm loads</td>
<td>3.0 kW</td>
<td>34.8 dBW</td>
</tr>
<tr>
<td>Bridged 4 ohm load</td>
<td>6.0 kW</td>
<td>37.8 dBW</td>
</tr>
</tbody>
</table>

Dynamic Output Power

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Power (W)</th>
<th>Impedance (dBW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stereo 8 ohm loads</td>
<td>1.8 kW</td>
<td>32.6 dBW</td>
</tr>
<tr>
<td>Stereo 4 ohm loads</td>
<td>3.6 kW</td>
<td>35.6 dBW</td>
</tr>
<tr>
<td>Stereo 2 ohm loads</td>
<td>6.0 kW</td>
<td>37.8 dBW</td>
</tr>
<tr>
<td>Bridged 4 ohm loads</td>
<td>12.0 kW</td>
<td>40.8 dBW</td>
</tr>
</tbody>
</table>

Dynamic Headroom

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Headroom (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stereo 8 ohm loads</td>
<td>1.1 dB</td>
</tr>
<tr>
<td>Stereo 4 ohm loads</td>
<td>1.9 dB</td>
</tr>
<tr>
<td>Stereo 4 ohm loads</td>
<td>3.0 dB</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Configuration</th>
<th>THD+N (at 1.5 kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stereo 8 ohm loads</td>
<td>&lt;0.02% @ 1.0 kW, &lt;0.6% @ 1.5 kHz</td>
</tr>
<tr>
<td>Stereo 4 ohm loads</td>
<td>&lt;0.05% @ 1.5 kW, &lt;1.0% @ 1.5 kHz</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Configuration</th>
<th>THD+N (at 10W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stereo 8 ohm loads</td>
<td>&lt;0.08%</td>
</tr>
<tr>
<td>Stereo 4 ohm loads</td>
<td>&lt;0.1%</td>
</tr>
</tbody>
</table>

Damping Factor, 50 Hz re 8 ohm

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>Damping Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 Hz - 20 kHz</td>
<td>206</td>
</tr>
</tbody>
</table>

Output Impedance magnitude at:

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>Impedance (milliohm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 Hz</td>
<td>38.8 milliohm</td>
</tr>
<tr>
<td>1 kHz</td>
<td>57.4 milliohm</td>
</tr>
<tr>
<td>5 kHz</td>
<td>196.7 milliohm</td>
</tr>
<tr>
<td>10 kHz</td>
<td>393.9 milliohm</td>
</tr>
<tr>
<td>20 kHz</td>
<td>867.9 milliohm</td>
</tr>
</tbody>
</table>

Input Impedance

<table>
<thead>
<tr>
<th>Impedance (kiloohm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.7 kiloohm</td>
</tr>
</tbody>
</table>

Frequency Response, 4-ohm load

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>Response (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 Hz - 20 kHz</td>
<td>+/- 0.0 dB</td>
</tr>
<tr>
<td>- 3 dB at &lt; 10 Hz, 58 kHz</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Gain (dB)</th>
<th>Voltage Gain (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 dB</td>
<td>21.2X, 26.5 dB</td>
</tr>
<tr>
<td>32 dB</td>
<td>41.8X, 32.4 dB</td>
</tr>
<tr>
<td>1.2V</td>
<td>92.1X, 39.3 dB</td>
</tr>
</tbody>
</table>

Sensitivity for 0 dBW, 8-ohm load

<table>
<thead>
<tr>
<th>Gain (dB)</th>
<th>Sensitivity (dBu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 dB</td>
<td>133.0 mV, -15.3 dBu</td>
</tr>
<tr>
<td>32 dB</td>
<td>67.7 mV, -21.2 dBu</td>
</tr>
<tr>
<td>1.2V</td>
<td>30.7 mV, -28.0 dBu</td>
</tr>
</tbody>
</table>

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 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.

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 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
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.

PS. — 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.

“Yamaha/NEXO Better Together” Giveaway Redemption Instructions

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 postmarked after April 30th, 2008 will not be honored. The Promotion Redemption Certificate must be properly submitted in order to qualify for the giveaway.
NEW PRODUCTS

AURALLEX 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.

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.

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).

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.

Already reinforcing sound ideas through Kids Rock Free opportunities, among other initiatives, 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 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 C20-6x8-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

AVAILABLE IN YOUR CHOICE OF FLAVORS - SOFTWARE OR HARDWARE

serato

Rane

Series

COMPRESSOR
TDM Plug-In

www.serato.com

Rane

C4

QUAD COMPRESSOR
with Dynamic EQ

www.rane.com

IN THE CONSOLE OR IN THE RACK
XLNT Idea Nexis 100AP CD/DVD Publisher

This CD/DVD burner/printer can burn up to 50 full-color CDs and DVDs in an 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 turnaround 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 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 >
VICATOR: $169.00
Long Element Ribbon

FAT HEAD II: $199.00
Single Element Ribbon

ELROY: $299.00
Tube Multi-Pattern LC

FAT HEAD: $159.00
Single Element Ribbon

731R: $299.00
Dual Element Ribbon

X-15: $499.00
Stereo Single Element Ribbons

VIN-JET: $199.00
Long Element Ribbon

DR2-S: $599.00
Stereo Dual Element Ribbons

L2: $399.00
Stereo Multi-Pattern LC

CASCADE MICROPHONES
Olympia WA
cascadeymicrophones.com
360.867.1799

World Radio History
when looking at the disc it was hard to see the differences between the closest options. Fortunately, the defaults seemed to be match 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 moot 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.
DESKTOP AUDIO

THE PROFESSIONAL'S SOURCE

real world solutions from industry professionals!

www.bhproaudio.com

800-947-1182 | 420 Ninth Ave. New York 10001 | We Ship Worldwide
A ClearView of Reverberant Space: Taming the Acoustics of a Multi-function Ministry

by Dan Wothke

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 SRX728 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...
Primera® is the world’s best-selling, most award-winning brand of CD, DVD and Blu-ray™ Disc Publishers. We offer a broad range of automated disc recording and printing solutions for all needs:

**Entry-level** >> Bravo SE Disc Publisher  
**Mid-Range** >> Bravo II and BravoPro Disc Publishers  
**High-End** >> Bravo XR and XRP Disc Publishers

Call 800-797-2772 (USA and Canada) or 763-475-6676 for a FREE sample disc.  
Visit us on the Internet at www.primera.com or email sales@primera.com.
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, during special events, he will wear a lavaliere 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.

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

**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; S/PDIF digital input; 48-volt Phantom Power; USB 2.0

**PRICE**

$399.95

**CONTACT**

M-Audio | 866-657-6434 | www.m-audio.com

MicroTrack II 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.
You Asked for It and We Listened —

PRO AUDIO REVIEW

Now Available in a Digital Edition!

The industry's only dedicated equipment and software review resource can now be delivered right to your desktop — no matter where you are.

Digital subscribers get all the same great features of the print edition and then some, with links to manufacturer Web sites and rich media content. You'll receive an e-mail notification when the issue is ready to view. Just click on the link provided and it's all right there in your browser. Read the issue online, or print out the pages — it's your choice!

To sign up for your FREE digital subscription, go to www.proaudioreview.com/subscribe and fill out the form.* For a sample of what's in store, tour our demo site at:
http://www.proaudioreview.com/digitaldemo

* Signing up for the digital edition of Pro Audio Review in no way affects your subscription to the print edition. The digital edition of Pro Audio Review is a BPA-audited publication; only qualified subscribers may receive a free subscription.
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 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 selector switch, a high-pass filter and L/C/R 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 bus 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, Lectrosonic M152, Sony HVR-Z1 out to an office location and on the streets for some location shoots using the Lectro 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
Still the best under-$ 350 handheld for high-res recording.

**PRODUCT POINTS**

- 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 problem providing consistent phantom power to a full complement of aperage-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 minis). 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.

**I 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, 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.

**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.

**PRODUCT POINTS**

- 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.

[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.

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

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.

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 radial grill; premium shockmount; quality wood box, or upgrade aluminum case.
PRICE: $199.

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.

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.

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.

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.

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.

DPA 3521 Compact Stereo Kit P48
FEATURES: Stereo kit with two 4021 compact cardiod mics; 40 Hz - 20 kHz; gooseneck mounts; magnet bases; XY/ORTF stereo holder with extension; suspension mounts; windscreens, shock mount.
PRICE: $3,899.

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.

MXL Genesis
FEATURES: Tube condenser; large cardioid mics; 40 Hz - 20 kHz; gooseneck mounts; magnet bases; XY/ORTF stereo holder with extension; suspension mounts; windscreens, shock mount.
PRICE: $3,899.
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.

**BLUE Woodpecker**

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

**PRICE:** $1,299.

**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).

**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.

**ELECTRO-VOICE Cardinal**

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

**PRICE:** $269.

**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.

**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.

**LAWSON Tube/FET Combo**

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

**PRICE:** $3,400.

**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.

**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.

---

**Brought to you by David Royer**

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-100**

"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**

**On the MA-200**

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

---

**Pro Audio Review**

Visit mojaveaudio.com for studio photos and audio samples.

518-5-E-6229
Burbank, CA.
BUYER’S GUIDE | Preamplifiers

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.

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.

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.

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.

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: $395.

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.

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.

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; 1 RU.

PRICE: $2,250.

TC ELECTRONIC Studio Konnek 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.

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.

DAKING Mic-Pre IV
FEATURES: Four-channel; 1 RU; 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-egm VU meter.

PRICE: $3,150.

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.

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.

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: $395.

Chandler Limited Germanium
FEATURES: Single-channel; 48V Phantom Power; phase reverse; pad; “feedback” control; switchable LED meter.

PRICE: $1,050.
Welcome to the place where creativity originates, inspiration comes alive and dreams become reality.

If you create, manage, finance, distribute or deliver content today then you’re part of the ever expanding and evolving Broader-casting™ industry. Whatever your role, you need to stay abreast of the latest technology trends like 3D, IPTV, mobile video and social media. Attend the NAB Show this year and you’ll see why it’s THE world’s marketplace for product introduction and the single greatest gathering of content professionals. In fact, it’s the most comprehensive display of digital communications technologies — more than twice as large as any comparable event — and that equals more value. More tools. More techniques. More connections.

Invest in your future and be a part of a global forum unlike any other. Join more than 110,000 professionals from 163 countries who make the NAB Show an integral part of their business strategy and career planning every year.

Content comes alive at the NAB Show — and so does your future. Register today!

Be our guest at the NAB Show. Use code A519 to register for your FREE NAB Show Exhibits Pass at www.nabshow.com/free

Conferences: April 11–17, 2008
Exhibits: April 14–17, 2008
Las Vegas Convention Center • Las Vegas

www.nabshow.com

Selected by the U.S. Department of Commerce as the most significant industry event in which to participate in any hemisphere. Visit www.nabshow.com/international to learn more.
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.

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 newfound 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 good. And now I knew what I was missing.


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.

LENRD Bass Traps -
eight (8) per box - $299.00/box
MegaLenrd Bass Traps -
two (2) per box - $399.00/box
pArtScience AudioTile Shockwave -
ninety-six (96) per box - $599.00/box
pArtScience SCREENS System -
six (6) pArtScience SpaceCouplers and hardware - $1,399.00/system
Foamtak Spray Adhesive -
$24.95/can

"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.

It is 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 Tannosys, 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 Tannosys, the IMF’s transmission line woofers really kick in and present a tremendously deep low end that simply eludes the Tannosys, 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 Eclair 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 newfound 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 good. And now I knew what I was missing.

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.

LENRD Bass Traps -
eight (8) per box - $299.00/box
MegaLENRD Bass Traps -
two (2) per box - $399.00/box
pArtScience AudioTile Shockwave -
ninety-six (96) per box - $599.00/box
pArtScience SCREENS System -
six (6) pArtScience SpaceCouplers and hardware - $1,399.00/system
Foamtak Spray Adhesive -
$24.95/can
Zaxcom's TRX900 is a quantum leap in wireless microphone functionality and quality featuring high resolution audio recording with time code (Pat pending), diversity IFB receiver, remote control and compander free 100% digital transmission.

Now in use by 100s of broadcasters and television/film productions, the TRX900 dramatically improves wireless audio quality and transmission reliability.

To learn more visit www.zaxcom.com
ACOUSTICS

**AcousticsFirst™**
Toll-Free Number: 888-765-2900
Full product line for sound control and noise elimination.
Web: [http://www.acousticsfirst.com](http://www.acousticsfirst.com)

**RPG DIFFUSOR SYSTEMS, INC.**
Listen To The Music... Not The Room...
Absorption, Diffusion & Total Room Solution Packages.
[www.rpginc.com/proaudio](http://www.rpginc.com/proaudio)

CASES

**Case Specialists**
www.NewYorkcasecompany.com
We Will Beat ANY Price!
1-877-692-2738

CONTROL PANELS

**CUSTOM PANELS**
Custom panels in Aluminum, Steel, Stainless & Brass. Wide choice of finishes. Silk screened or engraved graphics. Custom wood mounting systems & desktop consoles.
[www.panelauthority.com](http://www.panelauthority.com)

EQUIPMENT

**ALAN SMART COMPRESSORS**
- C1, C2 & Multi-Channel Versions
- Smart 2 Tools - SSL to Pro Tools Interfaces
- Smart D.I. Boxes

All Exclusively Distributed by:
323-469-1186 • SunsetSound.com
Reprints are highly effective when you use them to:

- Develop direct-mail campaigns
- Provide product/service literature
- Create trade show materials
- Present information at conferences and seminars
- Train and educate key personnel, new employees
- Enhance media kits

For more information contact Carolina Frattand at 703-802-4810 or fax 703-802-4083.

---

2008 CLASSIFIED ADVERTISING RATES

<table>
<thead>
<tr>
<th>Column Inch</th>
<th>1x</th>
<th>3x</th>
<th>6x</th>
<th>12x</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-9</td>
<td>$105</td>
<td>$100</td>
<td>$95</td>
<td>$90</td>
</tr>
<tr>
<td>10-19</td>
<td>$100</td>
<td>$95</td>
<td>$90</td>
<td>$85</td>
</tr>
<tr>
<td>Distributor</td>
<td>$165</td>
<td>$150</td>
<td>$145</td>
<td>$140</td>
</tr>
<tr>
<td>Professional</td>
<td>$115</td>
<td>$110</td>
<td>$105</td>
<td>$100</td>
</tr>
</tbody>
</table>

---

Advertising Sales Representatives

U.S. & Canada
Matt Rubenstein
mrubenstein@nbmedia.com
P/ 914-524-5045
F/ 914-524-5046

Europe, Middle East, Australia & New Zealand
John Gatski
gatski@nbmedia.com
P/ 703-852-4637
F/ 703-852-4585

Japan
Eiji Yoshikawa
callems@world.ocn.ne.jp
P/ +81-3-3327-5756
F/ +81-3-3322-7933

China, Hong Kong & Southern Asia/Pacific
Wengong Wang
wwg@imaschina.com
P/ +86-755-578-5161
F/ +86-755-578-5160

Product Showcases & Classifieds
Tina Tharp
tinatharp@acm.com
P/ 970-726-8376
F/ 970-726-8356

---

www.proaudioreview.com
"The Curtain Falls"  | Evol Intent

SINGLE: "The Curtain Falls"
ALBUM: Era Of Diversion (Evol Intent Recordings)
DATES RECORDED AND MIXED: 2006 to 2007
SINGLE PRODUCERS: The Enemy, Knick and Gigantor
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 within 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."
When your clients expect professional results, your studio cannot have a weak link. The essential elements of your signal chain must perform with consistent integrity. It is important to use audio tools that deliver superior performance, unvarying dependability, and uncompromised quality.

Benchmark has developed a family of audio tools that never compromise: the PRE420 microphone preamplifier, the ADC1 USB A-to-D converter, and the DAC1 USB D-to-A converter.

Benchmark products set the standard for performance and reliability. Engineers have praised our mic-preamps for their breath-taking realism, true-to-life detail, and consistent performance - even in harsh RF environments. Our digital converter technology has become the benchmark of absolute accuracy due to the jitter-immune UltraLock™ clocking system, intelligent circuit layout, and pristine analog sections. All Benchmark products are designed, assembled, and tested in Syracuse, New York, USA, by a team that is committed to quality craftsmanship and tireless customer support.

The PRE420 is a 4-channel mic-preamp with a plethora of features, including built-in, independent stereo mix and solo busses. The sonic performance of the PRE420 has been described as making the instrument "sound like it's being played right in front of me!" It delivers the audio with such clarity that no textures are lost or obscured by distortion or noise. The remarkably low noise floor spans a wide range of gain setting, making the PRE420 the perfect pre-amp for ribbon microphones. For room and ambient recordings, the ultra-low distortion performance puts the listener in the live room. Also, the PRE420 circumvents "Murphy's Law" with its bullet-proof "phantom-hot-plug" protection circuitry and incredible RF immunity.

The ADC1 USB is a reference-quality, 2-channel, 24-bit, 192-kHz A-to-D converter. The UltraLock™ clocking system delivers unvarying mastering-quality performance - regardless of clock source. The ADC1 USB offers variable input gain from -6 to +39 dB to interface directly with a wide range of devices. Precise levels are easily achieved with the 9-segment, dual-range LED meter.

The DAC1 USB is a reference-quality, 2-channel, 24-bit, 192-kHz D-to-A converter. The DAC1 USB continues the legacy of the DAC1, which has become a staple of control rooms around the world. The AdvancedUSB™ input supports native 96 kHz, 24-bit operation without cumbersome or invasive driver software. The built-in, 0-ohm HPA2™ headphone amplifier provides ultra-low distortion headphone monitoring.

Superior performance, reliability, and indispensable features have made Benchmark products absolute studio essentials.

www.BenchmarkMedia.com/par
800-BNCHMRK (262-4675)
Surround. Simple.

Good Things Come in Threes.

Holophone presents two new companions to the award-winning H2-PRO surround microphone system: the powerful H3-D studio mic and the breakthrough, camera-mountable H4-SuperMINI.

User List

- ABC HDTV
- Any Given Sunday (film)
- Apple Inc
- Asbury College, KY
- ATK Audiotek
- Bell ExpressVU-Canada
- Bose Corporation
- Brandt Mansfield live In Amsterdam
- BTV Beijing TV - China
- Bonnaroo Festival
- CBC HDTV
- CBS HDTV
- Celestion
- Central Michigan University
- City TV-Canada
- Cowtown Jumper
- Cristiano Pinheiro, Brazil
- CTV, Canada
- Dave Matthews Band
- Dome Productions
- GoFish Labs
- Drew Carey Show
- EA Sports
- Eddie Maipi
- Ellen John
- ESPN
- Evanesence
- Extreme Makeovers, Home Edition TV
- Fago Labs
- FedEx HDTV
- Feinn Seratone
- Gente Awards
- George Jones - Mortal Kombat III,
- London Philharmonic
- Hank Neuberger - Third Wave Productions
- Hiroshima TV - Japan
- Hong Kong TV (ATV)
- Iron Maiden
- John Cale
- Jess Stone
- Jason TV (Okayama, Japan)
- Kanye West
- King Bolden, film
- KlassikTV - Japan
- Knob Productions
- LLD
- LDS Motion Picture Studio
- Lionel Ritchie
- Mammoth Sound and Vision
- NBC TV - Korea
- Mexico Stecer
- Mormon Tabernacle Choir
- Moscow International House of Music
- MTV Canada
- Music Videos Awards
- NBA Basketball
- NBC HDTV
- NFL Football
- NHL Hockey
- NHK Japan
- North by NorthEast Music Festival
- One Love - Bob Marley Tribute
- Paul McCartney
- PBS HDTV USA
- Pedal Steel Institute
- PayPal, Italy
- Real Madrid (Soccer)
- Resul Pookutty, India
- Robert Margouleff
- Sam Roberts
- Sanbas 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 Azteca (Mexico)
- TV Azteca (Mexico)
- University of Central Florida
- Van Morrison, Grand OF Cape
- Warner Music Group, Fleeting Lips
- Waterman, Andrew
- Whitesnake
- 47th and 48th Grammy Awards
- And the list goes on...

AWARD WINNING PRODUCTS

Holophone
Surround Sound Microphone Systems
www.holophone.com  01.416.362.7790
World Radio History