

ED SPACE

Working on the (studio) tan.

Text: Andy Stewart



► I'm not sure what anyone else has planned over the summer, but I'll be spending a good deal of my 'time off' in the studio, working on The Mill's acoustic treatments, wiring new analogue gear into the patchbay and mixing a couple of albums. Not exactly a dream summer vacation, I admit, but after a long and busy 2009 it will be good just to kick back... and work 16 hours a day in the studio! Sometimes I think I must have taken leave of my senses.

When a new year kicks off, being the editor of AT always puts me in a reflective mood. The summer break is usually the time when I pause and try to imagine the future of audio as we know it – where we all might be a decade from now and how we might be converting our aural ideas into reality by 2020. Trying to look through the fog of current technology into a future audio industry is a bit like base-jumping off a cliff without a parachute. It's a dangerous and foolhardy enterprise predicting the future, and there's almost no hope of landing it. One thing's for sure though, digital technology is advancing faster than you can say 'yes' to a free crayfish dinner and analogue technology is receding faster than the world's glaciers (there might even be a link there).

So what will our audio workplaces look like in 2020? Will we have dispensed with whirring computers altogether and replaced them with an intelligent plasma blob that floats in the corner like a brain? Will the brain be able to read any input device, despite having no visible input connections – you just connect to it like a knife through jelly. Will the bulk of our live concerts be silent to passers by, due to relentless complaints by whining neighbours? I can see a time coming when concert PA rigs dispense with the messy concept of propagating soundwaves through air altogether. Gigs will instead only be audible when you've purchased a ticket online. The ticket will send a coded message to your 100MHz 'I' (iPods and mobile phones will be quaint anachronisms by 2020), which will allow you to listen to the gig in surround inter-cranially via a remote patch that Apple has sewn onto your skull. While at the gig, if you so much as *think* about buying merch or a recording of the band, the concert PA will instantly download the music to your 'I' and charge you a fee. Your merch will be wrapped and ready for you to take home as you pass through the exit scanners. These scanners will take a second swipe of your ticket as you leave and feed all your personal details into a worldwide consumer database of manufacturers, who will send junkmail to your inbox ready for you to read by the time you get home. All proceeds from the show will go directly to Apple, which

by then will have purchased the word 'apple' and the genetic code of the fruit formerly grown on trees, and sued anyone using anything resembling an apple in any context anywhere on the planet, verbal or otherwise.

The flipside of this whimsical future projection is that by 2020 the world will be considerably warmer, and everyone in the West will be reminiscing about the glory days when power could be tapped into via a three-pin plug and hurricane winds only blew sometimes. Anyone consuming power will require a license, and Prime Minister Garrett will own all the nuclear power stations across Australia, despite the howls of protests when it was revealed he'd abandoned the Australian constitution in favour of a 'Council of Multi-Nationals', which had conveniently mistaken the words 'Nuclear Free' for 'Nuclear Fee'. Despite Garrett being keen for us to consume *more* power, audio devices will nevertheless run on very little power, rendering all remaining analogue gear to the scrap heap once and for all.

My realistic hope is that by 2020 the audio world will be free of leads and patching, and consume no more than 20 Watts of renewable power via solar panels and turbines on the roof. Studios will be largely off the grid and Class-A devices will be a thing of the past. There will be a few pangs of regret about this – from yours truly if no one else – but hopefully by then we'll have abandoned our romance with 'vintage' audio. I can't believe I'm saying this, but if we're to protect the future from global catastrophe we'll all have to get used to consuming far less power and consider our equipment purchases in these terms as much as their technical superiority. Old gear will be very hard to justify in this context.

Ironically, right now I seem to be heading in the opposite direction, even though the batteries and solar panels for The Mill are already ordered. I've got the analogue outboard bug badly at the moment – analogue compressors especially. They're getting cheaper by the day, but a room full of them chews power faster than Tony Soprano eats spaghetti. I'll have to organise a second windmill to compensate. Actually, the windmill installation is proving to be a difficult conundrum, not for lack of wind, mind you – there's plenty of that where I live. The main problem seems to be where to place it so the whirring of the blades doesn't drive myself and those I work with crazy...

Happy New Year folks! May 2010 be a productive and memorable one for us all.

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YOUR WORD

Readers' Letters

MAC (UNDER) THE KNIFE

Dear Brad: I've been aware of your articles in *AudioTechnology* for some time now and, if you'll forgive the fawning, I must say I've been greatly impressed by your obvious knowledge and experience, especially in the world of Apple.

Apart from simply owning a Mac, how does one gain such a vast array of knowledge? The reason I ask is because I've recently come to a crossroad in my life and need to determine a new career path. Based on my relatively intense computer (i.e. Mac) use over the last 17 years (apart from playing guitar), I thought something in IT might be suitable, preferably on a Mac.

But it seems studying to be a professional IT person in the Mac world is a total non-event. In the PC world – Cert. IV in IT, here I come! TAFE has all the answers for PC users, but not for the Mac it seems.

Any thoughts?

Edward Cox

Brad responds: *Thanks for the kind words. To be honest, my 'vast knowledge' – as you so flatteringly put it – is merely the result of having owned a variety of computers over several decades. I started many moons ago on the old Ataris and Commodores, before eventually getting into Macs and using them for music chores after the Ataris became defunct and the sport of hard disk recording became a plausible prospect for desktop computers. It's really only been this experience, and a penchant for 'serial tinkering' – be it with computers, motorcycles, cars, guitars or drums – that has led me into this particular role.*

As for IT training in Mac-land, despite the squeaky clean image Apple presents to the world, its products do indeed breakdown and require repair/replacement or professionals to configure machines for specific environments. Apple certification kicks off with the 'Apple Certified Support Professional' course. Here you're trained to deal with both basic and complex configuration and support issues. From there you can progress onto OSX Advanced System Administration and Xsan Administration.

The other avenues to pursue are Apple Certified Macintosh Technician courses. These will qualify you to repair Apple hardware, order spare parts directly from Apple, and indeed work as an Apple technician

for an Apple reseller. Like the Microsoft courses, all this training will cost money, albeit slightly less than Microsoft accreditation.

Apple has all the relevant information here: www.apple.com/au/training/, and many of the courses can be started with what Apple refers to as 'Self-Paced Learning'. You can order the text book and get up to speed before taking the final exam: www.apple.com/au/training/selfpaced/. Once you're accredited, jump onto Apple's employment website at www.apple.com/jobs/au/ and find yourself a job! Good luck!

DEAR AT

I've wanted to be an audio engineer for a while now. It always seemed like the career that would reconcile my creative and scientific sides. I'm 17 now, and the future doesn't look too bright. I started at 14, buying the magazines (including *AT*), pouring over countless manuals for compressors and consoles, trying to bend my head around the tough books on acoustic theory and signal processing and finally receiving my own four-track tape recorder. Now, I create recordings for the groups at my school on my base-spec'd iMac, running GarageBand... this is how far I've gotten. Studio 52 in Collingwood allowed me to complete a week of work experience there, despite their policy against it. It took many, many persuasive emails before they kindly relented. In partial answer to Jackson Buckley's letter in issue 70, I believe persistence is the key – go everywhere, and keep asking 'til they boot you out twice.

Unfortunately, due to my distinctly adhesive position in the outer suburbs of Melbourne, I was unable to marvel at the luminaries in attendance at *Integrate 09*. Even worse, I missed my idols Brian Eno and Karl Hyde at the Luminous Festival. Slowly, the scientist/artist role I've envisioned for myself in audio engineering is etching away. I have wished not just to produce great sounding recordings, but also to innovate (naive, perhaps, but sincere nonetheless). I could just as well capitalise on my new-found interest in chemistry, but I still see myself heading into music, because I love listening to it. That's why I likely won't stop trying. Despite this, I'm still starting to doubt my approach.

I've adopted a minimalist philosophy when it comes to recording. I figure that if I can make good recordings on the lowest grade of equipment, I could

create masterpieces with Neumanns and Neves.

I hoped that when I became skilled enough, the equipment would somehow come to me. How far can you go on brains alone after all? On a side note, my school library started stocking *AudioTechnology*, on my insistence.

PS: I certainly know why engineers consistently say 'Don't do it for the money' – I've been virtually broke for months. I'll try to get a summer job at some joint with a mixing board. Here's hoping.

Andrew Wright

Rowville, VIC.

Editor's Response: *Andrew, at your age the future's all ahead of you, yet for some reason you already sound like a washed out has been! Do yourself a favour and go easy on yourself! You can't be expected to afford a whole stack of gear at your age or know everything about recording and acoustic theory, so whatever you do don't beat yourself up over it. No one I know in this industry ever had a whole stack of pro audio gear at 17 and many still can't 'bend their head' around acoustic theory at 50! From memory I had a secondhand drum kit that someone gave me when I was your age, and that's about it. The key to working with the good gear at your age is, as you yourself point out, to find an 'in' at a studio nearby – there's bound to be one – or alternatively, if you play an instrument, join a band and record some albums at a cool studio.*

You of all people know already that persistence is the key, so keep at it. I'm sure someone out there is looking for a keen assistant such as yourself. Now I'm starting to sound like counselor Mackie... just follow your heart, whatever you do. Andy Stewart.

CORRECTION

Last issue, Reverend T.H. Eslam wrote in to *AT* for clarification about a topic raised in Andy Stewart's *Ed Space*. In his response to the letter, Andy unfortunately called him 'Reverend T' instead of 'Reverend T.H. Eslam'. The typo, combined with our mistake of not calling him by his full name enraged the Reverend, who in an angry series of emails described our letter as smacking of "sarcastic insolence." He went on to say that we needed a "crash course in basic social etiquette" when dealing with our "superiors" and cancelled his *AT* subscription. We apologise for the typo.

REGARDING STAV'S MIX ON THE AT WEBSITE

Wow that mix is so clear!

Love the use of reverb on the snare at the 0:45 second mark – so subtle towards that big hit, and the kick sound is great.

First mix I've heard from Stav's studio.

I guess from my perspective those simple details are the things I wouldn't even *think* to add into the mix. It's the attention to detail – yet the simplicity of it – that makes those little moments so memorable. That's what I love about Cat Stevens so much; his music was so simple vocally, yet as a listener you never demanded anything more complex from him. Anything more would have killed it. Sure he hits some high notes in his songs and had some unusual and unique melodies, but he was consistent in a truly heartfelt simple form that I can't get enough of. Forgive me here but the singer in this song for the first few seconds of listening actually kind of annoyed me with his crazy movements shifting around and lyrics, but after a couple of listens the song stuck in my head and I wanted to hear it again.

Some other details with the panning of the guitars in Stav's mix, where little guitar parts would creep up in the left and draw your attention before a more obvious moment were really clever, I know Stav reinforces these things a lot in his book but some things don't hit home until you really hear them –

not expecting them to appear. It's like... 'Oh that's exactly what he's been talking about.'

I've worked with Stav a bit in recent times and it's funny how when he's physically sitting in the room making me question why I'm taking a particular action, it all hits home and my approach changes. Then when I mix on my own my old habits tap me on the shoulder and say: 'that new approach involves a lot of work... sweep the EQ, add too much compression...' even though I know this is going to make me waste a whole heap of time when the answer was always staring me in the face. It's going to take a long time to fully understand the things I have learnt about mixing. I feel like I'm not quite ready to absorb some of them!

It's a practice thing and it takes time, but man this game certainly is a gigantic puzzle – the more I learn the more I feel like I'm going backwards!

Anyway, great mix Stav, and a really great article.

Liam Mulligan

Dubbo, NSW.

DELAYED COMPENSATION

I just thought I'd share a little bit of unexpected studio gold with you.

I've been working on a mix for about three months now – it's all in-the-box so I can just dip in and out of it any time I want.

The thing is sometimes I listen to it and the vocal

just rides along with this fantastic groove and I love it! But later that week I'll play it again and not really like it that much. The groove is gone! Where? I have no idea! Is it my perception? Are my ears playing tricks? Then, sure enough the following week I'm totally digging it again and there seems to be no real difference. It was all very weird and it had me doubting my ears until I discovered what was going on – plug-in delay compensation (PDC).

I use a UAD card with Logic 7, which requires the PDC to be set to 'All' when plugs are used on buses. So anyway, as it turned out, every time I loved the track the PDC was not set to 'All' – so my vocal (sent to a bus with a UAD compressor strapped across it) experienced a very minor delay – but this was precisely what was creating this magnificent groove!

At other times the 'All' was engaged and the vocal was slightly too rigid and thus less inspiring. It all worked so well because no other instruments were using UAD plugs on their bus, so the rest of the song was in original time. Ah the joy!

Anyway, boring for some but it really made my day.

Dan Flynn

Heidelberg, VIC.





MIDAS WELL HAVE THE BEST

When the Music Group announced in early December 2009 that it was acquiring the Midas and Klark Teknik brands, many in the professional audio community were heard muttering the obvious question: "Who the hell is the Music Group?"

The Music Group is a newly formed holding company owned by Behringer magnate Uli Behringer and his long time business associate, Michael Deeb. The company owns a number of related audio brands, most notably Behringer. Now, with the purchase of Midas and Klark Teknik from Bosch Communications Systems, the name is certain to become a fixture of the pro audio lexicon.

The existence of the Music Group was itself news to many, and the move generated an email frenzy within the audio manufacturing industry. The spinmeisters had a field day describing the takeover in terms of "honour" and "excitement,"

Uli himself being particularly "thrilled" (apparently) at the prospect of "taking these legendary brands forward," adding also that he "look[ed] forward to learning from the achievements of [Midas and Klark Teknik's] engineers and working with them to get Behringer to a new level." Concepts like "lifecycle management" and "decision support" were bandied about in a spin cycle worthy of a Copenhagen clothes dryer. What it all means in reality is anybody's guess. Some say the legendary audio brands will be pillaged for their intellectual property, others seem convinced it will be beneficial to all the audio brands within the Music Group. The sale of Midas and Klark Teknik is part of an asset deal that's scheduled to be completed by January 31st.

Already the ramifications of the deal have been felt in Australia, with distribution of Midas and Klark Teknik moving to National Audio Systems.

GOLD!

At the behest of practically nobody, Spandau Ballet has reformed to become the first band ever to perform in space. Virgin Galactic CEO, Richard Branson, has commissioned the neglected '80s heartthrobs to rattle off a five minute gig, literally outside the Earth's atmosphere. The ageing New Romantics will be launched into sub-orbit some time during 2011, with I'll Fly For You apparently being one of the hotter contenders for the set list. One lucky passenger will be taking in the show, having slapped their \$200k ticket

squarely on the table – one would imagine Spandau groupie, Sir Richard, could turn out to be that individual, with the spacecraft only able to transport a scant six passengers aside from the two pilots. Due to the seating constraints, the FOH engineer will be mixing the gig from planet Earth. Hopefully he or she will have access to the pod-bay door controls long enough to have the band fully sucked into the vacuum. Remember, it's space – we won't hear them scream.



JOSEPHSON C715

Josephson Engineering has introduced a new member to its family of C-Series microphones, the C715. The C715 is a single capsule large diaphragm condenser microphone with omni and cardioid patterns achieved by an adjustable vent in the microphone's backplate. The capsule assembly is internally shock mounted so the mic can be attached directly to a stand through its rugged yoke mount without the need for any external accessories. The capsule is protected by a patented metal foam housing for minimum acoustic colouration due to the elimination of many internal reflecting surfaces. The internal circuitry uses a Class-A cascade FET front end, driving a large nickel core Lundahl output transformer for compatibility with a wide range of preamps and consoles. Price: \$5250

► Mixmasters Productions: (08) 7200 4500 or info@mixmasters.com.au



ROLAND'S M-380 AIRBUS

The M-380 is a compact and rack-mountable console with the same mixing engine as the M-400 and REAC (Roland Ethernet Audio Communication) digital audio transfer technology. It enables a powerful and configurable mixing environment, intuitive operation and easy set-up for mobile applications or space-restricted installations. Features abound, such as 48 channels, 18 buses and eight matrices assignable from the patch bay, four dual-mono effect processors, four 31-band graphic EQs or eight-band parametric EQs, direct connection to a PC for multitrack recording, and remote control and offline setup using a PC. Internal processing is at 56 bits, with A/D and D/A conversion at 48 or 44.1k.

► Roland Corporation: (02) 9982 8266 or info@rolandcorp.com.au



FAIRLIGHT Xe6 SIDECAR

Fairlight has released an extremely cool looking fader pack for its Xynergi Controller desktop device – available now. The six-fader Xe6 Sidecar features an identical physical aesthetic to the Xynergi Controller, creating a sophisticated, good looking and compact desktop work-surface. The touch-sensitive non-motorised faders of the Xe6 are identical to those found on the Xynergi Controller, and each of the six faders runs nine banks deep, offering a total of 54 channels per controller. Up to four Xe6s can be connected to a single Xynergi (via ethernet) and coloured OLED displays show pan, individual channel naming, metering and the position of both the fader and rotary knob. At a little over three grand, this Australian made product should sell like hot cakes.

► Fairlight: (02) 9975 1777 or www.fairlightau.com



QUE SERAH

Que Audio has released four microphone kits based around six inter-dependent products. Firstly, the 'Mini Shotgun' is a 135mm x 8mm self-powered or phantom-powered shotgun microphone. Its associated 'Fish Pole' is a 30cm microphone handle that extends into a 1.5m pole. Next up, 'The Base' allows the Fish Pole to become either a table or floor mounted microphone stand. Then there's the 'Mini Shock Mount' – a shock-mount microphone holder. No guessing what 'The Wombat' – a fluffy mic windshield whose acronym stands for wind omitting microphone baffle Australian technology – is designed for... Finally, 'The Cold Shoe' is an adaptor to fit any camera with a hot-shoe mount, giving said camera the facility to mount both the Mini Shock Mount and Mini Shotgun Microphone.

► Sound & Music: (03) 9555 8081 or www.sound-music.com



SO YOU WANNA BE A RECORD PRODUCER?

Good news: ARIA recorded a 26% increase in the sale of Australian recordings, bringing the value to just under \$200 million. Bad news: jobs in studios are still rare as hens' teeth. So when JMC Academy rang the office recently we thought it'd be worth exploring a few other options:

Audio Engineer: Don't get fixated on recording studios, think about other areas like TV, radio, theatre, corporate functions and promos.

Entertainment Business Manager: Music and entertainment is big business and there are a bunch of diverse opportunities in management.

Music Publishing & Licensing: Even further behind the scenes, but no

less interesting, is publishing.

3D Animator: Animation is projected to be a \$20 billion global industry in 2010. Animators can find full-time employment with film or television production houses, with advertisers, architects, web design firms, or video game companies.

TV & Film Production: Here's a field that requires knowledge of the modern studio, electronic news-gathering and current affairs production. These skills can be used to create short films, commercials, live broadcasts, music video clips and documentaries.

Talk to JMC about the possibilities: www.jmcacademy.com.au

NEWS: GENERAL



FM-3 PORTABLE MIXER

Fostex has just released a heavy-duty portable mixer that looks like it belongs in the cargo hold of a Hummer. The FM-3 Portable Mixer incorporates an OLED display with high-resolution metering offering both VU and peak level readings, three-channel input (line/mic) and two-channel main outputs. A dedicated monitor return input checks the audio from VTR or camera feeds, while the auxiliary input can be merged to the stereo bus in addition to the monitoring feature. Cascade connection is also possible. The output has an analogue limiter, with adjustment available for threshold and ratio, all wrapped up in what appears to be a seriously robust aluminium body. The unit will run on eight AA batteries or 12-24V DC external power, weighs 1.5kg (with batteries on board) and is priced at \$2999.

► Major Music Wholesale: (02) 9525 2088 or info@majormusic.com.au



SWEETER HARMONIES

TC-Helicon improves on the VoiceTone Harmony-G vocal pedal with harmonising and reverb technology taken from its big brother, the VoiceLive 2. Designed for the singing guitarists among us, features include an improved guitar-controlled harmony algorithm, front-of-house quality reverb, a selection of four overdub-style doubling effects with two more doubling voices available, USB connection for software updates, tips, and preset backup using the included 'VoiceSupport' applet, adaptive harmony gate, and manual selection of scale and key for singers and horn players.

Standard features remain such as stereo or mono output, a mic preamp with phantom power and XLR input, and an accurate guitar tuner.

Price is \$599.

► Amber Technology: 1800 251367 or professional@ambertech.com.au



DIG YOUR HEELS IN

Heil Sound has introduced the PR 48 large diaphragm dynamic microphone for kick drum. The mic features a sizeable 1½-inch diameter element, and is mounted in a vulcanised double shock mount. The metal housing was designed with a slanted entrance to the XLR so the cable assembly is easier to connect to. A specially designed low-pass filter sets the -3dB hinge points at 30Hz and 8kHz with a +10dB peak from 50Hz to 80Hz. The response rolls off at 8kHz, which helps control unwanted top-end 'noise' inside the drum, while keeping frequencies critical to kick drum harmonics from when the beater meets the drum head. The microphone can handle over 150dB SPL.

► National Audio Systems: (03) 9761 5577 or sales@nationalaudio.com.au



KURZWEIL'S PC3LE6

The PC3LE6 combines the sound quality and performance control features of the PC3 with a new streamlined user interface, providing an interactive experience that's aimed at inspiring creativity. Under the bonnet the PC3LE features the same chip technology as the PC3. All of the PC3's sounds are included – the Kurzweil grand piano, vintage electric pianos, clavinet and mellotrons, orchestral and strings collections, virtual analogue synths, KB3 organs, realistic basses, drums, guitars, percussion and horns – over 1050 programs in all. There's even eight backlit, velocity-sensitive drum pads for triggering sounds, sequences, chords and arpeggiations. The unit features 24-bit DACs and a 24-bit stereo S/PDIF output. The keyboard was due for release at the end of December 2009, so it should be available now. Price on the LE6 (61-note keyboard) is \$2499.

► Innovative Music: (03) 9540 0658 or sales@innovativemusic.com.au

IN BRIEF

Dave Smith Instruments has released an updated version of its flagship synthesiser, the Poly Evolver. The new version boasts 60 potentiometers among its complement of 78 rotary controls. Unlike endless rotary encoders, potentiometers allow the full range of a knob's values to be accessed in a single turn of about 300 degrees. This simplifies filter sweeps and performance-oriented gestures. A kit with potentiometer-equipped panel boards is available to convert older Poly Evolvers. Oh, and the wood end panels are now made from buming. Audio Chocolate: (03) 9813 5877 or sales@audiochocolate.com.au

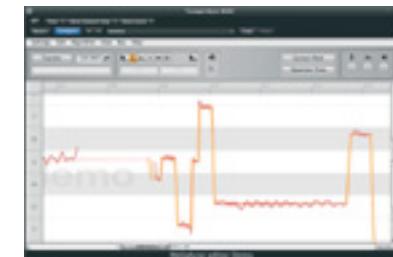
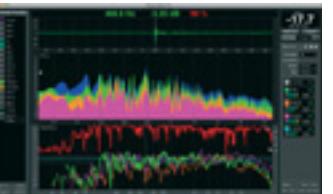
JDK Audio, a brand developed and engineered by API, has released the R22; the fourth product in its line of affordable processors. The R22 is a two-channel, rack-mount compressor with linkable stereo operation that uses RMS power summing and a patented 'Thrust' circuit. Because the R22 has LED indicators and switchable analogue metering of the output level and gain reduction, it's easy to optimise gain structure. Switchable hard- or soft-knee compression, combined with variable threshold, ratio, and gain make-up controls deliver a wide range of compression textures. Legacy Audio: (07) 5570 4171 or sales@legacyaudio.com.au

Aussie Masters of Swiss Army Knives audio products **ARX**, has introduced the Qswitch – a four-channel stereo switcher that joins the AudiBox range of audio tools. The Qswitch allows you to switch any of four stereo inputs to one stereo output, or switch one stereo input to any of four stereo outputs. Clearly laid out annotation makes it easy to see which input or output is being switched. A bank of four latching interlocked switches mean you can only select one path at a time. The Qswitch sports TRS jack sockets to accept balanced or unbalanced signals. The Resource Corporation: (03) 9874 5988 or sales@trc.com.au

API is now shipping the 527 compressor: a single channel module based on API's 225L discrete channel compressor. The 527 features comprehensive controls including variable attack, release, ratio, and output gain controls. The unit also includes API's 'Thrust' circuit, first offered on the 2500 stereo bus compressor. A 10-segment LED meter is switchable between gain reduction and output level. 'Feed-forward' and 'feed-back' gain reduction are selectable on the front panel. Legacy Audio: (07) 5570 4171 or sales@legacyaudio.com.au

Audix's newly designed Fusion series of microphones consists of four models: the f2, f5, and f6 dynamics, and the f9 condenser. Each mic is available individually or collectively in three packages. Suited for both live and studio applications, features of the series include low-mass diaphragms, high output neodymium magnets, extremely directional hypercardioid polar patterns, high SPL handling and cast zinc alloy bodies with steel mesh grilles. The f9 condenser microphone is designed for overheads, cymbals, and acoustic instruments. It features a 16mm diaphragm, a 40Hz - 20kHz frequency response and a dynamic range of 115dB. Production Audio Services: (03) 9264 8000 or info@productionaudio.com.au

NEWS: SOFTWARE/PC RECORDING



TC MAKES IMPACT

Impact Twin is a new audio interface from TC Electronic. It features two mic preamps that utilise TC's Impact III technology. The unit also offers 24-bit/192k HD conversion, plus a set of recording channel tools. The Impact Twin is event rugged enough to lug about wherever you need to record. Tasty inclusions abound, with direct monitoring reverb, high-impedance instrument inputs, a set of plug-ins including the M40 reverb (based on an algorithm from the TC Reverb 4000), ResFilter, and Assimilator, which allows you to grab an EQ curve from any sound and apply it to your own. Finally, the 'iCheck' (Integrity Check) feature provides a shortcut for revealing artefacts of data reduction when encoding MP3 or AAC files.

► Amber Technology: 1800 251367 or professional@ambertech.com.au

LEXICON GOES SOFT

The newest addition to Lexicon's legendary processing family provides seven Lexicon reverb algorithms designed to deliver the highest level of sonic quality and function while offering the flexibility of native plug-ins. The Lexicon PCM Native Reverb plug-in bundle's features include seven Lexicon reverb plug-ins (Vintage Plate, Plate, Hall, Room, Random Hall, Concert Hall, Chamber), over 950 studio presets, multi-platform compatibility (Windows XP, Vista, and 7; Mac OSX 10.4, 10.5, 10.6, PowerPC and Intel), and plug-in formats that work seamlessly in any VST, Audio Unit or RTAS-compatible DAW. Customised patches can be stored in a DAW-independent format and transferred to other DAW platforms.

► Jands: (02) 9582 0909 or info@jands.com.au

SMAART ANALYSIS

Rational Acoustics has a new version of its industry standard audio analysis software, with a completely new code base developed from the ground up. Smaart v7 is apparently a quantum leap for Smaart in both power and elegance. Features include unlimited input channels and devices, access to virtual devices, ASIO, WAV and CoreAudio input, ability to reference to internal sources, power calculation per input (SPL), and time domain filtering/input calibration. Real-time analysis functions now include improved fractional octave banding for RTA and spectrograph, including 1/48th octave measurement, multi-channel input for simultaneous display of multiple individual RTAs, as well as 'live averages' of active signals. All these features (amongst others) come with an improved, less cluttered user interface.

► Production Audio Services: (03) 9264 8000 or info@productionaudio.com.au

LINE 'EM UP

Synchro Arts has announced that after years of development Vocalign Pro v4 is now available for both ProTools and Logic. Compared to Vocalign Project, Vocalign Pro offers more accurate alignment with user controls for Sync Points and Protected Dub areas, and higher quality signal editing for single pitched audio tracks. Comprehensive audio preview options allow listening from Vocalign to sections, or the whole signal, before and after alignment, either individually or together. Improved TimeMod (time compression/expansion) optimised for single-pitch signals maintains the option to use an alternative TimeMod algorithm for more complex signals. Maximum signal length has been increased to five minutes – three minutes more than previous versions. The software is available now for Mac OSX only.

BOTH KINDS

MOTU's recently announced UltraLite-mk3 Hybrid audio interface is the first hybrid Firewire/USB2 interface for Mac and Windows. The unit provides mobile operation via Firewire or USB2 with sample-rates up to 192k and plenty of I/O, including two mic/instrument inputs, six line-level analogue inputs, 10 channels of analogue output, stereo S/PDIF and a stereo headphone output. Users can connect the interface to either style port for full-featured operation and low bus latency. Using Firewire provides the added benefit of fully mobile bus-powered operation, including phantom power to both mic inputs. An included power adapter can be used for USB2 connectivity, or operation as a stand-alone mixer. Price is \$1099.

► Major Music: 1300 306 670 or sales@majormusic.com.au

DNA TESTING OVER

After much ado throughout 2008 and 2009, Clement Melodyne editor with its associated feats of audio-separation strength is finally on sale in stores worldwide. Melodyne editor is the first Clementy product to feature the company's pioneering DNA Direct Note Access technology, allowing access to individual notes embedded in polyphonic audio material. There's been a lot of speculation about this software, with various entities like Wired Magazine attempting to put anything from the Beatles to Mozart through the DNA algorithm with dubious results. However, the software actually pulls some pretty smart tricks when it comes to organising polyphonic audio material. Available for Mac OSX, Windows XP, Vista and 7.

► Electric Factory: (03) 9474 1000 or sales@elfa.com.au

IN BRIEF

Waves presents its newest incarnation of MultiRack, a plug-in platform designed especially for live sound. MultiRack is a software host that gives FOH and monitor engineers the power to run the same Waves plug-ins used in recording studios. Highlights include simple setup and routing, full recall, presets and snapshots saving per song and song sections, and Windows and Mac OSX compatibility. MultiRack comes bundled with H-Delay and IR-L Native plug-ins.

Sound & Music: (03) 9555 8081 or www.sound-music.com

Roland Corporation has a cool new device: the SP-404SX Portable Sampler. The update to the popular SP-404 offers 16-bit/44.1k sound, improved DSP effects, a more versatile pattern sequencer and easier data management. The unit also includes 29 DSP effects, including filter, delay, unique voice and subsonic effects, as well as a looper, that apparently switch seamlessly for a smooth performance. Twelve trigger pads, three control knobs, and a 'Sub Pad' for rapid triggering allow samples to be triggered on-the-fly. The built-in microphone and optional battery operation enable recording with the SP-404SX anywhere inspiration strikes.

Roland Corporation: (02) 9982 8266 or info@rolandcorp.com.au

SPL releases the Vitalizer MK2-T plug-in. The Vitalizer is a unique tool that adds 'character' to any music production. If you lump all the various hardware versions of this device together, SPL has apparently sold more than 30,000 units. Now the plug-in version brings the Vitalizer to the digital domain. Features include bass, mid and top-end processing, unmasking of overlapping sounds, adjustable soft and tight low-frequency sounds, and mono, stereo or multi-channel operation. Applications include recording, mixing, mastering or playback, single instrument emphasis, and audio restoration. The Vitalizer MK2-T is available for Mac and PC in all the major plug-in formats, including TDM.

Audio Chocolate: (03) 9813 5877 or sales@audiochocolate.com.au

Lexicon has launched the Omega Studio Bundle, a completely integrated computer recording package that combines Lexicon's Omega Studio USB recording interface with Steinberg's Cubase LE4 multitrack audio and MIDI recording software, the Lexicon Pantheon VST reverb plug-in, and an AKG D88S vocal microphone and mic cable. It contains all the necessary hardware and software components to transform a PC or Mac into a 24-bit recording setup and allows the user to start recording immediately.

Jands: (02) 9582 0909 or info@jands.com.au

EZdrummer 1.2.0 is now available from **Toontrack**. The update is recommended for all EZdrummer users. New features include new Drumkit presets, new mixer channel LEDs indicating the presence of signal pre-fader, drag-&drop install of Toontrack MIDI packs and various adjustments that support the upcoming Electronic EZX. Knob circular modes are now always relative, and the EZX library version info is now available from the Help menu. Changing drums while the sounds are loading has also been improved.

Sound & Music: (03) 9555 8081 or www.sound-music.com

Novation has launched StepSeq, a free Max For Live patch that turns Novation's Launchpad into a fully-fledged melodic step sequencer. Conceived as a sequencer to enable Launchpad users to program melodies, leads and bass-lines quickly within Live, the buttons are configured diatonically – as opposed to chromatically, as with a traditional step sequencer. The degree of the scale and its tonal centre can be adjusted, meaning that once set up, any note you trigger in your sequence will fit in harmonically with your track, making it super-easy to keep within the context of the song.

Download it for nicks at: www.novationmusic.com/support/launchpad/

Voice Code by **9 Soundware** is a collection of presets for the EVOC 20 vocoder within Apple Logic Pro. The settings explore the depth and versatility of the EVOC 20 plug-in, both as an instrument and effects processors. Included are 30 settings for the EVOC 20 PS and 10 each for the EVOC 20 TO and EVOC 20 Filterbank plug-ins. Examples include types that emphasise articulation, remove intelligibility, are driven by heavy LFO modulation, as well as presets to produce utterly aggressive colours. Check out 9 Software's plentiful Logic add-ons while you're there. Price: US\$14.99 www.9soundware.com

Vocal Rider is the first of Waves's new series of mix tools. In a nutshell, Vocal Rider rides the levels of vocal tracks, automatically. Instead of manually riding the physical mixing console fader, or tediously drawing individual level changes on a DAW track, Vocal Rider does it for you.

All you need to do is set the target range of the vocal level in relation to the rest of the mix.

Then, Vocal Rider compensates for all deviations from the target, intelligently raising or lowering the vocal volume. Too easy!

Sound & Music: (03) 9555 8081 or www.sound-music.com



PA ANYWHERE

Behringer's Europort EPA150 is a portable 'briefcase'-style PA system with 2 x 75W stereo output and two detachable loudspeakers. The EPA150's power-to-weight ratio is achieved through Class-D amplifier design and the use of a switch-mode power supply.

The built-in five-channel mixer sports two balanced XLR mic inputs, a mic/instrument channel and a stereo line channel with separate RCA inputs. Phantom power is provided for use with condenser microphones with channel EQ duties handled via an active three-band 'bass, mid, treble' section, while the overall system is managed by a seven-band graphic EQ with Behringer's FBQ feedback detection system. The 'rig' sets up in seconds and includes a 24-bit stereo effects processor. Price is \$599.

► Behringer Australia: (03) 9877 7170 or sales@behringer.com.au

d&b E12X SUB

The d&b audiotechnik E-Series range has enjoyed quite a few new additions in recent times. Notable as the smallest subwoofer in the d&b product range, the latest addition is the new E12X-Sub. A small, lightweight, low profile, bass-reflex subwoofer fitted with a 12-inch, long-excursion neodymium driver, the E12X-Sub can be deployed in two different ways: in 'active' mode with a dedicated d&b amp configuration with the smaller E-Series loudspeakers, or acting as a passive crossover, enabling connection in parallel with an E8 loudspeaker. This provides the same functionality of the larger E15X-Sub with an E12 or E12D. The E12X-Sub will provide low frequency extension in smaller systems using both the E0 and E3 loudspeakers. It weighs 18kg and produces 124dB SPL and 127dB SPL when driven by the D6 and D12 respectively.

► National Audio Systems: 1800 441 440 or www.nationalaudio.com.au

LOUDER ICONS

Icon LTS is a modern, processor-controlled active stacking PA for use in festival tents, clubs and at open-air events that require high sound pressure levels. For situations where line array systems may be overkill in terms of cost and complexity, this system presents as a suitable alternative, offering easier set-up, less cabling and simpler operation. With the IC 112 LA, the active, processor-controlled two-way mid/high unit is entirely horn-loaded, with the 12-inch/8Ω neodymium loudspeaker driven by a 1000W Class-D power amp into 4Ω. The IC 118 BA uses of a band-pass design to achieve high sound pressure, producing bass below 40Hz. When used as the system subwoofer of the Icon LTS, the IC 118 BA is controlled by the IC 112 LA.

► CMI: (03) 9315 2244 or www.cmi.com.au

OPERA GETS LIGHTER

Just arrived in Australia are the first shipments of the latest Opera Digital loudspeaker series from dB Technologies. The new models feature efficient Digipro digital power amps, which are engineered to deliver higher performance in a lighter package with a smaller footprint. All power amps sport two separate dedicated channels for the woofer and tweeter as well as an active crossover. At 400W RMS, the 400 series model's output is 33% greater than previous designs, while the 600 series models – not surprisingly – deliver 600W RMS. All this adds up to greater sound pressure, more dynamic response and more powerful low-end punch. Other features include a switching power supply, a dual active limiter, and reduced weight.

► CMI: (03) 9315 2244 or www.cmi.com.au



THE JOHNSTON LAB

Johnston Audio Services has added to its already expansive Lab.gruppen inventory with the purchase of over 30 FP10000Q power amps.

The FP10000Q is a four-channel (4 x 2100W @ 4Ω) amp in a 2RU, 12kg package.

Bruce Johnston (Director of Johnston Audio) has obviously been pretty impressed by the performance and reliability of the Labs: "The guys all love the Labs and know they can rely on them. We've had a number of issues with other brands and it's great to have an amp that just keeps on going. We plan to change all of our amplifiers over to Lab.gruppen."

The crew at Johnston's first tried the

FP10000Qs on subs, loading up each channel to 2Ω and running them as hard as they would go, and they just kept on trucking. Johnston is using the 10000Qs on both its Nexo and L'acoustics rigs on a wide range of events from festivals to dance parties to pub tours.

Another benefit of the Lab FP10000Q is its size, Bruce adding: "With four channels in 2RU, we've been able to halve the amount of racks we take on tour. With truck space always at a premium, this is a major benefit for touring companies."

Hills SVL: (02) 9647 1411 or www.hillssvl.com.au



ARIAS: SPECKY TELLY

It's ARIAs day and the Superdome's loading dock is super-hot. Take the trucks out and Tony Hawk would have a field day with the wall-to-wall concrete ramps and bollards. But it's glaringly hot and unpleasant. Fortunately, relief is at hand. Audio Director, George Gorga's, production bus offers respite. In a world of corporate, cramped, bleeding-edge OB trucks, George's bus is relaxed and cool – somewhere to collect your thoughts. But don't be under any misapprehensions; George's bus is audio Nerve Centre No. 1.

The most recent ARIAs weren't a cavalcade of live bands as in previous years. This time around it was a combo of live vocals over recorded backing tracks. On the director's cue, George hits 'go' on his Nuendo system via a trigger from a Roland 1680. A stereo feed goes to the Gearhouse broadcast truck (which

gets mixed and sent to your telly), and a feed via Opticore goes to JPS's FOH and monitor position in the arena. Actually, moments before, the click track goes to JPS's Bob Daniels at monitors for him to send to the performer as an intro.

George will then monitor how the Gearhouse truck mix is faring. It's important to keep the broadcast mix live and exciting. There are eight ambience mics in the room, along with a number of open presenter mics – in fact, there are 20-odd wireless handhelds in use over the course of the evening. George notes how disconcerting it can be for awards broadcasts to leap from live/ambient performances and presentations to dead-dry pre-recorded promos etc. George is a stickler for keeping the energy up.

A 56-channel Pyramix system records all the live material from stage direct from the preamps. That way, if the unthinkable happens – a glitch in a console, for example – the director can get Pyramix to chase his Avid video system and call up the missing audio in an emergency post production session – the telecast is delayed by about half an hour post the live show.

Inside the arena, JPS's Greg Rosman (FOH) and Bob Daniels (Monitors) are charged with keeping the performers and the punters happy. From the onset it's obvious this isn't a no-holds-barred, sweat 'n' tears live show pumped up to 11. It's a television spectacular, made to look so 'spectacular' by the incredible work of Technical Direction Company (TDC). The rig is big. Made even

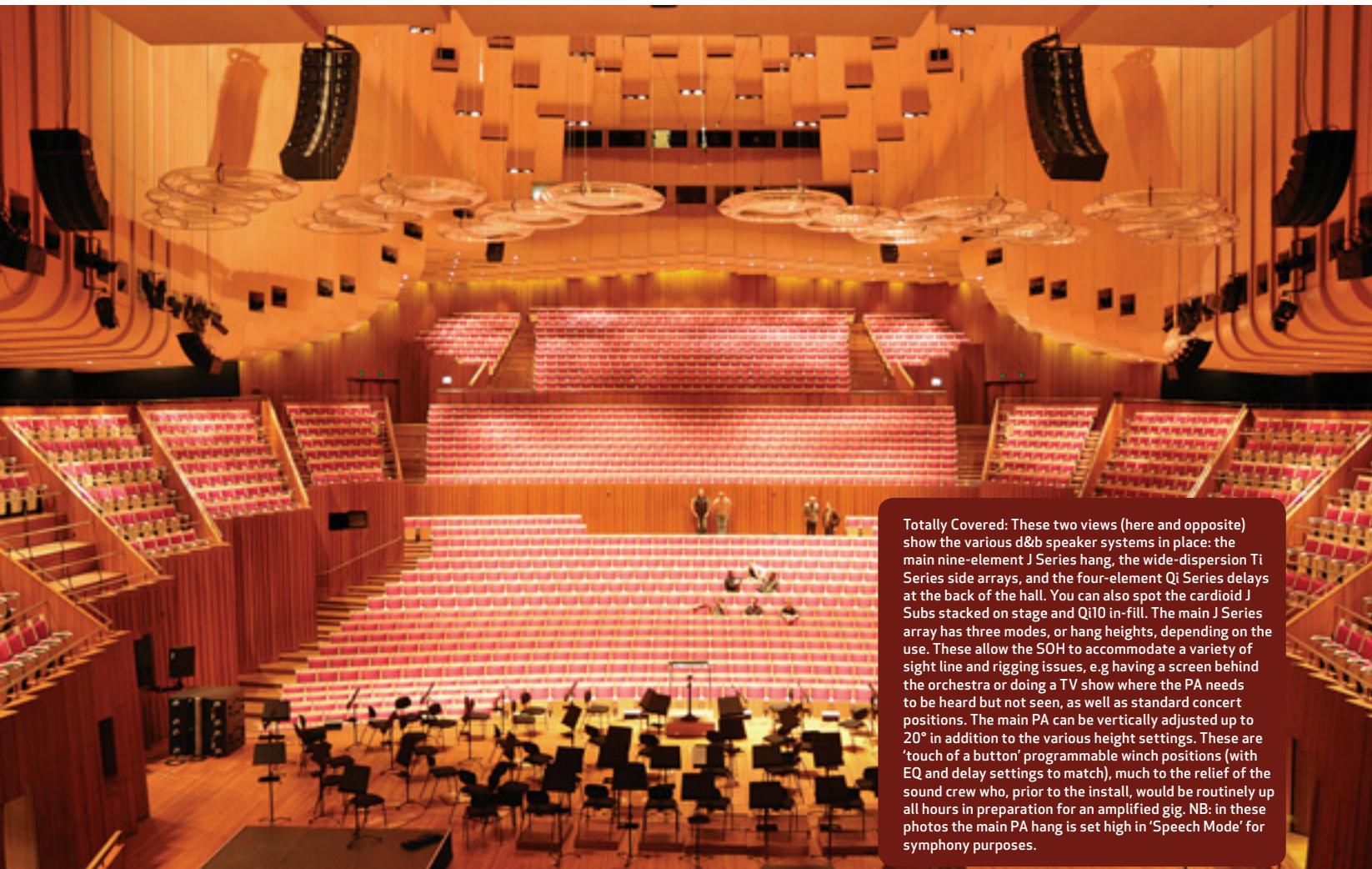
bigger because these ARIAs are in-the-round for the first time. Four JBL Vertec arrays do most of the work, while four smaller L'Acoustics ARCS arrays fill in the gaps where there's not enough overlap in the Vertec coverage. Come showtime, the system ticks over in an EPA-friendly fashion – conservatism rules as the greatest sin is for feedback to hit the broadcast mix.

I ask George if he rushes home to check the mix on his telly? Surely, he's the only audio engineer in the country with a top-notch home theatre setup? Nup, he doesn't listen to anything at home. He has a decent studio at home though, and the next day he'll be mixing an Australian Robbie Williams concert for a Video Hits special. But that's another story... Christopher Holder

SOUND IN THE HOUSE

The Sydney Opera House installs a state-of-the-art concert rig into its flagship Concert Hall.

Text: Christopher Holder



Totally Covered: These two views (here and opposite) show the various d&b speaker systems in place: the main nine-element J Series hang, the wide-dispersion Ti Series side arrays, and the four-element Qi Series delays at the back of the hall. You can also spot the cardioid J Subs stacked on stage and Q10 in-fill. The main J Series array has three modes, or hang heights, depending on the use. These allow the SOH to accommodate a variety of sight line and rigging issues, e.g. having a screen behind the orchestra or doing a TV show where the PA needs to be heard but not seen, as well as standard concert positions. The main PA can be vertically adjusted up to 20° in addition to the various height settings. These are 'touch of a button' programmable winch positions (with EQ and delay settings to match), much to the relief of the sound crew who, prior to the install, would be routinely up all hours in preparation for an amplified gig. NB: in these photos the main PA hang is set high in 'Speech Mode' for symphony purposes.

► The Opera House is more than a performing arts centre, it's an Australian icon right up there with the kangaroo, Uluru and Lara 'where the bloody hell are ya' Bingle in a bikini. But with international recognition comes big expectations; expectations the flagship Concert Hall wasn't living up to. The problem wasn't the space, the program or the performances; it was the sound reinforcement. The Opera House's previous rig (originally purchased to handle work on the Sydney Festivals) was being manhandled around the facility and bumped into the Concert Hall as necessary. There's nothing wrong with the old system, it just became obvious – what with amplified concerts no longer a 'once in a blue moon' exception – that the Concert Hall needed a permanently installed PA.

Something had to be done. Cue: David Claringbold, Technical Director of the Sydney Opera House, the man for the moment. David had the vision for what the Concert Hall could be and the savviness to convince the Opera House board that there was a strong business case for a big investment. Knowing the hurdles that needed to be negotiated, Claringbold set about building a formidable team to give the enterprise its best chance of success.

SHOOTOUT

To cut a long story short – and after a number of years of shootouts, consultations, management changes, submissions, tenders, lobbying and hundreds of meetings – d&b audiotechnik came out on top. d&b's Ralf Zuleeg (head of its Application Support department) designed a stereo solution based around d&b J-Series loudspeakers.

to them and asking questions. He's accustomed to going into arenas like Wembley Stadium with artists like Barbra Streisand and getting things precisely how he'd like them. Meanwhile, he was looking at us, thinking 'why all the compromises when there doesn't seem to be a reason for them?'. Importantly, Bruce gave our sound team the confidence that he was on their side.

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In the interests of certainty, a test system was installed. National Audio Systems, the Australian representatives of d&b, had sold J Series rigs to a number of Australian rental companies and now it was the time to hire the gear back. System components came from IJS, with added support from Cairellie and LSV Productions in Sydney. The system comprised a left/right hang of J-Series, with J-Subs, E3 front fills, and Qs for first position side hang and out above the upper stalls for delays.

Ralf Zuleeg, d&b: We ran the system for a show with Anoushka Shankar, daughter of Ravi, with three or four musicians: tabla, percussion, sitar. That's just what you need. It's no good running a system trial with CDs, because a CD is pre-EQ'd; they tend to have too much HF and low end, and they never really display the dynamics of a live show. Bruce Jackson expressed concern about the low mid from the side boxes. We agreed: the dispersion from the Q was too tight for the positions available to rig, which put the boxes too close to the target audience. Fortunately, I knew we were about to launch the T-Series; with its wider 105° dispersion and more power. It was perfect, I just needed to persuade David and Bruce.

WINNER

David and Bruce were persuaded, as was the board and, indeed, all the Opera House technical staff seem to be delighted with the results. Sound Supervisor, Royce Sanderson, summarises the change succinctly: "With the old system we always had to pop the bonnet, even if we were only taking the car down to the corner shop – say a schools presentation session. Now we can just turn up and drive."

When asked to elaborate Royce dwells on the superior coverage: "For me the most important consideration is equal coverage, it has to be as uniform as possible; this is critical. Previously, I could get equal level in most parts of the house, but sonically it was not the same – once you got past the lower circle you couldn't deliver a mix below 100Hz. So there are two requirements: the need to be sonically equal throughout the space, so all those who've paid for a ticket have as close an experience as possible to what the house mix engineer wanted to deliver; and, secondly, directivity. We needed control of dispersion away from the stage; in a place as sonically complex as this, that's essential. Downstage had always been a problem for us; HF especially spilling into performer's mics and compromising gain before feedback. Prior to this new system I used to impose a policy of no lapel mics on this stage... ever."

So what about the d&b J-Subs then? Royce continues:

"The old system sounded warm and loose for classical music, but for pop it was too flabby – we'd hi-pass at 40Hz. The fact that these d&b J-Subs are truly cardioid is a bonus – now I can get so much more gain."

WIRED FOR SOUND

Selecting the right PA and getting it pointing in the right direction was one thing, but installing the entire system was another. d&b spec its own amplifiers. A spot in the roof cavity was identified

to accommodate them. A whole new networking backbone was installed as well.

AT spoke to Cameron O'Neil (Supervisor Sound AV Technical Support) to hear how hi-def audio is turning into just another IT data stream!

Cameron O'Neil: The transport system is based on fibre. All audio goes into one of two Dolby Lake Processors [DLPs], which converts it into a Dante stream – Dante is the Australian-designed audio-over-IP system; it's a high-speed low-latency audio network that can share bandwidth with other networking systems. We use standard Cisco switches, then it's off out over fibre again to the four output DLPs and then, via AES/EBU, into the amps. Three DLPs are in the roof feeding the amps and one is at stage level for the ground-stacked PA. We can also use that DLP for foldback if necessary.

AT: So the fibre network hosts everything?

CO'N: Yes, the main clocking, the main audio stream, control information – so front of house can control the DLPs and the amps – as well as standard services like the internet.

AT: The internet is on the same network as the audio? You must still have the odd bout of cold sweats then?

CO'N: Down in our workshop we had the system all set up, with the processors running audio 24/7. We were confident, but when it was switched on in the room it was good to see everything fire up first time. Saying that, there's an analogue fallback, so if the Ethernet network were to fail, a signal can be distributed around the main audio network to allow the system to operate.

CONCEALED CONSOLE

Clearly, this was a time for wholesale changes, so the Opera House technical department began casting an eye at the Concert Hall's front of house position. Ross Ahern, Head of Sound, fills us in:

Ross Ahern: Some time ago we installed a Yamaha PM5D at the back of the stalls, which lowers into a cavity under the floor. But depending on the

performance we had requests for an analogue console, and for that eventuality we would bring out our Midas H3000. The H3000 is an absolute monster and was a 10- to 12-man lift over the seating to get it into position.

So, we decided to bite the bullet and find a way of permanently installing the H3000. To do this we accessed a cavity under the circle at the back of the stalls. There's a number of services, such as air conditioning, in the cavity and it was quite an undertaking but it's great to be able to wheel out the console and the FOH rack as and when we need it. The quality of the H3000 shines through. In fact, thanks to the d&b rig you can hear just about any change in the signal chain.

DONE DEAL

With the system now installed, the SOH sound team can settle into a busy Summer season. Royce Sanderson takes us through an example of the new setup coming into its own:

Royce Sanderson: Recently we had The Whitlams with the Sydney Symphony in here. It was a huge production. The accuracy of its dispersion means we have much less spill on stage. And when you're dealing with 80-odd open bug mics that's a blessing – it allows us to provide a more balanced, discrete mix. Secondly, the system has incredible sonic depth – when you're amplifying classical instruments the effect is very natural and almost three-dimensional. Vocally, it's quite astonishing. Tim Freedman's voice, straight out of the box was lush, warm and natural.

And it's a delight to not have to bump in! To have it all installed and tuned is a true delight. It's a beautiful looking and sounding turnkey system that we have the utmost confidence in handing over to visiting engineers.

This article was put together based on a combination of interviews commissioned by d&b, transcripts from the Integrate 09 'Sound in the House' seminar and interviews conducted by AT. A brief synopsis of the 'Sound in the House' seminar is on the AT site. Go: www.audiotechology.com.au and follow the Video link.

