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LX

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Recording

Entering the LED era

Lighting rockets towards solid state

Digital Live Consoles

Mackie and Digidesign set new price points

Focusrite redefine the preamp

Liquid Channel changes everything



+ 10 products
reviewed

ISSN 1320-5595

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Philips Provides the Golden Solution



PHILIPS MSR GOLD™

The MSR GOLD™ is the newest addition to the highly successful MSR Broadway discharge range by Philips Lighting. Using the latest technologies and advancements, these GOLD™ double-ended lamps provide the Golden Solution for the highly demanding

pressures of today's applications. Three new technologies have been incorporated to enhance the quality and ensure consistent output across the complete Philips MSR range. The technologies that have been incorporated within are:

The Philips MSR SA/DE GOLD™ lamps are suitable for the following fixtures:



Martin
MAC2000



Martin MAC550



Genlyte VL3000



Coemar
ShowColour I200



Clay Paky
StageColour I200



X&Y Systems
ZAP Colour



Geni OBY 2000



Studio Due
XS I200

1. A unique gas fill. By using a similar gas fill to that of the MSR single-ended range, Philips has been able to create the same white colour consistency across their whole MSR portfolio. This is extremely important in performances today that use both single-ended and double-ended fixtures. It allows a consistent white colour match on stage for any discharge fixtures being used.

2. Gold end caps and screws. By laminating the end caps and screws with a Gold coating, it allows the cap temperatures to reach a new industry heat of 400°C, almost double the heat tolerance of other lamps available. The Gold end caps provide better current and heat conductivity, which reduces the stress on lamp cap and holders. This means less risk for the end-user, by reducing possible damage to the lamp holder, requiring fewer lamp holder replacements.

3. P3 Technology. With the famous Philips P3 technology, the pinch temperature can be from 450°C to 500°C, depending on lamp type, which is up 150°C higher than the available lamps from other suppliers. The P3 technology eliminates the risk of early failures in the pinch and can be used in any burning position without sacrificing lamp performance.

The Philips MSR Gold range is available now in the following types: 1200W (MSR 1200 SA/DE) and 400W (MSR 400 SA/DE). The 700W (MSR 700 SA/DE) will be released in early 2005. To learn more about the Philips MSR Gold lamps visit:

www.broadway.philips.com

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MSR SA/DE GOLD™

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- Supplied with Swivel Adaptor Mount
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CX

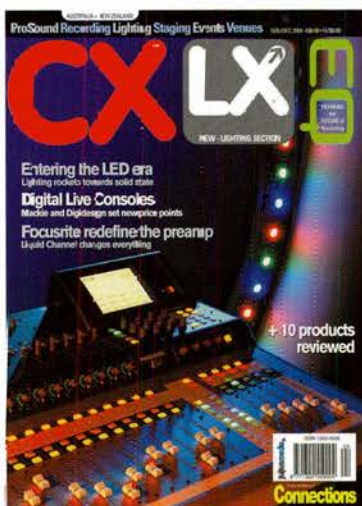
EQ

LX

the lifestyle magazine
for technicians!
**LIGHT • SOUND
VISION • STAGING**



LIVE MIXING SPECIAL: MACKIE AND DIGIDESIGN SPRING SURPRISES



Thanks to John Grimshaw for this cover. He shot the Mackie tt24 at our HQ, then did some Photoshop jiggery with the LED strip.

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SOLID STATE LIGHTING ARRIVES

Winner!

Justin Maynard from Tesseract Research Labs has subscribed and wins a training course worth \$2,625. To subscribe, log on to www.juliusmedia.com or call 1-800-635-514

FROM THE PEOPLE WHO
ONCE PUBLISHED
CONNECTIONS MAGAZINE

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FOCUSRITE DEBUT LIQUIDI CHANNEL - THE DIGITAL PREAMP



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Welcome to the LX pages!

The bundling of lighting coverage in this issue follows many requests to do it. There's also a kind of synchronicity, because our new correspondent Richard Cadina comes on board at the end of a long era and the start of a new one.

I first met Richard in 1992 when I went to High End Systems in Austin to investigate running a lighting magazine in America. I came home and started Connections instead.

1992 was the real start of the moving light era, when High End, Clay Paky and Coemar all got serious market traction with moving mirror products. Vari-Lite had pioneered the idea with moving heads, Morpheus and Altstar were close behind.

LDI 2004 marks the end of that era, 12 dizzy years where the major manufacturers have emulated the airline industry and made hardly any profit between them all. Altstar and Morpheus crashed, and Vari-Lite got sold cheap last year to an industrial conglomerate.

All three of those firms went straight to ultra expensive moving head technology, and struggled to recoup investment.

Richard's LDI report in this issue notes that Martin Professional and High End Systems between them showed no new moving lights this year.

More ominously for both those firms, they appear to have missed the new era, called LED. There's plenty on this in the LX section.

Enjoy!

Training stuff in CX Mag

The bundling of Juliusmedia's training catalogue into CX has raised the ire of at least one subscriber, who writes:

"I have been pretty vocal over the amount of training content there is in the magazine, and one could dismiss this as anyone else could advertise the same amount in your magazine, but prior to the establishment of your college there wasn't much training content in the mag nor the huge amount of advertising by one advertiser."

"The main issue I have is that you allow your college life (to) influence the articles that are published as well as your editorials and news items. Aren't you as a journalist/editor not allowed to advertise a company of yours in your articles or editorials?" - Andy Mizzi."

When I decided to start running the training catalogue in CX, I upped the page count from 92 to 100, to keep the advert ratio the same.

The ethics question is a good one. We have not disguised our training venture links.

We are new, and the only college of kind.

Training is a hot topic for our industry. The government isn't promoting the new entertainment training package - so I need to.

I hope this is acceptable!

This mag covers a \$914 million industry

I recently did a study on the industry, because I am always being asked how large it is. The other reason was to audit the likely future crewing and staffing requirements, so that our college standards were accurate.

I started with the latest Australian Bureau of Statistics numbers, and then extrapolated some assumptions and further survey results. The result is that the Entertainment Industry generates at least \$2.7 billion annually in Australia. A nice number.

This is made up of:

- Theatre and Music \$620 m (Note 1)
- Business events (over 500): \$655 m (Note 2)
- Small Business events: \$200 m (est)
- Festivals: \$88 m (Note 1)
- CD/Music sales: \$400 m (Source: ARIA)
- Retail equipment: \$530 m (Source: AMA)
- Installations: \$130 m (est)
- Contracting: \$60 m (est)

Note 1: ABS 2002/2003

Note 2: ABS 2000/2001

Of the total revenues of \$2,683,000,000, the technical production industry share is estimated on my spreadsheet like this:

- Theatre and Music \$75 m
- Business events (over 500): \$75 m
- Small Business events: \$20 m (est)
- Festivals: \$9 m
- Australian CD/Music sales: \$15 m
- Retail equipment: \$530 m
- Installations: \$130 m
- Contracting: \$60 m

For a total of \$914 million.

There are some statistical abnormalities in this, namely that (for example) Staging Connections expect to turn over \$80 million this year - and that most of their revenue comes from Business Events. This would indicate more revenue is available in this area than our numbers show.

Another abnormality is that the Retail Equipment category includes professional audio equipment (as surveyed by the Australian Music Association) but some of that revenue comes from the same companies who take technical production revenue from the \$914 million. Of the \$530 million in Retail Equipment, we have included provisions for lighting equipment (not surveyed by AMA) and provision equipment for production and venues.

Our numbers do not include broadcast equipment, or film and TV production.

Very telling is the small number above for recording music for Australian CD sales. \$15 million is about what the recording industry is worth, measured against retail sales. Sad.

It shows why there isn't any discernable employment or career in recording music.

- Julius Grafton

News

WAAPA debut new Degree

The Western Australian Academy of Performing Arts, Edith Cowan University is introducing a new 3 year bachelor degree in Production & Design - 2005 in-take.

Focusing on the theoretical and practical dimensions of Production and Design for Performing Arts, the course includes six major streams of study comprising Costume Construction, Lighting, Set and Costume Design, Sound, Stage Management and Staging.

The course aims to provide an alternative and complimentary path for technical artists who wish to develop their skills on a practical and intellectual basis to levels that would not be achievable within the current Advanced Diploma courses.

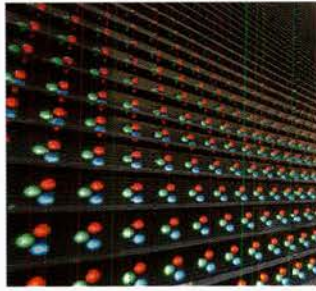
WAAPA will be the only institution in Western Australia to offer degree level training in specialised areas of Production and Design. The course has been initiated due to demand by professional industry standards that expect a degree level of initiative, professional expertise and creativity from their future employees. Enrolled students may choose to work in a range of focus areas including Stage Management, Lighting Design, Sound Design or Scenic, Property and Costume Construction, Design and Costume Design, and may even be eligible for national and international exchange programs.

For more information, please contact the Admissions Officer on phone: (08) 9370 6594, or email: waapa@ecu.edu.au

NZ firm build, sell LED screens

Sydney's State Sports Centre Trust will soon become the first indoor arena in Australia to install LED Video Screens for use in support of all of its major events.

The Trust which operates three venues within Sydney Olympic Park has announced that it will buy two, 12m² monstaVision MV175 LED screens through the



Australian agent Screens Australia.

With an eye on the revenue potential of the technology, the Trust also intends to rent out the screens through Integrated Display Systems for use at other indoor and outdoor events. The technology is capable of being broken down into components and reassembled in any format to deal with a multiplicity of situations. The screens can also combine into a larger, free standing 25m² screen.

monstaVision have been R&Ding for about 5 years and manufacturing for 3 years. They are the only LED screen manufacturer in Australasia. The technology is quite different because, according to the firm's spokesperson Matt Hoare: "We've developed an LED screen using standard computer networking technology".

Each screen system is basically a computer network. It runs on Linux (which is more reliable than windows); uses standard ethernet cabling, an off the shelf power supply system, Cisco switches and standard PC components.

The screen modules are designed, manufactured and assembled by monstaVision in New Zealand.

The production facility is currently producing seven screens for New Zealand, Australia and Saudi Arabia.

monstaVision say the big difference between their LED screens and everyone else's is that their screens use a lot less power - so they have no cooling fans - and are weather sealed.

• www.monstavision.com

Jands running New Technology Showcases

Jands are running new Lighting and Staging showcases in Sydney, Melbourne and Brisbane as this issue hits the streets.

8 Nov: Backbox at the VAC.

10 Nov: Sydney Theatre.

12 Nov: Powerhouse, Bris.

On show will be a working Stage Technologies Big Tow 500 winch together with the Nomad control system. New ETC Source 4 Revolution moving light. IES sine wave dimmers. AVAB Congo Lighting Desk, and the latest Clearcom CellCom wireless system using DECT mobile technology.

Sessions run all day, with a general presentation from 2pm to 5pm.

Email pgrisard@jands.com.au if you are attending

Setwear is here

California based Setwear Products Inc. - the world's largest suppliers of gloves, pouches, bags, accessories and apparel for the entertainment industry - have appointed Pacific Enterprises as their main distributors in Australia.

Setwear products have established a solid reputation among set & stage crews around the globe.

The latest addition to the popular range and a success story in its own right is the Setwear Hothand Glove.

Pacific Enterprises are currently in the process of



developing a network of authorised Setwear Dealers in Australia and are proud to announce that Australia's largest suppliers of stagehands and crew for hire - Lock & Load with offices in Sydney, Brisbane and Melbourne have signed up and will be on-selling the Setwear product range.

• www.setwear.com.au

Palm-top analysis of loops

NTI AG, has announced a firmware upgrade for their ML1 Minilyzer allowing detailed qualification & verification of induction loop system installations for the hearing-impaired.

Induction Loop Systems (AFILS) are invaluable for transmitting speech & audio signals to hearing aids in large areas such as cinemas and concert halls etc. NTI has responded to a growing market demand for a simple and cost-effective method to measure and optimise these systems.

The Minilyzer now supports all calibrated AFIL sensors and displays the actually measured field strength in A/m as well as in dB relative to the standardized reference of 400mA/m.

• www.ambertech.com.au

• www.nti-instruments.com



News



Home grown tripod for safer PA flying

Top End Sounds are the biggest production provider in the wild North, and being isolated from everywhere they tend to make solutions. CEO Col West has built his own PA tripod (above and below) which is engineer certified and in our eyes a very commercially saleable product. The base plates are hinged, and the thing works using commonly available trussing. Ccl's design comprises the base plates and the top 'crown'. You set it up flat on the deck, and haul it up using a jib, a car or a winch. One guy or girl can erect this thing. It's 5 star safe!

- www.topendsounds.com.au



National Industry Training Network unlocks Government Training Grants

Robyn and Tiny Good's Showtech Australia have been appointed the Melbourne arm of the new Juliusmedia National Industry Training Network (NITN) aimed at implementing the new entertainment industry training package. The Network will also act as a gateway between employers and a newly available government training grants and funding scheme identified by Juliusmedia.

The Network will provide two levels of training; based around new start trainees at Certificate III level, and advanced units of competency for Certificate IV.

Government grants are now available for established and even experienced staff who don't yet have a formal nationally recognised qualification - which accounts for most people working in the entertainment industry.

Under the scheme, existing staff and crew undertake a skills assessment against the qualifica-

tions standards, and then do flexible refresher and specialised training in specific agreed units.

It enables crew to learn more about their own specialities, or to cross-train in adjacent fields. It also assists employers and staff with industry development, quality assurance, OH&S and career pathways. Having properly qualified staff is now possible.

The provision of government funding means the program is capable of returning money to employers, as the grant usually exceeds the assessment and training costs.

Certificate III traineeships for new start employees will now be offered from Showtech's new premises at Braeside. Under this scheme, employers receive a training grant and the new start trainee is indentured.

The Juliusmedia Industry Training Network will roll out in other locations during 2005.

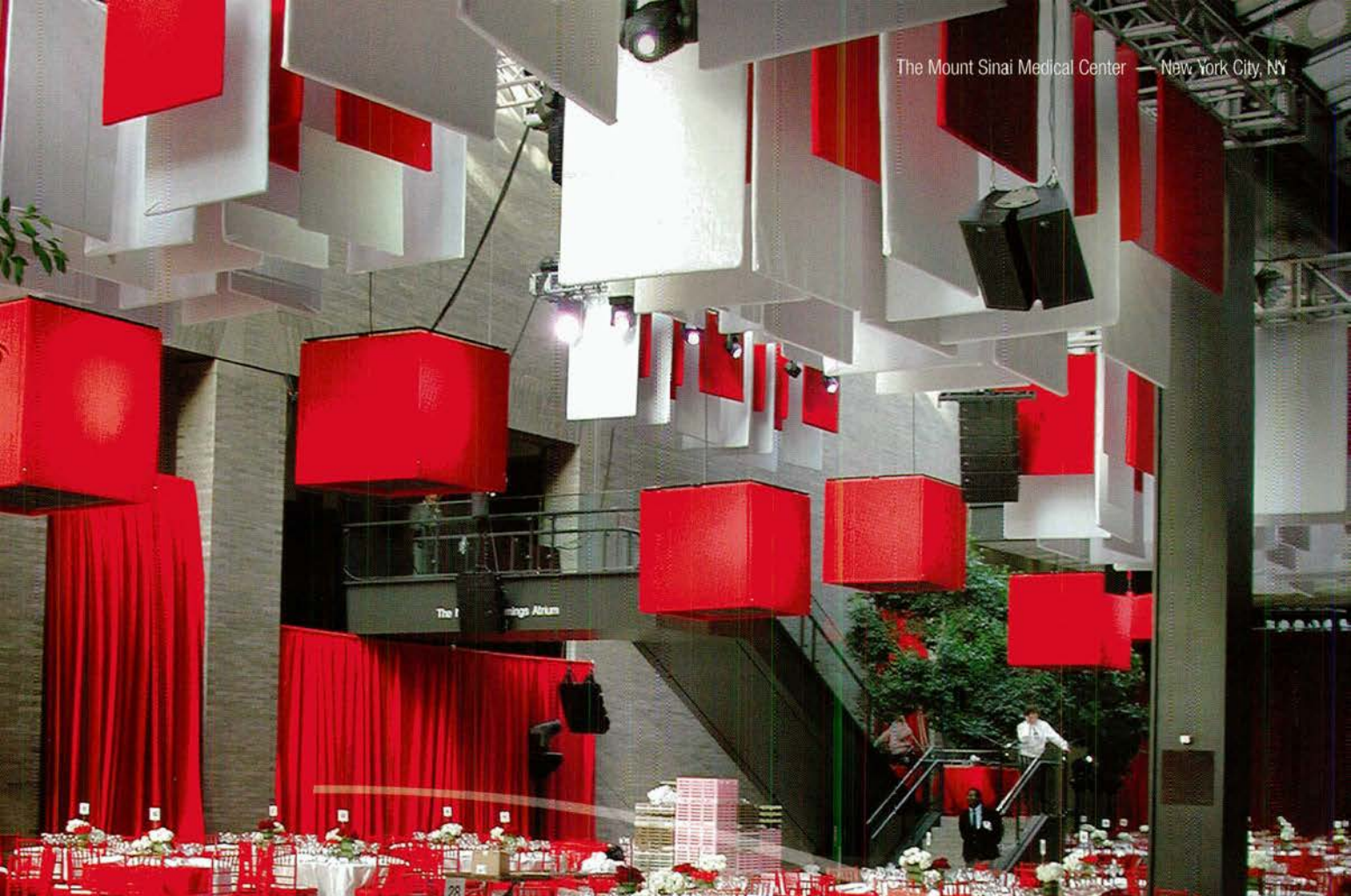
- www.juliusmedia.com/training

Blow up screen beats wind disasters

Blimpscreen overcomes one of the biggest problems for outdoor projection- the uncertainty of the weather. You either totally overbuild a scaffold system for a big screen setup that often becomes totally cost prohibitive, or you run the risk of disaster striking if a sudden wind springs up. The worst that can happen with this inflatable system is that it will deflate without damaging anyone or anything.

The screens come in various sizes, are easy to transport and can be set up and packed up in less than 20 minutes. • www.Blimpsign.com





precision tools craft an elegant solution

The right tool for the job makes everything easier to handle. At Meyer Sound, we know that with a complete set of tools there's nothing that can't be done.

At the 19th annual Crystal Ball, SIA Acoustics chose to work with a complete set of sound system design tools from Meyer Sound. Utilizing Meyer Sound MAPP Online® to predict how each M1D and UPJ-1P array would perform, they could make adjustments before the installation. Combining accurate sound prediction, strategically placed acoustical treatment, and highly directional self-powered loudspeakers, the Crystal Ball became a place to be both seen and heard.

"We use MAPP Online to predict and configure the loudspeaker's performance and determine where acoustical treatment is needed. And having a self-powered solution provides us with the ease and control we need to tackle challenging acoustical environments. The M1D is an extremely well-behaved small line array. We love the sound!"

Sam Berkow & Steve Sockey – Partners, SIA Acoustics, N.Y.



elegance precision quiet

News



Exit O'Connell Terrace

Brisbane's production alley is about to be razed, and the firms there are moving out. Brisbane Sound are moving as this mag is printed, to a new and impressive spread nearby. O'Connell Nigel line is pictured above.

Neighbouring Norwest Productions are also on the move, having enjoyed considerable growth in their new Brisbane satellite. Boss Graeme Whitehouse told CX business had grown well since the branch was established.

Graeme is pictured below with Trae-Jane Jam & Taylor (right).

Fellow warehouse dwellers Chameleon Touring also will move with Norwest, to new way bigger premises at Tenerriffe, not far from town.



EAW annoints 'super hero!'

At the recent Loud Technologies (parent company to Mackie, EAW, EAW Commercial, SIA, Tapco) International Distributor Conference (Loudapalcca!), Graeme Stevenson of Australian importer Production Audio Services (right) was awarded the 2004 'International Super Sales Hero of the Year' award, in recognition for his remarkable promotion, development and application of the EAW brand in the international market.

Frank Loyko (Loud Tech. Senior VP) made the presentation, which was kept a complete surprise to Graeme.

"It couldn't be presented to a nicer guy..."

"Together with the rest of the Production Audio Services team Graeme Stevenson has been a steadfast EAW supporter for many years now. The 'Super Sales Hero of the Year' award is intended to signify, in a small way, our sincere appreciation for Graeme's dedication, hard work and technical expertise. I consider it a privilege to work with such a professional." Kenton Forsythe (EAW Funder)

Staging Rentals expand interstate

By December Staging Rentals/SR Event Services will have offices in Sydney, Melbourne and Brisbane.

The new Brisbane office is run by Bob Bell (right) and is at 25 Helen Street, Newstead. Call +61 7 3854 0699.

The Melbourne office opens on December 1st run by Rodd Craig (below left). It is at Warehouse B, 768 Lorimer Street, Port Melbourne, call him on 0411 700 611.



KV2 opens office in Australia

KV2 Audio is pleased to announce that they will be opening an office in Australia.

This new company, KV2 Audio Asia Pacific Pty Ltd will takeover distribution from Australian Audio Supplies who launched the brand in the Australian market just over a year ago. David Willams, long time employee of Australian Audio Supplies will



leave the company to take up the role of Managing Director of KV2 Asia Pacific.

Dave Croxton Managing Director of Australian Audio Supplies says, "We have been happy to help out are friends at KV2 who we have known for many years through previous associations. We also wish David Willams all the best in his new career with KV2 Audio and thank him for his hard work and dedication to Australian Audio Supplies over the last decade."





Transit van woes - and a fixup

Richard Autenzio decided to buy a new van.

"I am not a speedster so power was the least of my concerns. Many people had told me that the Transit petrol motor was gutless but I still wanted petrol. Stubborn me - not being a petrol head I thought this would not be a problem. Was I wrong? Yes."

"Before I had done even one thousand kilometers I am saying to my self: 'what's wrong with this thing?' It stalls on a hills in first unless I rev the shit out of it and slip the clutch and when I get it to second I have to gun it to four thousand revs before I can appreciate any power in third."

"In reverse up a long drive way, it was a clutch burn out jct. I must have taken twenty thousand kilometers off the life of my clutch."

It transpires (transit-spires?) that the Ford Motor Co know all of this.

"It's the diff, It's not the motor. The motor is a 2.4ltr twin over head cam and it is quite suitable for this vehicle. I went back to Ford and they could not argue because they already new this. They replaced the diff and now it is acceptable. I think it could use an even slightly lower ratio but this ratio should be standard for the loads that we move. They say it's a high ratio diff for the highway driver." But it now drives better.

"So my problem is solved and if you have one of these new vans take it back to Ford and tell them it's the diff and they should replace it with a better ratio diff under warranty."

Thanks for the warning Richard!

Yamaha cleans up Dirty Dancing

Jands Production Services have chosen Yamaha digital mixing consoles as the complete audio solution for the upcoming stage musical, Dirty Dancing. Closely following the original movie starring Patrick Swayze, Dirty Dancing the musical consists of several pit/onstage band configurations and a large cast of (33) stage performers.

JPS have designed an audio system for the show which incorporates

Yamaha's newest digital mixing console, the PM5D-RH as well as three Yamaha DM1000 digital production consoles.

The three DM1000s will be used to provide in-ear monitoring and submixes of the pit/onstage bands into the PM5D-RH, which by using its complete scene recall will control all the vocal radio microphones and surround sound FX for the entire sound system setup.

Yamaha's new ADD-ON EFFECTS package 'Channel Strip' provides classic analogue compression and equalizer emulations, via a process called 'Virtual Circuitry Modeling' This makes the Yamaha PM5D-RH an ideal part to the overall sound system designed by Michael Waters Senior Theatre Sound Designer from Jands, for Dirty Dancing.

Commenting on the PM5D-RH Virtual Circuitry Modeling technology, Michael said, "It goes well beyond simply analyzing and modeling electronic components and emulating the sound of old equipment. It is capable of capturing subtleties that other simple digital simulations cannot even approach, and in addition, I can create the sounds of sought after vintage gear."

AKG ACOUSTICS

THE FUTURE IS WIRELESS



WMS 400 ULTRAHIGHFREQUENCY

Introducing the new WMS400 wireless system from AKG, which combines ease of use and innovative technology with these additional key features and peripherals:

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- Single AA battery for up to eight hours of operation
- Environment scan and auto-programming
- Rehearsal mode
- Five application kits available

Never before has a high quality, high performance multichannel wireless system of this category been more innovative, more affordable to purchase and operate, easier to use, or quicker to set up.

The Future is Wireless.

audioproducts
Group

Call 1300 13 44 00 for your nearest dealer
or visit www.audioproducts.com.au



d&b audiotechnik launch Q Series medium format line array



• www.dtau-zio.com

Q Series is a new line array from d&b - the leading German pro audio manufacturer.

There are three models in the range: Q1 does long throw, Q7 has a more traditional 75 x 40 degree dispersion pattern, and Q10 goes very wide for nearfill.

Like all d&b loudspeakers, the firm has a unique package - they build high order passive networks into the speaker cabinets, then use their own proprietary and very specific amplifiers to serve audio.

The combination works incredibly well, although unorthodox. d&b distributors National Audio Systems hosted a demo launch recently in Sydney, which garnered good reports from various CX readers.

The Q boxes weigh just 22 kilos, reflecting that they are loaded with 2 x 10" speakers and a high frequency component.

There is a Q sub, which features a front loaded single 18" woofer. The existing double 18" B2 sub can also be employed.

Unlike most line arrays, you can use as few as 2 x Q1 boxes to give 30 x 75 degree spread.

Very handy is the ability with the Q7 to rotate the horn, and then take out one box and put it on pole above a subwoofer.

This is an ultra hi fidelity answer to the need for not a lot of PA at a function - and would save a rental company a lot of inventory hassles.

d&b have a 5 year unconditional warranty, where if something stops, they just replace it.

There is a new amplifier, named D2, which delivers 2400 watts.

There are only 2 amps in the range - E-Pac is the other one and it is a mono block dsp controlled amp.

The D12 has multi modes of operation, so you tell it which Q configuration you are running. It does a sense function of what is happening at the speaker box, using the 5th pin on the EP5 connector. The 5 pin cable is so you can power a top box and a sub one one cable set from the amp. You select your setup at the amp, and it switches the cable.

The amp will also adjust impedance on longer speaker



runs, courtesy of the sense function, which also reports if there is no speaker at the other end of the cable!

Vale Geoff Fenwick

Geoff Fenwick died suddenly in early October after brain surgery. He had been complaining of a headache for three days.

Geoff and his partner Katy worked at Events Pro Shop in Bowral. Previously Geoff worked for Lots of Watts. He was an Audio Engineer, with over 20 years experience. Geoff has three adult children, sons Canie and Jason, and daughter Stacy.

People who know Geoff pay particular tribute to the fact he had rebuilt his life, and turned his back on tough times. He had discovered faith, and was making sensation progress. His last gig was Black Stump, over the long weekend in October.

The funeral was on Tuesday 19 October, at 12 midday, Lakeside Memorial Cemetery, Beakley (Wollongong).

• We had some emails from men about losing their parents, following the item about my mum's funeral in the last issue. I think men need to talk more about things like this. - Julius G.

> I lost my mum last year at the youthful age of 74; she was kicked out of palliative care because she wasn't dying quickly enough for them. There was this asshole doctor who's bedside manner was to keep asking her, "do you know why you're really here," until I took him aside for a little chat that I'm sure even breached the 'roadies creed'.

> My Mum passed away recently. She was 82. She was another inspirational woman who is no longer with us physically, but will live on in our hearts.

> I still have a warm shovel from my father's recent funeral. I had the whole arrangements gig so I understand the Funeral Home warning is pertinent. There is no up side to bereavement.

RoadFood

Simon Main's Chicken Pasta: Want a no fuss, easy to prepare meal? This is one of my favorites:

Ingredients:

Onion; 2 cloves of garlic
Mixed Herbs; 2 Chicken Breasts; Vegetables to suit; Avocado; Grated Cheese; Cream; Pasta; Oil; Salt and pepper.

Method:

Half fill a saucepan with water for pasta, add splash of oil and salt and pepper.

Start heating the frypan, add some oil.

Slice the onion and the garlic, cut the vegies. By now the water should be ready for the pasta. Slice the chicken. Fry the onion and garlic. Add the chicken, and brown.

Add herbs and fry briefly. Add cream, and simmer for 5 mins. Put the vegies in with the pasta for a couple of mins.

Strain the pasta and vegies and add to the Chicken. Throw on salt and pepper to taste.

Put Chicken and pasta onto a plate, place sliced Avocado on top - then the cheese. Then eat!

• Special thanks to Jason (an avid trained cook) He did it all!



 **YAMAHA**

SOUND REINFORCEMENT



5 YEARS PEACE OF MIND



Worship Technology

Riverview visit

Abimalech recently dropped in to Riverview Church for some praise and worship. It's perhaps Perth's largest, located in Burswood in a sprawling warehouse styled building. Established in the early 1980's, Riverview really took off about five years ago when pastor Phil Baker decided to depart the candy coated faith movement and arrive in the reach out era. As many as 800 of the Pentecostal congregation fell away, and there were a few initially hard years. That was then, and now Riverview is growing like crazy.

They paid off their mortgage, and now the place is almost full for the four services a week. There's purpose in the halls and coming off the walls.

The 9am service we attended was upbeat. Worship leader Mark Cullen struck a contemporary tone with his weird bleached Mohawk. The band were very tight, and the sound was exceptionally good. This despite the system being made up of four vintage Jands Concord speaker boxes, these are a horn loaded composite designed by Howard Page in the late 1970's.

Craig Tucker pulled a very professional mix out of a vintage 40 channel Yamaha PM 1800 desk, and managed to place all the vocals just over the band. An aural scan of each musician and voice revealed who was doing what. The aural scan is how sound people learn to listen, source by source. I'm impressed at what I heard.

After, Craig told me the Concord's have the final version high frequency component loaded, whereas originally the boxes were made with a horrible and crude 2482 JBL driver which would not reproduce over 8kHz. To make the ultra-high's, the Concord used to have a fourth frequency band at the top end, handled by a pair of JBL ring radiators – or 'bullets'. The boxes at Riverview were very carefully equalized to maximize their difficult output response, but still had a slight presence gap in the 1.5kHz area.

In terms of making more with less, Riverview have aced it.

Lighting was inventive and all static, made up of about 40 cans and a bunch of specials.

The curved cyc was neatly washed in colour, with some geometric steel frames as set pieces in front. The audience was neatly lit with about 20 frensels, properly barn doored to minimise spill and glare.

Three screens did the projection, and the vision mix was as good as it gets from obsolete camera gear. Adam Meredith is the media director at Riverview.

While I really enjoyed the service, the praise and worship, and the message, I didn't enjoy the old brown plastic chairs or the frigid morning cold at 8.45am Sunday. The place looks great, is welcoming, and has a huge future.

Church times: Saturday evening, then 9am, 11am and 6pm Sunday.

1 Thorogood Street, Burswood.
• www.riverviewchurch.com.au

Are we exempt from laws?

David Haddock writes:

I am heavily involved in lighting and sound production in a large church in Cairns. In regards to electrical safety, and testing and tagging there seems to be a vacuum of information. Which Govt. dept has info about testing and tagging and when it does and doesn't it apply?

Most Church's think that they are exempt, I'm not so sure, as most larger Church's are run along business lines and employ people - they could well be classified as a work-place and therefore are covered by the strict new rules.

I think there is need for some clarification so that the many Church's pleading ignorance can be educated and saved from potential litigation.

I've also have heard that installing earth leakage breakers on all power circuits would mean regular testing and tagging is not required?

Abimalech asked **Derek Campbell** to respond:

I have a Trade Certificate as an Electrician and was one of the Inspectors assisting with the enforcement of the Electrical Safety Legislation. Any comments herein are provided on the understanding of assisting you with your enquiries and I cannot and will not accept any liability for the guidance following.

I am currently employed in the private sector as a Safety Advisor. Now for the real stuff.....

Workplace Health and Safety is the (Qld) Govt dept that has info about testing and tagging and when it does and doesn't apply.

Churches are not exempt from the Electrical Safety Legislation.

As most larger Church's are run along business lines and employ people they are classified as a workplace and therefore must comply with the strict new rules. Pay particular attention to Part 2 of the Electrical Safety Act www.legislation.qld.gov.au/LEGISLTN/CURRENT/E/ElectricalSA02.pdf regarding persons in control, employers, workers, other persons.

The legislation is specific and WHSQ does not believe there is any need for clarification.

Pleading ignorance is not a lawful defence to be saved from potential litigation when someone has been injured or killed.

Given the current political turmoil over the electrical power supplies in Queensland, the govt will probably try different tacts to deflect the focus off them.

WH&S is one of the first areas where such a response could be made especially if there is monies now being used to "prop-up" Energex and Ergon.

In today's society, it is expected that severe penalties will be used where electrical incident occur and organizations, as well as people, have not followed the requirements of the safety legislation.

Installing earth leakage breakers on power circuits can, in some instances, mean regular testing and tagging is not required.

Have a look at the attached web site and note the four different "Classes" of work. In the case of Churches, office areas would be Class 4, technical support area could be Class 2,

cleaning equipment could be Class 3. Each has specific requirements under the Electrical Safety Regulation.

Pay particular attention to the details in Regulation 93 and 94. Remember that during a bump-in and bump-out, the electrical work is Class 2 and during the presentation/performance the use of electrical items is Class 3. Buildings under construction are Class 1 until they are completed.

Once the building is fit for occupancy (a certificate issued by the Local Authority) the building ceases to be a Class 1 environment and becomes Classes 2, 3 or 4 depending on the tasks being undertaken.

Go to this website: www.legislation.qld.gov.au/LEGISLTN/CURRENT/E/ElectricalSR02.pdf.

Start at Regulation 83 and work through to Regulation 96.

Please remember, no matter what Class of work is being done, the Church must be able to demonstrate that persons were not exposed to risk (electrical or otherwise) and that all reasonable attempts had been taken to minimise the potential risk (not matter what).

The current expectation demonstrated by the courts is for organizations to follow the intent of legislation in situations where there is a possible "grey area" in deciding if particular legislation and mandatory requirements are to be followed.

In a nutshell, test & tag every 12 months is the absolute minimum for Class 3 only. It is a maximum of 5 years for some types of work environments with a worst case minimum of 3 monthly. It is possible to get around test & tag if you can demonstrate single phase (240 volt) power outlets are fitted, tested and records kept of those tests and inspections, with earth leakage circuit breakers.

Electrical equipment connected to three phase (415 volt) dimming systems do not satisfy this exemption and anything connected to a dimmer rack must be tested and tagged as per the Electrical Safety Regulation.

May God bless you in your endeavours and always keep you from harm.

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Safety

Event Management Educators not up to date

An Event Management Educators Forum was recently told that evolving legislation and pressures would require a total rethink about course and curriculum structure.

Andrew Tatrai from Avert Risk Management Services (pictured) polled the forum delegates to try to establish how many courses had a suitable risk management component. It appeared that only one college - Advanced Careers College in Newcastle - had a workable strategy to teach the topic.

Several lecturers were across the growing enormity of teaching risk management, but their college curriculum did not yet remotely address the topic.

Mr. Tatrai is an acknowledged expert in risk management. He runs Australian Concert Security, and has appeared at several coronial inquests, on both sides - as a witness, and as an expert.

Issues he identified that need to be taught in these courses include:

- What the legislative framework works?
- Prove you follow processes to assess risk
- How to investigate and get answers

The last one is vital: according to Andrew many contractors will not willingly disclose their risk analysis, despite usually being



Picture by EventFix

required to do so under contract.

"An event manager needs to find out the risks attached to the expert service providers. But it's hard to drag the info out. They will claim that nothing ever goes wrong. You need to teach some investigative skills, how to find information, how to ask what can go wrong".

The principles of risk management include these points:

- Every party must actively

manage the safety systems of those they engage

- You must maximise what you can control
- You must minimise what you can't control

The session finished with facilitator Bill O'Toole reminding the conference that teachers and course managers could find themselves answering before a judge at a future investigation into an event gone wrong. •

THE ACCIDENT:

Your editor really should know better than to let an old style road case catch (centre) attack his favourite Levi's. What's more ironic is that this happened while he was distracted admiring the safety-first attitude of a bunch of eager year 11 kids at a Rock Eistedfodd. The kids, bless them, then all rushed over with concerned looks and offers of help for the silly old guy.

SOLUTIONS:

1. Always re-fasten these catches, even with the case open.
2. Replace with new catches (bottom) which limit the opening arc of the dangerous bit.



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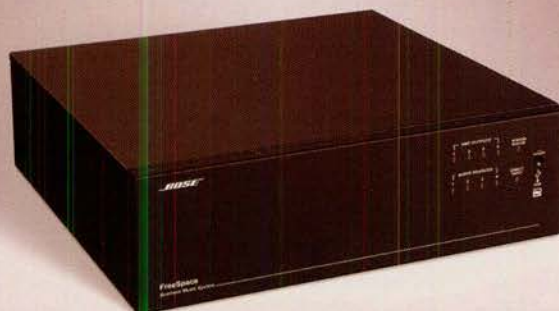
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Something for nothing

Software at the RIGHT price

JOHN COX* SAYS 'SORRY, BILL!'

There is a great deal of truth in the phrase "Right tool for the job" - things are easier when you can throw a few Clay Pakys in the air and plot some great stage looks, rather than dust off some old Patten 23's, whip out the trusty stanley knife and wield some pie plate magic. Having said that, if you don't have the budget for a rig of moving lights, but are willing to spent a little time and effort into a cheaper solution then perhaps the "Right tool for the job" ends up being whatever you can lay your hands on to achieve the desired effect. The same story is true for getting your hands on software for your computer.

Now I'm not suggesting that you slap on your eye patch and make sure Polly is sitting comfortably on your right shoulder as you install programs of dubious and questionable origins, I'm talking about software that you don't have to pay for - ever. Yes, there are heaps of Shareware applications out there that often do just what you need - just visit <http://www.download.com> and by all means if they do the job you need them to do then use them.

Sometimes they're worth paying the \$49.95 registration fee (or whatever they ask) to keep on using them after their 7, 15 or 30 day limit expires. Occasionally you may find a Freeware application that works wonders, but you may not be so impressed with the pop-up ads your computer is suddenly displaying. Often Shareware and Freeware applications are simple programs that are useful for one or two things, but still may not do quite what you had in mind.

So how do you get decent legal software without registration fees, pop-up ads and without actually paying for it? The answer: "Open Source" software.

Open source software is written without any expectation of receiving any money. Often there are numerous programmers working on a project and the goal is to have a program that works and that others can find useful. At the moment on just one open source developer web site (<http://www.sourceforge.net>) there are 89,103 registered projects and 935,843 registered users. Micosoft has a total of 57,086 employees as at June 30 this year. Even if they were all programmers they wouldn't have anywhere near the talent pool that is available to the open source community.

When most people think about open source they think about the most famous open source project - Linux. A smart Finn called Linus Torvalds decided that he would write his own operating system, fed up with the licensing debacles with other systems, and deciding that he could write a better one. By releasing the operating system as open source he guaranteed that the software would be better, faster stronger than any that had gone before.

Before I launch into three and a half pages of raving about the wonders of the Linux operating system, I hear you loud and clear "But we run Windows!"

Don't worry there is a heap of software available for Windows and Mac. In fact there is also a lot of web based packages that are open source that can help us humble windows users.

My line of work is centered around the web and building web sites that actually do useful things rather than have



At the moment on just one open source developer web site (www.sourceforge.net) there are 89,103 registered projects and 935,843 registered users. By comparison, Micosoft has a total of 57,086 employees as at June 30 this year. Sorry Bill!

cool spinning logos and guestbooks. (Cool spinning logos and guestbooks probably do have their place. . . some would say it's somewhere in 1997 though.)

A lot of "useful thing modules" have been released under open source that are freely available to be incorporated into websites. Interestingly enough the most popular software for serving websites is open source (the Apache Web Server). Say you need to have realtime graphs on your web site, well some clever people have written a graphing system (JPgraph). All I do is integrate the graphing system into the client's web site - a heck of a lot cheaper than trying to build one myself. There are all sorts of open source systems that can be included into web sites - forums, scheduling, shops, webmail - in fact a lot of web sites are completely run and maintained by open source software.

But what about my computer? How can this open source thing work on my desktop? Let me give you some real-world examples of where open source has been more than useful and provided a quick and free solution to some of my clients, saving all of us time, money and energy

How to make PDF files

A client needed to be able to produce PDF documents for distribution across the organisation via the company website. Short of going out and buying a copy of the defacto standard for producing PDF documents someone

CHOOSE A SPEAKER...

HOW WOULD YOU LIKE THAT?

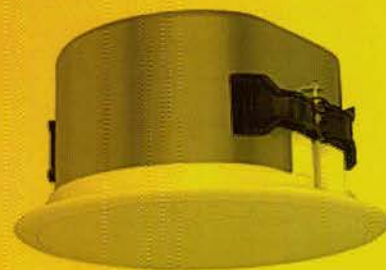
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mentioned that they'd heard about some open thingy that would do the job. After one phone call to me and a quick download they were producing PDF documents without needing to buy anything extra. The solution? "PDFCreator" of course. As it says on the project summary: "PDFCreator easily creates PDFs from any Windows program." Simple and easy – get it from <http://www.pdfcreator.de/vu/>

How to edit Audio files

Another customer needed to edit down a music track for use in a 30 second promo video. The customer was happy to use the new fangled Windows Movie Maker 2.1 (It came bundled for free as part of the XP service pack 2 upgrade) but he needed to edit a music clip that was longer than his 30 second slot. Enter "Audacity" - A fast multitrack audio editor and recorder for Linux, MacOS, and Windows. <http://audacity.sourceforge.net/>

A Microsoft Office replacement ?

Want to be able to open Micosoft Word documents, produce complex spreadsheets, do a presentation? All without actually buying and installing Microsoft Office? Give OpenOffice a shot (16+ million other users have) – <http://www.openoffice.org>. In a nice little aside, OpenOffice even lets you save your documents in PDF format - clever huh?

So, where can I get this stuff?

A good place to start is <http://www.sourceforge.net> and type in a keyword into the search box on the top left side of the page – or use the software map link at the top of the page to see all the software categories. You can select programs for the Windows or Mac operating system and go from there. It may take you a little while to find what you are after, or even to determine if it is suitable for your needs, but there is a pretty good chance you'll get hold of the software you need, at the price you are willing to pay!

* JOHN COX runs ThinkFirst, who are the web masters at Juliusmedia. He is also into lighting things.

Shareware

Copyrighted software that is available free of charge on a trial basis, usually with the condition that you pay a fee for continued use.

Freeware

Software for free. Sometimes Freeware contains other software that provides targeted advertising on your computer.

Open Source

Open source software goes one step beyond freeware. Not only does it provide the software for free, it provides the original source code used to create the software. This means you can poke around with it to see how it works, or even modify it to make it work better for you. Even if you are not a developer the fact that any developer can improve the software means that you are getting well written, well documented, well tested and well supported software.

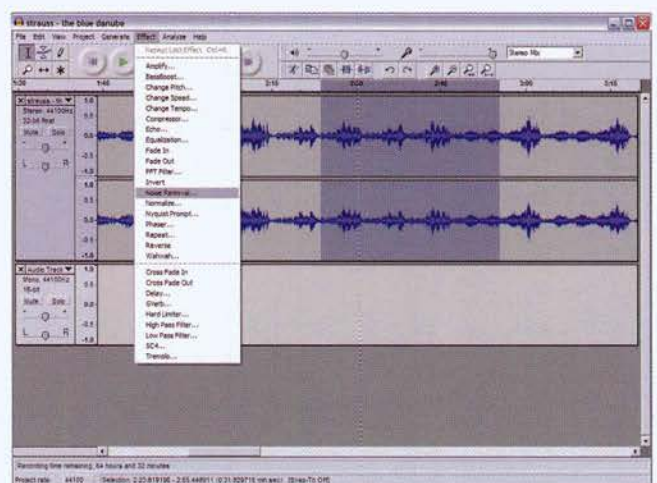


Sourceforge

SourceForge – www.sourceforge.net – THE place to get hold of open source software. (The browser is open source too by the way – Firefox www.getfirefox.com – no more nasty security issues with Microsoft explorer.)



OpenOffice – a complete office productivity suite. Documents, Spreadsheets, Presentation, Drawing and database tools. Sorry Bill.



Audacity

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Design specialist Rod Louey-Gung of Integrated Media contemplates the finished job

Installation

LINE ARRAYS in a COURT?

What WERE they thinking?

Turns out there was plenty of thinking going on. CX went to court to see and hear....

The High Court of Australia has come a long way since its first sitting in the Supreme Court Building in Melbourne on 6 October 1903. Three sitting justices, a sandstone building and a sense that its very existence was not necessary pervaded its early years. Since that time, it has taken on monumental importance in the judicial system and has moved to Sydney and, finally, to its current official spot in Canberra.

Perhaps it was that peripatetic history that gave birth to the Court's current use of high technology, as those three geographically diverse seats of justice are still active even though the main structure now resides in Canberra. Because it is spread far and wide, the court has taken to using remote video for many of its preliminary hearings. This has caused a re-thinking of technology in general, especially the audio and video aspects of the High Court's infrastructure.

The High Court realized it needed to bring its satellite courtrooms up to speed and thus

Roaming lawyers do not make for good mic technique. "These issues necessitate line arrays in the ceiling," Leembruggen says, "steerable downwards so sound can come to you from the front, in order to take advantage of the microphone's directional properties."

ordered a revamp of 19A, the High Court room located in Sydney at the city's Law Court facility. It would require state-of-the-art technology, especially tricky in the audio domain as it would require careful balancing of the sound reinforcement, video and

teleconferencing, and court transcription. It was imperative that all elements be treated with equal importance.

For sound reinforcement this meant multiple zones for speakers and microphones, all with different EQ and processing and controlled from a central location, whilst court transcription and videoconferencing each have their own competing requirements that would tax any traditional automixer.

Naturally, they turned to the consultants who successfully



Baby line arrays

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As the world's first affordable mid-format digital console designed exclusively for live use, the TT24 provides instant recall of levels, EQ, onboard effects, routing and virtually everything else. And because the TT24 was designed by folks who actually mix live sound, it has gobs of standard I/O and places every

major feature within a "two-touch" range. (Unlike other affordable digital consoles, which are notoriously lacking in I/O and needlessly brain-bending for live sound engineers.)

Want more? The TT24's "Aux Mode" function flips it into an instant monitor console with a single button press. With Matrix Plus and FlexGroups, you can route and control your audio in ways which would be impossible with any analog console, at any price. And finally, the included TT Control software gives you a brilliant graphic interface and expanded functionality, right from your laptop PC.

Best of all, all this digital mixing power is placed within easy reach of your own two hands... Which should be clicking on over to mackie.com right about now.

TT Control software lets you control the console from an intuitive graphic interface on your PC.



SEE THE MACKIE TT24 IN THE FLESH...

SYDNEY - Balmain Leagues Club • 138 Victoria Rd Balmain • 7.30pm Tuesday 16th Nov
MELBOURNE - Maori Chief Hotel • 117 Moray St, South Melbourne • 7.30pm Tuesday 23rd Nov
For tickets to the Mackie TT24 Launch, FreeCall 1800 50 20 15. Don't miss this!


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each other.

Equally important has been the need to provide both group and combined output of the proceedings for digital transcription, and for video and teleconferences. "Automixers traditionally used in these systems are a difficult load for video conferencing and echo cancellation," says Louey-Gung. "It has been essential to tailor algorithms specifically for each requirement, something that is nearly impossible to do with traditional systems."

With such a complex design, a system is required to make it operate without having the nation's highest level audio professionals on hand. Leembruggen and project manager David Gilfillan determined a networked, automated system was the only way to go, as they did in Canberra.

BIAMP AUDIA

"We opted to use Biamp's Audia system," states Leembruggen, "which is a multipurpose box that allows simplicity of audio design while at the same time providing state-of-the-art technology in audio networking and software enhancement. Audia also cost effectively provides the necessary large number of processed outputs for the steered arrays and court transcription. Our algorithms that help shape the beam-steering of the arrays are proprietary, and we are able to confidentially embed these inside the Audia.

Introduced last year, Audia is a complete Digital Audio Platform available in two models, AudiaSOLO and AudiaFLEX. Both share common proprietary software, are set up via TCP/IP and both are drag and drop DSP-based units that can be configured to perform a wide range of mixing, signal processing and routing functions. AudiaFLEX includes up to 24 I/O channels in totally flexible combinations of inputs, outputs, and acoustic echo canceling cards currently offering 807 combinations.

(continued over page)

designed the sound reinforcement systems in Canberra, acoustical design consultant Glenn Leembruggen at Acoustic Directions. In turn design specialist Rod Louey-Gung of Integrated Media was tasked with overseeing the project.

The challenge essentially is that sound in a court room is really hard to do properly. This is partially due to the nature of the work environment, in which the participants are mostly seated motionless for hours at a time, or in the case of lawyers perhaps ambling about. Either way, comfort and, therefore, attentiveness become issues.

COMFORT TIME

"Comfort is very important," asserts Leembruggen. "So the whole court design is focused around speakers, which for aesthetic reasons have to be ceiling mounted. Since we are most comfortable when the sound comes toward us not from behind or above, exact speaker placement is paramount."

Regarding the roaring lawyers this of course does not make for good microphone technique, causing acoustic consultants to focus on gain before feedback.

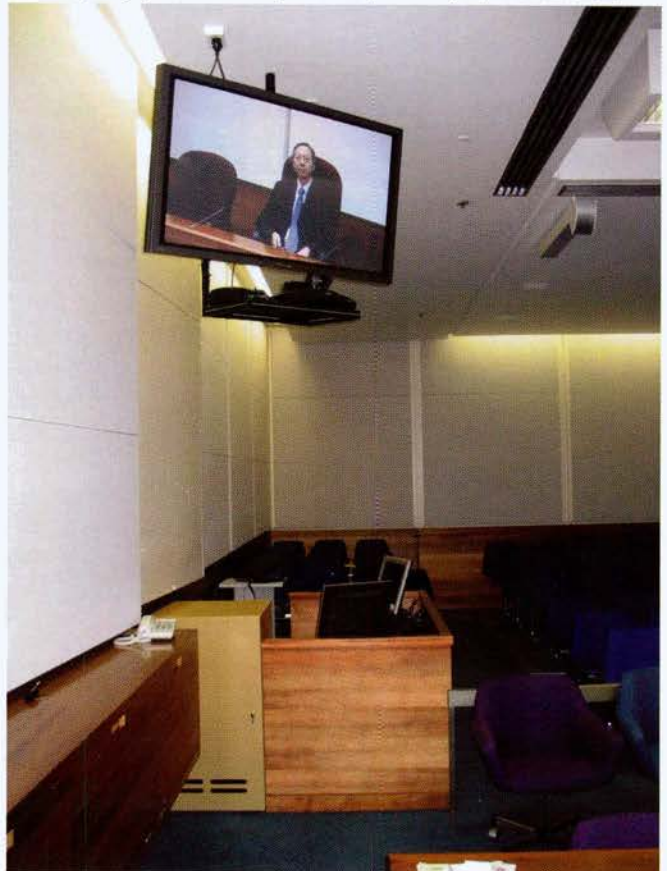
"These two issues necessitate line arrays in the ceiling," Leembruggen says, "steerable downwards so sound can come to you from the front, in order to take advantage of the microphone's directional properties."

The room is thus divided into multiple zones, with line-arrays each for the judge, lawyers and public areas. With the design of the arrays in 19A, they don't back bleed, so there is a strong intimacy with audio because each individual is hearing his loudspeaker. Speakers are a derivative of Acoustic Technology's linear array, a customized version, using a high frequency horn, in extruded housing, and Big City productions did all the mechanical work on the arrays.

ZONES

The microphones, too, are zoned, with one each for judges, associates, and counsel. Each has a mic delay relative to the other to provide optimum localization. Source localization and tonality require that there are fixed delays between the zones relative to

Rod Louey-Gung again, thankful maybe he is only a test subject, not a court client!



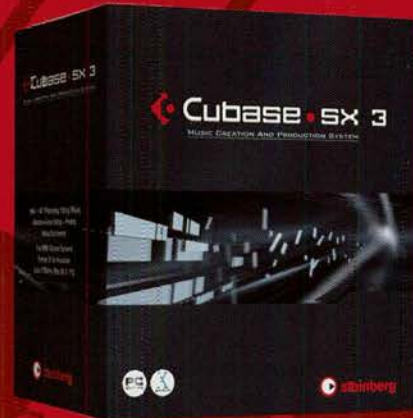
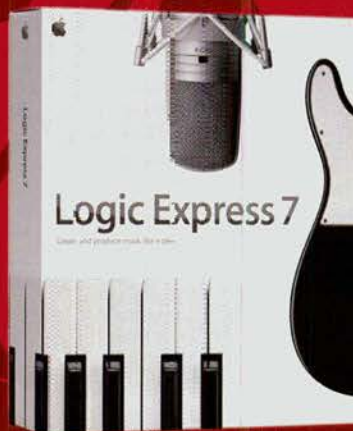
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In Sydney's 19A, each array has 8 drivers. Each zone has two arrays, with drivers 1 to 8 in the left array being paired with the corresponding driver in the right array. With three zones, a total of 24 outputs are therefore provided by the Audia, each with its individual signal processing.

On top of this, the Audia handles the mics, which come into the system, go through equalization, routing, delay and echo cancellation. There is an automixer, the array signal processing and then the signal goes out from the Audia to the speakers.

Even though Leembruggen and Gilfillan had done this before, they didn't just fall back on old habits. "We started from scratch on this," he proclaims. "We determined what we needed in terms of acoustical treatment, loudspeakers and electronic hardware and software technology. The arrays are designed with our in-house software, and the parameters are then dialed up on site. Then using a very detailed acoustic measurement and listening process, we set up the crossovers, eqs and delays."

Audia has an automatic mixer which Leembruggen and crew helped refine. "We gave Biamp a lot of input on the performance we were looking for," he declares, "and Biamp combined that with their extensive knowledge and have come up with a very good one that is now our benchmark. That's important in Courts because with this operation we have to have absolute control over mics being on or off. The automixer is very responsive and very solid in its recognition of the "true" mic that is to be activated."

All of which makes it cost effective as it saves on extra equipment and provides operational efficiency, is clean and tamperproof, and is a very finely balanced machine. On the acoustic treatment side, the reverb time was too long so they put up wall mounted acoustic panels provided by Shamrock Industries.

All this in the name of justice.

Whether it takes acoustic panels or the most sophisticated digital audio networking technology, the court continues its tradition, begun more than 100 years ago, of doing whatever it takes to make the wheels of justice spin ever onward. And sound good doing it.

How does it sound? Leembruggen says "It has met our design goals and we like it very much. Intelligibility is great, lots of gain before feedback, and it sounds very natural and comfortable. Better still, the High Court of Australia is extremely pleased." •



About Biamp Audia

Biamp is an old audio name, we used their mixing consoles and amplifiers in the early 1980's and then nothing much was heard from them in the southworld. Until their Audia range came along.

Biamp come from Oregon, one of the most scenic and natural of the states of the USA, nestled up underneath Seattle at the top left. Appropriately the Biamp complex is on Arctic Drive. It gets wickedly cold up there right about now.

CX met up with Jim Serites from Audio Products Group - the new name for Ken Dwyer's Audio Products Australia - who have pioneered Audia in this part of the world. Jim showed us the Audia system at APG's product expo, where 15 APG staff took a diverse range of their brands (like AKG, HK Audio and funny enough Peavey's music retail lines) and showed them around the country.

Audia is in the Peavey Media Matrix realm, Media Matrix being one of the first products of this kind, a separate entity to the Peavey musical instrument business. Biamp Audia is used where installations need very versatile digital audio routing and control flexibility. Essentially you take some hardware boxes, join them with long runs of ethernet, and pass 64 channels of uncompressed audio around the place.

Think of Audia as a Digital Audio Platform. Most typically when you design an audio system you end up with a matrix of things - speakers spread around a place that need individual control, maybe individual EQ. Microphones and sources in different areas that also need control. How do you patch one microphone, in one room, to a speaker in another room - then change it again to suit whatever is happening in the rooms? All in an instant? Use a digital audio platform like this.

You address the thing from a PC, drag, drop and draw links between elements, open and adjust mixer windows, set EQ curves, delay times, limiter functions, ducking, gating, auto mixing - even insert phone lines for dial in and out audio.

The selling point for Audia is that it comes with heaps of dsp power. This is the hidden Achilles heel of any digital audio product. It is a big 'what if' for a designer or engineer who is specifying a range of functions on a system like this. If the processor runs out of juice, then the desired range of functions won't happen. Without additional hardware. Sure you can usually 'audit' as you design a system on the PC, but the last thing you want is to need to cut useability out of a system to preserve processing power.

It can be hard to measure dsp power. It's a bit like your cable modem or dsp slowing down, hard to see, but you know you're waiting while the network chugs slowly up the hill. Why are we waiting, why are we waiting, why are we waiting, you cry?

Audia claim they offer 'heaps' of dsp power.

Down below are some hardware views, these systems are typically not particularly sexy to look at, true beauty lies within!

- Julius Grafton

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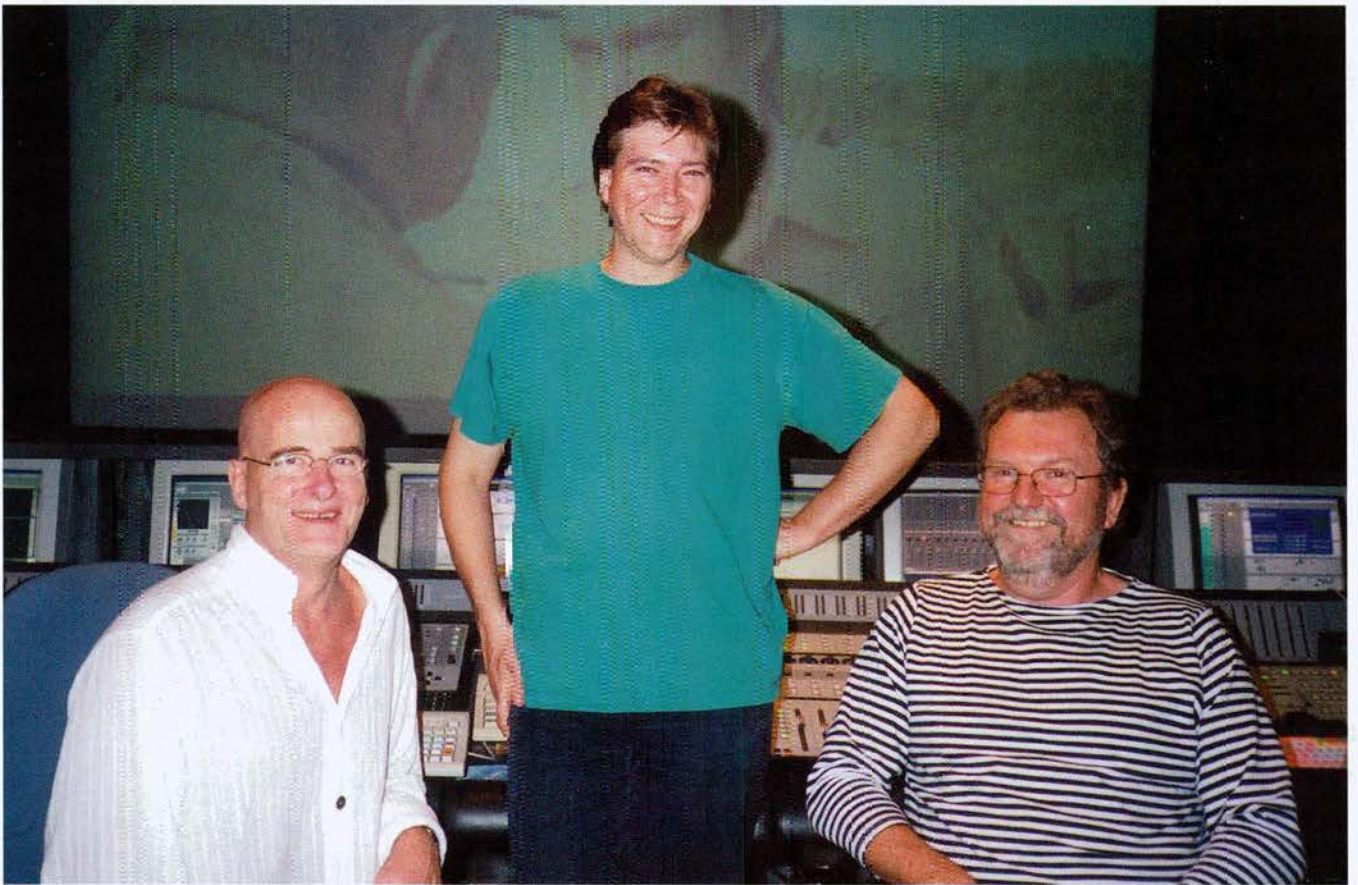
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Phil Judd (dialogue mixer), Liam Egan (sound supervisor) and Gethin Creagh (A.M.O.S. & fx mixer)

US feature stays for sound post

By Tony Murtagh

US film production companies Lions Gate Films and Marvel Productions recently chose to complete sound post production for their new feature film "Man Thing" at Philmsound in Sydney. This is a pleasant change from what usually occurs.

"Man-Thing", is an action horror film based on a vengeful creature born from the evil and injustices perpetrated against man and nature. (Sounds like something from the CX newsroom. -ec)

The film hit US cinemas in August. It was directed by Brett Leonard (Virtuosity, The Lawnmower Man). Shooting took place at Sydney's Serenity Cove's Kurnell studios and various locations around Sydney. Actors included Matthew Le Navez [Garage Days, Peaches], Jack Thompson [Star Wars Episode II], Steve Bastore [The Matrix Reloaded], Rawiri Paratene [Whale Rider], Rachel Taylor and Alex O'Lachlan, a recent NIDA graduate.

We spoke to the sound supervisor of "Man Thing" Liam Egan.

At what stage did you become involved in the film?

I became involved in this project about six weeks before principle photography. During that time I had a few meetings with the producer, the director, the picture editor and the location sound recordist. I discussed with recordists some of the things he might try to pick up

location. We also discussed some of the technical processes involved because he was recording onto a Fostex PD6 DVD recorder as well as using a back up Fostex PD4 DAT recorder. I didn't start on a fulltime basis until a month after the shoot had finished.

Did you have much input to the film in the pre production stage?

Not a lot in practical terms. We worked out a lot of the

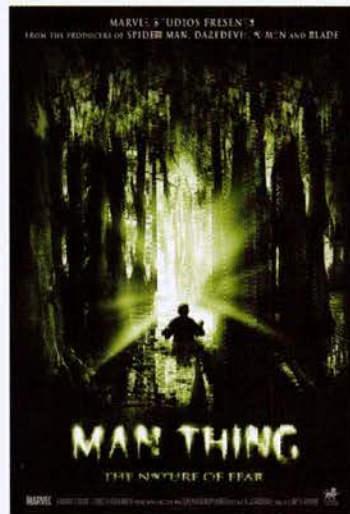
processes. We talked about what is important with the sound and what role it had to play. I would be developing sounds and working with sounds recorded from location. What was good about being involved in pre production was that I got to know all the personalities and I became part of the film process.

CX: Being an Action/Horror genre film, did this effect the way you approached this project?

Was it more complex than a traditional dramatic film?

An action film is potentially more challenging than a fairly quiet lounge room drama, but this film is approximately 95% ADR, which means a huge amount of it had to be recreated. The film has a lot of CGI, where the sound has to be created from scratch. Also on location there were a lot of

The swamp environment itself was totally recreated, we created all frog effects, none of the frogs are actually frog atmos's. Some times we used a source frog as a source sound, then processed & manipulated the real sound.





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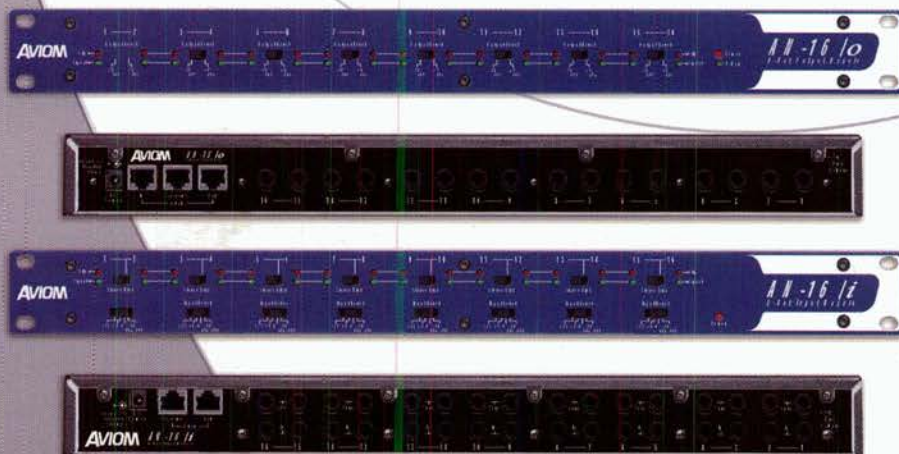
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external sound sources that rendered the production sound unusable. So there was a lot of starting from scratch. All the atmospheres were to be very unreal, so we couldn't use real atmospheres.

Did you have to record or create many new sounds for the film?

Yes. A lot of the effects had to be designed specifically for the film because it's about a swamp monster that was created in post production. We had to create all the different elements for the "Man Thing" character and all the different mood changes for this character through the film. The swamp environment itself was totally recreated, we created all frog effects, none of the frogs are actually frog atmos's.

Some times we used a source frog as a source sound, then processed & manipulated the real sound. Same with the insects, the insects we created were actually other animal calls, or frog calls sped up, processed and mixed together to create a rhythm. Certainly a lot of ambiences were created. Alicia Slusarski, our atmosphere editor, did a lot of processing with Protools plug ins to create different ambient sound scapes.

What was the most difficult sound for a CGI effect you had to create for the film?

That's a difficult question, because I don't know if I've created it yet. The Man Thing has a squealing wail, a banshee wail as it is described in the script. That's probably been the most challenging thing to get just the right sounds. The challenge is to create a wail that has a human quality so the audience can relate to the monster and have a certain sympathy with the creature and invoke certain emotions from the audience at different stages in the movie. It's not a completely evil creature, yet it still has to have it's menacing monster moments.

How much input did the director have into the creation of the sound track?

The director has had very clear ideas right from the beginning of film. He knew exactly what he wanted for certain sounds. He was able to give us clear directions about the sort of feel certain sounds had. For example the movement of the Man Thing, he made it very clear he wanted it to have a kind of creaky, damp, slimy, but not wet feel when it moved. Brett is very good at coming up with key words that you can hold on to through out the

process to try and create the sounds that are necessary. For example, in general terms, the director may talk about the film as having a heavy metal feel to it. So if you're in doubt if a certain scene is working, you can draw on those key words, to see if it is meeting the criteria.

How much input did the producers or production companies have into the creation of the sound track?

Marvel, who are the main production company, wanted to be fairly involved all the way along. They also wanted to see cuts of the film on a constant basis as well as several temp mix's of the film. They wanted to approve music all the way through. They have been pretty hands on. Although they're in America, we have had to send them a lot of material for approval. They were very involved in the ADR, the scripting of additional ADR, changing ADR for performance purposes, etc. Less so with effects.

I understand the film was recorded using the new 6-track Fostex PD6 DVD location recorder. What benefits were there in using this technology?

Using PD6 has allowed us to keep radio mics and boom mics separated as much as possible. In a particular scene, if there were four people, all on radio mics, there was no need to do a mix down of those tracks. We had each character on designated track, which meant we had maximum manipulation of the dialogue in post production.

It also meant if there were incidental sound effects in a scene we could record them separately on a spare track, which also meant these effects were clean of dialogue. It simply meant the sound recordist didn't have to lock us into a location mix of dialogue tracks. Especially on a film like this where you had people running through water, etc, etc, it was extremely helpful. It wasn't good conditions for a sound recordist to have to do a mix down.

So that was one less thing we had to worry about. The only slight glitch we encountered was in the picture editing suite. The version of Avid software we were using didn't allow us to import 6 tracks from the PD6 at a time. We had to import 4 tracks at a time into the Avid, that was boring. We were finally able to sort it out. I believe the latest Avid software version has sorted this out. >continues

The Man Thing has a squealing wail. That's probably been the most challenging thing to get just the right sounds. The challenge is to create a wail that has a human quality so the audience can relate to the monster and have a certain sympathy with the creature

OS Co-Pros

Over the years we have seen a number of big budget US feature film choose to shoot in Australia. Films such as "The Matrix", "The Thin Red Line" and "Peter Pan". This has been a terrific boost for Australia's profile and a great benefit for Australian production crews who were involved in the shooting of these films.

Unfortunately for Australian post productions crews the majority of these US features quickly packed up and returned to the US immediately after shooting was completed and all post production was completed in the US.

An even more disturbing trend is we seem to be losing the sound post production for Australian films that are being co-produced with other countries. Three films that spring to mind are "Ned Kelly", "Jindabyne" and more recently "The Oyster Farmer". All of these projects were seen as very "Australian" films, but all of these films were also UK co-productions.

To the surprise and disappointment of many sound post crew, last year's "Ned Kelly", which was shot in Australia, was sound posted in the UK. At the end of last year the feature film "The Oyster Farmers" was shot locally and picture editing took place at Film Australia. Recently it was announced that sound post production for the film would be completed in the UK.

With the scarcity of work amongst the Australian film industry at present, losing these projects can hit hard. Granted, the volatility of the Australian dollar hasn't helped matters, sure it's easier to attract work when we are at 55 cents to the US dollar, rather than 75 cents, but is that is the only reason? Is there any way of convincing co-productions to complete sound post in Australia? We certainly have the facilities and crew. With the international film industry becoming more and more competitive, Australia really has to market and sell itself as viable place for producers to not only shoot but also to post their films.

One area that could be pursued is the offering tax breaks to overseas production companies to shoot and post here. This avenue is currently being pursued by various state film funding bodies and premiers lobbying federal government to increase film production in various areas of Australia.

All is not lost. There have been a few overseas productions that have decided to complete sound post production in Australia. Over the past year we have seen US companies such as Disney use Australian sound post crews on "Inspector Gadget 2" and "George of the Jungle 2". Other films include "Anaconda 2" and now "Man Thing".

Lets hope things improve. Or otherwise we could all move to Queensland and run health farms!

Manthing

What time frame did you have to complete the film in? How many sound crew members did you use on this project?

It was reasonably tight. I did a few weeks of pre production and then we had the full crew on for 8 weeks, prior to starting our pre-mix. Then we had 3 weeks of pre-mix and a week of finaling. We had 3 people on dialogues, Phil Judd, Danielle Wiessner and Tony Murtagh. Danielle also logged and supervised all the recording of the ADR. Given that all the ADR was recorded in a period of three and half weeks and the film was 95% ADR, it was a very intense ADR recording and editing period.

Because the pre mix period was quite short for a film of this scale we decided Phil would edit the sync dialogue and salvage what location dialogue would be usable, by using various techniques to clean up the location sound. What that meant was that by the time we got to our dialogue pre-mix, Phil had effectively pre-mixed the sync dialogue. Then Phil had to process and integrate the ADR dialogue into film. A lot of the cleaning up work Phil had done wasn't used due to the amount of ADR requested for performance, etc, but you never know that until you get to that point.

We had 3 people on effects David White, Alicia Slusarski and myself (Liam Egan). They both have been on Farscape for the past few years and it seemed appropriate background for them to bring to the Man Thing project. I have worked with both of them a lot over the years and Alicia has worked on a lot the features I have worked on over the years. Unfortunately for budgetary reasons we were one or two effects editors down, so I had to get onto effects more than I would have of liked.

We have two mixers. Phil Judd is mixing the dialogue and Gethin Creagh is mixing atmospheres and effects. Gethin is reasonably fresh from mixing the Lord of the Rings films, so he is fairly familiar with big scale action films. Phil took the night shifts working on the dialogues and foley and Gethin worked during day on atmos and effects. Then they both came onto the day shift for the final mix. Both are two highly skilled mixers who have worked well with each other on projects over the years.

Foley was done by Les Fiddess and Mike Jones, both Mike & Les had recently been working on Lord of the Rings over at Redline. Then Ben Grant edited the foley. We can't forget our editing assistant, Clarke Carter. Clarke became an essential part of our creative team. Clarke looked after all our house keeping, disk management and back ups and generally keeping peoples moral up during those tough times.

Was the music for the film created here or in the US?

Originally there was to be no music in this film. The director is a big fan of Hitchcock, loved "The Birds", and was keen to make a film that didn't have any music and was driven totally by soundscapes. But for the pressures of having a film that had an American summer theatrical release meant that idea soon went out the window. This decision was also probably influenced by the conservative nature of film production companies. So they employed an Australian, Roger Mason. Roger had worked on a number of American productions so he had the confidence of the American producers. One of the good things about Roger is, he's able to create a very organic style soundtrack, as well as being very comfortable making a big classic Hollywood orchestral score. The films' budget allowed Roger to bring in an orchestra. The orchestra was recorded at the New Trackdown scoring stage at Fox studios. This was the first feature orchestra score to be scored at the Trackdown scoring stage. The session was engineered by Christo Curtis.

How different is it working on US projects to Australian projects, in regards to procedure/protocols, approvals, temp mix's, sending OMFs back to picture, etc

I guess the American process is a lot more formal, in that there is a much more established chain of command. Generally the

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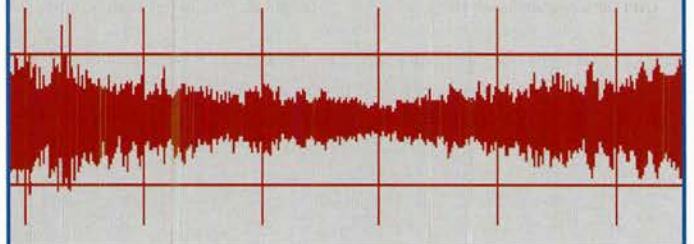
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production is a lot more top heavy above the line and there are a lot more people who have to be satisfied above the line. This is usual because the budget is bigger. In this particular case the producer & director are very down to earth and wanted to work with Australians, that makes a big difference. They are much more willing to adapt to Australian ways of working. Having said that though, in my experience, most Americans who come to Australia to make their films still work in a very American mentality.

Part of the reason that Australian film makers are successful is because we've developed ways of working on low budget projects, which are efficient, where we can be as creative as possible with incredibly small budgets compared with the US. I've found Americans come to us because they want that, but at the same time they're still married to their American processes, which almost by definition are a little wasteful.

As an example the American process may involve the director having every sound laid up and seeing it for the first time when they get to the mix, whereas what we will do is lay up what needs to be laid up and have a more consultative process with director leading up to the mix. So by the time we get to the mix we know exactly what the director wants. In America they're more likely to just put every thing in there and then pull out what isn't needed in the mix time, but they have the crews and budgets to allow that, here we don't. So there is always a certain amount of tension between trying to do it the Hollywood way and trying to do the Australian way.

I think this different approach takes a little bit of getting used to for American directors and producers who may come to Australia for the first time.

Did this style of film present any mixing problems?

When a film is primarily ADR it is hard to create a sense of reality and I think the biggest challenge has been for Phil Judd to mix the dialogues so that they sound real. Most of the film is set out doors, exteriors in a swamp. So not only did we have to match production sound with ADF, we had the added challenge of trying to make the ADR sound as though it was recorded in exterior locations. Just making dialogue sound real, so when actors turn their heads, it sounds like they are turning away or running away into the distance. Basically trying to build that perspective into their voices. Being an action film another big challenge is with so many sounds occurring at any given time, making sure you are hearing the sounds you need to hear during a busy sequence.

There is a big danger of piling a whole lot of sounds on top

of each other, which then just becomes a mush. I think it then becomes the art of chiseling out the specific moments that need to be heard to tell the story, without getting overwhelmed by all the sounds.

Did you utilise much panning or surround sound for the film?

Yes. It's a pretty big panning surround type film. Particularly when you're in the swamp towards the end. One device used to make the film creepier and scarier is to have things off screen being heard, but you're not certain what they are. To create a potentially threatening presence that is stalking you. We needed to add certain off screen effects for on screen actors to react to as well. That involved putting things into the surrounds or hard left and right panning as the characters move through the swamp.

When it comes to surround I think you have to take it on a film by film basis, so there are no set rules. This film is horror film based on a comic book, so I took a very comic book style approach to the film. I think you can get away with a lot more in film such as this. When dealing with a more "real" film you can be potentially taken outside the film and be assaulted by the process if there is too much panning or too much happening off the screen.

You have to be careful. The audience can be jolted from their concentration on the story and the performance in the film itself. As this film is quite unreal you can afford to be bit unreal with the sound, without taking people out of the moment.

• This article was first printed in the Australian Screen Sound Guild newsletter.

**Producer Feedback:
Gimel Everett – Man Thing Producer**

I've been really pleased doing sound post in Australia. I find that the professionalism and the quality to be on par with that of the US. I've especially enjoyed my experience at Philmsound. There has not been one time in the process where I thought, "gee this could've been better if I was back home, with the technicians & facilities there". You guys have it all right here. We're going into the final mix stage at present and I know it's going to be great because everything that has happened up until now has worked very well, there has been no glitches. One of the advantages of working at a facility such as Philmsound is that I deal with the person who not only owns the facility but is also working on the project and is dedicated to producing the highest quality sound track. This compares to working with larger sound post studios where the majority of communication is with a facilities manager who is juggling a number of projects and crew members at one time. The close working relationship with Philmsound has assured clear concise communication lines were always open and we were all headed in the same direction. I especially love working with Australians.



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Mackie tt24 - tested



New Digital Live Console put through its paces

By Julius Grafton

Ten years ago Mackie turned the studio market on its head with an affordable 8 buss analogue console. Now focussing on the market hot spot for digital live consoles, Mackie's new TT24 digital live console redefines the hot price point as \$13,995 retail.

We were delighted when Dave Croxton from Australian Audio Supplies gave us the first of his shipment for a couple of days. It sat in our Mix Room, where college students can come and spend quality time with different consoles.

Out of the box it took a real fast couple of seconds to boot, then around one hour of fiddling to be confident enough to mix sound. When I did mix, moving around the console became second nature pretty fast. Then I hooked it up to the laptop, and explored the tt Control software.

Physically the TT24 emulates a normal mixing console, in terms of the back panel. It has 24 balanced XLR inputs, plus 8 line inputs on 6.5mm jacks. There are 8 matrix or group outputs (you choose which), 12 auxiliary, and left/centre/right main outs. You can put Adat Lightpipe in, AES-EBU, SPDIF and there is a USB connector for your laptop.

If you want more than 24 + 8 inputs, use the Adat lightpipe connection and an external A/D box. This way you can get another 24 microphones or somethings into the desk. Inputs and outputs are all sorted and dealt with.

Out front the console has 24 long throw 100mm motorized faders which work in four banks – analogue,

digital, returns or master mode. There are four group master faders and a master fader. There's one 'v-pot' per channel, a 'v-pot' is an infinitely rotary encoder with 16 little lights around it, to see how it is set.

On top of the console are input gain controls for analogue inputs, along with mic/line pad switches and phantom switches. There is a signal present, and a peak light up there too. Thereafter every button on the board is backlit, so it has plenty of purr-fascination. We once referred to this kind of feature as 'chick pulling lights', but in my case the more lights my console had when I was mixing, the more that those big Bogong moth things bothered me.

WORKING THE 'FACE'

Getting down to work on TT24 is made easier thanks to the little touch screen, which lets you jab at some things if you'd rather not press a button. Personally I detest touch screens, but this one comes standard, and it seemed to accept my fingers barging at it. The console feels tough enough, even though the demo unit we tested had already been slammed in transit, and had a ding or two plus a bent input gain control.

Under the screen are 12 rotary faders which act as EQ controls when the EQ screen is selected, or 12 x auxiliary send controls when the auxiliary button is pressed. It's all fairly routine up there.

Essentials

• Retail \$13,995

- 24 analogue inputs on XLR
- 8 line inputs on 6.5mm jack
- 24 digital inputs (Lightpipe)
- SPDIF and AES-EBU outputs
- 12 auxiliary outputs (6.5mm)
- 8 matrix or group outputs (XLR)
- 24 digital outputs (Lightpipe)
- Left, centre, right outputs (XLR)
- 99 scene memory
- 4 effects units
- 2 card slots for future stuff
- USB connect for software
- Touch screen

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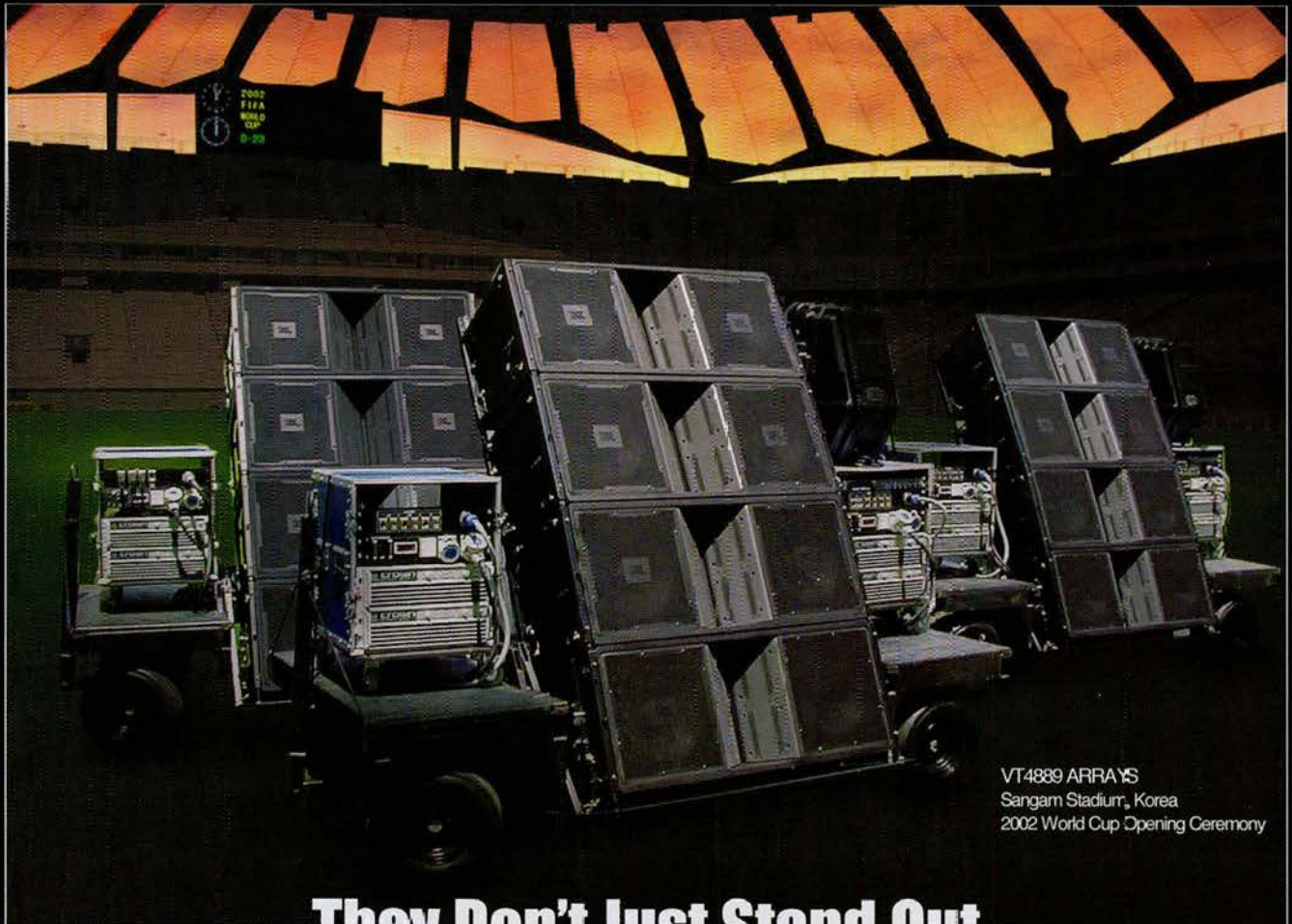
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Mackie haven't gone the 'one big master channel' routine, where there are rotary encoders and a control for every single feature. You need the screen to see what is going on, and if it isn't enough screen for you (it was for me) then you can plug your laptop in and watch on that screen too.

The easy USB connection to a laptop (running XP or Win 2000) is a real winning feature. It took me all of 3 minutes to install the driver and the software, then the laptop found the TT24 when I made the USB connection. It linked up straight away, and I suddenly found I was able to operate the console from the laptop. There is a very neat feature where the laptop and the desk will auto follow - OR you can split them so the laptop can control things on the desk INDEPENDENTLY.

What does this mean? Well, I could take a wireless laptop to the stage, and mix 12 sends of monitors off the TT24, while the FOH person got on with doing the main mix. Sure I would compromise a little, but wow - what a feature!

Or if my show was really sorted, and sound checked, then I could run the show from a seat in the audience. I could fire off snap-shot cues (there are 99 on board), adjust anything, and let the show happen. The desk could be side of stage. No multicore. And I could move around the venue while I do it. If the laptop stops, the desk keeps going.

Every channel has 12 auxiliary sends, 8 group auxiliary, left/right/centre assignment, and full four band EQ. The auxiliary sends themselves have 4 band parametric EQ plus two additional 'kill' filters. This is nowadays enough equalisation for stage monitor use where the stage monitors are



Out back, way heaps of connectivity, straight out of the box. Expansion slots make a way to connect two consoles together, for 26 facers. Adat Lightpipe in means 24 digital inputs for your 3 x external 8 channel analogue to digital converter boxes.

modern, well behaved speaker systems without the big lumps and humps in frequency response of older stage monitor systems. The 12 auxiliary outs also have a compressor limiter.

Likewise the left/centre/right outputs also have this EQ section, and a compressor-limiter.

There are 8 balanced matrix outputs, each of which has a delay setting of up to 600ms, ideal for running delay zones.

The more time you spend with the TT24 - I spent 5 hours while writing this review - the more there is to like. Example: the flex groups. You can use one of the 4 group faders for a stereo VCA style of master, or as a mono group master.

If you hit the Aux Mode button - the only blue one on the console - then the channel faders become auxiliary sends. You choose select one of the 12 auxiliary sends at the master output end of the desk. Flipping from aux one to aux

Looks like a normal analogue mixer, huh? Plenty of options here, including inserts. Desk has enough internal effects and dynamics, plus serious EQ and limiting on all the outputs to render the FOH effects or processing rack redundant.



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LIVE MIXING SPECIAL

2, all the faders snap to whatever is sent to each auxiliary.

There are four internal effects processors, resident on the last four auxiliary sends. They seem to have the goods, but I didn't spend much time there. They return (plug in to the desk) internally.

It was fun all the way.

Some observations:

Using the tt24 software, which is available free from the www.mackie.com site, helps understand the desk. It is very straightforward. But you need a console connected in order to arrange snapshots, or to rename any matrix, or indeed do much of anything at all.

There's no label for each input, so you'd label the desk the way you do a normal analogue console - with white electrical tape and a fine marker. But the selected channel shows up on the screen as Ana 1, Ana 2 and so on. It'd be great to be able to relabel these using the tt24 software so the screen would say what the channel is, like 'vocal' or 'kick'.

The six second boot time is awesome.

There are two optional card slots, and talk of a Lake Technology card coming which would supply extreme EQ options.

Conclusion:

I really like it. I couldn't break it. It sounded good too. Suitable for all mid level mixing jobs, production hire, installs, and churches.

RELEASE NIGHTS: See the tt24 in action at:

• **SYDNEY: Balmain Leagues Club**
138 Victoria rd, Balmain.
7.30pm Tuesday 16 November

• **MELBOURNE: Maori Chief Hotel**
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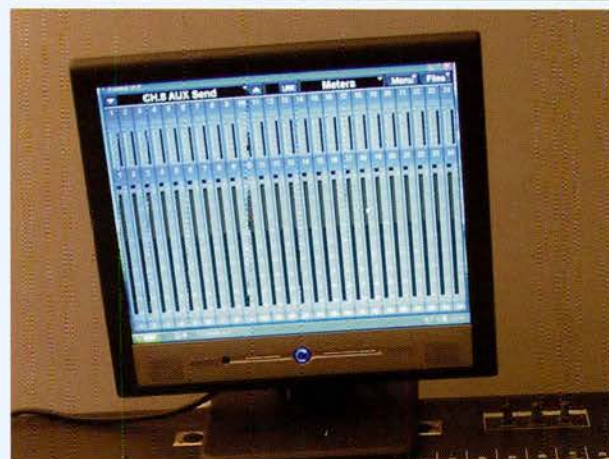
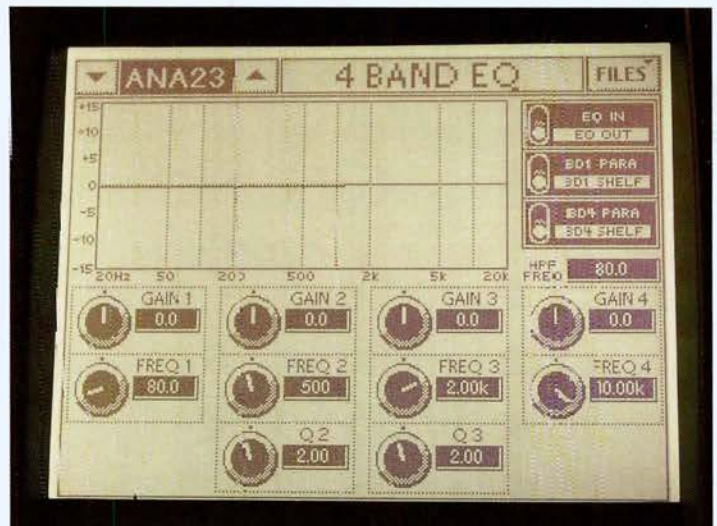
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The touch screen does the job (tcp), mainly you would touch it to turn things on and off, or switch them in and out. Thankfully you can do this in other ways, if you are touch screen adverse like we are!

Plug in your Laptop or PC via USB and tt24 quickly gets down to work in many new and interesting ways. The software can follow the console touch screen, or work alone - which is how we set the output metre screen (above, middle).

Select a channel, then choose FAN for a complete overview of what is happening (below). This is the Quick Mix area where 12 rotary encoders and a bunch of backlit switches do the work. It also has the Mackie 'rude solo' light. The console feels tough - and it has a sense of humour (!)





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IT'S A SONY

HDV



Digidesign Venue challenges Yamaha

By Julius Grafton

Venue is a contender in the large format area, new pricepoint: well under 100k. These puppies have 24 auxiliary sends. Yamaha's PM5D - son of the PM 1D - is here already, with two variants placed either side of the magic 100k number. Soon the DiGiCo D1 will enter this market area as well, although maybe not at this price.

Yamaha's PM1D and DiGiCo's D5 sit higher, at the concert format end of this new evolving market, with pricepoints west of a quarter mill. Expect around 40 auxiliary sends, so you can do FOH or stage monitor duties with ease.

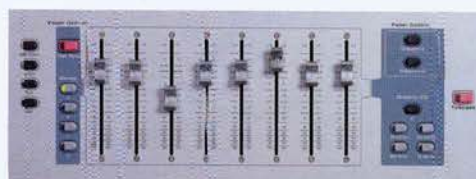
Digidesign's new Venue live mixing system is a logical extension from their Icon console project, launched earlier this year. Venue isn't so much Icon in new clothes, rather it is a stand alone product which aspires to present the feature sets that people in the large format live console area want.

At first glance Venue looks a little plain, with a metre bridge that is devoid of anything but master LED ramps. A metre bridge of any kind limits a console's acceptance in theatre, where sightlines are critical, so leaving the thing in place appears to be a link to the Icon - whose bridge has an LED ramp for every input. The architecture provides a rail between the bridge and the sloping work surface, into which a monitor support arm can be inserted.

Digi seem to have done their homework, by adopting the Yamaha approach of having a monster channel where all parameters of any selected channel are represented with digital scribble strips and rotary encoders. It means you can mix without referring to a screen, which is just as well since there isn't one. You add your own.

There's a deficit of knowledge in the Australian Digi camp about Venue, an attempt is underway to find and appoint a specialist Venue distributor. Establishing a new large format console in the market can take years, just ask TAG who wore out much shoe leather showing Euphonix around the place before they got traction. Peter Ratcliffe from Random Audio also expended vast effort establishing DiGiCo, as have Graeme and Colin Stevenson from Production Audio Services, who have been successfully evangelising Innovason for several years.

Venue has a stand alone processor which is based on a Windows XP box, a departure from the ProTools solution, which is to hijack a Mac or a PC, and install software over the top of whatever the user already has in there. A dedicated box, like the Venue has, presents way less problems.



One aspect of Venue which will test Digidesign is the implementation of Pro Tools Plug Ins, which also will draw engineers with ProTools experience to the console. The familiarity with ProTools will help.

There are many very good ideas promised with Venue, most of which can turn up the next version of anyone's software. That's the beauty of the digital console, if the work surface is designed properly, then it can adapt to suit the software.

Some DigiDesign ideas that we like in Venue:

The ability to digitally reassign a fader. The scenario is that a drummer has added something to his kit - and you want that mic on the console in order - like rack 1, rack 2 and now rack 3 - where the floor toms and the overheads and everything else on the console are now moved down one channel.

Gain approximation is another one, where you can have the desk roughly set the right input gains for selected channels - like maybe the drum master - and the channel input gain and digital gain will all get set. Saves a lot of time.

Surprisingly the user research that Digi did lead them to leave off surround sound



The FOH rack (left) hosts the embedded Windows XP computer, inserts, some i/o and access points for the dual redundant digital snake.



LIVE MIXING SPECIAL



For now 1 x 48 input or output rack is all the control surface will support - ability for more channels will come sometime mid 2005, they say.

capability on the Venue for now.

The minimum configuration is 34 faders - 24 input faders, plus 8 assignable output faders that cover groups or VCAs, a main fader and a fader for the selected channel.

The maximum configuration allows 56 input faders accommodating up to 96 mic inputs from stage and 32 additional inputs from internal or external effects.

Automation is snapshot recall which can also send external media messages and receive them to help you integrate them with other gear that you need to use or have it be controlled or triggered by other gear.

David Gibbons is director of product marketing at Digi. "When you run a Pro Tools mixer it comes up with channels that have plug-ins capability but they have no inherent EQ or dynamics control," explains Gibbons. "This product is different. Every channel has its own dedicated four band EQ plus the high pass filter and a compressor gate and expander limiter on each channel. That's standard processing built into the product that can then add up to five plug ins; four software plug ins and one hardware insert."

All very nice, but I'm not convinced Digi have done enough field testing of Venue - they appear to be singing their own tune on this one. By way of example, at presstime they had one console installed side stage at the Great American Music Hall in San Francisco; and one console had been out with John Mayer.

They have working prototypes at HQ as well, but this program is not yet enough advanced to instill confidence in the live sound community. We all have fond memories of trashed equipment, tropical weather, floating mains, deep fried greasy chicken fingers, frozen load outs, fumbling loaders, and pot holed roads etched into our DNA.

Meanwhile, the enemy is Yamaha, who have been in this line of business for 30 years. Their PM5D is pictured below. •



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Foolproof mixing?

Digital or analog, there's still a nut behind the wheel

By **Duncan Fry**

These days the choice of mixers is so broad it makes you wonder how anyone ever makes a choice. From small to big, analog to digital, there are just so many available, at previously unheard-of low prices.

Speaking of low prices I see that the 'Das Öhrful' company has a one mic channel mixer on the market, although you would think that a minimum of two would be required to do any actual, er, mixing! So it's really a pre-amp with auxiliaries. And even then it doesn't have phantom power, which just shows how essentials can get lost in translation on the product development trail from Germany to China.

However it's digital that gets all the attention these days. Digital audio for live sound is like a runaway train - it's unstoppable, and it's pulling into the station right now! We already have digital effects units - delay, reverb, pitch shifting etc, plus digital signal processors - crossovers, equalizers and more, but digital mixers are finally reaching a point where they can successfully take on analog for Live Sound use.

Despite their sophisticated design, their major obstacle from a user point of view is the lack of a Common User Interface.

Both analog and digital mixers are essentially control surfaces. The difference is that an analog mixer has one knob or switch per function per channel, and as a general rule if you've used one you can use any of them, because everything that the desk can control is right there in front of you - all the time.

Instant access to all parameters is what keeps analog mixer manufacturers in business!

Not so with digital. Each manufacturer has their own idea of what channel functions should be shown, and what should be hidden one or more menu layers down. Some previous knowledge of the type of digital mixer is pretty well essential if you expect to walk up to it and start mixing. All the controls, switches and functions you'd expect on an analog desk are still there, and a whole lot more, but they are not necessarily all there at the one time and in the same place. It takes a fair bit of getting used to.

It's a similar situation to how PCs were before Windows came along. Love it or hate it, it has at least provided a universal look and feel that enables most people to sit down and find their way around any program without reading a 400 page manual first! (Alright I know Macs had it first, but let's stick to what 95% of computer users use)

Research shows that, excluding true propeller heads, most computer users see about 10% of the features of any given program. The sheer depth and complexity

of the available options have outstripped the abilities of most of the users.

Is this going to be the case with digital mixers?

The one thing that digital anything has over analog is recallability. Everything can be saved and used again next time. All the parameters, settings and levels on every channel and every effect can be copied to a removable USB drive or PC card, then taken away with you, plugged in and brought up again for the next night's show!

This recallability is what keeps digital console manufacturers in business! It will also keep promoters in business, because if you happen to step under a bus on the way to the show that night, any engineer can step in, pull up your settings and get the show going! (We'll let the lawyers work out who actually owns your mix!)

For this reason you'll often see digital mixing consoles on large-scale concerts and festivals featuring multiple bands and artists. Each band can have their own complete desk setup saved to the mixer's memory, making band changeovers much faster and less troublesome. When your band is up next, you just restore your settings from the afternoon's (or the day before's) soundcheck, and you're all set to mix.

When everything we had was analog, the FUPSI * factor was still pretty high; how high will it get with digital?

I've spent the whole set subtly tweaking the vocal EQ - extremely subtly as it turned out, since the engineer for the headline band had switched out the EQ on those channels!

And at a heavy metal show I had switched off the sub-groups during a break because the vocals and CD were routed directly to the Left and Right outputs, thus removing

A much younger Dunk hones his FUPSI skills at the Hightett Peace and Love Festival 1982



some of the temptation for the audience to fiddle with the channels. It also enabled announcements to be made as required without me having to keep close to the desk.

Sadly I neglected to point this out to the guy mixing the next band, who happily went through the whole set with the subgroups (and thus all the instruments) turned off. Says something about the stage levels, doesn't it!

The 'solo to main outputs' button has also caused some grief, instantly muting the mix and soloing a particular channel whenever a PFL button was pressed. Everything's bopping away happily, you slip on the headphones to check the kick drum, push down the PFL on that channel, and all you hear in the headphones is kick drum! Trouble is, that's all the audience hears too. The better the isolation

in your headphones, the harder it is for you to pick it up, until an audience member throws something at you!

I never had this happen to me, but I once met a man who had. I just left the left-hand side of the system unplugged all night. At load out time, I wandered over behind the stack and saw all the leads neatly coiled up, just as I had left them seconds before answering an urgent call from my innards to inspect the plumbing during setup.

Plus I don't see how digital will stop you falling asleep over the console and knocking the delay return slider with your head so "EVERYTHING ING ING SOUNDED ED ED LIKE LIKE LIKE THIS THIS THIS!" for about three songs.

Mixing on a big analog console is a bit like driving the starship Enterprise; an awe-inspiring mass of flashing LEDs and lots of knobs. A smaller digital console doesn't have the same power of attraction.

Of course, anyone who thinks chicks are attracted to you just because you're mixing needs to think again. The only girls who come up to you at the mixer are the band's girlfriends, come to whine about how they can't hear Tarquin's vocals, or girls looking for the toilet so they can jettison the night's intake of Stollies and Coke. Sometimes they even make it there on time...!

Otherwise it's just an endless procession of audio wannabees, because everyone is an expert on two things - their own job, whatever that might be, and mixing audio - they'll tell you what's wrong with the sound at the drop of a hat.

"Can't hear the drums, mate," "Can't hear the bass,," and best of all, "Can't dance to it...make it go faster!"

I'm looking forward to mixing on the desk that can do that.



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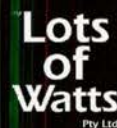
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The Art of Recording: Understanding Reverb Parameters

Optimize your reverb for the best possible sound

by Craig Anderton

You think you have it tough: Digital reverb has to approximate the sound of a seemingly infinite number of waves bouncing around a reverberant space, and make all these complex calculations in real time. And if you don't believe this is a truly difficult task, walk into a cathedral sometime and do a single handclap — then tell me *any* reverb, regardless of price, that can duplicate that effect exactly.

But most of us don't have the space for a concrete room, or a convenient elevator shaft, or a nearby cathedral. So for ambience, digital reverb is the way to go. Yet digital reverb also has some powerful advantages compared to an acoustic space. First, an acoustic space has one preset; a digital reverb offers several. Second, digital reverb is highly customizable. Not only can you use this ability to create a more realistic ambience, you can create some unrealistic — but provocative — ambiences as well.

However, the only way to unlock the true power of reverb is to understand how its parameters affect the sound. Sure, you can just call up a preset and hope for the best. But if you want world-class reverb, you need to tweak it for the best possible match to the source material.

REVERB PARAMETERS

The reverb effect has two main elements (see Figure 1):

- The *early reflections* (also called initial reflections) consist of the first group of echoes that occurs when sound waves hit walls, ceilings, etc. These tend to be more defined and sound more like "echo" than "reverb."
- The *decay*, which is the sound created by these waves as they continue to bounce around a space. This "wash" of sound is what most people associate with reverb.

Following are the types of parameters you'll find on higher-end reverbs. Lower-cost models will likely have a subset of these.

Room size. This affects whether the paths the waves take while bouncing around in the virtual room are long or short. If the reverb sound has *flutter* (a periodic warbling effect that sounds very unrealistic), vary this parameter in conjunction with decay time (described next) for the smoothest sound.

Decay time. This determines how long it takes for the reflections to run out of energy. Remember that long reverb times may sound impressive on instruments when soloed, but rarely work in an ensemble context (unless the arrangement is very sparse).

Decay time and room size tend to have certain "magic" settings that work well together. Preset reverbs lock in these settings so you can't make a mistake. For example, it can sound "wrong" to have a large room size and short decay time, or vice-versa. Having said that, though, sometimes those "wrong" settings (remember, "rong is gud!") can produce some cool effects, particularly with synthetic music where the goal isn't necessarily to create the most realistic sound.

Damping. If sounds bounce around in a hall with hard surfaces, the reverb's decay tails will be bright and more defined. With softer surfaces (e.g., wood instead of concrete, or a hall packed with people), the reverb tails will lose high frequencies as they bounce around, producing a warmer sound with less "edge." A processor has a tougher time making accurate calculations for high-

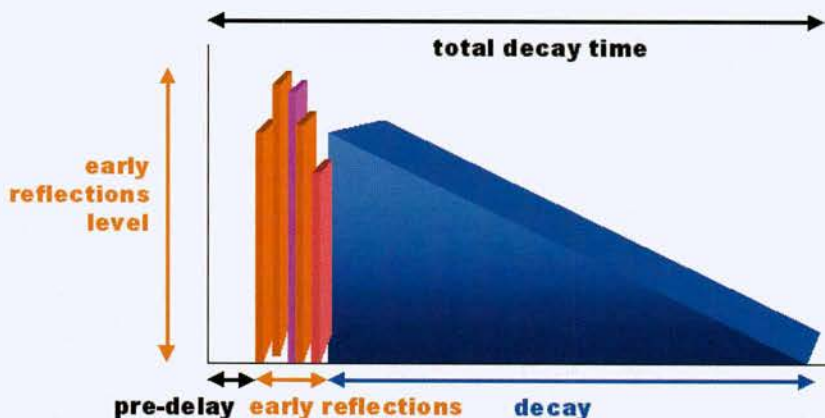
frequency sounds, so if your reverb produces an artificial-sounding high end, just concede that fact and introduce some damping to create a warmer sound.

High- and low-frequency attenuation. These parameters restrict the frequencies going into the reverb. If your reverb sounds metallic, try reducing the highs starting at 4–8kHz. Remember, many of the great-sounding plate reverbs didn't have much response over 5kHz, so don't fret too much about a reverb that can't do great high-frequency sizzle.

Having too many lows going through the reverb can produce a muddy, indistinct sound that takes focus away from the kick and bass. Try attenuating from 100–200Hz on down for a tighter low end.

Early reflections diffusion (sometimes just called diffusion). This is one of the most critical reverb controls for creating an effect that properly matches the source material. Increasing diffusion pushes the early reflections closer together, which thickens the sound. Reducing diffusion produces a sound that tends more toward individual echoes. For percussive instruments, you generally want lots of diffusion to avoid the "marbles bouncing on a steel plate" effect caused by too many discrete echoes. However, for vocals and other sustained sounds, reduced diffusion can give a beautiful reverberant effect that doesn't overpower the source. With too much diffusion, the voice will lose clarity.

Note that there may be a second



The two main elements of reverb are the initial reflections and decay.

diffusion control for the reverb decay. With less versatile reverbs, both diffusion parameters may be combined into a single control.

Early reflections pre-delay. It takes a few milliseconds before sounds hit the room surfaces and start to produce reflections. This parameter, usually variable from 0 to 100ms or so, simulates this effect. Increase the parameter's duration to give the feeling of a bigger space; for example, if you've dialed in a large room size, you'll probably want to employ a reasonable amount of pre-delay.

Reverb density. Lower densities give more space between the reverb's first reflections and subsequent reflections. Higher densities place these closer together. Generally, as with diffusion, I prefer higher densities on percussive content, and lower densities for vocals and sustained sounds.

Early reflections level. This sets the early reflections level compared to the overall reverb decay. The object here is to balance them so that the early reflections are neither obvious, discrete echoes, nor masked by the decay. Lowering the early reflections level also places the listener further back in the room, and more toward the middle.

High-frequency decay and low-frequency decay. Some reverbs have separate decay times for high and low frequencies. These frequencies may be fixed, or there may be an additional crossover parameter that sets the dividing line between the lows and highs.

These controls have a huge effect on the overall reverb character. Increasing the low-frequency decay creates a bigger, more "massive" sound. Increasing high-frequency decay gives a more "ethereal" type of effect. An extended high-frequency decay, which is generally not found in nature, can sound great on vocals as it adds more reverb to sibilants and fricatives, while minimizing reverb on plosives and lower vocal ranges. This avoids a "muddy" reverberant effect, and doesn't compete with the vocals.

ONE REVERB OR MANY?

I tend not to use a lot of reverb, and when I do, it's to simulate an acoustic space. Although some producers like putting different reverbs on different tracks, I prefer to insert reverb in an aux bus, and use different send amounts to place the sound source in the reverberant space (more send places the sound further back; less send places it more up front). For this type of "program material" application, I'll use fairly high diffusion coupled with a decent amount of high-frequency damping.

The only exceptions to this are when I want an "effect" on drums, like gated reverb, or need a separate reverb for the voice. Voices often benefit from a bright, plate-like effect with less diffusion and damping. In general I'll send some vocal into the room reverb and some into the "plate," then balance the two so that the vocal reverb blends well with the room sound.

REALITY CHECK

The most difficult task for a digital reverb is to create realistic first reflections. If you have a nearby space with hard surfaces like a tile bathroom, basement with hard concrete surfaces, or even just a room with a tiled floor, place a speaker in the room and feed it with an aux bus output. Then add a mic in the space to pick up the reflections. Blend in the real first reflections with the decay from a digital reverb, and the result often sounds a lot more like a real reverb chamber.

DOUBLE YOUR (REVERB) PLEASURE

I've yet to find a way to make a bad reverb plug-in sound good, but you can make a good reverb plug-in sound even better: "Double up" two instances of reverb (each on their own aux bus), set the parameters slightly differently to create a more "enveloping" stereo image instead of a point source, then pan one reverb somewhat more to the left and the other more to the right. You can even do this with two different reverbs. The difference may be subtle, but it can improve the sound. . . check out the audio example posted at www.eqmag.com and you'll hear what I mean. EQ



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The Art of Recording:

Do This, Don't Do That

Follow these rules, and you'll save time and money in mastering

by Mitch Gallagher

You've finished your project. All those hours of work and sweat have finally come to an end. One step left before the CDs are pressed: mastering. You don't want to make costly or time-consuming mistakes at this point, or even worse, jeopardize the quality of your final release by committing a fatal error. We went to one of the busiest mastering/duplication houses around, Disc Makers, and cornered the Director of the SoundLab, Paul Elliot, for a list of things to do and not to do as you're getting ready to send your project off for mastering.

DO have a safety copy. You'd be surprised how many engineers think that having a project saved on their hard drive is backup enough. One or more copies or backups on different hard drives/media are essential, especially if you're not hand-delivering it directly to the CD plant.

DON'T assume anything. Communication regarding what you're looking for in mastering is key to achieving the results you want. Jot down your thoughts and ideas on what you feel needs to be addressed. If possible discuss it with the engineer to make sure you both are on the same page. Don't assume that mastering engineers/duplicators are aware that you want some things changed or removed and others left alone. Provide complete documentation for everything you submit, and for what you want done.

DO avoid the volume wars. If you're going to send your project off to a mastering house, don't compress or limit the final output. It can handcuff your mastering engineer. The first inclination is to try to undo what you've done. Of course, we can't do that so we're stuck trying to work around it rather than just trying to bring out the best in the music.

DON'T overprocess. Some tools in some situations are most effective when they're left in the toolbox. Just because you have the option doesn't mean you should use it. I've heard many projects that had one simple song that sounded really nice followed by a more involved production — you wonder if the same engineer did both of them. Use as little processing as you can to create what you're looking for.

DON'T use paper labels on CD-Rs. Yes, paper labels allow you to create an attractive looking master with logos and extra info. However, stick-on labels aren't optimal for use with a production master. You run the risk of altering the rotation of the disc and causing glitches and skips. With a project you've worked so hard on, why take the risk?

DO use the right media. The media type (CD-R brand) used with your burner can affect your master. Whenever possible use media that's recommended by the manufacturer of your burner and write at speeds that will produce the lowest error rates. Some media is optimized at low

writing speeds. Try these for your final master burn. Also, use 74-minute media when possible. It tends to perform better than 80-minute media.

DON'T add too much bass. The low-end content in many mixes these days is massive. It's an important part of the sound we're creating. However, excessive bass can affect the perceived level of your disc. You need room for everything else in the frequency spectrum and sometimes the energy from the low end doesn't allow for an adequate amount of the other frequencies.

DON'T play your production master. This is what your safety copies are for. Why risk the delay and headache of finding out that the duplication plant or the mastering house has issues and high error rates because your disc was damaged when it was being handled? Listen to the safety copy many times. Familiarize yourself with it. But keep the precious production copy safe and untouched to send to the mastering/duplication house. **EQ**



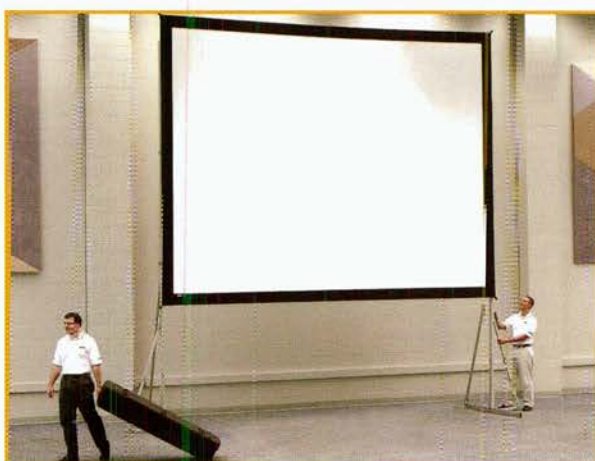


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FLOAT, FLOAT, FLOAT YOUR FLOOR

Sometimes being isolated is a *good* thing

by Jeff D. Szymanski, PE

For pro or home studio construction, floating a floor or platform is an important element of good isolation. But it's easy to do it incorrectly, through improper selection of materials, bad design, or careless construction. This article will help you make informed decisions about floating a floor or platform for your studio.

With new studios where isolation is a priority, "room within a room" construction is common. This typically employs dead airspaces between walls and ceilings. With a home studio, you'd leave several inches of dead airspace between the existing walls and the new walls, then build a new ceiling as a "cap" on the new walls, with the same depth of airspace between it and the existing ceiling. The key to the design and construction is a total avoidance of any physical connections between the new walls/ceiling and the existing surfaces. This is called "decoupling."

Decoupling a floor is a bigger challenge, as there's no option for dead airspace. Floating the floor is needed to maintain the same level of isolation achieved by the decoupled walls and ceiling, and typically employs springs and damping material. This is like building a shock absorption system (like that of a good car) for the bottom of your studio.

Here are a few examples of scenarios that demand floated floors or platforms:

- Drum kit in a live room that is over or adjacent to a noise-sensitive area, such as a bedroom or a neighbor's apartment.
- Large subs in the control room, also over or adjacent to a noise-sensitive area.
- Drum kit in a garage or a basement. Surprisingly, concrete can easily transmit vibrations into the structure. Avoid this if you'd rather not have the police show up in the middle of a session. . . .
- Furnace room adjacent to a studio. While the ideal solution would be to separate these two spaces as much as possible, it's often not possible. Either work with an HVAC expert to isolate the furnace/air conditioner/etc., or simply float the floor in the studio — wherever you will have open mics — to prevent any bad HVAC vibrations from ruining a recording.

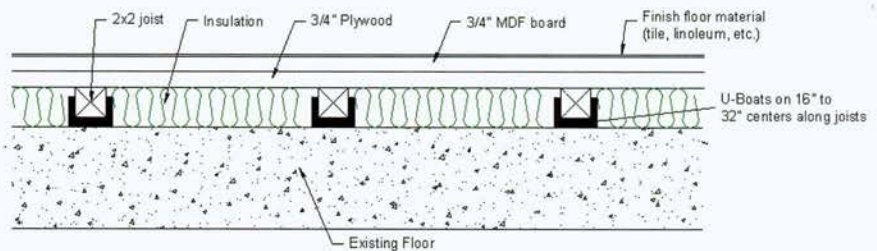


Fig. 1: A low-cost, floated floor design. Note that the 2x2s could easily be replaced with larger 2x pieces of lumber for increased acoustical isolation.

WAYS TO FLOAT

There are several ways to float the floor. Your decision will not only depend on the desired degree of isolation, but also on how much headroom you can afford to lose, and how much construction you are willing to undertake.

A "poor man's" floated floor is quite simple. First, roll out some 3/4"-1" carpet pad, top with some 3/4" plywood, and finish to taste (hardwood, laminate, vinyl, etc., are preferable). Total headroom taken up will be a little more than 1.5". The isolation won't be great, but will be better than nothing.

If you can afford to lose at least 2.5", see the construction in Figures 1 and 2. Figure 1 shows an elevation cutaway view of a studio floor that uses Auralex's U-Boat isolators for decoupling. It's critical to space these properly for the right amount of decoupling in the right frequency range. Too many isolators will couple the system, and make it too rigid. Too few will over-compress the isolators, also causing coupling.

Optimal spacing will depend on the mass being applied to the floor. For the floor shown in Figure 1 (assuming this isn't a room with several grand pianos, refrigerators, and some elephants), a good distance is about 16" between the center of each U-Boat. (For more information on your specific floor, see www.auralex.com.)

The same guidelines for U-Boats apply to DIY rubber pucks. U-Boats typically cost about \$2 each. By contrast, 1/2"-thick rubber sheets (look for Neoprene or "EPDM" rubber, with a hardness rating of 60 durometer) can cost about 50% less wholesale. (Durometer is a measure of rubber hardness — values typically range from 30 to 80.) Do *not* settle for "SBR" or natural rubber just because it is less expensive; this type of material will not last nearly as long as Neoprene or EPDM (which lasts the longest). Also, don't go for softer rubber because it's easier to cut, as you'll need more pucks to do the job.

Cut 2"x2" pucks out of this material



Fig. 2: The construction process. Note how the isolators separate the floor support boards from the "real" floor.

(this is no easy task, so use a sharp knife and be very careful not to cut yourself). Also, unlike U-Boats that are designed to fit around the short edge of "2x" lumber, you need to place DIY pucks carefully so that they don't slip out. A little glue can help.

WHEN TO BUILD

A common question is "Should a framed-type floated floor be built first or last?" In other words, should the walls (and ceiling) be set on the floor, or should the floor be built inside the new walls? For acoustical reasons, the former is often preferable so the new walls do not touch the existing floor. However, for practical reasons, building the floor last is probably better. In either case, make sure that the floated floor does not touch the existing or new walls. Leave a space and fill it with acoustical caulk. Also, if the walls are going to rest on the existing floor, "float" it by using, for example, a thin layer of limp-mass barrier material.

CONCRETE IDEAS

Floating a concrete floor is outside the budget of most home studio owners (you *cannot* float a concrete floor with the rubber materials mentioned above). However, this is the most acoustically effective option. Two companies in particular specialize in products for floating concrete slabs. RIM model Floating Concrete Floor, from Kinetics Noise Control (www.kineticsnoise.com), can simply be rolled out. If you're experienced with concrete, this would be a good choice as you just pour the concrete on top of the pad. Mason Industries (www.mason-ind.com) carries a wide variety of mechanical spring isolators, including whole systems that can be assembled to house a floated concrete slab. Note that this sort of floor will usually require input from mechanical and structural engineers.

If building a floated floor is way out of your budget/time constraints, then consider floating a section of flooring in the room. You can do this with the rubber materials already mentioned above. You can also look into dense foam or fiber materials suitable for laying out under some

plywood [Auralex makes a product called "PlatFoam" that's designed for this application - Ed.], or use dense (at least 6-10 lb/ft²) glass fiber pads. The basic idea is to build an 8'x8' (or so) platform that can go under a drum kit — the single largest impact vibration source in any studio, with the possible exception of large subwoofer(s) in the control room.

Finally, be sure that any floated floor you are installing meets local building codes. You can usually build a floated floor even in locations with strict earthquake construction codes, but will

probably have to include some other safety devices to comply with local codes.

Is floating worth it? Even some of the basic options outlined above make a significant difference, so go ahead and give it a try. Better sound can be yours!

Jeff D. Szymanski is a guitarist, singer, and songwriter with his own home studio, as well as the Chief Acoustical Engineer for Auralex Acoustics, Inc. Jeff can be reached by e-mail at appsupport@auralex.com. EQ



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COMING ATTRACTIONS

"Coming Attractions" are previews of new products that haven't arrived in the marketplace. These aren't product reviews, but are designed to bring you up-to-the-minute information on the next generation of cool recording tools.

Steinberg Cubase SX3

by Craig Anderton

Time warping and hardware integration are just a few highlights

What is it? The latest version of Cubase SX, which is clearly not resting on its laurels.

Who needs it? Cubase owners who want more flexible operation within the sequencer and integration with their studio hardware, as well as those who covet a deep feature set.

Why is it a big deal? Not only has Cubase SX3 included features to keep up with other hosts, it has added some significant new functions.

Shipping: 3rd Q 2004

Contact: www.steinberg.net

Cubase SX3 isn't just about updates to Steinberg's flagship sequencer, but about increased studio hardware integration. For starters, the program now supports Acid-format files and can stretch loops to fit tempo in real time. But it also builds on its previous Time Warping technology to allow the global tempo map to fit audio files, or warp a "free time" audio file to fit tempo (like Ableton Live's "elastic audio"). Audio files can now be quantized and groove quantized; off-line time stretch algorithms provide high-quality "permanent" transposition and tempo matching. Hitpoint operation and detection has been improved too, with the option to convert hitpoints to warp tabs.

A huge feature, Play Order Track, lets you treat a composition as multiple sections that can be rearranged on the fly. This makes it easy to test out alternate song versions, which can then be converted back into a linear form for mixdown and mastering.

There are also significant MIDI enhancements, as well as the return of some Cubase VST MIDI features. The Inplace Editor function (see screen shot) allows for direct MIDI event editing from within the project page, rather than having to jump over to a separate window. This simplifies editing MIDI events in context with audio (and video) tracks. And MixerMaps are back, but better: MIDI Device Maps/Panels support direct access to external MIDI hardware with user-definable graphic editing panels. You can import VST Mixer Maps or create editing panels, even for the Track Inspector or the mixer's channel strip. Furthermore, quantizing MIDI events can now move associated controller events.

Hardware fans will love the External FX Plug-ins feature, which integrates external hardware effects processors into the VST audio mixer as send or insert effects (with delay compensation).

Furthermore, a dummy plug-in feature now loads a "placemaker" if the project is transferred to a system that lacks the plug-

in. Yet the file retains information about the original plug-in, so if the project is saved and reloaded back into the original system, the plug-in set returns to its original configuration.

It's now possible to "freeze" instruments with or without insert effects, so you can save RAM by freezing the instrument, yet still tweak effects during mixdown. Audio track effects and inserts can also be frozen and unfrozen.

A small but useful change, Volume Envelopes, allows altering level without having to resort to automation tracks. These envelopes can "travel" with events as well. And there have been some ergonomic tweaks, such as color-coding of tracks and VST mixer channels to allow for quicker differentiation, and "workspace" layouts that define window setups for different steps of the production process.

Not surprisingly, SX3 also sees the debut of the Studio Connections technology introduced jointly with Yamaha at the 2004 Musik Messe, where opening a project can recall an entire studio setup.

And yes, Cubase SX3 continues to be cross-platform (Windows 2000/XP, Mac OS X) but is also compatible with Windows XP 64-bit Edition so it can access 4GB of RAM. All in all, SX3 is an impressive upgrade for a sequencer that refuses to remain stagnant. **EQ**



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COMING ATTRACTIONS

"Coming Attractions" are previews of new products that haven't arrived in the marketplace. These aren't product reviews, but are designed to bring you up-to-the-minute information on the next generation of cool recording tools.

Charismac Discribe Alive

by Craig Anderton

Wanna buy a concert CD . . . right now?

What is it? A system designed to duplicate large quantities of CDs or DVDs with minimum human interaction and maximum speed.

Who needs it? For starters, acts that want to sell CDs of concerts to their fan base.

Why is it a big deal? Although the concept of producing "on demand" CDs is not new, Charismac's approach was designed from the ground up for this application.

Shipping: 3rd quarter, 2004

Price: System-dependent

Contact: www.discribealive.com

One of the hot trends is producing concert CDs for concertgoers to buy immediately following a gig — a much more tangible reminder of the experience than, say, a T-shirt. But existing solutions for on-demand mass content distribution generally require some workarounds when using conventional duplication technology.

Furthermore, these systems tend to require "babysitting" to ensure the technology runs smoothly, are generally not designed for portability, and usually can't "scale" according to the content producer's needs.

Now Charismac Engineering (which makes products like the Anubis RAID disk management software utilities, Discribe CD mastering/burning software, and FibreShare storage area network-enabling software) has introduced Discribe Alive — a scalable, portable, mass-content duplication and distribution system

optimized for live performance applications. Intended for use in permanent installations or mobile systems, Discribe Alive has been engineered to avoid as much human intervention and overhead as possible. Although a major part of the initial push is to the live performance touring industry, the company also envisions applications in academia, worship, theater, and business, such as instant recording of seminars and plays.

The system consists of two main components. The Alive Master is an Apple Computer G4 PowerBook (running Mac OS X Panther) pre-configured with the Discribe Alive software, a duplication tallying key that tracks and reports on system status and CD-burning success, and a wireless networking card. The second component, the Alive Robot, is a customized ATA shock-mounted rack that contains two custom-built robotic CD duplicators, a rackmounted Apple

Xserve server, and wireless networking connectivity tools to simplify system setup and tear down. A Discribe Alive rack requires AC and an attendant to load the CD blanks into the duplicators, remove the finished audio CDs, then slide them into a cardboard sleeve.

Each Discribe Alive Target Robot can burn over 200 discs per hour (depending on the amount of content) in DAO or TAO modes. With the capability to remotely administer and control 50 or more Alive Target Robots, the system could produce a total output of over 15,000 discs at a single event. According to the company, engineering tweaks in the Discribe Alive software enhance the overall duplication speed; a Discribe Alive Target Robot Server can produce discs faster than many "high-speed" duplicators.

Compared to the current CD/DVD duplicator market, a single 12-drive duplicator carries a retail price that's about the same as the cost of a single Discribe Alive Target Robot Server. It's worth noting that commercially available duplicators generally don't contain a file server or wireless-network connectivity. Discribe Alive is also essentially autonomous; it self-audits and reports the exact number of discs that burned or failed within the timeframe of the job sent by the Discribe Alive Master.

Each Discribe Alive System is custom-configured and integrated; prices vary depending on system specifications. EQ



SUMMER NAMM 2004

I just can't be blasé about trade shows. I still get my kicks checking out gear, accompanied by the din of what sounds like a thousand radios playing simultaneously — all tuned to different stations.

But 2004 was the last **NAMM in Nashville** (it's Indianapolis for 2005 and Austin for 2006), so there was a certain inescapable lame duck quality. Officially, NAMM said they were running out of space; but the Gaylord Entertainment Center arena, normally the home to lighting, pro audio, and DJ gear, was closed this year. And with the on-again/off-again economy, a lot of companies decided to forego the trip and spend the bucks elsewhere.

Yet despite all that, the bright spot was that for those with new products, the signal-to-noise ratio was very high. Case in point: At Winter NAMM, Ableton's update to Live 4 would have been filed under "okay, another update." But with the sparse software presence, this brilliant program got the attention it deserved. And the booths of high-tech companies that did attend, such as Yamaha, TASCAM, E-mu, Korg, M-Audio, Roland, Sony, Native Instruments, IK Multimedia, etc. were always packed.

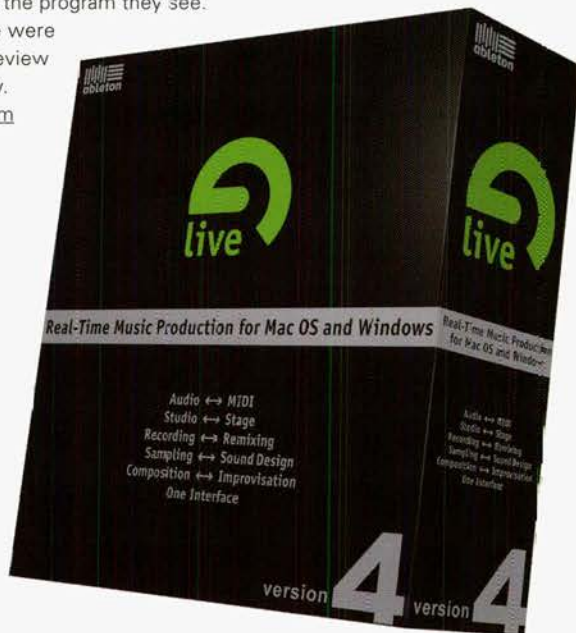
So all in all, it wasn't the trade show to end all trade shows . . . just the trade show to end Nashville Summer NAMM. Let's look at what made the headlines.

*** Prices shown are approximate only, in Aussie dollars.**

THE SOFTWARE STAR OF THE SHOW: **ABLETON LIVE 4.0**

Either you "get" **Ableton Live**, or you don't. It started life as a live performance tool for those who thought like DJs, but over the years, has added linear recording, new types of audio editing, and support for protocols such as ReWire. In the process, it's gone from obscurity to amassing a large and devoted following. When sequencer manufacturers look over their shoulders, this is the program they see.

Best of all, we were able to score a review copy at the show. www.ableton.com



By Craig Anderton

SPEAKING OF VIDEO . . .

Korg's PAL/NTSC-compatible **krossfour** 4-channel video mixer/switcher (**\$1800**) is designed for VJs, but it'll probably end up doing duty for a lot of music videos as well. The krossfour can assign any of up to four video sources to either of two mixer channels; each channel also has a hold button for freezing images, and can produce solid color backgrounds for transitions and mix effects. A DJ-style crossfader (with four crossfader curves) blends these two channels. The krossfour also features both composite and S-video main outputs, as well as Luma-key and Chroma-key (blue screen) compositing effects. www.korg.com



Auralex TruTraps

The TruTraps Broadband Absorption System sits off the wall, creating an airspace between the passive absorber and the wall that increases low-frequency effectiveness.

www.auralex.com

- Available in charcoal, burgundy, and purple colors
- Includes panels sufficient for covering 120 square feet, spacers, and liquid adhesive
- Highly cost-effective, especially at frequencies below 250Hz.

SUMMER NAMM 2004



Sennheiser EH-Series Headphones

The EH150 (\$119) and EH250 (\$199) are sealed-design headphones, while the EH350 (\$249) has an open-air design. www.sennheiserusa.com

- Efficient design allows use with low-level, -10dBV unbalanced output signals
- 10-foot oxygen-free copper cables
- The EH150 and EH250 offer drastically reduced outside noise interference

STAR-MAKER SOFTWARE OF THE SHOW: SONY VEGAS+DVD PRODUCTION SUITE

Sony set up a room where rock videos were being made with their **Vegas+DVD Production Suite (\$1999)**, which includes Vegas 5 Audio/Video editing software, DVD Architect 2, and a Dolby Digital AC-3 encoder. Their point was clear: Get the suite, and go beyond making music to making music videos — then burn the whole thing to DVD. I'd bet many showgoers didn't realize how simple this process really can be, until they saw the fluidity and ease of use that has always been a Vegas hallmark. www.sony.com



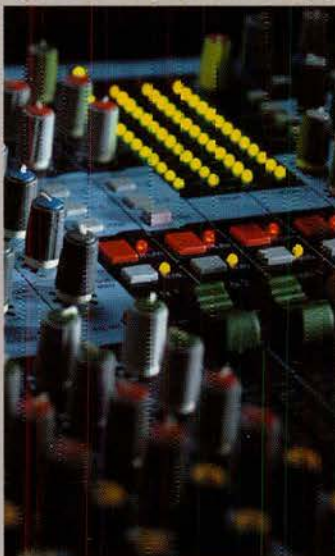
Peavey PV Series Mixers

Cost-effective mixers include 3-band EQ and both XLR and 1/4" inputs on every channel. www.peavey.com

- **PV 6:** Four channels, 48V phantom power, two mono/two stereo ins, TRS/RCA outs **\$199**
- **PV 8:** Six channels, 48V phantom power, four mono/two stereo ins, TRS/RCA outs, inserts on mic channels, **\$249**
- **PV 10:** Eight channels, 48V phantom power, s x mono/two stereo ins, XLR/TRS/RCA outs, built-in digital FX, inserts on all channels, **\$599**
- **PV 14:** Twelve channels, 48V phantom power, ten mono/two stereo ins, XLR/TRS/RCA outs, built-in digital FX, inserts on all channels, **\$699**



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Peavey Dual DeltaFex

1U rackmount effects box has two "engines" configurable as stereo, dual mono, series, parallel, or sum mono effects operation. www.peavey.com

- Reverbs, delays, phase shifter, compressor, pitch shifter, chorus, flanger, phaser, tremolo, rotary speaker, distortion, exciter, vocal eliminator
- Sum mono works like dual mono but combines the two effects into a single stereo out
- All effects are programmable via two individual parameters and wet/dry mix

Yamaha MY16-mLAN Expansion Card

This Mini-YGDAI card provides the interface hardware and connections required to link Yamaha 02R96 or 01V96 digital mixers to an mLAN network. www.yamaha.com/proaudio

- 24-bit/96kHz compatible
- Provides up to 16 channels of audio I/O.
- Bundled mLAN Patchbay application software provides audio and MIDI signal routing on Mac/Windows XP systems, eliminating the need for extra PCI cards or interface hardware



SE ELECTRONICS RAISES U.S. PROFILE

The maker of these Chinese mid-priced mics has wider distribution. New offerings include the **Gemini** cardioid-pattern mic (**\$3000**), which uses a two-tube design (one 12AX7, one 12AU7) and features a 1.07" gold-sputtered diaphragm and transformerless balanced active output. It comes in a flight case with power supply, cables, and shock mount. Another new model, the **Z3300a** (**\$1200**), is a Class A multi-pattern (cardioid, omni, and figure 8) studio condenser mic with a 1" gold-sputtered diaphragm, 100Hz filter, and 10dB pad. The package includes an aluminum flight case and shock mount. www.sonic-distribution.com

SURPRISE! COMPUTERS AT NASHVILLE?

Considering Nashville NAMM's rep as a guitar show, it was surprising to see not one, but two computer companies with truly high-power offerings designed specifically for music applications.

Alienware showcased their **Ozma** line of digital audio workstation hardware, which now includes an extremely cool-looking (and powerful) laptop. The desktop systems feature 24/7 tech support, front-accessible USB ports, quick-release hard drive cages, upgradeable chassis



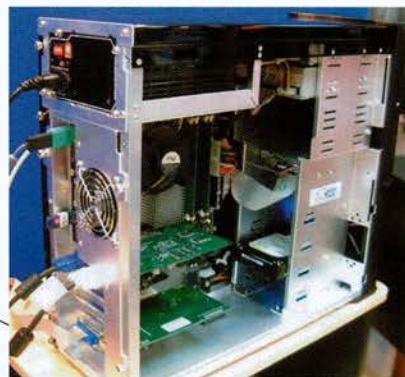
architecture, and careful attention to thermal management. The basic computer is fully configurable, and supports single or dual processors (Intel or AMD) and up to 2GB of system memory. Watch for a review of their laptop in an upcoming issue of *EQ*. www.alienware.com

In the next booth over, Digital Audio Wave debuted their **DAWin G5000** line of digital audio workstations based on Intel's 925X Express Chipset and Intel Pentium-4 HT (Hyper Threading) processor model LGA 775.

Designed for minimum noise, this desktop system also features hot plug capability (swap hard drives while your PC is running), 800MHz front side bus, eight USB 2.0 ports, two FireWire ports, and Intel HD Audio technology's eight independent DMA audio engines.

Digital Audio Wave also showed the **DAWin64M**, a laptop based on AMD's 64-bit Athlon Mobile Processor that can deliver more than three hours of run time on a single battery charge. It includes a 128-bit integrated DDR memory controller, and the largest available on-die cache memory (1.152MB) for laptop PCs.

www.digitalaudiowave.com





CONTROL YOUR SOFT SYNTHS

The Alesis **Photon X25** USB/MIDI two-octave keyboard controller includes an XY joystick, 10 high-resolution 360-degree knobs, 10 buttons, an "AirFX"-type controller come, velocity-sensitive keyboard, 24-bit/44.1/48kHz audio interfacing pitch bend and mod wheels, LCD screen, and battery/USB/external adapter power. It also allows for user customizable, front-panel templates when controlling devices such as soft synths or virtual mixers. www.alesis.com

GLEAMING THE TUBE

Korg's **Dual Tube Preamp with Optical Compression and Digital Output** (which also has a mercifully short nickname, **TP-2**) provides a standalone version of their **Valve Force** technology (featuring two 12AX7 tubes) to add tube character. There's also an optical compressor, and cool-looking vintage-style **VU meters**. Each channel has independent phantom power, pad, phase, low cut and Hi-Z switches, balanced XLR and 1/4" TRS I/O, and coaxial and optical digital outs (44.1/48/96kHz). A version sans digital outs is available as a user-installable option for Korg's D32XD and D16XD recorders. www.korg.com



IK Multimedia AmpliTube Live for Windows

Stand-alone guitar amp emulator (**\$399**) for Windows was previously available only for Mac OS X. www.ikmultimedia.com

- Package also includes the AmpliTube LE plug-in (VST, AU, DX and RTAS)
- Three preamp models (and related EQs), three cabinet simulations
- Four effects (spring reverb, wah, delay, and overdrive) and built-in tuner
- 64 factory, 64 user presets



HONEY, I SHRUNK THE STUDIO

I first thought this was a scale model of a real product, but no. The Zoom **MRS-8** records eight tracks of uncompressed files to SD Media cards, and also includes multieffects, a digital mixer, drum and bass generator with touch-sensitive pads, over 500 pre-programmed rhythm patterns, a built-in condenser mic, high-Z input for guitar, and XLR mic input. It even comes with a 128MB SD card, and apparently they shrunk the price too — **\$750**. www.zoomfx.com



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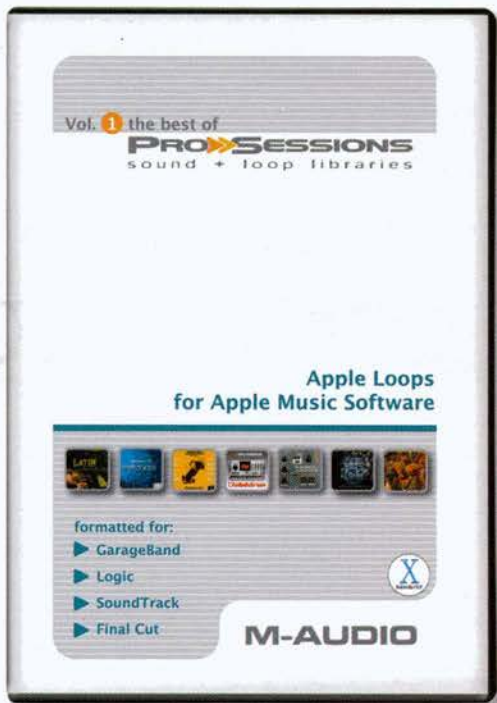
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M-AUDIO GETS SAMPLE CRAZY

The **Best of ProSessions — Vol. 1** in Apple Loops format (\$199; for Apple's GarageBand, Logic, SoundTrack and Final Cut software) incorporates highlights of several dozen volumes of M-Audio's ProSessions Sound and Loop libraries. Genres distilled into the Apple Loops version include rock, pop, hip-hop, rap, drum & bass, electronica, techno, Latin, dance, and more. **The Best of ProSessions — Vol. 2: Liquid Cinema** adapts the Liquid Cinema series by film composer Jeff Rona to the Apple Loops format as well. In addition, 10 new **ProSessions** sound and loop libraries (\$99 each) cover rock, techno, hip-hop, and more. Titles include *Dope Beatz*, *Scratch'n Elements: Disc 1 — Drums, da Jointz*, *Dance Static*, *Tension Theory*, *Field of Visions*, *Abstract World Fusion II*, *Turbulent Filth Monsters*, *Electro Groove*, and *Spooky Ghost*.

Also new: **ProSessions Premium Instruments** (\$199) provide 16- and 24-bit versions of instruments for Reason's NN-XT sampler. The initial release includes 11 volumes: *Grand C7*, *Acoustic Guitar*, *Cathedral Organ*, *String Ensembles*, *Solo Strings*, *Brass*, *Woodwinds*, *Choirs*, *Orchestral Percussion*, *Drum Kits*, and *Rhodes*. www.m-audio.com



PreSonus BlueTube DP

Dual Path technology two-channel preamplifier. www.presonus.com

- Switch tube stage in or out and use the preamp as a solid-state or tube preamp
- +48V phantom power, pad, and phase switches
- 80Hz lowpass filter
- Vintage style analog meters



Alesis CD Twin

Inexpensive, standalone one-to-one audio and data CD duplicator. www.alesis.com

- 52X burn mechanism
- USB and software for fast backup from Windows and Mac OS computers
- Can use CD-R/RW media and back up audio, data, video, and photo CDs



Roland MV-8000 Workstation Updates

MV8-VGA user-installable expander option and Version 2 software expands the MV-8000 into a DAW with mouse and VGA monitor control. www.rolandus.com

- View and edit MV-8000 track and sample data on a VGA monitor
- Now imports Akai MPC2000/XL program files and Akai S1000/3000 program and sample files



Yamaha 01V96 Digital Mixer V2 Software

Free, downloadable upgrade includes nearly 50 new features, and comes with new 01V96 mixers. www.yamaha.com/proaudio

- Studio Manager V2 provides improved editing, librarian, and remote-control functions while retaining the ability to manage all console parameters from a computer via GUI
- Expanded DAW control
- Additional application-specific functions
- Runs Yamaha's "Add-On Effects" packages





E-MU HARDWARE-ACCELERATED VST FX

E-Mu's new **PowerFX** hardware-accelerated VST effects allow all E-Mu Digital Audio Systems and Emulator X owners to run E-Mu's hardware-accelerated E-DSP effects as VST plug-ins. This free download also adds a new reverb and seven new delay algorithms to E-Mu's effects palette.

PowerFX works like any other VST plug-in — instantiate effects in a host VST insert or aux send, then drag in the desired effect (or group of effects) from the Effects Palette field. All parameters for the selected effect can be viewed and edited in the Effects window, and you can automate and save all parameter settings within the VST environment. PowerFX also compensates automatically for system latencies, thus ensuring proper audio sync throughout the VST chain. www.emu.com

They're coming to take me away

Portable interfaces have come a long way, and Edirol's **UA-25** (Mac and Windows) has the usual — combo (XLR and 1/4") jacks, coax S/PDIF I/O, MIDI in/out, and 1/4" output jacks. But it also does 96kHz and has a "Why-didn't-I-think-of-that" feature: a built-in peak limiter. If you've ever done live recording with a portable interface, you know exactly why that's cool. It's all USB-powered — even the +48V phantom power — and although I was too polite to throw it across the hall as a test, it seemed pretty rugged. www.edirol.com

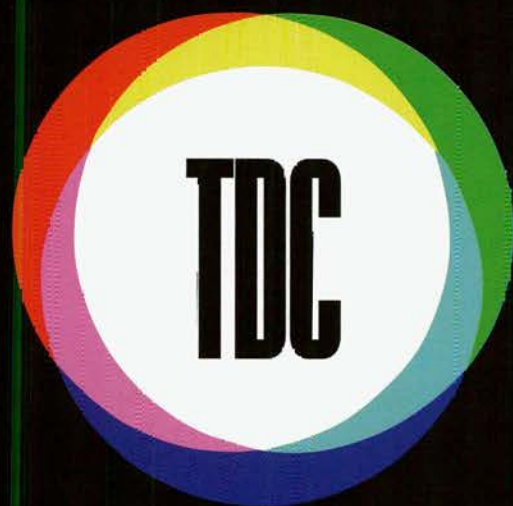


WAVES SAYS "GIMME FIVE"

The Waves product line has been upgraded to **Version 5**, which provides L-RTM support for all plug-ins, Pro Tools 6.4 support, host tempo sync, 360° Surround Tools Bundle compatibility with Windows XP TDM, Mac GUI acceleration, and 96kHz support on Accel DSP cards. Also, MIDI instrument control allows Morphoder to be used live as a virtual instrument. Furthermore, the Musician's Bundle has been updated to the **Musicians II Bundle**; its plug-in roster consists of the Renaissance Compressor, Renaissance EQ, SuperTap delay, Doubler, and Renaissance Vox compressor/expander for vocals. www.waves.com



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www.tdc.com.au



Yamaha MG Series Mixers

Two new mixers complete the MG series.
www.yamaha.com/proaudio

- The eight-channel **MG8/2FX** features four mono channels with 3-band EQ, a maximum of three stereo inputs with 3-band EQ, and a stereo out bus structure with single aux/effect send/return. Mono channel inputs contain mic level XLR-type connectors and line-level unbalanced TRS phone jacks; stereo input channels have both unbalanced phone and RCA phono jacks.
- The 12-channel **MG12/4FX** features six mono inputs with 3-band EQ, and a maximum of four stereo ins with 3-band EQ. It also has a four stereo and group output bus structure, and built-in stereo SPX-type effect.

Rude Audio Tube Twins

This tube condenser mic (**\$3,600**) is built specifically to serve as part of a stereo pair.
www.rude-audio.com

- Difference in sensitivity, frequency response, and noise is less than 1dB
- Cardioid polar pattern
- Output impedance under 200 ohms

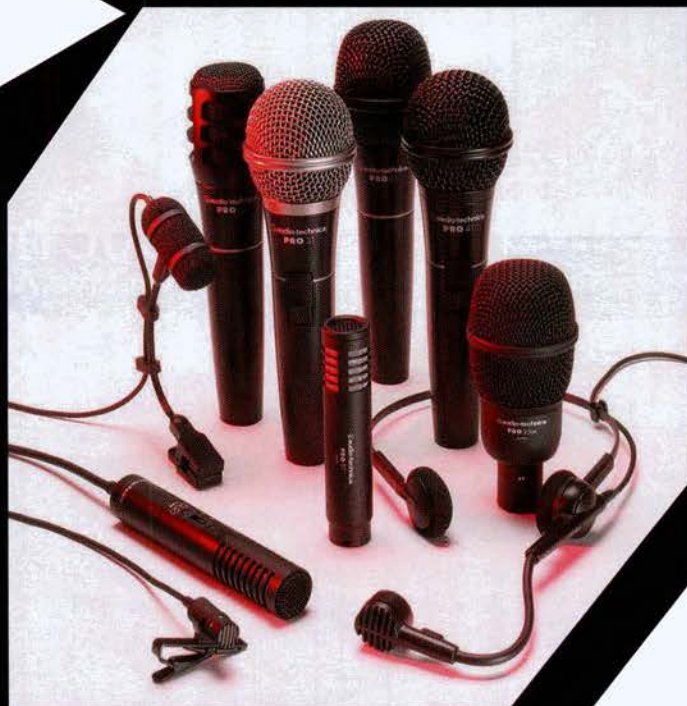
KEYS TO GO

If your idea of portability leans more toward MIDI keyboards, try this: The **PCR-M1** two-octave keyboard has eight assignable knobs, pitch bend and modulation controls, editing software, V-Link for all you video fans out there, and it must be on the Atkins diet — it's just over an inch thick, and weighs 2 lbs. 11 oz.
www.edrol.com



NEW MICS FOR NEW TIMES

Audio-Technica's line of **Pro Series** (MSRPs range from **\$120 to \$480**) comprises 11 models designed mostly for stage use, including cardioid and hypercardioid dynamic vocal mics, cardioid and hypercardioid dynamic instrument mics, and cardioid condenser clip-on instrument mics. But of particular interest to *EQ* readers is the **Pro 24 Stereo Condenser Mic**, which is designed for stereo recording and field use. A pair of cardioid elements in X-Y configuration provides the spatiality of a live sound field; in addition, the lightweight design works well for camera-mount use. Another new mic, the **Pro 37 Small-Diaphragm Cardioid Condenser Microphone**, is designed for capturing acoustic guitar, overheads, piano, and group vocals. The cardioid condenser capsule reduces pickup of off-axis sounds, and features a low-mass element for maximum transient response.
www.audio-technica.com



IK Multimedia Expansion Tank Sound Modules

Designed for **SampleTank 2 LE** or **SampleTank full version**, this series currently includes 20 modules (**\$199 each, three for \$500**) covering a variety of musical styles. www.ikmultimedia.com

- Hip-hop, ethnic, pop/rock drum loops, Euro dance loops, brass multisamples, and various instrument multisamples (guitar, piano, strings, bass, etc.)
- Each Expansion Tank includes SampleTank 2 LE player
- Multiple sample engines, loop sync to host BPM
- 32 built-in effects



MOOG MODULAR, PART DEUX

Version 2 of the **Moog Modular V** includes several GUI changes (you can now see all the different sections simultaneously, in a scrollable view), opens the filter to external inputs, and adds several cool new modules including the 1620 Bode Frequency Shifter, 326 Sample and Hold, 912 Envelope Follower, and 12-stage Moog phaser. Two new modules, a Formant Filter and Ring Modulator, were designed by Arturia to complement the existing Moog modules. www.arturia.com



Roland DS-8/-7/-5 Active Reference Series Monitors

The DS monitor line provides an all-digital signal path to the internal power amp. www.rolandus.com

- 24-bit audio path (up to 192kHz)
- Each monitor has digital (AES/EBU, coax, and optical) and analog (Neutrik 1/4"/XLR) inputs
- Magnetic shielding



Waves Y96K DSP Card

Add Waves signal processors running at up to 96kHz to the Yamaha DM2000, 02R96, DM1000, 01V96, PMD5, and more, with backward compatibility to the AW4416 and AS2816 (limited to 48kHz operation). www.waves.com

- Plugs into a Mini-YGDAI slot
- Uses dual DSP56K devices
- 8-channel ADAT I/O, with support for routable processing to and from external equipment
- Comes with the Waves Renaissance Compressor and EQ, TrueVerb Reverb, L1 UltraMaximizer, SuperTap Delay, and DeEsser; more processors are scheduled for release

Boss DR-880 Drum Machine

Standalone rhythm programmer includes drum, percussion, and bass sounds along with simplified pattern generation options. www.rolandus.com

- Independent compressors and EQs for kick and snare
- Compressor and amp models for bass
- Guitar/bass input jack with amp models and multi-effects
- S/PDIF digital out and USB port for MIDI interfacing/SMF data import



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Focusrite Liquid

BY LYNN FUSTON



Never do I recall a product that has simultaneously fostered such great anticipation and trepidation. The product, Focusrite's Liquid Channel ("LC" henceforth), is a single-channel preamp/compressor/EQ with A-D and D-A converters. While the "channel strip" design is familiar, Focusrite's implementation certainly isn't. Their combination of a configurable hardware matrix for the front end along with "dynamic convolution" (impulse modeling) of other hardware devices allows the LC to offer "replicas" of vintage and current analog hardware, both preamps and compressors.

The eagerness for the LC is easy to understand: It will allow studio owners to audition up to 40 preamps and/or compressors that they otherwise might not be able to hear or

use. And all that functionality is in one box, so no more repatching to audition different gear. And even though the LC isn't cheap, if you compare it to 40 channels — even 10 channels — of its analog counterparts, it seems a bargain.

Why then the trepidation? From a manufacturing standpoint, digital emulations have been making rapid inroads into the market for analog hardware. Some engineers are selling their infrequently used hardware to replace it with software. Digital may not have completely closed the gap sonically (depending on whom you speak with), but many feel that the time is close at hand.

OVERVIEW

When I pulled the LC out of the box, I was shocked by how heavy it was — it feels more like a power amp than a preamp. Looking inside, a large transformer for the power supply and

Channel

End of the line for analog preamps?

another for the preamp section constitute most of the weight. It's an impressive unit, with 14 rotary encoders, 26 pushbuttons, and no less than 23E LEDs on the 2U front panel.

A front-panel LED indicates whether the transformer is in or out of the circuit. Another switch controls a unique feature called "Session Saver" that allows the LC to monitor the signal at the input and output. If the input is overloading, the gain is automatically reduced at the preamp. If the output is overloading, the makeup gain is lowered. An "activated" LED shows if gain was adjusted. This ingenious feature involves no limiting, just gain attenuation in single-dB increments. It's like having a second engineer watching your levels all the time and keeping you out of trouble.

The large LCD shows lots of information, and has corresponding knobs for many of the preamp and compressor parameters. A nice touch is the 12-segment gain reduction meter, with the first seven segments dedicated to the first 3dB of reduction (very useful). For purity, you can bypass unused processing, leaving only the preamp in the circuit.

On the back are XLRs for mic, line, and AES input, and line and AES output. Word clock in and out (BNC), and the Digital Link Bus (RCA) connections are next to the USB port, which connects the LC to a computer.

QUESTION #1

The first question most people ask (including me) is how a digital box can claim to replicate a variety of vintage preamps, with all the varying impedances of hardware units and different mic/pre-amp interaction characteristics? Through the use of a purpose-designed transformer and complex relay circuitry, and resistors and capacitors, the LC's analog front-end can actually change its impedance characteristics and transformer status for each replica.

JUDGMENT DAY

In order to judge whether Focusrite has achieved their goal of replicating analog hardware, I took several armloads of preamps into Nashville's Classic Recording and set them up next to the LC. The signal source was a female vocal

recording fed to a speaker in front of a Neumann U67, which then fed the preamps in the control room. I chose the reproduced vocal instead of a live vocalist to eliminate performance variables.

I calibrated everything to within 0.1dB. In doing so, I discovered that the gain settings from replica to replica aren't consistent. So 33dB of gain on one replica may be the same as 27dB of gain on another replica, making it challenging to do comparisons from one replica to another. Focusrite suggests matching gains and writing the resulting levels to memory, then recalling them for auditioning — a time-consuming procedure every time a new source is placed in front of the LC.

I proceeded to compare the replicas with the hardware that was "modeled." (Focusrite will *not* state which replicas came from which hardware though the replica names are extremely suggestive.) I recorded the original and compared it to the LC version, and then did two more passes with the harmonics settings maxed out. Both even and odd harmonics share a single knob, which allows adding even harmonics at values 1-8 and odd harmonics at 9-15. These settings, even maxed, are subtle, with odd being the more pronounced effect; it adds more fuzz and grit to the signal. Adding even harmonics at anything less than max was very difficult to hear.

THE BOTTOM LINE

Now we get to the part you've been waiting for: What did the preamp replicas sound like? Honestly, they were far closer to the originals than I ever imagined they could be. I was shocked. Some were almost indistinguishable, while others were very good imitations.

The replicas of tube preamps seemed the farthest from the originals. One of my favorite tube preamps has an impressive, wrap-around quality; a low-end signature in the original that was lacking in the replica. It's not the kind of thing that you could measure on test equipment, but something you just feel, like a warm hug. (I hope you know that feeling.) But on several of the solid-state preamps, whether transformer or transformerless, the two were hard to differentiate. I suspected some digital grit would be the telltale giveaway for

Focusrite Liquid Channel



The Liquid Channel has a deceptively simple back panel given that it contains the power of 40 microphone preamps, 40 compressors, and a sound-shaping EQ.

the LC, but I noticed none.

Adjusting the harmonics added a nice variety to the replicas and more than once made the replica sound even closer to the original. In the end, I preferred the originals in most cases — with the qualifier that I was listening to a solo voice in a quiet room. In a music track, I'm not sure if I would have been able to tell them apart.

I listened through the remaining 32 preamp replicas (that's a

400ms. At 48k, the difference changed to 301ms. I experimented further and found that when changing a parameter on the master, the slave unit may not "get the memo" that the value is changing until you stop turning the knob. This can result in a slow ramp on one channel and a rapid adjustment on the other. If you're accustomed to reaching over and grabbing a knob while tracking, this could be significant.

Like the preamps, there are 40 replicas of analog compressors. The compressors do sound quite a bit like the corresponding original hardware. Several compressors with which I am very familiar were well represented by the LC. To its credit, the LC replicas that I liked the most were of compressors that I like the most. Some of the comps I am unfamiliar with interested me so much that I have pursued hearing the original hardware versions to see what I think of them. (Not what Focusrite expected, I am sure, for the LC to serve as an expensive auditioning system!)

EQ

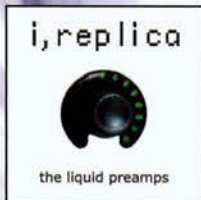
The equalizer offers extreme overlapping frequency bands. The

HEAR FOR YOURSELF

In addition to doing this review of the Focusrite Liquid Channel, Lynn Fuston of 3D Audio, producer of the "3D Mic," "Preamp," and "ADC" comparison CDs, went a step further. He recorded the results of his review tests as 24-bit, 48kHz sound files, resulting in 3D Audio's latest comparison offering *i, replica* — the liquid preamps.

In addition to comparisons with seven analog preamps, there are also samples of all 40 of the preamp "replicas" included in the Liquid Channel. There are 69 WAV files in all, which can be loaded into any DAW for easy A/B comparisons.

The *i, replica* CD is available for \$19.95 (+s/h).
www.3daudioinc.com/catalog —Craig Anderton



lot of preamps!) and found that, though distinguishably different, there seemed to be a similarity between them — the differences being less pronounced than you would hear between the hardware versions. But the LC's range is far greater when you add the option of the adjustable harmonics, plus many of the originals don't have 80dB of gain on tap.

COMPRESSORS

I was fortunate to have two LCs and was able to audition all the compressor replicas in stereo. Strapping two LCs together is a simple matter of connecting the Digital Link Bus of the master to the slave, identifying the master and slave and turning on stereo link. Once assigned, the slave mirrors everything from the master front panel.

I noticed a difference in update time between master and slave as the settings were changed: When switching the compressor in and out at 192k sampling, the difference was

LIQUID SPECIFICS

Type: channel strip using convolution technology

Contact: Focusrite, www.focusrite.com or www.ffliquid.com; distributed by Digidesign, www.digidesign.com

Preamp replicas: 40

Compressor replicas: 40

EQ: 3-band with high/low sweepable shelves and variable-Q mid

Resolution: 24-bit

Sample rate: 44.1 – 192kHz

Frequency response: 20Hz – 20kHz, ±0.05dB, changes depending on replica in use

Signal-to-noise: 120dB

Input gain range: 6 –80dB (mic), ±10dB (line)

Mic preamp noise: –126dB at 80dB gain

Highpass filter: 75 or 120Hz, 12dB/octave

Format: 2U rackmount

Weight: 19 lbs

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Both models have the innovative feature of a stereo jack socket on the front panel for use with personal MP3/CD Players, Mini Disc Players or Laptops. Both units are supplied with *iJax*, a distinctive white cable featuring a right angled 6.35 stereo jack on one end and a 3.5mm stereo mini jack on the other. Simple!

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Focusrite Liquid Channel

high shelf band sweeps from 20kHz down to 200Hz, and the low shelf band stretches from 10Hz all the way up to 1kHz. The mid band is peaking with switchable Q setting and is sweepable from 100Hz up to 10kHz. The EQ section is switchable to a sidechain, which has a "listen" switch. Boost and cut on each band is $\pm 18\text{dB}$. The EQ can be routed before or after the compressor. You can choose to show all EQ parameters on the LCD screen.

The manual says it's "loosely based on the classic Focusrite sound of the original ISA 110" and is primarily "designed to allow small amounts of corrective shaping." That sums it up fairly well.

One nice thing: the boost/cut increments for the EQ are in very small steps near 0dB and increase at the extremes. For someone who is frustrated by coarse 1 and 2dB steps in an EQ, this is great. ►

CALIBRATION & LATENCY

I ran a calibration tone through both review units and immediately noticed something was askew. The output levels from the LCs weren't identical to the input levels. Not only that, but they weren't identical to each other. The master unit output was 0.56dB hotter than the input. The slave unit was 0.73dB hotter than the input. Focusrite designer Rob Jenkins confirmed that the difference was in the transformer windings and there is currently no calibration for it. According to Rob, the gain difference is consistent because the unit uses a relay-switched discrete resistor network. With a single unit, this won't be an issue, but for stereo work it may be noticeable as an image shift.

Then there's that inevitable side effect of digital processing: latency. The LC latency from analog in to analog out is admirably low. (I measured 41 samples at 192k and 179 samples at 48k.) For mono sources, no problem. But in a multitrack setup, you may have to compensate to avoid phase cancellations. The engineers that tried the review LC for doing overdubs had no issues with latency at all.

REMOTE CONTROL

For those who like control but don't like reaching for knobs, there's remote control software called LiquidControl that runs on Mac OS X or Windows XP. You can control up to eight different units, backup or restore data, add or remove replicas, and more. Speaking of adding replicas, Focusrite is committed to expanding the library of available replicas and within a month of



Through the use of complex relay circuitry, the Liquid Channel can change its analog impedance characteristics and transformer in/out status for each replica.

releasing the LC had uploaded 16 new preamp and five new compressor replicas for free download. ►

THE VERDICT

So is the LC a winner? For those engineers who want lots of options but don't have lots of cash, the LC will fit the bill. For those unfamiliar with the sounds of many hardware units, the LC will help train their ear to hear differences. The sound of the preamp is very good, even without the replicas, and all the functions of the LC are very useable. The build quality and design are first rate. The digital encoder knobs are comfortable and work well. The "LEDs per square inch" ratio is sure to impress artists and clients alike. All in all, I think the LC is a useful and revolutionary box.

For innovation, I give the Liquid Channel five stars. Nothing like it has been done before and it certainly succeeds where other modeling software has not. Oddly, I don't think that sales of the LC will sacrifice many hardware sales. It will serve as a great starting point for many engineers who will eventually desire more and more of the actual hardware. Ultimately, the LC will be another valuable item in a studio's toolbox and will enable people to experience options they've never heard and variations that have never existed. EQ

THE SURVEY SAYS

To get some alternate opinions, I had several other engineers listen at their own studios; here's the results:

Engineer #1: couldn't tell the originals and replicas apart

Engineer #2: picked the replicas out reliably

Engineer #3: felt that the LC replicas were flat and 2-dimensional

Engineer #4: preferred the sound of the replicas (with full-tilt odd harmonics) to the original hardware every time

Strengths:

- Preamp replicas range from good to shockingly accurate
- Session Saver works well
- Complete channel strip with preamp, compressor, and EQ
- LiquidControl software
- Save and recall all settings
- Plenty of gain
- Up to eight Liquid Channels can be linked
- Growing replica library

Weaknesses:

- Gain is inconsistent from replica to replica
- Solid-state replicas are more convincing than tube replicas
- Small level disparity between units
- Control update latency when linking units



by Mitch Gallagher

It's an EQ Award triple play! All three of these products deserve EQ Awards. The Mackie Big Knob offers tremendous performance and flexibility at a miniscule price point. The Grace m906 is a top-of-the-line do-everything stunner. The Nautilus Nemo DMC-8 provides audiophile/mastering-quality analog lushness. Three products, three price points, three approaches, three winners.

Taking Control

Three new monitor control boxes address different needs

MODEL: Mackie Big Knob
PRICE: \$799
CONTACT: www.mackie.com

MODEL: Grace Design m906
PRICE: \$5,995
CONTACT: www.gracedesign.com

MODEL: Nautilus Master Technology Nemo DMC-8
PRICE: \$3,600
CONTACT: www.nautilusmaster.com

As computer-based DAW users shift more and more of their focus "inside the box," many are moving away from large mixers as the centerpiece of their studio. For some, this has created a dilemma: how to perform all the control functions normally handled by the master section of the mixer. These functions include setting monitor levels and switching between sets of speakers, providing headphone feeds, talkback, and more. In some cases, studio owners are using small-format mixers for these functions, which have the added benefit of providing some extra signal mixing capabilities when required. But for others, a small mixer isn't the answer.

A number of manufacturers have stepped in to fill the void with studio control boxes; the last Winter NAMM show saw the introduction of several such boxes. Let's take a look at three very different monitor system controllers. Each offers a unique take on solving the problems associated with going "mixer-less" — and each

Analog inputs	DAW, 2-track A, 2-track B, DAW Phones Mix (all 1/4" TRS, switchable +4/-10); Phono (RCA); talkback footswitch (1/4")
Monitor outputs	Monitor A, Monitor B, Monitor C, Studio Out (all 1/4" TRS, switchable +4/-10)
Headphone outputs	Front panel 1/4" TRS (2)
Other analog outputs	2-track A, 2-track B, DAW, Phones amp (all 1/4" TRS)
Digital inputs	—
Controls	source select (4), speaker select (3), mono, mute, dim, source level (4), monitor level (3), headphone level (2), studio out level, volume, talkback level, phones/studio out source, studio out on/off, talkback to 2-tracks, talkback to phones/studio, +4/-10 switches (for all source and mixdown I/O)
Meters	—
Talkback	6-stage LED ladder (2)
Level matching	Built-in microphone, footswitchable
Format	Back-panel knobs, for sources and monitors
Form factor	Stereo
Frequency response	Desktop unit
THD+IMD	5Hz to 100kHz, +0/-3dB
Crosstalk	>0.015% @ +4dBu
Noise floor	90dB @ 1kHz, -90dB, 20kHz bandwidth, +4dB

comes in at a very different price point.

MACKIE BIG KNOB

The Mackie Big Knob is set up to duplicate the master section of a well-appointed mixing console — and then some! You can switch among four stereo sources, routing them to up to four sets of monitors (three in the control room, one in the studio). All source and monitor connections have level

calibration knobs. Almost all connections are on 1/4" TRS connectors; this meant adapters for me as most of my gear uses XLRs.

The unit is designed to sit on your desktop, which is convenient for control. However, if you connect all the possible ins and outs, you're going to have a ton of cables dangling off the back of your desk — better stock up on cable ties.

Big Knob offers full talkback control, with a built-in mic with level control, and the ability to route talkback to either 2-track for slating or to headphones or the studio set of monitors to communicate with musicians. The headphone outs have a ton of power — even the deafest metal-head should be able to hear phones jacked into the Big Knob. A special DAW Phones Mix Input lets you route a separate cue signal through



Taking Control

Big Knob to the phones while a control room mix is coming out of the unit's monitor outs. Input sources can be routed to three stereo outputs for mixdown; there's also a stereo out for feeding an external headphone amp, should you need one.

The push-button switches for choosing sources and monitors have associated LEDs that indicate when a switch is depressed. You can have more than one switch depressed at once; this lets you monitor, say, a source while you play along, and it's great if you're using a monitor out to feed a subwoofer and you want to be able to turn it on and off without affecting the full range speakers. But for clean A/B'ing it means you have to hit two switches simultaneously. A little practice and it works fine.

And the sound? Big Knob delivers big time. The sound is clean, open, full, dynamic, and rich. Having spent many hours on Mackie boards, I expected good clear, neutral sonics. But Big Knob definitely raises the bar toward high-end analog tonality; I'm quite impressed.

If you need a complete control center for your DAW-based studio, Big Knob has you covered. Big Knob, big performance, small price . . . too cool.

STRENGTHS:

- Stellar sound quality
- Dual headphone outs with separate volume controls
- Convenient desktop unit
- LED meters
- Built-in talkback mic
- Performs far beyond its price point

LIMITATIONS:

- All cables must be routed to desktop
- Takes practice to cleanly switch between sources and speakers for A-B'ing

Analog inputs	2 Channel 1, 2 Channel 2, Cue, talkback mic (all XLR); 5.1 Input 1 (DB25); 5.1 Input 2 (RCA); talkback footswitch (1/4")
Monitor outputs	5.1 Control Room Out 1, 5.1 Control Room Out 2 (DB25); Control Room Out 1, Control Room Out 2, Cue Out (XLR)
Headphone outputs	one on remote, one on rack unit (1/4" TRS)
Other analog outputs	5.1 DAC Out (DB25)
Digital inputs	8-channel AES3 (DB25), 2-channel optical (TOSlink), S/PDIF (RCA), AES3 (XLR), 8-channel ADAT (TOSlink); word/super clock in and thru (BNC). Supports up to 24-bit/192kHz
Controls	Analog input select (5), digital input select (6), channel solo/mute (7), mono, dim, mute, speaker select, talkback, clock select, Mon>Cue, calibration
Meters	
Talkback	
Level matching	Requires external microphone Comprehensive calibration of all I/O, including cue, talkback, dim, and individual 5.1 speakers
Format	
Form factor	Stereo and 5.1 surround
Frequency response	2U rackmount unit + desktop remote
THD+N	3Hz to 250kHz, ±3dB (analog)
Crosstalk	<0.009% (analog)
Output signal-to-noise	<100dB @ 1kHz (analog), -98dBu (low gain mode, analog)

GRACE DESIGN M906

Jack of all trades, master of none. Does that phrase apply to the Grace Design m906? Nope — more like the opposite. There's little this system can't do, and do with top-of-the-line performance. If you've got a variety of digital and analog sources, work in surround and stereo, and want the best audio quality, this is the box for you. It can accept up to five analog and six digital

sources, including two analog and two digital sources in 5.1 surround. You can control up to three sets of monitors (two using the speaker selector switch, the third using the Cue>Monitor switch), two of which can be 5.1. There's an XLR connector for a footswitchable talkback mic.

The built-in 24-bit/192kHz converters sound stellar, and the analog audio quality is top-

notch. Every input and output can be individually calibrated, including the cue I/O and the talkback mic.

Digital clocking is foolproof; the m906 can deal with cleanly switching among sources without any digital noise or reclocking delays. While it's often best to have an external master clock for all your digital gear, with the m906 you don't have to have one. I used the box to control four digital sources and never had a clocking problem.

All input and output is handled by a 2U rackmount box, which also has a headphone connector. Control functions are handled by the sleek remote, which has an LCD for calibrating and selecting clock functions, and two LED readouts to display output levels for the headphones and monitor outputs. The LED readouts aren't meters, they display the reference level of the volume controls. However, I calibrated my monitors using an SPL meter so that, say, 80dB on the LEDs matched 80dB reference level on the speakers.

The remote also has a second headphone output. The headphone amp sounds great, but it



Taking Control

doesn't have a ton of output. It should be okay for normal control room use, but may not keep up with loud tracking applications. ►

I set the unit up with as many analog and digital sources as I could muster, as well as a set of stereo monitors and 5.1 speakers. It performed perfectly no matter what I threw at it, and sounded amazing. A big benefit for users of digital devices is that with the m906, you're monitoring everything through the same D/A converters; perfect for referencing mixes.

If you need top-of-the-line control over a ton of digital and analog sources and multiple sets of speakers and you're working in surround, this is the only box I know of that can handle it all, let alone sound this good doing it. The m906 is one outstanding studio tool.

STRENGTHS:

- Stunning sound quality
- Built-in digital-to-analog converters
- Remote offers all control functions
- Foolproof digital clocking
- Tons of connectivity
- Ability to solo/mute individual speakers
- Dual headphone outs

LIMITATIONS:

- No metering

NAUTILUS MASTER TECHNOLOGY NEMO DMC-8

Okay, I've got to start off by saying that the Nautilus Nemo DMC-8 comes with the most amazing power cable I've ever seen. It features three separate conductors, the total diameter of which must be an inch....I'm sure there's a good audiophile reason for it, but regardless it looks completely cool.

That having been said, there's more to the DMC-8 than a cool power cable! Co-designed by mastering engineer John Vestman and Inward Connections, the focus here is on discrete Class A analog sound quality. You won't find fancy bells or whistles here; the DMC-8 is straightforward and easy to figure out.

You get four source ins and two speaker outs. In addition, Source 1 (normally your DAW or console) can be routed through the DMC-8 to two stereo recorders for mixdown. A "Source Select" output lets you route the selected input source out at full line level to another device. A good use for this might be a headphone amp/talkback controller, since there isn't one in the DMC-8. (Upcoming products from Nautilus will fill the headphone/talkback void as well as offer 8-channel analog summing, and other functions; check out the company's website for

further info.) ►

The DMC-8 is easy to use—all the controls are right in front of you on the rackmount unit's front panel, including the knobs for level-matching speakers and sources for perfect A-B'ing. A volume/source select remote will be available soon.

It would be nice if the level-matching knobs lined up with the source and speaker switches they coincide with; several times I changed the 2 Track 3 level when I meant to adjust the Speaker B level. Analog VU meters provide level information, and the unit comes with a CD containing tones for easy calibration.

The unit has no audible self-noise, although I did encounter occasional clicks and pops when switching among sources or between speakers. (Nautilus tells us this has been fixed on current units.) Put quite simply: The Nautilus Master Technology Nemo DMC-8 is a joy to listen to,

with pure, luscious analog tonality, and wide, deep, rich sound quality. I could easily discern the differences between various digital-to-analog converters, as well as hear deep "inside" dense mixes. When I plugged in the Nemo DMC-8, I felt like my monitor system had undergone an upgrade; it sounds that good.

If you're looking for an audiophile-grade/mastering studio-level monitor controller and don't need headphone feeds, talkback, digital I/O, or other bells and whistles, Nemo DMC-8 will definitely float your boat. **EQ**

STRENGTHS:

- Luscious analog sound
- Cool analog VU meters
- Includes calibration CD
- Easy to grab knobs
- Excellent for easily A-B'ing sources

LIMITATIONS:

- Requires optional unit for headphones/talkback



Analog inputs	Buss in (XLR with 6dB pad & 1/4"), 2-track 1 (XLR), 2-track 2 (XLR), 2 track 3 (RCA, with 6dB pad)
Monitor outputs	Speaker A, Speaker B (both L/R)
Headphone outputs	—
Other analog outputs	Buss Thru [2], Source Select: (all XLR)
Digital inputs	—
Controls	Source select (4), speaker select, mono, mute, dim, meter range, source level (3), Speaker B level, dim level, volume
Meters	Analog VU (2)
Talkback	—
Level matching	Front-panel knobs, sources and speakers
Format	Stereo
Form factor	2U rackmount unit
Frequency response	10Hz to 60kHz, ±0.5dB
THD	0.006% @ +4dBm
Crosstalk	100dB @ 1kHz
Output signal-to-noise	-95dBu

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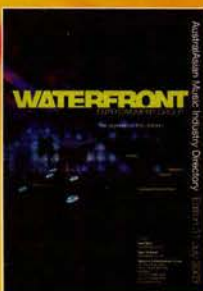
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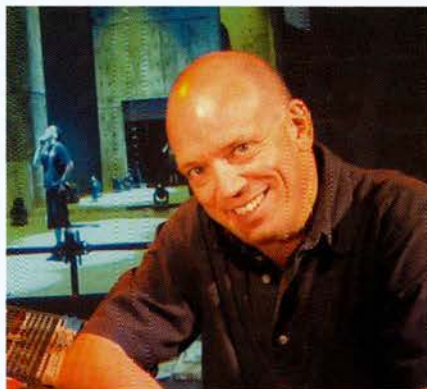
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(One year; full time)

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Production (1 year full time or 3 years part time)

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See also: [Single Unit Courses over next page](#) ➔

STAGE OH&S

Our one day Stage OH&S course has proven very useful and popular since we first ran it in April 2002. You earn a formal Unit of Competency from the Entertainment Industry Training Package, and get a Statement of Attainment to reflect this.

The Juliusmedia modules you will cover in the one day course are:

OHM-01 Height Safety: Details kinds of safety equipment, arrest and rescue requirements, ladders and high reach devices. What is acceptable, what is not.

OHM-02 Manual Handling of Show Equipment: With practical component. What is your legal lifting limit? Shows the best and safest methods for handling large, heavy or un-usual items of equipment.

OHM-03 Show Electrical: Starts with basics, what is three phase, what is single phase, relationship between watts, amps and load, earth leakage breakers, and power essentials.

OHM-04 Show Practices: Jargon of the industry, glossary of terms, which is 'prompt', etiquette of the stage, etc.

OHM-05 The Induction, The Laws, and You: Gives individuals the shocking realisation they can be heavily fined, along with their employer. Details what to look for at a venue, or with a new show.

STAGE OHS COURSE CUFSAF01B

Sydney: (full day)

- Monday January 3rd.
9.30am - 4.30pm.

Melbourne: (2 evenings)

- Monday 7 and Wed 9 Feb.
6.30 - 9.30pm.

Cost: \$180 (excl. gst) including notes, coffee and tea breaks.

BASICS. 5 days full time or 5 weeks part time (2 nights, 6.30 - 9.30pm)

Our Stage Lighting basics, Vision Systems basics and Live Sound (Engineering) basics courses are very popular. You can do these courses part time, 2 nights weekly in Sydney or Melbourne, or in a block during January in Sydney.

All 'Basics' courses are one third of a Certificate III.

Doing one of these is an excellent way to 'taste test' our training. This is accelerated learning at its best, and you earn Units of Competency from the Entertainment Industry Training Package.

For more information about what is contained within these courses, please check our website, at www.juliusmedia.com and go to the Training area, 'Short Courses'.

The price of a one week BASICS course is \$875, excl. gst.

Stage Lighting Basics

This 5 day course is also delivered part time, 2 nights per week. It is designed to take a beginner from the start to having a working understanding of stage lighting.

UNITS: CUELGT09A, CUFSAF01B

Cost: A\$875, excl. gst. DATES:

- Jan. 3 - 7, 2005 (5 full days, Sydney)
- Part time from FEB 7 (2 nights/wk, Sydney and Melbourne).

Live Sound Engineering Basics

An intensive 5 day course that is also delivered part time, 2 nights per week. It is designed to take a beginner from the start to having a working understanding of live sound.

UNITS: CUESOU07A, CUESTA05B;

CUEIND01B; CUECOR02B CUECOR01B;

MEM18.1AB Cost: A\$875. DATES:

- Jan. 3 - 7, 2005 (5 full days, Sydney)
- Part time from FEB 21 (Sydney).
- Part time from MARCH 14 (Melb).

Vision Systems

This is a new, one week course which when combined with Lighting Basics and Sound Basics, makes up one whole Certificate III - Audio Visual.

UNITS: CUEAUD06A; CUEAUD02B;

CUEAUD03B. Cost: A\$875 excl. gst.

DATES: • Jan. 10 - 14, 2005 (5 days)

- Part time from FEB 22 (Sydney)
- Part time from May 2 (Melbourne)

SKILLS ASSESSMENTS

You can get a formal qualification without having to do training.

RPL stands for Recognised Prior Learning, while RCC stands for Recognised Current Competencies. In the jargon of vocational training, they mean the same thing.

An assessment can produce a trade qualification without the need to do a course. The full qualification you are assessed for is a Certificate Three, specialising in Sound, Lighting or Audio Visual.

How are you assessed?

It will depend on your previous skills and experience, and the recency and nature of your qualifications (if you have some). The form of assessment could be a practical self assessment process on paper, followed by a brief written test, then a written project. We allow about 20 minutes for the first part, then after a break 2 hours for the project. After another break we may do some physical job tasks and trouble shooting. Finally, the assessor sits with you and discusses your assessment results. It's a positive experience.

COST: \$180 for Cert III.

WHEN?

- 16 Nov (Melb, Showtech Aust)
- 7 Dec (Brisb. Sound and Lighting)

Book by calling 1-800-635-514

Certificate III

CERTIFICATE III - OUR MOST POPULAR COURSE!

This is a new national qualification: Certificate III Live Production Theatre and Events (Technical Operations) CUE 30203.

A Certificate III is THE starting point for working in the technical or management side of the entertainment industry. In times now gone, you used to just hammer the doors of employers until one of them gave you a job. These days with the implications of insurance and occupational health and safety in the workplace, they often won't even talk to you unless you have TRAINING.

A C3 will give you the actual hands on skills and background knowledge that employers will EXPECT you to have. A formal Certificate III is proof that you really do know - and care about - what you are doing.

C3 is the gateway to further training: it forms the foundation for Certificate IV and Advanced Diploma. The units of competency in the C3 are fully transportable and are recognised nation wide.

EMPLOYERS: All our C3 courses are registered for TRAINEESHIPS under the New Apprenticeship System. You can employ an indentured trainee, and attract government subsidies. It's easy! Call Juliusmedia, we arrange the paperwork.

Complete this new qualification by collecting three groups of competencies. Do these three courses, in any order, and they equal the Certificate III. This is the most popular, multi purpose Certificate III we offer.

COST:

A full Certificate III costs \$2,625 excl gst. It is made up of three BASICS elements that can be done individually at your own pace, or you can do it consecutively.

DELIVERY:

3 weeks full time (5 days weekly) or 15 weeks - 2 nights weekly.

SYDNEY DATES:

• January 3 - 23 Summer School MON - FRI, 9am - 5pm daily. (3 wks)

• Part time, 2 nights per week, Monday and Wednesday; 6.30 - 9.30pm: start Feb 21, finish June 8.

MELBOURNE DATES:

• Part time, 2 nights per week: Monday and Wednesday; 6.30 - 9.30pm: start Feb 7, finish June 1.



New! TRAINING BREAKTHROUGH!

Study for your **Certificate IV** or **Advanced Diploma** AT YOUR OWN PACE. Achieve units as you need them, *when you have time,* and **PAY AS YOU GO!**

- Do our **SINGLE EXTENSION Units you need, WHEN YOU NEED THEM!**
- Our unique delivery system lets you **ACCUMULATE Units towards a National Qualification!**
- Pay unit by unit, or enroll and pay part time for 2 or 3 years

Now you can do Units towards your Certificate IV and Advanced Diploma - at your own pace!

- Accumulate 14 Units for the **Certificate IV** - either in Live Production, Theatre and Events (Technical Operations) or Music Industry (Technical Production). Mix and match.
- You need 25 Units for the **Advanced Diploma** in Live Production, Theatre and Events (Technical Production)

You can do the units in no particular order. Mix and match from different specialties. Tune your training to suit your wishes.

This is the perfect pathway from the Certificate Three. And some Units can be done standing alone with NO prerequisite at all.

JANUARY SUMMER SCHOOL FEATURES EXTENSION UNITS!

See next page for more.....

All Juliusmedia UNITS, listed

UNIT	DESCRIPTION, RANKING	COMMENTS (F/T: full time. Pre-req: pre-requisite.)	CREDIT LEVELS		
LIGHTING SPECIALTY UNITS			C3	C4	AD
Each unit is ranked 1, 2 or 3 for complexity. 3 is the highest.					
CUELGTo9A	① 🟢 Apply a general knowledge of lighting to work activities. 1 Cost: \$875, 5 days f/t	This is our 'Lighting Basics course'. This unit is delivered in our Cert III course.	✓	✓	✓
CUELGTo2B	Prepare, install and test lighting equipment. 3	Very 'hands on', rig and derig a show. Pre-req CUELGTo9A		✓	✓
CUELGTo6B	② Set up, record and operate lighting cues and effects. 3 Cost: \$875, 5 days f/t	LX Control Master class, learn 3 different console operating systems. Pre-req CUELGTo9A		✓	✓
CUELGTo7B	③ Record and operate lighting using advanced techniques. 3 Cost: \$875, 5 days f/t	LX Techniques Master class, with leading LD's. Pre-req CUELGTo6B		✓	✓
CUELGTo5B	Repair and maintain lighting equipment. 1	Pre-req CUELGTo9A		✓	✓
CUELGTo3B	Install and Operate follow spots. 1	Pre-req CUELGTo9A		✓	✓
SOUND SPECIALTY UNITS			C3	C4	AD
CUESOU07A	① ③ 🟢 Apply a general knowledge of audio to work activities. 1 Cost: \$875, 5 days f/t	This is our 'Live Sound Basics' course. This unit is delivered in our Cert III course. ♦	✓	✓	✓
CUSSOU11A	② Operate sound mixing console. 3+ Cost: \$875, 5 days f/t	1 st Mix Master Class. Learn 3 console types. Pre-req CUESOU07A. ♦		✓	✓
CUESOU04A	③ Mix live audio. 3 Cost: \$875, 5 days f/t	2 nd Mix Master Class. Mix for live & studio. Pre-req CUSSOU11A ♦		✓	✓
CUSSOU09A	Mix Sound Sources. 3	3 rd Mix Master Class. Mixing shows. Pre-req CUESOU04A ♦		✓	✓
CUSSOU03A	Transfer Sound.1. Fulltime, 2 days, \$350.	Intro to Digital Audio. No pre-req. Learn on the Mackie tt24 desk	✓		
CUSSOU12A	Edit sound using digital systems. 3 3 pairs of weeknights. \$525.	PC recording module. Learn professional software like Cubase. No pre-requisite. Companion course to Transfer Sound. ♦	✓	✓	✓
CUSMGE10A	Use MIDI to compose Music. 2	Pre Requisite CUSSOU12A ♦	✓	✓	✓
CUESOU09A	Manage and compile audio replay equipment. 2	Compile tracks, edit and play on PC. Pre-req CUSSOU12A ♦	✓	✓	✓
CUESOU11A	Set up and operate stage monitor systems. 3	Pre-requisite is CUSSOU11A, Operate sound mixing console.			✓
CUESOU08A	Select and manage microphone and other audio input sources. 1	A shorter duration course. Pre-req CUESOU07A ♦	✓	✓	✓
CUESOU05B/CUSSOU05A	Install, align and test audio equipment.	Two units taught together. Applies to both Music Production and Live Sound qualifications. Pre-req CUESOU07A ♦		✓	✓
CUESOU03B	Operate professional audio equipment. 3				✓
CUESOU10A	Operate wireless audio equipment. 3+	Goes deep into wireless, including theory. Pre-req CUESOU05B and CUESOU10A.			✓
VISION SPECIALTY UNITS			C3	C4	AD
CUEAUD06A	② 🟢 Apply a general knowledge of vision systems to work activities. 1 Cost: \$875, 5 days f/t	This is our 'Vision Basics' course. This unit is delivered in our Cert III course.	✓	✓	✓
CUEAUD02B	② 🟢 Prepare, rig, test and modify vision systems.	These two units form part of our 'Vision Basics' course. These units are delivered as in our Cert III course.	✓	✓	✓
CUEAUD03B	② 🟢 Operate vision systems. 2. (with CUEAUD06a)		✓	✓	✓
CUEAUD04B	Develop vision system installation plans. 3+	Extension unit with detailed practical component. Longer than usual delivery. Pre-requisite: Certificate III with vision units.		✓	✓
STAGING SPECIALTY UNITS			C3	C4	AD
CUESTA05B	① ③ 🟢 Apply a general knowledge of staging to work activities. 2 (Delivered with CUESOU07A)	This unit is delivered in our Cert III course. Shorter than usual delivery.	✓	✓	✓
CUESTA01B	Install staging elements.	These units delivered together. Pre-req: CUESTA05B			✓
CUESTA02B	Operate staging elements. 3			✓	✓
CUESTA06A	Apply a general knowledge of theatrical rigging. 3+	This is a theatre counterweight unit of competency, it is not a Federal Rigging Ticket. Pre-req: All previous staging units.			✓
OTHER UNITS, INCL. CORE UNITS			C3	C4	AD
You need 5 core units (marked 'C') for Cert IV, and 11 Core units for Adv Dip.					
CUS-CORE	4 core units for Cert IV Music Production. 2	Fixed units specific to the Music Production Certificate IV ♦	CCCC		
CUECOR02B	① ③ 🟢 Work with others.	These 3 units are assessed within our Cert III course. They can be assessed outside of the course based on prior skills.			
CUECOR01B	① ③ 🟢 Manage own work and learning.				
MEM18.1AB	① ③ 🟢 Use hand tools. 1 (All del. with CUESOU07A)		✓		
CUEIND01B	① ③ 🟢 Source and apply entertainment industry knowledge. 1 (Del with CUESOU07A)	Core unit for Cert IV and Adv.Dip. This unit is delivered within our Cert III course.	✓	C	C
CUFAF01B	① 🟢 Follow health, safety and security procedures	Our Stage OH&S course. Available as a one day course, \$180	✓		
CUEOHS1A	Implement workplace health, safety and security procedures. 3	Core unit for Cert IV (inc Music Prod) and Adv.Dip. A major ♦ OH&S unit with Risk Analysis components. Pre-req: Cert III.		C	C
CUEOHS01B				C	C
BSBFLM404A	Lead Work Teams.	Delivered together. Core units for Cert IV. CUETEM01B is also a core unit for Adv. Dip. Pre-req: Cert III		C	C
CUETEM01B	Coordinate production operations. 3			C	C
CUETEM06A	Organise and monitor bump in / bump out. 2	Core unit for Cert IV and Adv Dip. Pre-req: CUETEM01B		C	C
THHGLE22A	Manage risk. 3	Core unit for Adv. Dip. Pre-req: Cert IV			C
CUEFIN01B	Develop a budget. 3	Core unit for Adv. Dip. Pre-req: Cert IV			C
CUEFIN02B	Manage a budget. 2	Core unit for Adv. Dip. Pre-req: Cert IV			C
BSBFLM503A	Establish effective workplace relationships.1	Core unit for Adv. Dip. Pre-req: Cert IV			C
CUETEM03B	Establish and manage production requirements and resources. 3	Core unit for Adv. Dip. Pre-req: Cert IV			C
CUSADM06A	Develop and implement an operational plan. 2	Core unit for Adv. Dip. Pre-req: Cert IV			C
CUETEM08A	Realise productions. 3	Core unit for Adv. Dip. Pre-req: Cert IV			C

Course Units at Sydney Summer School: ① Available Jan 3 - 7 ② Available Jan 10 - 14 ③ Available Jan 17 - 21
Course Units marked 🟢 are available at nightschool in Melbourne from February 2005. More are coming.

- **Unit packaging:** 14 suitable units are required for Certificate IV, and 25 units for Advanced Diploma. We can RPL these.
- **Music Industry Technical Production:** units marked ♦ are also applicable to this qualification. Collect 14 for Cert IV.

New! Single Unit Courses!

The NEXT STEP after Basics

About These Units....

We schedule SINGLE EXT UNIT COURSES on a rotating schedule. You can do them as a 'one off', or apply them towards a Certificate IV or Advanced Diploma.

You need to accumulate 14 Units to obtain the Certificate IV, or 25 Units for the Advanced Diploma. Do this at your own speed, and pay as you go. Or enroll part time, and pay monthly, interest free.

The list at left shows the units you need - including core units. Note you also earn a bunch of Units doing the Certificate III.

New! High Tech Music Production Training

PC RECORDING ESSENTIALS New!

This is a stand alone course delivered at entry level, for anyone needing advanced skills for Cubase and many similar recording and editing programs. There is no pre-requisite for this course!

UNIT: CUSSOU12A Edit sound using digital systems.

Run over 3 weeks, with 2 lessons per week, each student works on a dedicated PC with dual screens and DVD-R. *Learn how to drive Cubase SX, how to get audio in and out of a PC, how to interface MIDI, how to waveform edit, cut, loop, stretch and transpose. Break a track into parts, multitrack record, mix and edit.*

Course is ideal for anyone contemplating, or novice with, professional audio editing software like Cubase SX.

This course is taught by Robert Zimola, a recording engineer and educator with more than 20 years experience.

Every student uses a new PC!

COST: *\$525.00 excl gst.

WHEN? SYDNEY, Tues and Thursday evenings for 3 weeks, 6.30 - 9.30pm, starting Tuesday November 23.

INTRODUCTION TO DIGITAL AUDIO New! With Mackie TT24

UNIT: CUSSOU03A, Transfer Sound. A fully packed 2 day course which maps out what all the formats are, how to connect, and outlines the medium.

Learn how to use the new Mackie TT24 digital live console. This course is Mackie Factory Endorsed.

COST: *\$350.00 excl gst.

WHEN? SYDNEY, Mon/Tue, Dec 6 + 7.

MACKIE.

New! January LX 1

Advanced Lighting CONTROL Master Class. This is an entire Unit of

Competency for Certificate IV or Advanced Diploma, and it is also an action-packed course where people learn how to use VARIOUS modern lighting consoles, and work surfaces. Learn Hog, Strand and one other. Small class size.

UNIT: CUELGT06B Set up, record and operate lighting cues and effects.

Pre requisite is Stage Lighting Basics.

This unit: duration: 5 full days, Monday - Friday. 30 hours total.

COST: *\$875 exempt of GST

WHEN? SYDNEY: Monday 10 January - Friday 14 Jan. 9.30am - 4.30 pm daily.

New! January LX 2

Advanced Lighting TECHNIQUES Master Class. Certificate IV Unit or

Advanced Diploma. Learn the tricks and techniques from lighting designers. Learn about the looks a designer visualises, and HOW to achieve them - FAST! We go through various forms of theatre: Opera, Musical, Dramatic and the concert event. Television, Corporate, Event and Spectacular.

UNIT: CUELGT07B Record and operate lighting using advanced techniques

← Pre requisite: do CUELGT06B first.

COST: *\$875 exempt of GST

WHEN? SYDNEY: Monday 17 January - Friday 21 Jan. 9.30am - 4.30 pm daily.

Call 1-800-635-514 to book either of these NOW!

New! January - Mix 1

MIXING MASTER CLASS - 1

This Unit Course is both RECORDING and LIVE SOUND specific! It is the first of THREE MIXING MASTER CLASSES!

UNIT: Operate Sound Mixing Console, CUSOU 11A

During this course you will be exposed to and taught on at least THREE DIFFERENT consoles, analogue and digital. You will be expected to log extra hours, one on one, with each console during extended college hours.

Sample consoles: Yamaha DM 2000, Midas Verona 40, Soundcraft MH 3, A&H ML 5000, Innovason Sy 40. Maybe a Yamaha PM5D or PM1D!

This course is taught at Certificate IV level, so it assumes prior knowledge. You need to be either already working or mixing, or have successfully completed our Live Sound Basics, or another suitable audio course.

Lead Lecturer: Robert Zimola (professional engineer / producer)

COST: *\$875.00 excl gst.

WHEN? SYDNEY, Monday January 10, full time (Monday to Friday) 17 January, 9.30 - 4.30pm daily.

New! January - Mix 2

MIXING MASTER CLASS - 2 (of 3)

UOC: CUESOU04A Mix live audio This course is paired with CUSOU09A: Mix Sound Sources. Juliusmedia have combined these two similar (but different) units. Note that one comes from the Music Industry Training Package (CUSO1), and the other from the new Entertainment Industry Package (CUEO3). This has enabled us to tailor our training so that you get the BEST of both worlds - live and studio audio training.

These classes put you behind the console, with industry professionals. We will have guest engineers come and 'pull apart' their mixes.

This trio of Mix courses (including the pre-requisite, Operate Sound Mixing Console, CUSOU 11A) enables you to be fully versed with the nuances of live and recorded audio, as it applies across a variety of music and vocal streams.

Lead Lecturer: Tony Moffat (professional engineer)

COST: *\$875.00 excl gst.

WHEN? SYDNEY, Monday Jan 17, full time (Mon to Fri) to 21 Jan, 9.30 - 4.30pm daily.

Call 1-800-635-514 to book either of these NOW!

MIXING MASTER CLASS 3 (coming soon!)

Do CUSSOU09A - Mix Sound Sources, and you have completed the most comprehensive mixing courses offered. This is the final of 3 Units offered on MIXING SOUND.

**Less if you enroll part time and pay over 2 or 3 years interest free! → See back page*

NOW: Professional Development

Government Training Grants for existing, skilled or semi skilled workers to obtain the Certificate FOUR

Most people already employed in the entertainment industry don't have a formal, Nationally Recognised Qualification. Now you can get one, at no cost to yourself and in most cases no cost to your employer.

Under the New Apprenticeships Scheme grants are available where the employee has no qualification. The grant is made to your employer, who then contracts Juliusmedia to deliver the training that makes sense for you.

This is a senior version of the Traineeship program that we already run, where new start employees obtain Basics training towards an entry level Certificate III.

Under the expanded Certificate IV training program, we assess your existing skills against the new Certificate IV standards.

We issue you with RCC (recognition of current competency) awards for those units you already know backwards. Most people working in the industry are competent in many units.

There's a list of most of the Units on the previous page, to give you an idea.

Through the process, we work with you to identify your strengths, and to identify possible refresher courses and skillsets that you'd like to acquire.

Maybe you and your employer want you to learn adjacent skills, or to specialise more heavily in a given area. This program lets you upgrade your skills, and recognises your existing skills. And best of all, the government of Australia will pay for it.

You'll get endorsed training with our National Industry Training Network.



PROGRAM DETAILS

- Open to anyone working already in entertainment, in theatre, events or production, with some technical skills.
- Qualification is the new Certificate IV Theatre and Events, Tech. Production
- You are eligible if you have no existing Certificate III qualification or greater in any industry.
- This is a two year program, you and your employer need to sign an agreement with the government and with us. It does not affect your existing salary and work conditions.

To take part, have your employer contact Julius Grafton on 1-800-635-514 or email training@juliusmedia.com



• **Fast track: full time Study**

- **Full time courses**
- **Enrol for February 2005**
- **Extensive internships**
- **Limited spaces**

**CONTACT US FOR A FULL
TIME COURSE BROCHURE**

Certificate IV in Live Production, Theatre and Events (Technical Production) CUE 40303. 6 months full time. \$6,600

CUE 60203 Advanced Diploma of Live Production, Theatre and Events (Technical Production) CRICOS CODE: 051480A. 12 months full time. \$11,300

CUE 60403: Advanced Diploma of Venues and Events CRICOS CODE: 051478F. 12 months full time. \$11,300

CUE 60303 Advanced Diploma of Stage Management 12 months full time. CRICOS CODE: 051477G. \$11,300

• **Part time courses, pay as you go!**

- An exciting new way to do the Certificate IV or the Advanced Diploma part time!
 - Work as you learn!
 - Fixed Price!
- Interest Free payments!
 - Move over from another college - save!
- Enroll TODAY and **start as soon as you like!**

This is a great program for anyone who needs to work while they study. It also allows great flexibility, because you choose available Units from our Single Unit Extension Course list, and achieve what you want -at your pace.

You need to do the Certificate III first, then do Units as they suit your timeframe. Most units are offered with night delivery. Some Core units are in one week blocks. Generally, you would dedicate 2 nights a week, plus some one week blocks each year. This leaves plenty of time for working and living your life. Additional project time needs to be allocated by yourself.

The qualifications offered under this program are:

Certificate IV in Live Production, Theatre and Events (Technical Production) CUE 40303. 2 years part time. \$6,600. Pay \$262 per month, interest free. Conditions apply.

Certificate IV in Music Industry (Technical Production) CUS 40201. 2 years part time. \$6,600. *Less if you move over from another course or college with units.* Pay \$262 per month, interest free. Conditions apply.

CUE 60203 Advanced Diploma of Live Production, Theatre and Events (Technical Production) 3 years part time. \$11,300. Pay \$305 per month, interest free. Conditions apply.

• **Partnerships with employers**

Maybe you operate a venue or a company where you embrace in-house training. You have accredited workplace trainers and assessors on staff, with advanced technical skills. Let's work together! You perform skills assessments yourself, using our paperwork and criteria, then we issue your people with a Statement of Attainment, or a Nationally Recognised Qualification. Perhaps you need individual UNIT delivery from our JNIT COURSE LIST to complement your training. **We work with you to unlock government training funding.**

- **You train your staff**
- **You assess their skills**
- **We are the RTO**
- **We unlock government training grants**

• **Traineeships expanded**

- Cert III for new staff
- Cert IV for existing staff
- **Government funded**

In 2005 we offer an expanded traineeship program. In addition to unlocking government employer incentives for new entrant trainees, we can now facilitate **government funding to train your existing staff.** This allows staff to 'top up' skills required, and be assessed for existing skills. We are accredited under the New Apprenticeships (Traineeship) Scheme. Call Julius Grafton for more.



Welcome to the new LX section of CX magazine. Lot's of X, huh? We have decided to bundle all our Lighting material into a section because LX people asked us to do it. This section is edited by Julius Grafton, who started in lighting in 1973. So drop us a line, send us your news and pictures! mail@juliusmedia.com



KLUNKER NEEDS HOME

Having a good civic heart and a passion for lighting means Neige Manwaring is not a hoarder. She has kindly retained not just the Strand SR desk (above), but also a Q Engineering 60 Channel GM System. They need a home!

"I also have the dimmers and wiring diagrams for the GM System", Neige says. "I obviously don't want to throw them out and would love to know that they are going to a good home. Is there any who has a collection of old lighting equipment for private or public display that might be interested?"

Contact Neige at the Civic Theatre in Wagga Wagga on 02 6926 9684.

ALIA AGM

The Australasian Lighting Industry Association - ALIA - 2004 Annual General Meeting is to be held in the Showroom of the Crown Casino, Melbourne, on Tuesday November 16th at 6pm.

Immediately after the AGM, Bytecraft's George Nejtek will be hosting a backstage tour of the extensive production facilities in the Casino's Atrium space. This in turn will be followed by ALIA's preemptive celebration of Christmas/ Eid al-Fitr/Hanukkah/ Summer Solstice/Kwanzaa/Yule - a Lighting Industry social gathering in the Pub at Crown.

- More details available on the ALIA web site : www.alia.com.au

THEATRELIGHT WIN BATTLE

New Zealand manufacturer of lighting control equipment, Theatrelight, have been fighting to protect their rights after their former partner company in China allegedly started making copied products.

Now they have won a crucial appeal in the Guangdong Supreme Court against Zhuhai COFTEC, where the former partner Zheng Daheng is alleged to have forged the signature of Theatrelight's Managing Director and counterfeited Theatrelight's company seal on a 2002 amendment which admitted a new partner to Zhuhai Tai Li. The new partner was "Tai Li Lighting" whose shareholders were Zheng Daheng and his son Zheng Xinyu ("Charlie").

Those forgeries reduced Theatrelight's shareholding from 50% to 28%, and removed Theatrelight's power to veto the Zheng family decisions at Tai Li board meetings.

The case stems from a complaint Theatrelight laid against Zhuhai COFTEC in November 2002 regarding multiple forgeries and counterfeit Theatrelight company seals.

Zhuhai COFTEC have now been ordered by the court to correct their previous authorisation of the forgeries, and remove "Tai Li Lighting" as a shareholder of Tai Li. Stay tuned.

For more on this, go to www.theatrelight.co.nz

MARTIN CEO BOWS OUT

Kristian Kolding has been the top guy at Martin Professional for the past five years or so, and is about to move on. He took the reigns at a difficult time, picking up the pieces from some turbulence caused by the former top guy having an ego overdose.

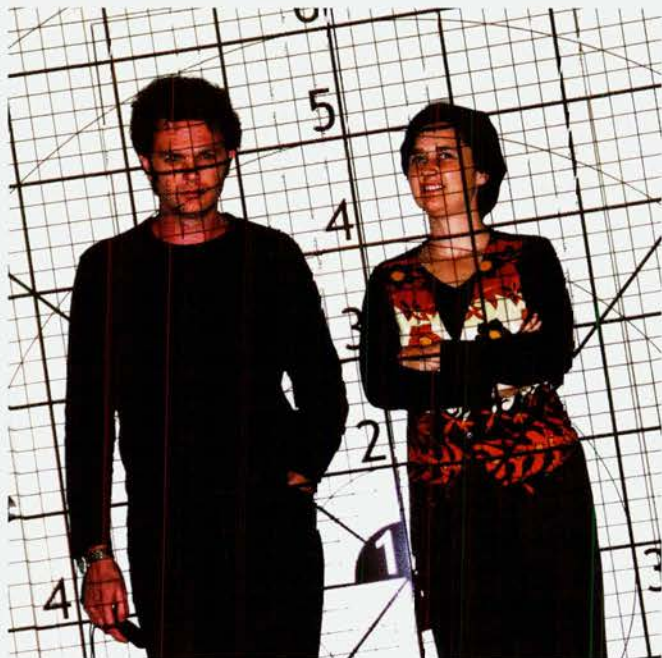
CX fondly remembers a previous guy calling a press conference at Plasa, and slandering his opposition. The lighting press sat there slack jawed, frantically thinking of ways not to report the thing, knowing the guy would soon ask them why they didn't. Mercifully he was frog marched out not long after, and KK came along.

Last time CX spoke to KK he was really, really, badly grumpy - and the reason why soon became apparent. The last financials for Martin were not pretty reading. KK had just sacked 120 people.

Martin is a subsidiary of a massive Danish conglom called Aktieselskabet Schouw & Co; which is run by a board made up of very stern looking and serious old guys. The annual report was not at all kind, and pointed out Martin faced a serious situation.

We suspect KK has mainly reversed the losses and put the firm in shape, thus he is leaving. The factory in China should help the bottom line. The 2004 results come out in January. Check out www.schouw.dk for more. -JG





New peopleware @ Electric Canvas

Visual Artist Cindi Drennan has joined the Electric Canvas team after several years experience specialising in projection arts. Circa joins long-time Electric Canvas freelancer, Giles Westley who has become a permanent addition to the team. Giles has a background in professional photography and brings a wealth of optical and digital expertise to the table. Great photo! • www.theelectriccanvas.com.au

Star City adds Clay Paky Lighting

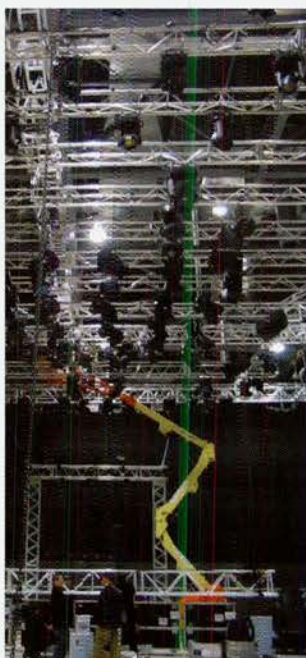
Star City Showroom has added 24 wash lights from Clay Paky's range. The Clay Paky product was recently installed by Total Concept Projects.

Star City's General Entertainment Services Manager Bicci Henderson comments: "The impact of the new lighting on the Jimmy Barnes show was fantastic with very startling colour saturation and vibrancy. It is Australia's most stunning show lighting system."

Commenting on the lighting set up he says: "The lighting setup was so good that the Barnes producers just walked in and did the show without having to move a thing. It was great!"

The installation includes the new Alpha Discovery range. There are 10 of the new 575 watt wash lights, and 10 575 watt spot lights. There are also four 1200 watt Profile Plus lights, noted for their ability to frame objects either manually or automatically. Triangle, square and other simple geometric shapes can be created by these. The controller console enables the lights to be programmed ahead of time.

• www.totalconceptprojects.com.au



Deal or No Deal

Resolution X had a challenge when Channel 7 threw them the job of getting the Deal rig into at Central City Studios for a week of shoots.

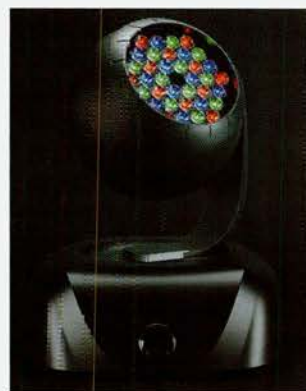
Deal or No Deal utilises more than 145 movers, plus 100 conventional fixtures.

Showtech Rigging were called in to rig the grid and supply motors and extra truss. They combined with Res X to supply close to 500 metres of truss.

Erwin's new 500mm Alloy Stacking Truss was used to provide a 'mothergrid' of sorts, supporting the long spans of 300mm Truss that made up the bulk of the grid.

In all, 320 metres of 300mm Tri Truss, 112 metres of 400mm Box Truss, and 66 metres of 500mm Alloy Stacking Truss was installed, hung from 50 Chain motors and blocks. Almost 3 K's of power and data cables were used, along with 16 power distribution boards and 84 channels of dimmers

• www.resolutionx.com.au



LED Mover

The EasyColor LED colour wash moving head from Ayrton (also known as the EyeColor) now has a big brother! The new EasyColor2 keeps all the goodies found on the original, but features 36 LED output, electronic ballast, unique white-colour balance, USB software upgrades and more.

• www.cdaust.com.au

Coemar Stripper

Coemar's totally new addition to the world of LED lighting is the LineLED range - comprising a series of strip-based led products including RGB colour mixing, single colour and multi-colour options. • www.cdaust.com.au



SGM PALCO

The SGM PALCO is a colour changing outdoor rated device that combines 49 high-power Luxeon LEDs as its light source. It comes in two versions: 5W/1W LEDs, or 3W/1W LEDs.

Here it is below, having a bath.

• More from www.ula.com.au



LEDs take on the industry. The digital future is here

by Richard Cadena

"The most exciting phrase to hear in science, the one that heralds new discoveries, is not 'Eureka!' (I found it!) but, 'That's funny ...'" - Isaac Asimov (1920 - 1992)

Have you ever heard a song and immediately like it? Normally it takes a few listens before a tune becomes catchy, but if you like it on the first listen, you know it will be a hit. Almost three years ago I saw something at a trade show that immediately got me tapping my foot and humming a tune. It was like music to my eyes.

I remember it like it was yesterday. It was at Lightfair International 2002 in San Francisco and I immediately thought it could significantly impact the future of entertainment lighting. It caught my attention and captured my imagination like no other product at that show, or any other show, for that matter. The product was very small – about the size of a garbanzo bean – and though I recognized that it was, in its present form, a diamond in the rough, I thought it represented a significant technological advancement that could have implications in entertainment lighting. It was a 5-watt LED called the Luxeon, manufactured by Lumileds.

LEDs have many advantages; they're small, lightweight, efficient, they don't generate a lot of heat, they have a long life, and there's no filament that can succumb to mechanical shock. Still, they're not perfect. I have yet to see an LED fixture put out as much white light as a PAR can, nor can you buy an LED color changing equivalent of a PAR can with a color changer for a comparable price. But the cost of LEDs continues to drop and they continue to get brighter, as evidenced by the Luxeon 5-watt LED.

Some say the future of light is LEDs, and they just might have a point. Why? For more than 30 years LEDs have followed Haitz' Law; they double in brightness every 18 to 24 months. And there's reason to believe that will continue. If it does, LEDs could become the source of choice for general illumination, color wash, graphic displays, scenic elements and more.

Other people believe that video has more of a stake in our future. The convergence of lighting and video and the recent proliferation of DMX media servers is a clear sign that we're moving in that direction. The breakthroughs in DLP™ and LCD projectors coupled with advances in LED displays are certainly fueling a creative renaissance the likes of which we have not seen since the advent of moving lights.

Then again, perhaps the future of light is a combination of LEDs and video. Researchers are in the early stages of developing OLEDs, or organic LEDs, that could have a significant impact on our industry. OLEDs are very thin and flexible. It's conceivable that in the not-too-distant future, they could be used to make wholesale video "cloth" that could be used in everything from costumes to flats.

But predicting the future is dicey business. Remember these quotes?

"64K ought to be enough for anybody." - Bill Gates

"I think there is a world market for maybe five computers." - Thomas Watson Sr.

The list goes on. Still, I'm not one to shy away from going on record with predictions about this industry, and here's mine. The future of light is digital.

We have witnessed the battle for industry dominance move from automated lighting to control. It used to be that the flame wars on the LightNetwork (www.delphiforums.com) revolved around automated lighting and support. Although the flame wars have died down considerably, people in this industry are now most passionate

about their choice of automated lighting console than anything. Perhaps there's more parity in automated lighting fixtures today than there was 10 or 15 years ago.

The same will be true of consoles in the future. At some point, manufacturers will close the gap, and when that happens, the battle-front will move up the design chain out of the physical realm and into the area of preproduction. The next big battle will be over software design tools.

It all has to do with economics. When automated lighting first appeared, it changed the economics of the production equation by changing the fixture count, the truck pack and the load-in and load-out time. When that was established, the next major area of improvement came in programming. Console improvements have decreased programming time and expense per fixture. When the dust settles in the console wars, the next big potential improvement in production efficiency is in preproduction, and that's where the battle will move.

It's already an issue that's heating up, but right now it's overshadowed by the console wars. LD Assistant (www.ldassistant.com) recently announced the release of an upgrade with a real-time visualizer. ESP Studios (www.espstudios.com) is about to launch a very inexpensive real-time visualizer at LDI that they will begin selling soon. WYSIWYG (www.cast-soft.com) continues to build alliances with console manufacturers by bundling their software and hardware. The day of the preproduction wars is drawing near. In a few years it will reach critical mass.

What does all this mean to you, the production professional? It means that if you want a stake in the future of this business, then you have to know digital. Start by learning touch typing. No, I'm not kidding. Then work up to AutoCAD and/or any one of the many very good design programs like WYSIWYG, VectorWorks or LD Assistant. Learn Photoshop, Illustrator, AfterEffects, 3D Studio Max, Final Cut Pro or Poser.

Read books (hint: "On Being Digital" by Nicholas Negropont), learn as much as you can, and become a digital authority. Only then can your future in this industry be secure.

• **About the author: Richard Cadena is a writer, teacher, and lighting designer with 18 years of industry experience. His latest book, "Focus on Lighting Technology" (www.plsbookshelf.com), has sold almost a dozen copies. (Okay, half a dozen if you don't count family members.)**



How LEDs work

by Richard Cadena

Although there are many LED products on the market right now, including products made by Color Kinetics, James Thomas Engineering, Pulsar, Altman, A.C. Lighting and Space Cannon, there will be many more as the economics and the technology continue to change. The economics have already made it cost effective for LEDs to replace incandescent lights in traffic signals, brake lights, cross walks, exit signs, signage, task lights and indicator lights. When you see them start to replace headlights, that's when we'll know that we're on the verge of something really big.

An LED, or Light Emitting Diode, is a special type of diode that emits energy in the form of visible light. An ordinary diode is a semiconductor device with two leads that conducts current in one direction but not the other. If you were to hook up the positive lead of a diode to the positive terminal of a battery and the negative lead to the negative terminal of the same battery, then the diode would act as a closed switch and it will conduct electricity. If the terminals are reversed the diode simply acts as an open switch and no current flows through it.

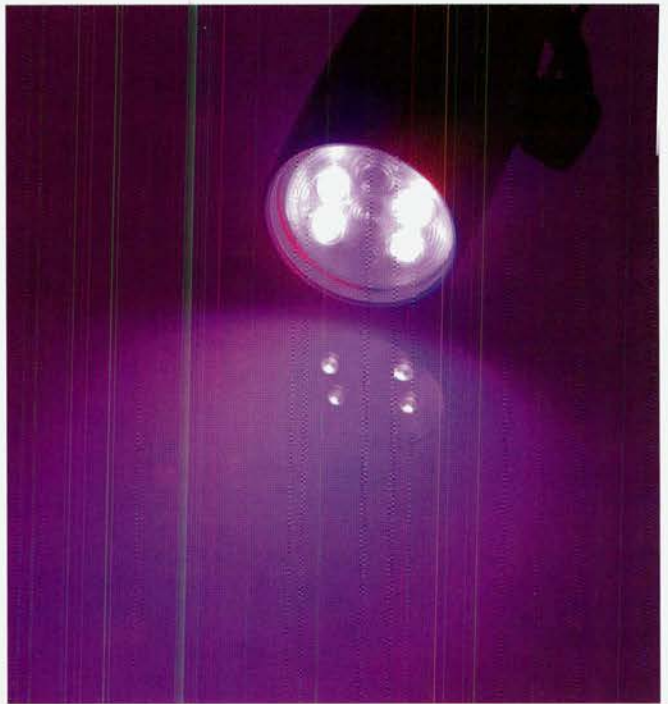
Silicon is the world's second most plentiful element after oxygen, and it figures prominently in the manufacture of semiconductors like diodes. Because of the nature of its atomic structure, silicon easily forms a crystal lattice with other silicon atoms. If you were to examine the atomic structure of silicon you would find that it has four electrons in the outer-most orbit, the so-called valence band, that easily bond with other silicon atoms and form highly organized crystal structures.

Silicon is ordinarily a poor conductor but in the process of manufacturing semiconductors, impurities are introduced that, under certain conditions, allow it to become a relatively good conductor. Adding impurities is called "doping."

Phosphorus and arsenic are used as dopants because they each have five electrons in the outer shell. When they are introduced in a silicon lattice, there is an extra electron that is free to move around in the structure. Silicon doped with phosphorus or arsenic is called N-type silicon because it has extra electrons which are negatively charged. Boron and gallium are also used as dopants for a different reason. They both have only three electrons in the outer shell that are available to bond with the silicon atoms.

Therefore, there is a "hole" in the crystal structure that is just waiting to be filled by an electron. The effect of the hole is that it carries an overall positive charge because it's missing the negative charge of an electron. Doping silicon with boron or gallium makes it P-type silicon because it is positively charged. These semiconductors exhibit properties somewhere between a conductor and an insulator.

By forming a junction between P-type and N-type silicon, some interesting things can happen. When the positive terminal of a battery is connected to the side of the junction with the N-type silicon and the negative terminal is connected to the P-type silicon, the free electrons in the N-type side drift away from the junction because they are attracted to the positive voltage of the battery. The positive charges (the holes) in the P-type side drift away from the junction because they are attracted to the



negative terminal of the battery. Therefore, the junction is depleted of electrons and holes and no current flows across the junction.

If you switch the terminals, the free electrons travel in the opposite direction, cross the junction and "fall into" the holes in the P-type silicon. Therefore, a constant current flows across the junction.

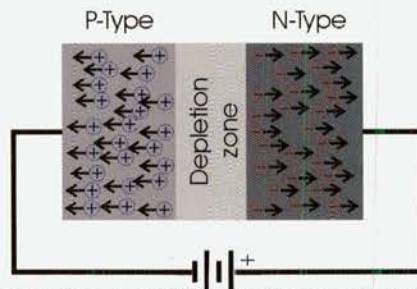
Something else is going on as the current flows across the junction and the holes are filled by electrons. Each electron carries a certain amount of energy in the form of kinetic energy (movement) and momentum (spin). As it falls into the hole it has to somehow rid itself of this energy because of the law of conservation of energy (energy cannot be created or destroyed). To rid itself of this energy it emits a photon. In an ordinary diode, the amount of energy released is relatively low. The wavelength of the photon it emits is in the infrared spectrum and it is invisible to the eye. But a Light Emitting Diode is made of

different materials, usually aluminum, gallium and arsenide that produce higher energy levels in the free electrons and holes. Consequently, when the electrons recombine with the holes, they emit photons of higher energy that are in the visible spectrum.

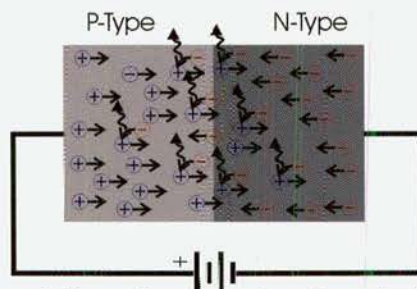
LEDs have been around for almost forty years, and they have been constantly improving ever since. And recent improvements have made them viable for many new applications. Packaging techniques, heat management and improved materials have led to major improvements and promising developments. According to projections by the Lighting Research Center at Rensselaer Polytechnic Institute, LEDs, which currently have a maximum efficacy of about 30 lumens per watt, could reach efficacies of 200 lumens per watt by the year 2020.

Until then, we'll have to settle for a catchy tune and keep looking towards the future. "Don't Stop Thinkin' About Tomorrow" by Fleetwood Mac comes to mind. Indeed we won't.

How's my driving? E-mail the author at rcadena@ajustin.rr.com.



Reverse-biased junction creates a depletion zone that acts to open the circuit and stop the flow of electricity.



Forward-biased junction allows free electrons to flow across junction and fill holes and emit a photon.



LV Tokyo Projection team (l-r) Soma, Pierre, Mitsuo, Glen n Williams, Uchi, Peter Milne

Large-format passport

The team at The Electric Canvas are used to being on the road (or in the air) but this year has seen suitcases packed virtually without break. The Sydney based large-format project or outfit have thus far this year worked on assignments in New York, Singapore, Hong Kong, Osaka, Tokyo and Shanghai, with more CS jobs slated before year's end. From blowing snow to tropical typhoons – what the postcards don't show.

CX caught up with Peter Milne, head of the operation, for a snapshot of what they have been up to.

Louis Vuitton

Projections for Louis Vuitton's 150th anniversary celebrations have occupied a reasonable share of the action with LV's huge transportable night-club having hosted one night parties for clients in NYC, HK and, most recently, Tokyo.

The amazing 75m x 33m x 16m high "tent" structure was designed and built by Fabric Structures in Auckland and accommodates the lavish party for up to three thousand LV-toting, A-list guests who were treated to an impressive multi-media and live show produced by Mizrahi Acams Productions of NZ.

The show itself is said to be inspirational and features a 30m x 9m projected video screen with 12 concealed compartments that swing open in sync with the video to interact with the cast. During the finale of the show, a four metre high representation of the Eiffel Tower grows out of central stage made entirely from LV trunks and bags that flip open and just keep expanding like Russian dolls.

While the well-heeled were immersed in the hedonistic luxury of the opulent interior of the tent, The Electric Canvas were at work transforming the exterior using high-powered PIGI projectors. The producers had to find huge sites to accommodate this

monster tent (and the 26 large shipping containers it packs neatly into) taking into account the projection distance required to completely cover at least three sides of the structure.

The first party was in chilly New York in February. Set tightly amongst a small forest of snow-bound trees at the Lincoln Centre, only the 33m wide end surface could be covered. The trees were only six metres from the surface so The Electric Canvas devised a layout that required five projectors to provide the coverage that normally afforded by two. By projecting between, around, and over the trees, a fully registered single image that could scroll and carry the required effects was projected. A somewhat daunting task without site survey, a questionable plan of the site, and just a few snow-bound photos to go by.

The venue was transformed into historic LV steamer trunks as well as becoming a screen for the "Romance of Travel" scrolling montage that featured huge travel icons of the past including an airship, train, planes, and an ocean liner moving across the structure.

Next it was on to Hong Kong where the harbour-side Tamar event site was more than adequate to accommodate the huge set up and allow for unobstructed projections on to three sides. After the success of NYC, the client expanded the brief to take advantage of the large "billboard" on the nights leading up to the party event. The latest LV advertising was projected and alternated with a "Times Square" style message that scrolled huge text around the tent announcing the 150th anniversary.

For two nights, the venue was transformed into a 75m steamer

By the time the storm started lashing southern Japan, The Electric Canvas team had to make the reluctant decision to start dismantling the projector rig and battening down as a precaution against the predicted 120kph winds.



Who's airspace anyway? Skymaster trucks solve the dispute over use of a disused roadway

trunk that attracted enormous attention from the media and onlookers.

Tokyo was the next stop for the show and a venue in the Hamamiya shipping district was chosen. It was decided to once again project onto three sides of the tent and, while the site looked big enough, there were to be problems with projection distance. Plans had been made to erect four of the eight PIGI scaffold towers on a disused road between the docks and the site itself. Late in the pre-production period, however, a local dispute over this abandoned strip of roadway saw its availability vanish. The local production company proposed a solution involving truck-mounted EWPs (Elevated work platforms) known locally as "Skymasters" to gain access to the required projector positions without access onto the disputed roadway.

To say that the design team at The Electric Canvas were sceptical was an understatement.

Years of experience with rattly, leaky and otherwise inconsistent plant and access machinery left the team less than optimistic. The accuracy of positioning and final stability required by the extreme wide angle lenses on the PIGIs would be difficult to obtain.

The Skymasters would need to locate the 200kg projectors more than six metres past the fence-line at a height of around six metres with accuracy down to a few centimetres – and remain stable for long periods of time. Unlikely to say the least.

But this was Japan and when four identical, immaculately maintained and prepared machines arrived on site, some confidence was restored. The platforms had to be manoeuvred precisely into their final positions and lired up without the influence of a technician's weight on the platform. Tests showed that in no-wind conditions the Skymasters could be controlled quite accurately and they proved, over time, to be quite stable.

As for all outdoor events, the weather played a critical role. The threatening approach of a powerful typhoon had everyone's undivided attention for a number of days. The tent riggers, in particular, became very focussed as every laptop in the production office became a satellite weather station. By the time the storm started lashing southern Japan, The Electric Canvas team had to make the reluctant decision to start dismantling the projector rig and battening down as a precaution against the predicted 120kph winds.

Two cranes worked to strike projectors from their 10m towers at either end of the tent, while the four Skymasters were cleared also of equipment. With all eight PIGIs safely locked into steel containers, the team left the site happy to have a night off but frustrated at the setback. The winds did come that night but the tent and site held up well and the task of re-installing the projectors and getting the system lined-up and programmed in the one day now left began. Fourteen hours later the set up was back to where it was before the Typhoon and the party went on without a problem.

Shanghai

Late September saw the team off to Shanghai China to participate in a promotional event for the BAR Honda Formula 1 racing team. Hired by production company "Image and Style" from Hong Kong, TEC was asked to project onto the outside of a custom-built tent structure in the shape of an F1 car – 60m long. The tent was built on an artificial lake in a park that formed part of the very trendy (and western) Xintiandi district in Shanghai.

The Electric Canvas was asked to devise a five minute image and effects sequence to run continuously on all four sides of the structure. Scrolling and other techniques were used to present a tourism angle for Shanghai, to feature the brand-new F1 racing circuit and, of course, the BAR racing team itself. The sequence looped for five hours on each of twelve nights leading up to the inaugural China Grand Prix at the new Shanghai circuit. Four times a night the public could watch a ten-minute laser and video show, produced by I&S and projected onto three water-screens and supported with lighting and fireworks.

Eight PIGI projectors were used with a variety of fixed lens types needed to be combined to produce fully-registered panoramic images onto the 60m x 15m x 15m structure despite position limitations caused by the shape of the lake and its numerous trees and features.

The projections were bright and highly animated catching the attention and intriguing thousands of tourists and local alike. On race day, the BAR team won second place putting the icing on this Grand Prix cake for the promoters and client.

(continued over the page)

Massive projection



The 60m x 15m x 15m structure was covered by eight projectors set at various distances around the lake

Although only for a short time, The Electric Canvas folks were glad to be back in the "best land on the planet". The experience of working in far away places is undeniably valuable but continues to reinforce what we already know, that Australians can go anywhere and take on any challenge and that, at home, we are fortunate to have some of the most professional and pleasant working conditions, colleagues and collaborators. •

Romance of Travel - scrolling projections set against Tokyo's Rainbow Bridge





LDI 2004: LDs, LEDs, and LEDI

by Richard Cadena

Years from now when LDI 2004 is a distant memory, someone will say something that will bring all back into clear focus: "Remember LEDI?"

LEDI 2004, as Blaine Engle of James Thomas Engineering called it, was the debutante ball for solid-state lighting in the entertainment industry. It was the year that LEDs crossed the threshold from an interesting curiosity into the realm of viable commercial applications. LEDs danced in the aisles, played in the air and spilled down almost every available surface. There were new cyc lights, quasi-video displays, building blocks, soft-edge lights, curtains, dance floors, neon replacements and raw emitters, all powered by red, green, blue, white and off-white LEDs. There was even one company, Selador (www.selador.net), offering a color mixing cyc fixture that uses 7-color LED mixing. The demo might make you rethink what you think you know about color mixing.

Another very interesting demonstration was on the Rosco stand where they showed a prototype of a hard-edge LED profile spot. It produced a beautifully round beam and projected a pattern. Although the intensity was not yet comparable to a Source Four, they promise it will be when it's ready next year. When LEDs successfully make the jump from non-imaging optics to imaging optics, then bets are off.

Lamina Ceramics (www.laminaceramics.com) demonstrated a 127mm diameter array of hundreds of RGB LEDs in a highbay enclosure that produced 13,300 lumens, about the same as a 150-watt metal halide fixture. Unfortunately, this one requires about 860 watts, so the 15 lumens per watt is way below what it should be. But to see an LED fixture that outputs as much light as a highbay is a thing of beauty. To watch it change color gives you goose bumps. And it won't be long before those same LEDs are using only 150 watts.

LEDs are also figuring prominently in video displays and quasi-

video displays. Traditional LED wall manufacturers like Barco, Daktronics, Toshiba are chasing (and catching) the holy grail of LED walls; the RGB integrated LED SMD chip. Meanwhile, G-LEC and Mainlight Industries, among others, are leading the way with quasi-video displays including the Classic Frame, a clear plastic tube filled with LED pixels, and SoftLED, a velour drape with an RGB LED array in it, respectively.

And for every LED pixel another IP address or DMX address is chewed up, leading to an explosion of channel counts. The logical way to handle this proliferation of bandwidth is through the use of networks. That, in turn, is creating a demand for networking products from the likes of Pathway Connectivity, Interactive Technologies, Swisson, Artistic Licence, Doug Fleenor Designs, Goddard Designs and more.

In addition to wired networks, some manufacturers like Avolites and City Theatrical are providing some very interesting wireless solutions. City Theatrical's stand at LEDI was completely wireless, moving lights and all.

The pixels, of course, have to be filled with content. So the competition amongst media servers is really starting to heat up, thanks in part to the new Maxedia Digital Media Composer. At least one LED told me he likes it because it's "easy to use." Or if you prefer your content onboard with the projector you definitely owe yourself a look at the new High End System's DL2. Besides the cost savings compared to buying a DL1 and a Catalyst media server, the increased contrast ratio noticeably improves the perceived brightness. If you were in the market for media servers there was no shortage from which to choose, including offerings from PRG (Mbox), Green Hippo (Hippotizer) and Brash (Lucid3D).

And you can't mention media servers without mentioning the

(continued on page 98)

consoles & dimming architectural lighting searchlights moving lights film & tv colourchangers effects



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of
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business



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ULA surfing 3 waves

New HQ for upwardly mobile lighting company

By Julius Grafton

ULA is short for Universal Lighting and Audio, who have become possibly the largest importer and distributor of lighting in Australia. The firm has just relocated its headquarters into a purpose built facility on the Gold Coast. CX visited and were duly impressed at the thought and the philosophy that has gone into the firm's operations. Not to mention the fitout and finish at the new HQ in Ashmore – which are truly world class.

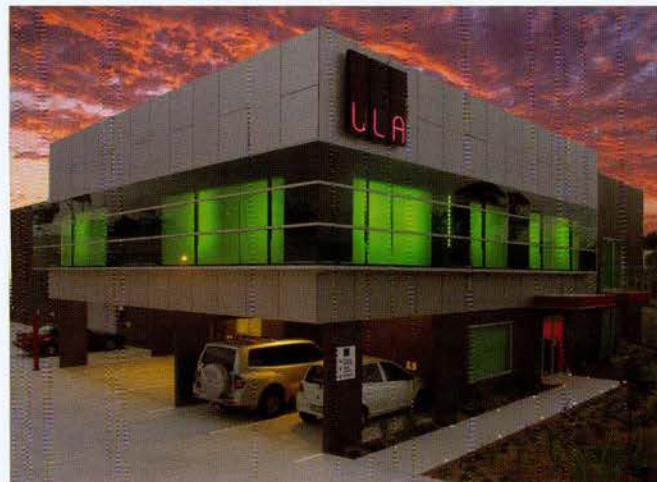
ULA is headed by Cuzco Biviaro, his wife Claudia, and marketing and operations guy Justin Knox. The firm employs around ten people on the Gold Coast, with a small staff at a branch office in Melbourne, plus they have just appointed a guy in Sydney – which has been a tricky market for them.

So what makes a successful Lighting Distributor? A lot of perspective is essential, since the Australian (and New Zealand) market is at the very end of a long thin distribution pipeline. The scene is littered with people who've acquired one or two interesting exclusive distributor agreements and gone out trying to make things happen. Selling lighting equipment is a weird combination of personality cult, voodoo, fashion (some brands are just like a fashion label) and extreme technical knowledge. It helps if your level of technical knowledge is just ever so slightly ahead of the person you are dealing with. It's perfect if they, the seller, can pitch themselves just so.

The second aspect to being a very successful importer and distributor of lighting is after sales support. This is one area where ULA, just like their competition, work hard and try to win. Justin Knox and I spent

an hour or so debating ULA's successes and challenges in this area. CX get plenty of feedback from readers about problems with various brands and distributors. It's fair to say almost every distributor hits the occasional road bump with after sales support.

'We have a really good reputation for this, but maybe less so in Sydney, which I think is a perception problem', he explained. This observation was one that he made after living in Sydney for a year, and working a longside the local market there. "It doesn't matter how many spare parts you have in stock, the one the next guy wants is the one you don't have", he explained ruefully.



The ULA building is a real showcase. LEDion RGB LED strips charge the mood of the exterior. LED is the big buzz at ULA right now.



There are three learning areas in the ULA building. This one has a convenient bar... meet me there at the end of this article!

I saw the spare parts inventory at the new ULA premises, and the new bar coding system. Point of interest: the firm just introduced a new range called 'i-Solution', which is a range of really inexpensive lighting from Asia. They have a slew of spare parts on hand – I saw them – which indicates a preparedness to repair any fixtures that go wrong; and also a level of confidence. It is not uncommon for importers of cheaper Asian equipment: to simply gamble on the warranty, and swap out failed units.

An example of ULA's spare parts commitment: they have Avo

dimmer modules on hand, yet they have never sold any Avo dimmers. They are in stock because some users tour dimmers into Australia.

The 3 waves

ULA's business is roughly partitioned into three areas which cross-over really neatly. One is Soundvision, which is a name they have applied to products that can be sold at retail. The i-Solution fits into that category. Soundvision is a catalogue range which has things as simple as a 2" hookclamp (with plated 1.5" bolt and wingnut included, all in a sealed

CHAMELEON TOURING SYSTEMS

LIGHTING PRODUCTION & HIRE

- ✱ LUMINAIRES
- ✱ CONTROL SYSTEMS
- ✱ MOVING LIGHTS
- ✱ SEARCHLIGHTS
- ✱ POWER DISTRIBUTION & CABLING
- ✱ CHAIN MOTORS, TRUSSING & RIGGING

Chameleon Sydney have moved premises

SYDNEY
 Building 35A, 1A Coulson St
 Erskineville NSW 2043
 Production/Sales: 02 3596 7222
 Rentals: 02 8596 7200 Fax: 02 9557 5445

BRISBANE
 45 O'Connell Terrace Bowen Hills QLD 4006
 Tel: 07 3854 1511 Fax: 07 3854 1563
 Email: brian@chameleon-touring.com.au

www.chameleon-touring.com.au

retail bag) for \$6.60. Or a safety wire for \$4.99.

There are the expected things like cheap mirror balls, pin spots, strobes and disco effects. ULA also sell a large range of DJ styled products, and are direct agents for Panasonic with the Technics line. They have a big line of DJ bags and cases.

While Soundivision gives ULA a retail line, the Professional line is better representative of the ULA most CX readers would know. ULA represent Avolites, High End Systems, Robe, Griven, SGM, Lemaitre and Optikinetics. They also are a major channel for Technics, on behalf of Panasonic.

Professional is a product area where a distributor can have a lean year if the brands they represent fail to ignite. ULA struggled to establish brands like SGM and Griven, and then won over High End Systems at a time when High End didn't have a lot of new developments.

But most of all, ULA picked an absolute pearler when they added Robe to their portfolio. At the time, Robe was just another moving light brand in the halls at PLASA. What was less understood was that Robe had been manufacturing OEM for several other distributors like Futurelight, Movietec, Saggiter and TAS. Their products were already accounting for a lot of market share - yet the brand itself meant little.

Fast forward three years or so, and today Robe from the Czech Republic is suddenly the second largest manufacturer of moving lights in the world. Larger than Vari-Lite, High End Systems, Clay Paky, Coemar and second only to Martin professional.

Robe have hardly made a wrong move with their product range, and now offer three lines of product, with the new AT range making severe inroads into the professional market.

It comprises a line of moving yoke fixtures from 150 to 1200 watts, in wash and profile varieties. The AT line sits alongside the XT Series, which boast thousands of units in the field. There is also the CT Series,



Mocd-L ight LED panels in ULA s a chitestructural showroom (above)

iColor 4 is a great thing for small bands. It's a 4 channel DMX controlled color mixer, with internal programs. It uses cheap as chips J type 500w halogen strip globe. Best of all it costs \$399 retail. Spells the end of 4 x Par 55's on a T-stand, huh?

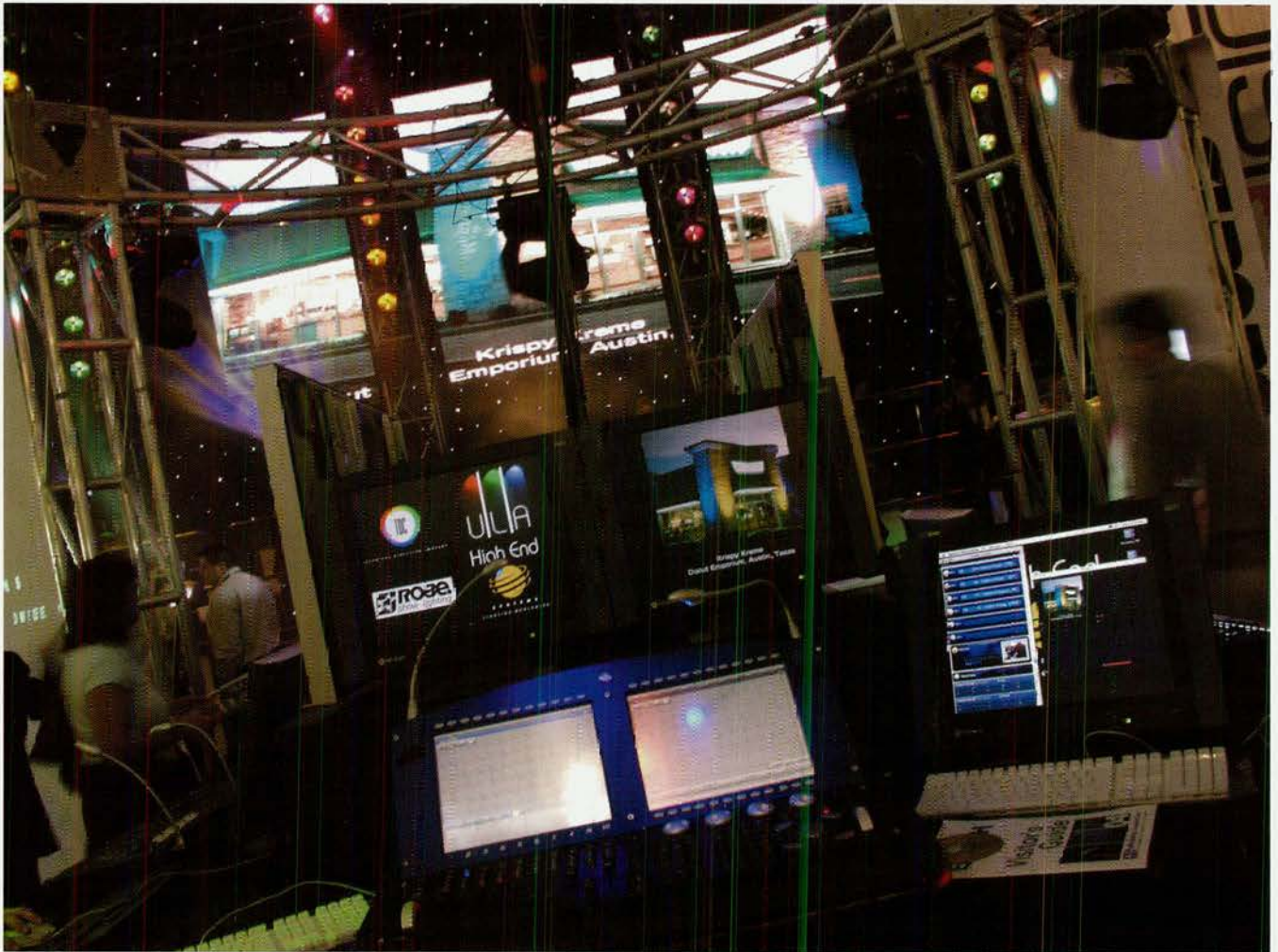
ULA chief Cuono Biviano with Josef Valchar (Robe), top left.

Roger Hind from Theatricks receives a ULA dealer award from Harry von den Stemmen of Robe. (Left)



Avolites training in action, below.





The U.A stand at ENTECH 2004 - the largest lighting stand at the show. They moved out of their old building at the same time as shipping the stand down to Sydney. The new building wasn't ready, so they moved into the warehouse and a bunch of portable site offices, while the offices and training rooms were finished. Stressful times!

aimed at clubs and bars.

At the other end of the Professional Range, JLA have had successes with High End Systems' Catalyst which is about as high-tech as you can get. Plus SGM have been building a solid reputation as a high quality manufacturer, with the Giotto line of moving lights winning hearts amongst users.

The third part of the business is the one which is now starting to go ballistic, and that is Architectural Lighting. This part of the business has been a weird journey for many in the lighting business.

The 'Architectural Lighting' business as understood by us people in stage and studio lighting, was essentially moving light manufacturers

weather proofing their products and trying to convince building owners to install them outside. With the very notable exception of the City of Hong Kong, which has a massive lights show on around 30 buildings, the outdoor moving light market remains slow.

Then the LED became available in high power (1 watt) and most crucially in the colour blue. Now the industry is awaiting the 5 watt LED, and the expectation is that LEDs will get brighter and brighter. The big deal with LEDs is that they last a very long time, and consume only a trickle of current.

Very quickly we saw the advent of RGB colour mixing using LEDs as the light source, and right now there is an explosion of applications within buildings - as well as outside.

Cuono Biviano recognised the potential some years ago, and quickly started acquiring distribution agencies for manufacturers he saw rising.

McCod-Light is one of these. The panels shown in the picture earlier in this story can change colour and intensity in almost unlimited combina-

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tions. Plus they can carry advertising and styled imagery.

AVR is the other. They have a growing range of LED panels, strip lighting, and downlights.

Best of all, existing distributors like SGM, Griven, and Robe are also introducing LED based wash products, which fleshes out the architectural range for ULA.

Whether good vision or good luck, the three product waves seem to all be running at about the same velocity for ULA at the moment. This insulates the firm from cyclical downturns - evident in their ability to build a new headquarters - their second in three years.

THE ROBE STORY

The somewhat off-beat name is a hybrid merge between 'RO' that comes from the city of Roznov and 'BE' from the river Beca which slices through the province in the North East of the Czech Republic, a stone's throw from the Slovakian border.

Like most of the market, after September 11 2001, Robe experienced some slowdown, which also prompted them to think long and hard about a coherent sales strategy for the future. This is where the idea of selling direct - instead of building product for others - became a logical step forward.

Robe has many advantages as a manufacturer, a major one being that everything - from the software to the metalwork - is done in house. There's no third parties involved and quality control is tighter.

Robe's moving heads have existed since 1999, and many are already acquainted with these. Looking towards the future, CEO Josef Valchar says realistically. "We're looking long term. We don't just want to make a fast buck and then disappear!"

Robe Color spot 1200 AT



Justin Cox with an early Sounddivision catalogue

Here's another shockingly affordable puppy from the iSolutic range. This is the iMove 8, a moving head profile with a 250 watt MSC lamp that sells for \$2,339 retail. It has all the fruit - 8 dimx channel control, 7 rotating interchangeable 36.8mm gobo's, remote focus, 13 degree beam angle, dimmer/shutter and strobe, and inbuilt controller with no master/slave relationship issues. It weighs 26kg. At this kind of price, a rental company could get return on investment in just a few months, well inside the 12 month warranty period!



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LDI 2004: LDs, LEDs, and LEDI

by **Richard Cadena**
(continued from page 91)



trend towards integrating the control of media servers and automated lighting. Many console manufacturers such as MA Lighting and Martin Professional showed new console features (grandMA and Maxxyz respectively) that more tightly integrate the control of media servers with the control of automated lighting.

In the area of lighting control there was no shortage of new product offerings or software upgrades from ETC, Flying Pig Systems, Lancers, Zero 88, LSC and lots more.

Also heating up, much to the benefit of the lighting industry, is the competition between visualization software manufacturers. ESP launched a for-sale version of their visualizer called Vision that is the closest thing to photo-realism as you can get today. It also has built-in DL1 projection capability, a vastly complex programming coupe.

In the area of automated lighting, there was a plethora of new product offerings. Robe is coming on strong with a broad range of moving yoke fixtures from which to choose.

Some of the lesser-known brands like Pearl River, Elation and Chauvet are upping the ante with surprisingly good quality products at ever decreasing prices.

Even Coemar has some very reasonably priced lower end products to compete with the offshore manufacturers. On the other end, Vari-Lite showed four new upper end products, as did Clay Paky, Morphus and Coemar. But the "big" winner in the LEDI automated lighting contest has to be BigLite 4.E, a beautifully designed 4.5K xenon moving yoke light that moves very quickly, for a really big light.

It wouldn't be an accurate reflection of LEDI if we didn't mention the sine wave dimming showdown that's on the horizon. With the recent purchase of IES by ETC, they are preparing a full frontal assault on conven-

tional dimming technology. Right along side them is Strand, who have contracted to provide sine wave dimmers for an upcoming maiden installation of their product. Stay tuned to this space.

Noticeably absent from the automated lighting rat race were High End Systems and Martin, though the latter had many, many new products including Maxxyz wings, Lighting Designer upgrades, the Woodroffe gobo collection, and an array of DJ effects. When two lighting giants opt out of the automated lighting R&D treadmill for a season, could this signal the beginning of the end for the continued advancement of the category? After all, the majority of the new automated lights exhibited little in the way of new intellectual property; they were mostly repackaged variations of pre-existing technology.

With limited resources under the manufacturer's control, one has to wonder where they will put those resources to work. If LED, DLP and Ethernet are the way of the future, where does that leave automated lighting? It just might be left back at LEDI.

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