

# HI-FI WORLD

DECEMBER 2011

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**CAYIN A55-T**  
valve amplifier



Inspire X100

Roksan Tabriz ZI



Sokinetik Modular One

Clearaudio Satisfy



ME 309

£1,000 Tonearm supertest



**EMINENT TECH LFT-16A**  
loudspeakers



## BEL CANTO CD2

Compact Disc player



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**CYRUS 6XPD AMPLIFIER**  
WORTH £1,200!  
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DECEMBER 2011



- ▶ WHARFEDALE JADE 5 LOUDSPEAKERS
- ▶ ITEM AUDIO DAT 1 USB AUDIO COMPUTER **EXCLUSIVE!**
- ▶ OLDE WORLDE: AKAI CR-83D STEREO 8 RECORDER
- ▶ PIEGA PREMIUM 1 LOUDSPEAKERS
- ▶ REL R328 SUBWOOFER

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Sound Foundations  
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Tel : +44(0) 1276 501 392 info@soundfoundations.co.uk

# ADL

ALPHA DESIGN LABS

## Introducing Alpha Design Labs

Furutech is justifiably proud of its reputation for engineering, build quality and performance, and has won the loyal support of audio enthusiasts worldwide for their finely made and beautiful sounding cables and audio accessories. Now Furutech greatly expands its reach with a new entry-level line called ADL (Alpha Design Labs). ADL was created by Furutech to imbue its Pure Transmission Technology into carefully engineered innovative designs that everyone can afford. ADL components and cables are made with the same dedication to total resonance control and refinement as all of Furutech's many cables and accessories.



ALPHA Line - Plus

ALPHA Line - 1

ALPHA Line - 2

## ADL GT40 USB DAC with Phono stage!



The GT40 records vinyl and other analog sources at 16/44.1 or 24/96 using its bidirectional USB connection and switchable Line, Phono MM/MC analog inputs, plus it features L/R analog outputs, a separate headphone amplifier, gold-plated Teflon-insulated RCA jacks in a high-quality aluminum chassis with a beautifully machined volume knob. CD Redbook 16/44.1 and especially 24/96 files reveal a vivid, captivating sound unheard of at this price.



Formula 2 USB cable

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# welcome

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Neville Roberts, Adam Smith, Rafael  
Todes.



This month I've been up to my neck in computer audio – almost literally. There have been times when my listening room has had piles of tablet computers, Android smartphones, monitors, NAS drives, USB cables and the DACs to connect them to, towering higher than my normal hi-fi ever gets. My router, previously stuffed in another room out of the way, has suddenly become the nerve centre of my sound system, with Ethernet cables running here, there and everywhere!

I've reviewed countless network music players in the past, but this has been the first time I've actually reviewed a modern 'audio computer'. The Item Audio DAT 1 USB Silverstone Edition [p12], is basically a PC that's been stripped down to the minimum, with no hard disk drive (it uses a solid state drive), no DVD-R drive, no fancy video cards or even a soundcard. Instead it gets a premium quality USB PCI card and a whopping great power supply, the like of which I've only seen on Krell-sized amplifiers before! It's a real beast, and will appeal to many hardcore computer audiophiles I'm sure, but those who need room to roam about their living spaces might look elsewhere...

Speaking of which, we have two small but perfectly formed loudspeakers for you this month. The Eminent Technology LFT-16a is an amazing performer for just £1,100, with drive units that make those of most of its rivals look positively Paleolithic. It sounds amazing – read all about it on p26. The Piega Premium 1 [p54] also uses super drivers, albeit slightly more conventional, plus stunning aluminium cabinetry; it's one of the most *exquisitely* built loudspeakers I've seen anywhere near its price point, and sounds the part too.

Elsewhere, we've got stacks more kit for your perusal, including a sub-£1,000 tonearm supertest [p17], the lovely Bel Canto CD2 silver disc spinner [p50] and the sumptuous sounding Cayin A-55T tube amplifier [p68]. Meanwhile, soldering iron swingers will enjoy our Logitech Squeezebox DIY upgrade feature [p66] and Origin Live's Linn LPI2 DC motor mod [p102] – a few hours spent on either of these projects will yield a serious improvement in sound quality, for a relatively modest outlay. Enjoy!



**David Price, editor**

## testing (see [www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk) for full explanations of all our tests)

To ensure the upmost accuracy in our product reviews, *Hi-Fi World* has extremely comprehensive in-house test facilities, and our test equipment - from big names like Rohde & Schwarz and Hewlett Packard - is amongst the most advanced in the world.

Loudspeakers are measured using a calibrated Bruel & Kjaer microphone feeding a Clio-based computer

analyser, using pulsed and gated sinewaves, in a large room to eliminate the room's influence. Pickup arm vibration is measured with a Bruel & Kjaer accelerometer.

No other UK hi-fi magazine has in-house testing, and none has access to such advanced tests across all types of equipment. That's why you can depend on *Hi-Fi World* reviews.

## hi-fi world

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KILBURN PARK ROAD  
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[www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk)

## verdicts

●●●●● OUTSTANDING  
●●●● EXCELLENT  
●●● GOOD  
●● MADIOCRE  
● POOR  
£ VALUE

simply the best  
extremely capable  
worth auditioning  
unremarkable  
seriously flawed  
keenly priced



## ELECTRONIC MAGAZINE

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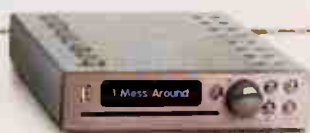
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David Price celebrates 808 State's new 'Blueprint' CD compilation.

Music has been my life  
and now I can fit it all  
and more on my  
brilliant Brennan

  
Jools Holland



"If you've got 100s or even 1000s of  
CDs like me, you'll just love it!"

**The Brennan JB7 is a revolutionary CD player  
with a hard disk that stores up to 5,000 CDs\***

**Key features**

- ▶ Browse albums by spinning the volume knob - push to play
- ▶ Display track names as they play
- ▶ Delete tracks you don't like
- ▶ Seven rainbow colour coded playlists
- ▶ Segue function blends one track into the next
- ▶ One touch record from vinyl, cassette or radio
- ▶ One button plays the entire music collection at random
- ▶ Plays MP3 downloads - future proof
- ▶ Clock with alarm
- ▶ 60 Watt, 4.8 x 16 x 22 cm steel and aluminium construction
- ▶ Backup music to external USB hard disk for safe keeping
- ▶ You can use it with your existing hi-fi or on its own



Jools Holland has always loved music of every kind and during his illustrious musical career he's bought and collected 100s and 100s of CDs and albums many of which he continues to play on his weekly radio show. Trouble was, the space they took up, keeping them in some sort of order, the need to find a certain album and then a particular track was always hugely time consuming. Then Jools found the Brennan JB7. Now his whole collection is stored on something no bigger than a hardback book. Titles of his CDs, albums, even the tracks are automatically recognized and finding them again using the remote control takes just seconds.

***"I can honestly say I've rediscovered lots of my music purely because the Brennan has made it so accessible. Just to be able to find what I want instantly rather than have to wade through CD after CD is a joy!"***

**Jools Holland** pianist, bandleader, composer, singer and television host. He was a founder of Squeeze and the multi-million selling Rhythm and Blues Orchestra. He has collaborated with many artists including Sting, Eric Clapton, George Harrison, B.B.King, David Gilmour, Amy Winehouse and Bono. He tours regularly with his Rhythm & Blues Band and currently hosts 'Later...with Jools Holland' on BBC2.



The Brennan JB7 is available in Cobalt Blue or Titanium Metallic



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**brennan**



**WIN A SUPERB CYRUS 6XPD INTEGRATED AMPLIFIER WORTH £1,200 IN THIS MONTH'S GREAT GIVEAWAY!**

**H**ere's your chance to win one of our favourite mid-price integrated amplifiers, one that did so well in our recent supertest in the November issue of *Hi-Fi World*. Here's what Paul Rigby wrote...

"Following the familiar – but very agreeable – Cyrus blueprint, the compact half width (215x75x365mm) 6 integrated is beautifully finished from cast alloy and weighs in at a modest 4kg. The 'D' suffix refers to the fact that this model came supplied with a built-in digital convertor card, making the amp far more flexible than others here. It took just seconds to realise that this amp stood apart from the crowd, even when faced

with the spitting hardness of some modern pop CDs. It didn't mask their uncouthness, but tamed them just enough to make listening experience a pleasant one, if not a joy. Lower down, bass was deep, firm and well integrated into the mix while the upper mids and treble showed a heightened sense of clarity which gave great insight into the music. This was all the more evident when the Skunk Anansie track hit the CD tray. For the first time, the tambourine showed itself with its attendant delicacy, while sitting along a tight, forceful and deep dynamic bass line that easily differentiated between drums and bass guitar.

Playing Yes on vinyl was a testament to the Cyrus' good nature, as it successfully gave a structured

and controlled presentation with admirable detailing. For example, during intricate guitar sequences I could hear the artist dragging his fingers across the metal strings of the guitar, with a palpable sensation of each string being a separate entity. Ella Fitzgerald sounded expansive and flowing while being controlled by the Cyrus, with plenty of midrange tonally textures on the vocals and a romantic sweep to the strings. There's a richness about playback over all frequencies, a sense of *bonhomie*, as if the amp isn't really trying. If you're looking for a new amp, there's a good chance that it will fit into your system, no-matter what kit you may have. An excellent musical performer with super build and a pleasingly compact size."

For a chance to win this great prize, just answer the following four easy questions. Send your entries on a postcard only by 30th November 2011 to:

**December 2011 Competition, Hi-Fi World magazine, Unit G4, Argo House, The Park Business Centre, Kilburn Park Road, London NW6 5LF.**

**RULES AND CONDITIONS OF ENTRY**

- ONLY ONE ENTRY PER HOUSEHOLD
- MULTIPLE ENTRIES WILL BE AUTOMATICALLY DISQUALIFIED
- PURCHASE OF THE MAGAZINE IS NOT A PRE-CONDITION OF ENTRY
- NO CORRESPONDENCE WILL BE ENTERED INTO
- THE EDITOR'S DECISION IS FINAL
- NO EMPLOYEES OF AUDIO PUBLISHING LIMITED, OR OF ANY COMPANIES ASSOCIATED WITH THE PRODUCTION OR DISTRIBUTION OF THE PRIZES, MAY ENTER

**QUESTIONS**

**[1] how wide is the 6 XPD?**  
 [a] 215mm  
 [b] 21.5mm  
 [c] 2.150mm  
 [d] 2.15mm

**[2] What does the 'd' suffix refer to?**  
 [a] its built-in digital convertor card  
 [b] the middle initial of Cyrus' managing director  
 [c] the letter after 'C'  
 [d] the dynamic power of the amplifier

**[3] What is the amp's case made of?**  
 [a] cast alloy  
 [b] pig iron  
 [c] Perspex  
 [d] sand

**[4] What type of musical performer is it, according to PR?**  
 [a] "excellent"  
 [b] "fab"  
 [c] "spiffing"  
 [d] "groovy"

December Competition  
 Hi-Fi World Magazine  
 Unit G4 Argo House  
 The Park Business Centre  
 Kilburn Park Rd.  
 London NW6 5LF

**entries will be accepted on a postcard only**

**SEPTEMBER 2011 TELLURIUM Q CABLE WINNERS:**  
 R M Bruce of Falkirk, Scotland - Package 1  
 Mr. Oliver Seaman of London - Package 2  
 Mr. Paul Jenkins of Doncaster, South Yorkshire - Package 3

# news

## TWO'S COMPANY



Onkyo's made a name for itself with multichannel AV receivers of late, but these new releases see a shift back to its traditional two-channel activities. The £900 A-9070 can work as an integrated amp, a power amp, a preamp or as a split pre/power amp. It has a parallel push-pull amplification design, three-stage inverted Darlington circuitry, dedicated Wolfson 192kHz/24bit DACs for symmetrically designed L/R channels and a bank of four substantial 15,000µF capacitors. To preserve signal integrity, it features Onkyo's new DIDRC (Dynamic

Intermodulation Distortion Reduction Circuitry) modules. Effectively a fully discrete substitute for the op-amps commonly used in most hi-fi components DIDRC reduces ultra high frequency noise, enhancing clarity, dynamics and musical fidelity, it's claimed. There's an independently controllable headphone amplifier, fully discrete MM/MC phono stage and gold-plated phono inputs/loudspeaker terminals.

The new £450 C-7070 CD player [top left] features vibration-damping brass legs, a 1.6mm thick flat base panel, a full-floating circuit board, a pair of Wolfson 24/192 DACs, and Onkyo's DIDRC circuitry, plus a USB port which can play music from flash-memory drives. There's a three-stage dimmer function, a brushed aluminum front panel, a diecast aluminium CD tray and



headphone amplifier. The new £700 T-4070 Network Tuner [above right] sports FM, DAB+ and internet radio, plus music streaming services and personalised radio stations such as Spotify.

The new £1,300 A-9000R integrated stereo amplifier [bottom left] is described as "a compelling combination of musicality, versatility and user-friendliness". It sports Onkyo's A-WRAT technology, three-stage inverted Darlington circuitry and Amphenol AES/EBU digital connectors, plus asynchronous USB. On top of this, the A-9000R also incorporates separate 192kHz/24bit Wolfson DACs for L/R channels, a noise reducing DIDRC sound module, all housed within a low vibration chassis to minimise interference and preserve signal quality. As one of Onkyo's new Reference series hi-fi components, the unit also differs from the A-9070 in that it incorporates

a highly efficient quad push-pull amplification design and larger 18,000µF capacitors. Like its sibling, however, the Reference-series model can be configured in four different amplification modes allowing it to work in host of system configurations, making it an ideal choice for enthusiasts who want to invest a little further in a state-of-the-art Onkyo home hi-fi system. For more details, call +44 (0)1628 473350 or click on [www.onkyo.co.uk](http://www.onkyo.co.uk).



## BEAT THIS

Monster's newest addition to its 'Beats by Dr. Dre' headphones is the 'Heartbeats by Lady Gaga', an updated version of the popular in-ear headphones, the company says. Designed by Lady Gaga, the uniquely styled in-ear headphones were inspired by leather and studs, and are said to be "a reflection of the pop queen's high-end sense of style and commitment to providing fans with the best music listening experience possible". Jimmy Iovine and Dr. Dre worked closely with the experts at Monster to engineer headphones that are able to deliver an unprecedented level of audio performance to match Lady Gaga's fashion-forward design, it's claimed. The Heartbeats by Lady Gaga feature an all-new, lightweight design, six sets of ear tips to ensure a fit for every wearer, tangle-free cable, hard carrying case and ControlTalk which enables iPhone and iPod music playback control as well as hands-free calls with iPhone and many smartphones. The phones are available in a choice of black and gold, and are available now at select retailers for a suggested retail price of £129.95.



## DO IT CLEAN

NuForce's new £219 Icon iDo DAC and headphone amplifier is said to give audiophile-grade CD quality sound to digital music files stored on Apple mobile digital devices. It's ideal for music enthusiasts and musicians alike who primarily listen to — and have their digital music libraries stored on — these devices. Users can connect any Apple mobile device to the Icon iDo with the Apple approved and included 30-pin sync/charging cable, attach the power supply, and then plug the Icon iDo into a home stereo system using RCA cables or a single coaxial. Users can also plug in headphones directly into the Icon iDo for personal high quality sound playback, it's claimed. The IR Remote Receiver accepts Apple remote control IR signals for volume and playback adjustment on iOS devices. The Icon iDo is available now for £ 219/ €249 from online stores and NuForce dealers. For more information, contact [www.nuforce-europe.com](http://www.nuforce-europe.com).





## NEAT NEAT NEAT

NEAT's new Ultimatum XL10 is said to be "the result of a complete revision of the flagship MF9 model, building upon that model's strengths in order to deliver a world-class full range performance". Improvements over the MF9 include refinements to the cabinet bracing and acoustic damping, a new HF unit and substantial revisions to the crossover. The speaker's ultra-rigid birch-plywood enclosure comprises eight discrete internal cavities each optimised for purpose. The main structure is damped 18mm Birch Plywood sourced from Scandinavian slow-growing forests as this ensures the most dense, consistent material. The drive unit baffles are constructed from a 45mm thick 'sandwich' of Birch Plywood, Polyethylene and MDF. This provides a rigid non-resonant platform, ideal for optimal performance of the drive units.

There are two separate isobaric loaded sub-bass sections, each with its own enclosure volume and tuning. These use the latest version of Neat's 168mm drive unit, which has been developed and refined over a twenty-year period. The main mid/bass drivers are special versions of this unit, with an aluminium phase plug to aid dispersion and reduce dynamic compression. Again the volumes are of different sizes to reduce any possible resonant character. A sealed sub-cavity contains the main HF drive unit. This is a modified SEAS XL SONOMEX domed unit with additional damping and support. A separate sub-cavity at the top of the enclosure contains two EMIT type super-tweeter drive units. The crossover is a minimalist five-element type employing precise-tolerance, low-loss air-cored inductors and newly developed polypropylene film and foil capacitors. It costs £15,245 for standard finishes and £17,080 for premium finishes. Vital statistics are 1500x220x370mm and 60kg apiece. For more details, click on [www.neat.co.uk](http://www.neat.co.uk).



## DEPECHE MODE!

Klipsch's new £300 Mode M40 headphone features high-grade leather cups for unwavering comfort and state-of-the-art, active noise-cancelling (ANC) that lasts up to 45 hours on a single battery, the company says. Unique to Klipsch's ANC model, the Klipsch Mode M40 allows for uninterrupted listening potential, as it continues to function as a high-performance stereo headphone even without battery power. Built from the same durable materials used in high-end eyewear and accompanied with cloth cables like those used in premium hi-fi systems, this headphone proves to be Klipsch's most luxurious and fashion-forward model to date, it is claimed. For more details, click on [www.klipsch.co.uk](http://www.klipsch.co.uk).



## RETURN OF THE DAC

NAD Electronics' new £295 DAC 1 Wireless USB Digital-to-Analogue Converter is described as "a simple solution to enjoy the world of computer music on a hi-fi system with the sound quality for which NAD is known". The DAC 1's point-to-point wireless technology features a full audio bandwidth without audio compression. It does not require a Wi-Fi network connection and listeners can enjoy audio files stored on any computer within a 25- to 40-metre range. With an easy software-free setup, listeners can simply insert the Transmitter module into the USB port on a PC or Mac and connect the DAC 1 to a hi-fi system to enjoy 16/48 uncompressed audio files in flawless form, the company says. Comprising two parts, the

DAC 1 Transmitter and Receiver are paired to transmit digital signals between a PC or Mac and a hi-fi system. Acting as the computer's soundcard, the DAC 1 Transmitter wirelessly sends a digital signal to the Receiver, which then converts it into an analogue signal using an advanced premium Burr-Brown 24/192 DAC and op-amps. A coax digital output is also included for downstream digital processing. Several smartphone applications such as Apple's Remote App are all available and allow remote operation of computer-based media files. With a click of a smartphone or iPad, the listener has a full user interface and 'fingertip' navigation for total control over music and video collections stored on a home media library or broadband-supported devices. For more information, call +44(0)1279 501111 or click on [www.armorhome.co.uk](http://www.armorhome.co.uk).

## STORM WARNING

As one of the most gifted designers of his generation, Storm Thorgerson has created album covers for many of the most iconic musicians of the last century including Led Zeppelin, Pink Floyd, Black Sabbath, Megadeth, Muse and Mars Volta. There's an exhibition of his work at London's Idea Generation Gallery, which includes interactive installations that allow members of the public to make and take their own versions of certain album covers. Live events will also take place throughout the exhibition making this a truly immersive experience. It runs from the 21st October to the 20th November, at Idea Generation Gallery 11 Chance Street, London E2 7JB. Nearest tube is Liverpool Street or Old Street. For details call +44(0)207 749 6850 or email [galler@ideageneration.co.uk](mailto:galler@ideageneration.co.uk).



*AE Reference 2***SMALL TALK**

Acoustic Energy's new Reference One (£1,495pr) and Reference Two (£1,995pr) draw on the original AE1 and AE2 designs that shot the company to hi-fi fame in the nineteen eighties. Chief Engineer Mat Spandl has developed the concept using cutting edge engineering and advanced materials to deliver the best AE1/AE2 sound yet, the company says. Heavyweight self-damping cabinets are featured, with a proprietary AE laminate, a Dual Ring Radiator tweeter set in a DXT lens, AE's signature alloy driver with conical dust cap and a high-end straight path crossover. Finished in luxury full gloss Macassar Ebony veneer, the Reference One and Reference Two are AE's most accomplished and musical loudspeakers to date, it is claimed.

The new cabinets use a proprietary laminate that sandwiches a composite rubber layer between traditional MDF panels. Having identified a perfect balance of rubber layer density, elasticity and thickness the cabinet structure was designed to ensure the constrained rubber layer perfectly bonds and isolates the 'inner' MDF cabinet from the 'outer' MDF cabinet. Both Reference One and Reference Two are extensively braced internally, stiffening the panels to further reduce unwanted sound transmission. Reference One uses cross-section brace bars to create a labyrinth that absorbs rear energy output of the mid/bass driver unit. The larger Reference Two demanded a series of internal bracing baffles that harmlessly disperse the twin-driver's high energy output inside of the cabinet.

To improve on AE's Ring Radiator tweeter, they enlisted the specialist engineering facilities of Vifa Audio in Denmark. The new Reference Ring Radiator sports improved materials, higher specification motor and the use of innovative copper shorting rings to further reduce distortion. AE has also developed a DXT lens for the Reference tweeter to give a very even response both on and off axis. For the mid/bass unit, an alloy cone and conical dust cap are used, and the motor units features oversize ferrite magnets and dual wound alloy voice coils. The Reference One's single mid/bass unit also features an underhung motor with ultra-long linear throw. The crossovers use "high end components, ultra-short signal paths and the minimum number of individual components possible", including high-voltage polypropylene capacitors, laminated core inductors and a dedicated transformer to match the tweeter output to the midrange.

Each Reference cabinet is hand finished from the MDF layer up. The rich Macassar Ebony veneer was chosen for its eye-pleasing striped pattern of deep reds and browns. It is a very hard wood, and a total of nine layers of high gloss lacquer are applied to the veneer, each one being hand rubbed before the next layer is applied. AE has also developed matching Reference Loudspeaker Stands for £295. Crafted from multiple layers of the very same proprietary rubber-sandwich material, they offer a very stable and inert platform. Each stand is discreetly finished in satin black with a subtle Macassar Ebony veneer insert panel on the upright. For more details, click on [www.acoustic-energy.co.uk](http://www.acoustic-energy.co.uk) or call +44(0)1285 654 432.

*AE Reference 1*

## HAPPY BIRTHDAY TO YOU

Meridian Audio has released a Limited Edition Anniversary Sound System to mark forty years of achievement. With more than 165 international awards bestowed on their product designs, the two founders of Meridian have collaborated again to produce a limited edition 40th Anniversary System, comprising an enhanced pair of the company's flagship DSP8000 loudspeakers and a special version of their 808 Signature Reference CD Player. This exclusive system is limited to only 40 numbered editions worldwide, each system is signed by Bob Stuart and Allen Boothroyd, and comes with an engraved plate showing its unique system number, and includes a number of unique additions. The exclusive Ruby finish isn't available on other products in the range, and comes with coordinated glass inset panels, loudspeaker grilles and tweeter surround. Even the drivers are treated with a new, polished bezel. Each system will also come with a book, illustrating the rich history of Meridian's exceptional Digital Signal Processing (DSP) loudspeakers, which is also signed by Bob and Allen. Reflecting the high-level of customer service which Meridian prides itself on, owners of the Anniversary system will be offered the opportunity to receive a Meridian Engineer to fine tune the sound system in their homes following installation. Available from October 2011, the Anniversary System is on sale at a suggested retail price of £60,000. For details, call +44 (0)1480 44567 or click on [www.meridian-audio.com](http://www.meridian-audio.com)

## CAN DO

Vancouver-based Brunoco is debuting in the UK. Its £499 DIVA (Digital Versatile Amplifier) incorporates a 24bit/192kHz DAC and a 24 preset digital equaliser, and there's an analogue RCA stereo input and a choice of USB (B type), optical or coaxial digital inputs, with a sampling frequency up to 192kHz. The amplifier is rated at 40W RMS per channel into 8 ohms enabling this compact amplifier to drive a variety of demanding modern loudspeakers, the company says. DIVA accepts digital data music data from various hosts – a computer or more traditional digital playback components. Digital inputs and the state-of-the-art DAC process the signal up to a 24bit/192kHz resolution. All one needs is a source of choice (digital or analogue), DIVA and a pair of speakers for a complete high quality system. It comes in an elegant, sand treated/brushed/anodised aluminium chassis. A sophisticated two-line white LED on blue background display shows all the relevant parameters, while a remote control completes the package. A seriously designed, large separate analogue power supply, with "ample" current and oversized reservoir capacitors guarantee a dynamic and very resolving sound with plenty of headroom for complex and demanding music, it is claimed. Vital statistics are 200x60x231mm and 3.2kg. Contact Audiofreaks (+44 (0)20 8948 4153, [www.audiofreaks.co.uk](http://www.audiofreaks.co.uk)) for details.



## HIGH FIDELITY

High Resolution Technologies' new £145 HeadStreamer is their latest high performance USB based external DAC, said to be an ideal partner for anyone who listens to music from a computer via headphones. The HeadStreamer "significantly improves the sound quality of the music when compared with the analogue output from the computer, as well as to that of many other dedicated headphone amplifiers", it's claimed. Its compact size and low weight make it extremely portable, and a handy velvet carry pouch is supplied (to protect it while on the move), along with a 0.5M USB cable. The HeadStreamer has asynchronous transfer protocol for jitter-free operation, up to 24/96 capability and bus powered operation. There's an onboard analogue volume attenuator and headphone amplifier, with sample rate and mute indicators. Contact Audiofreaks (+44 (0)20 8948 4153, [www.audiofreaks.co.uk](http://www.audiofreaks.co.uk)) for details.

## IN CHARGE

Duracell's new £39 Portable USB Charger (1800mAh) is ideal for digital portable users, as well as smartphones; it's described as an ideal option for those with multiple devices on the move, able to provide extra power anytime, anywhere. It charges two devices on the go, features a power-check button for added convenience and a micro-USB cable (and Micro-to-Mini Tip adapter) is included. For more details, click on [www.duracell.co.uk](http://www.duracell.co.uk).



## COMPLETE MAD-NESS!

My Audio Design recently donated a pair of their Julian Lloyd Webber loudspeakers (complete with Julian's autograph) to an auction for Project Hope, a charity which builds schools for underprivileged children in China. The speakers fetched the highest price amongst all items auctioned and raised £12,800. For more details, see [www.madengland.com](http://www.madengland.com).





# Quiet Life

There's a kind of hush in David Price's listening room, as he reviews Item Audio's DAT 1 USB Silverstone Edition digital audio transport...

**P**ut a medium wave radio anywhere near your PC or Mac and it's a deafening wall of constant high pitch noise, as the processors cycle at large multiples of 1MHz, and vast, vast numbers of calculations are done by masses of circuitry Factor in a massive switch mode power supply, machine gunning vast amounts of extra radio frequency interference all over the machine's innards, and that whirring fan needed to keep it all cool, and a modern computer is hardly a sea of tranquility...

That's what computer audiophiles are up against – a computer sprays electrical interference all over itself (and the surrounding area), which

of course has to go somewhere. It ends up in the power supply ground rail, which is shared with all sections of the computer – so even if one part of it is well screened, if it shares the same power ground with other noisier bits, it is in effect polluting everything around.

If you're serious about audio on a computer, you have to start a multi-pronged attack on this noise. First, forget about your computer doing loads of other stuff; don't expect to browse the internet. Don't use a hard disk drive, with what's effectively a disc spinning at high frequencies, sending vibes all around and pulling at the power supply as its servos move the head around at super-fast speeds. Don't expect to be able to use a cooling fan, as that's a source of the

most easily audible mechanical noise, and don't use a standard computer switch mode power supply with all the RFI it spits out.

Then there's the software; you'll need the minimum of CPU usage (to minimise power consumption), and you'll want an operating system that's not doing too much housekeeping in the background. Then, and *only* then, can you even begin to get anything approaching the conditions needed for serious sound. Compared to an audio computer, designing a CD player is a veritable walk in the park...

Item Audio's Mark Walsh has been delving deep into the innards of PCs for many years, and is also a keen audiophile (he runs a pair of Yamaha NS1000Ms in his main system, no less). In the past five or



so years, according to Mark, it was at last possible to combine his two passions in one, and build bespoke audio computers. These, as you can imagine, have seen countless iterations, but he's now settled on the basic structure of a Windows XP Pro machine (which he says is by far the most stable for the task in hand), running Solid State Drives (SSD) as opposed to hard disk drives, with fanless operation, non-switching power and USB output.

Mark thinks the latest generation of asynchronous USB DACs have allowed computer audio to finally come of age; basically the clocking in stock S/PDIF and/or TOSLINK isn't good enough, whereas USB now allows audio computers to benefit from decent clocking via the latest generation of DACs.

Put all this together – the good timekeeping of a modern DAC and the low noise environment of a 'best practice' audio PC – and you've got a decent chance to get good sound from your computer.

## THE PACKAGE

The Item Audio DAT 1 USB Silverstone Edition reviewed here is an attempt to build the lowest noise computer audio platform possible at – or near – the price. It has no soundcards, optical drives or video capability; basically it's a stripped down box of bits with one overriding aim, which is to provide as little noise as possible via USB output to an external hi-fi DAC. In effect, it's a digital transport, just like a CD transport, but being a computer it's not limited to Red Book CD playback, and nor is it limited to one single optical disc. You can use a Network Attached Storage device to give vast amounts of hard disk storage, or specify more onboard SSD storage than the stock 64GB (up to 512GB is available, at approximately £1 per extra GB), or even have an internal hard disk fitted (not ideal, but do-able if you must). There's also the option of a service pack with a built-in CD-ROM drive for ripping (including Exact Audio Copy software) for £150 extra.

It's important to point out at this juncture that it's not a swish one-box solution like, for example, Naim's UnitiServe. Instead it occupies a different niche, built for users who want maximum sound per pound, and real flexibility and extensibility too. It's "open source", as Mark puts it, offering easy upgradeability now and in the future.

The DAT 1 comes in two large PC-sized boxes, finished to a decent standard but in no way could you

call them luxurious. One box is the power supply, the other is the computer itself, and then you'll need an Android OS tablet or smartphone as a controller, and a screen, keyboard and mouse for initial set-up work, plus of course a Wi-Fi broadband router.

When the initial set-up is done, you can dispense with everything except the two big DAT 1 boxes and a controller of some sort, and the system becomes far more user (and hi-fi system) friendly; then it begins to feel like a source component instead of a PC...

Because there are so very

"sumptuous, sweet and satisfying, I could listen to digital like this all day..."

many possibilities, this latest DAT 1 Silverstone Edition is effectively a line drawn in the sand, for customers to get a highly functional box for under £2,000. There's a myriad of options, but the basic system gives you a dual core Mini ITX 45nm Atom-based motherboard with 2oz copper PCB, a deep cryogenically frozen mainboard and SATA cables (claimed to slightly reduce operating temperature and lower board latency to the 5-10 microsecond range), and a power supply unit incorporating three linear regulated frame-type transformers capable of delivering 9A, with 3.3V, 5V and 12V rails (with the option of an additional fourth power supply for optional optical and HDs with entirely separate grounding.

The single component that "does most of the heavy lifting" according to Mark is the SoTM tX PCI card, which delivers a very low noise USB output – this is the heart and lungs of the machine, where it meets the outside world to feed your hi-fi DAC with super-clean, low noise digital music data. There's also a SoTM SATA filter for noise reduction on the Solid State Drive, and the internal cable loom is pure silver by Mark Grant Cables.

The DAT 1's casing and chassis also sports Stillpoints ERS fabric damping sheets and additional

copper screening throughout to lower RFI and mechanical noise. Low latency DDR3 RAM is specified (2GB, although this is expandable if required).

The software supplied is Windows XP Pro, running JRiver Media Centre with the Gizmo app for Android tablets and smart phones (an Advent Vega 10 inch tablet was included for review purposes).

There's a VGA monitor output (although no monitor is supplied – not a huge problem as they're only around £50 now), and Ethernet connectivity (no Wi-Fi is included, for reasons of sound quality) is standard,

as is a five or ten metre Ethernet cable. A USB keyboard and mouse are provided, but these are for administration only – you shouldn't need them in normal use.

Optional extras include a Firewire output for £50 (if you want a Firewire-only machine without USB connectivity then subtract £250 from the price). There are also options for S/PDIF output via optical, coaxial or AES/EBU (from £325-£2,250



extra), USB cable packages from £50-650 extra, including dual-conduit and battery power option (Valab, Wireworld, Revelation Audio Labs). Optional internal HD storage of up to 4Gb (NAS preferred) comes in at £75, and an internal DVD drive for CD conversion is £55. There's an optional Cinema Pack for Blu-ray playback at £495.

## UP AND RUNNING

As supplied, the DAT 1 comes as two boxes – the power supply and the main unit. Installation is simply

a case of connecting the former to the mains and the latter to the former by the three XLR terminated cables. Then you hook up your monitor, keyboard and mouse, plus an Ethernet cable from your router, then turn the front power switch of the power supply, wait ten seconds and press the 'on' button of the main unit. The computer boots up as per a standard PC and goes straight into JRiver, which is an iTunes-like music manager. You can then load up your music by dragging and dropping from a plug in USB hard drive or memory stick into the 'My Music' folder, after which JRiver does the rest, getting album art and metadata. You can also load music on via your home network, or configure the DAT 1 to see your NAS drive (if used).

All the software running 'behind' JRiver is designed to do so invisibly, and to minimise CPU use. The Windows XP Pro is "stripped back as far as it can go", says Mark, "running one hundred and fifty threads during playback instead of the normal four to five hundred". Basically, in normal use, the computer is just running network services, to push and pull information to and from the remote controller (i.e. tablet or smartphone), and to stream from a NAS drive. JRiver ensures that the music data is spooled into the computer's memory beforehand, and then direct to the USB card, so when it's playing the SSD isn't being used.

This highly 'closed' system means of course that you can't surf the internet or play Space Invaders on the DAT 1, but it guarantees that it's only performing the minimum of 'known' functions, none of which are sonically deleterious. Having given the tablet controller the key to your home Wi-Fi network, there's no need for the keyboard and monitor, so from then on you can remove them from your listening room and run all your music access via the Gizmo app, running on the tablet (or your Android smartphone).

If all of this sounds a bit of a rigmarole, then it is. The DAT 1 is not designed to be a simple one-box network music player, such as a Cambridge Audio MP30 or Naim UnitiServe, but when you've done the initial set-up, the unit can sit relatively inconspicuously in your system and it becomes very much a hi-fi source component, rather than a computer.

When I'd got to this stage, the unit performed very well, in a stable fashion and not so much as a hint of crashing, freezing or even stopping to have think, as some PCs still do. Ironically, the only problem in use was the tablet controller running

Gizmo. Gizmo itself is an excellent user interface for JRiver, giving an iPod Touch-style feel to the process of using the DAT 1, but the tablet it was running on had a limited battery life and a tendency to fall off the network thanks to its mediocre Wi-Fi range. Obviously, if you're running your own smartphone and/or tablet you may well never experience this – but in my house with the Advent Vega tablet, I did and it was a pain!

## SOUND QUALITY

All the listening was done via my reference dCS Debussy DAC; the DAT 1 was connected with a good quality USB lead, which synced easily and gave me easy access to hi res audio to a maximum of 176kHz sampling frequencies during the test period. My dCS has recently had a firmware mod to provide 24/192 capability, but I didn't have any 192kHz files to hand to test this. Most of the listening was done with 16/44 CD-quality files (in WAV and Apple Lossless) and 24/96 FLAC. With CD-quality files, I was able to do direct comparisons with the latest Cyrus Servo Evolution transport playing the original CDs from which the files were ripped.

Kicking off with a 16/44 file of 808 State's 'Pacific State', which on middling digital equipment is seriously mushy and indistinct, and I was impressed with the Item Audio's combination of warmth and precision. There was a searchingly detailed quality to it, yet it didn't in any way shout out. I was also impressed by the innate stability and solidity that the music had; the mix was fizzing with detail, yet the saxophone soared from behind it with smoothness and finesse, whereas it so often comes out to sear at your ears. At the same time, the DAT 1 captured the song's sumptuous analogue synth glides, with real depth and warmth. By comparison, the Cyrus transport seemed just a little less precise, with just a fraction less depth to the soundstage; things seemed to jump forward slightly at me.

Cola Boy's 'Seven Ways to Love' (Saint Etienne by another name) showed no big change; a track that can sound quite forward and edgy via Compact Disc seemed to have

fallen back slightly, losing a little of its sharpness and bite. Yet there was masses of detail, the DAT 1 feeding the dCS with a wealth of detail that let it build a surprisingly wide soundstage, inside which all those layers of the mix seemed to thrive. I found it very easy to listen in to different strands of the mix, the music having an easy stability to it that reminded me of a mastertape – not something you always get with digital, surprisingly.

The same sensation came from The Spice Girls '2 Become 1' – hopelessly compressed and appallingly badly recorded, normally the CD has me reaching for the mute button *tout de suite*, but strangely the DAT 1, driven by the dCS Debussy, seemed remarkably together and musical, reaching right into places other transports cannot reach. Again, the Cyrus playing the source CD sounded a little diffuse and a touch unsure of itself. In a sense it's an unfair comparison, as you wouldn't expect the Cyrus to have the Debussy's superlative master clock (which was driving the DAT 1), but it just goes to show that the DAT 1 wasn't failing in its job of providing an ultra low noise digital datastream, timed to perfection by the dCS.



Moving to classic seventies pop in the shape of Daryl Hall and John Oates' 'Kiss on My List' on 16/44 WAV, and I was struck again by the smoothness of it all. There was little to criticise, just a stable and musical rendition, with – perhaps – just a fraction more finesse.

So it was time to up the sampling frequency with a 24/96 FLAC of Astrud Gilberto's timeless 'The Girl From Ipanema'. This was like night and day, the soundstage filling out to a vast widescreen, and falling back further too. At the same time, I really began to detect a certain 'creaminess' to the dCS; fed with a hi res signal it's like moving from semi-skimmed



to full fat milk. You'd never speak of it in terms as sounding analogue, but it smooths out and purrs like the cat that got the cream.

We all know the benefits of 24/96, but we've all heard very mediocre versions of this; not so here, as the sax soared ten or so feet about the speakers as Gilberto's voice lilted in time with it. Sumptuous, sweet and satisfying, I could listen to digital like this all day – not something I normally find myself writing. The vinyl pressing of this is sublime while the CD is tragedy, whereas the 24/96 version just begins to claw itself back towards the LP version – it's not as good, but it's good enough.

A 24/96 FLAC file of The Moody Blues 'Nights in White Satin' was interesting; after the analogue creaminess of Astrud Gilberto, this sounded implacably digital. All tinselly and bright, it told me far too much about the poor remastering, regardless of whatever resolution it came to the dCS at. True, the album from which it came, 'Days of Future Passed', isn't a famously good recording, but this hi res transcription lacked the subtlety and grace of the vinyl original, whilst retaining its relatively ropey recording values. It's true that all that glisters is not gold, as far as hi res is concerned, and some remasters hardly better 16/44, if at all.

The point is of course that the DAT 1 proved a revealing digital source; whereas as so many computer transports reduce everything to a fairly similar sound, the Item Audio computer showed masses of differences between not just the bit depth and sample rates of the files, but the recordings themselves. This is just what a good moving coil cartridge does – it tells you in no uncertain terms what's

good and bad about what you're playing, yet somehow still manages to make the experience worthwhile.

Perhaps the most satisfying of all I heard was simple 16/44 playing Steely Dan's 'Babylon Sisters'. Sure, it couldn't hold a candle to 'Nights in White Satin' in terms of resolution, but it had the band bubbling with power and passion, beautifully syncopated and full of dramatic dynamic accenting. The sheer relentless power of the bassline, along with its fantastic fluidity, had my feet tapping uncontrollably, and those wonderful Walter Becker guitar stabs and that superbly laid back keyboard playing had me in raptures. On a fine recording, whatever the resolution, the Item Audio DAT 1 lets the light shine in and you can take in everything in its full glory.

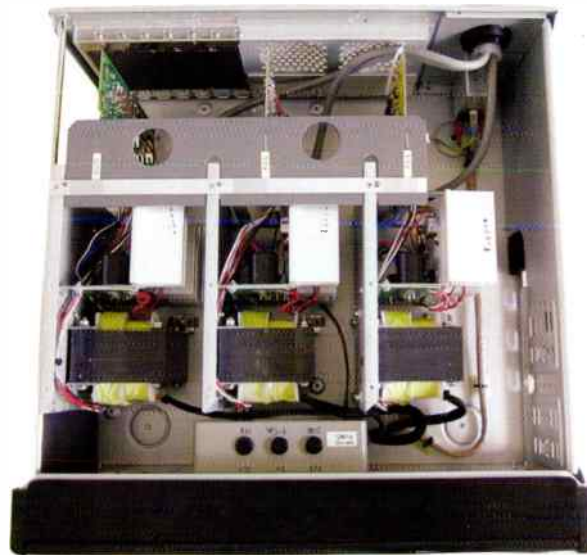
**CONCLUSION**

In some ways, the Item Audio DAT 1 USB Silverstone is oversized and overblown. Physically bigger than pretty much any hi-fi separate I've ever seen, it's hardly the sort of thing you'd buy to save space by dispensing with all your physical media!

Compare it to the slim simplicity and aesthetic purity

of the Cyrus CD8 SE XT transport for example (at only a few hundred pounds less) and most sane folk would have the Cyrus in their listening rooms over this. Ditto, put it against a Naim UnitiServe network music player (admittedly a bit pricer), and most would pick the Naim...

Except the Item Audio isn't a lifestyle, minimalist contraption, and is not about making just a small footprint on your hi-fi rack. It is single minded in striving to give an extremely high quality (i.e. low noise) digital datastream from its USB output, to feed to your DAC. It is exceptionally versatile and upgradeable. It will of course play any resolution that USB will take, namely (currently) 24/192, when of course the lovely, elegant Cyrus CD transport tops out at 16/44. It plays pretty much any computer audio format you care to name, including those Apple-specific ones than so many rivals can't. And when new technologies come, or if you need extra functionality, you can pick



up the phone and get it relatively inexpensively from Item Audio. As such, it's super value for money – able to provide truly excellent quality digits for your DAC at a relatively affordable price, that's where the DAT 1 earns its stripes. There's a certain type of customer for which this will be precisely what is needed; for them I'd hesitatingly recommend it.

**REFERENCE SYSTEM**  
 Cyrus CD Transport  
 dCS Debussy digital to analogue converter  
 Musical Fidelity AMS35i integrated amplifier  
 Yamaha NS1000M loudspeakers

**VERDICT** ●●●●●  
 Intelligently designed bespoke audio computer that follows best practice for excellent sound. Highly customisable and upgradeable, but cumbersome compared to a domestic hi-fi separate.

**ITEM AUDIO DAT 1 USB SILVERSTONE** £1,999  
 Item Audio  
 ☎ +44 (0) 1782 621225  
 www.itemaudio.co.uk

**FOR**  
 - excellent digital source  
 - versatility, upgradeability  
 - customisable

**AGAINST**  
 - fiddly set-up  
 - unsteady tablet interface  
 - sheer physical size!

# TEAC New Reference 01



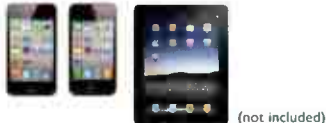
**Reference A-H01**  
Stereo Pre-main Amp  
with 24bit D/A Converter



**Reference UD-H01**  
32bit D/A Converter with  
USB Audio Interface



**Reference DS-H01**  
iPod, iPhone, iPad docking station



**Tenor 8802**  
Pure HD USB Audio  
DAC module



**USB class2**  
high-speed input

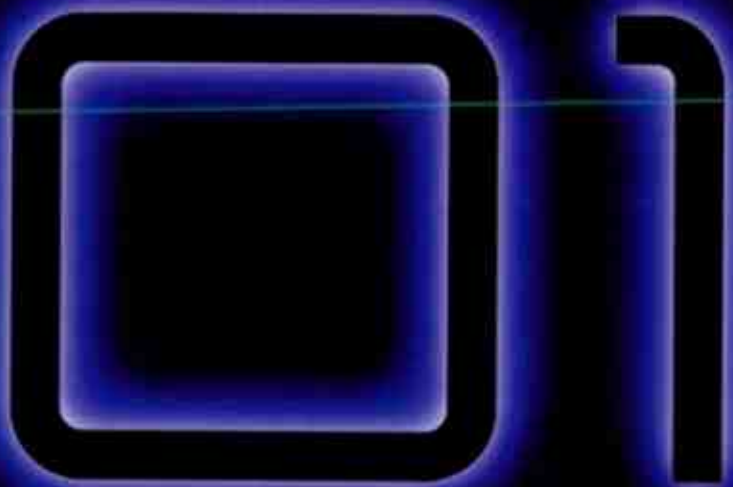


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entertainment from  
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The leaders in digital music

R E F E R E N C E



## FUTURE PROOF

This is the new Reference 01 Series from TEAC.

A mix'n'match system of real hi-fidelity quality in small, beautifully designed units.

With options from the 24 bit power DAC using the latest Ice Power technology to the incredible High End specification of the 32 bit D/A converter, the Reference 01 series represents one of the most advanced ranges ever produced. Play music from any iPod, iPhone and iPad in true hi-fi sound on the Reference DS-H01 Docking Station.

And the range will be increased early 2012 with the new wireless audio adapter and digital CD player.

This is not just a new product range.  
This is the future of music and entertainment.

Be a part of it and experience a new dimension.

visit [www.teac.co.uk/01](http://www.teac.co.uk/01)



# Armed Forces

It's an amazing thought, but there hasn't been a better time to buy a tonearm since the last time vinyl was in the ascendant back in the late nineteen seventies – so we thought it was time to try some of the latest and greatest. Adam Smith got out his Allen keys...

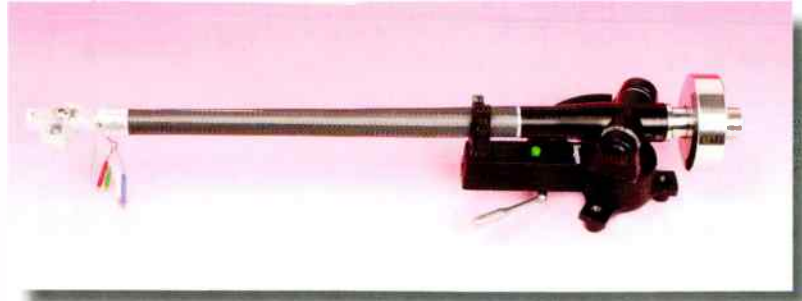
Understandably, when you think vinyl you think turntables. As well as being big, often sexy and sometimes striking to look at, the turntable is the beginning of the vinyl replay chain, and if this isn't right then the rest of your disc playing system will never achieve its full potential. The turntable has a fundamental effect on the sound of the system, and its importance cannot be overstated.

However, because of this, many forget the tonearm; it still surprises me how many high end decks I see touting mediocre pick-up arms, which often have been on there for years. A thousand pounds or so spent on a serious tonearm will have a transformational effect on your record deck, so much so that it can even make a budget cartridge start to sing. It provides a stable platform for your stylus, allowing it to accurately trace the record groove with the minimum of friction and vibration – not an easy task given the minute tolerances involved...

We decided to do a roundup of affordable audiophile arms. There's a wide range on sale, but some manufacturers such as Origin Live, Funk Firm, Rega and AudioNote were unable to supply us with review samples. But still, a strong five are being reviewed, with respected names from Inspire, ISOkinetik, Roksan, Clearaudio and SME...

THE CONTENDERS:		PAGE
INSPIRE X100	£699	P18
ISOKINETIK ISO1000	£720	P19
ROKSAN TABRIZ Z1	£849	P20
CLEARAUDIO SATISFY CARBON	£1,005	P21
SME 309	£1,200	P22

**REFERENCE SYSTEM:**  
 Garrard 301 turntable  
 Ortofon Kontrapunkt b cartridge  
 Audio Technica AT-OC9MLII cartridge  
 Anatek MC1 phono Stage  
 Naim Supernait amplifier  
 Ferrograph S1 loudspeaker (modified)





## INSPIRE X100 £699

**I**nspire's X100 tonearm is the latest in a long list of modified Rega variants, based as it is on the successful RB251. The overhaul to turn it into an X100 is quite comprehensive though, comprising hand-picking examples with the best bearings and the removal of most of the arm itself to be replaced by a new carbon fibre design. At the front end, the X100 also bears a simple and vibrationally effective cartridge support platform that makes cartridge fitment very easy. At this point, the arms then head north of the border for a thorough check, rewire and general fettle by Audio Origami and an earthing stud is added inside the arm tube to minimise any static-related issues. The X100 is then ready to be boxed up with its accessories and hit the shelves. Build quality is excellent and the arm is easy to set up and get running, despite the best efforts of the latest 3-point Rega mounting, which is a bit of a fiddle.

### SOUND QUALITY

Under audition, the Inspire is a vivacious and exciting listen but without ever betraying any signs of harshness or weakness. The base Rega design is obviously a competent one, but the tweaks carried out by Inspire and Audio Origami keep

the best bits of the donor arm's performance, and kick its weaknesses into touch very effectively indeed. The result is an arm with a solid, punchy and taut bass but with plenty of expressiveness and fluidity across the upper midband and treble. The X100 generates a performance that draws you in and makes sure you enjoy yourself. Spin something hard and graunchy and the X100 will mosh along with the best of them, helped greatly by a weighty and detailed bass and a lower midrange that is both purposeful and blessed with a pleasing lightness of touch. Rhythmically, the X100 is spot on the money and simply loves to have a

good time!

Equally however, the arm can rein itself in very neatly when something a little more baroque and thoughtful is called for. With an Ortofon Kontrapunkt b fitted, the X100 shows off a polished midrange with plenty of detail and a nicely balanced soundstage that stretches back into the distance and off to the sides by a well judged amount. Topping this off is a crisp and beautifully ordered treble that ensures nothing at the top end is missed or glossed over. In summary, the X100 is a well thought-out design with a highly alluring excitable streak that really doesn't do a great deal wrong in any area.

### VERDICT ●●●●£

Well made and finely fettled Rega-based arm that builds perfectly on the donor design's strengths, offering excellent sound per pound.

### INSPIRE X100 £699

Inspire Hi-Fi  
 £44(0)3246 827272  
 www.inspirehifi.co.uk

### FOR

- sweet treble
- fine soundstaging
- midrange fluidity
- dynamic ebullience

### AGAINST

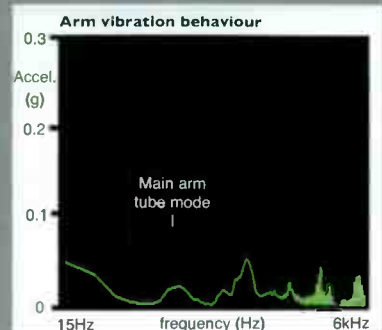
- fiddly 3 point mounting

## MEASURED PERFORMANCE

The Inspire Rega RB251 arm has a first bending mode at 230Hz, a fairly low value suggesting it is less stiff than many modern tubes. However, it is very well damped, so the main mode is well suppressed and the usual related third order mode hardly exists. The usual Rega tube signature around 1kHz has been all but eradicated. Also banished is the high frequency ringing of the headshell that Regas suffer (and that modern SMEs do not). So the new headshell works very well and should provide the sort of silky smoothness of SMEs, eliminating the small degree of edginess in Regas. Of course, Rega arms are very stiff and give great stereo and dynamics; this

upgrade successfully capitalises on those properties our vibrational analysis suggests. **INK**

### ARM VIBRATION





## ISOKINETIK ISO1000 £720

In all the excitement of the wide variety of modified Rega arms that can be purchased these days, it is often easy to forget that Rega make their own hot-rodded RB301 design called the RB1000! ISOkinetik's ISO1000 takes the OEM version of this arm and adds their own ISOweight, which replaces the original Rega counterweight. The weight has an offset mounting hole that lowers the arm's centre of gravity and ISOkinetik claims that this improves the sound by stabilising the stylus in the groove. As a bonus, the weight is available in three different masses to extend the cartridge compatibility range of the arm further. The arm itself bears a strong visual resemblance to the RB301, but its polished finish gives away that every part is precision made and hand-finished, with the whole arm taking twenty times as long to produce as a 301, it is claimed. The mounting base is also machined from a single block of aluminium but sadly, it's that infernal three point setup again! On the plus side, it is a very stable and secure fixing, but the downside is incompatibility with other mounts and also the lack of easy VTA adjustment.

### SOUND QUALITY

Any doubts that the ISO1000 is merely something of a

started-up RB301 are dispelled as soon as stylus hits groove and the arm announces itself as a very different beast. In place of its cheaper brother's slightly reined-in midrange, the ISO1000 offers a positively flowing and almost liquid sense of fluidity to vocals and instruments. The arm's overall sonic demeanour is very much like its appearance, in that the word that kept coming back to me as I listened to it was 'polished'. The ISO1000 is an effortless and captivating musical companion with an inviting upper midband and lower treble that effortlessly draw you into the performance.

At the low end, the traditional Rega bass is very much present and correct, but everything seems to snap into even better focus with the ISO1000 in control. Hard dance bass lines pounded out with precision

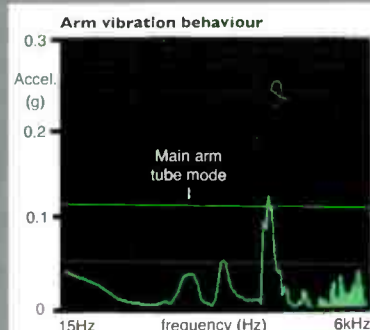
and real impact, but moving to some softly plucked acoustic bass left me admiring how easily the ISO1000 picked up on each individual note beautifully. Nothing was blurred together but the arm captured the underlying woody thrum of the instrument beautifully.

Once again, at the top end, that sense of poise and polish shone through, with the ISO1000 never attempting to shine a glaring spotlight on the treble, but tended to illuminate it precisely with some subtle but effective sonic 'mood lighting'. Hi-hats and cymbals came across with a deliciously metallic 'ting' and shimmered off into the distance as they decayed and the edgy sense of zing that can sometimes mar less than perfect recordings was expertly contained. An excellent pickup that really is super value for money.

### MEASURED PERFORMANCE

The arm's first bending mode lies at 275Hz our analysis shows, with a second order component at 600Hz. The Rega arm gets a little lively around 1kHz which is what gives it a little sonic character and this effect is evident in the Isokinetik with a broad peak from 1kHz to 1.6kHz, but it isn't too dominating. Overall this RB1000 variant looks as good as the Rega casting usually does, with well suppressed main modes that ensure good, solid bass and dynamics. NK

#### ARM VIBRATION



### VERDICT ●●●●£

Smooth, poised and cool like so few others at the price, this shows that one of the best Rega tweakers is Rega themselves!

ISOKINETIK ISO1000 £720

ISOkinetik

+44(0)208 241 8890

www.cabezon.eu

#### FOR

- gorgeous fluidity
- detailed bass
- sense of poise

#### AGAINST

- 3 point mounting again!



## ROKSAN TABRIZ Zi £895

One of the companies that has been giving Rega and their modified variants a run for their money for a number of years are also based in the UK and have another incredibly strong vinyl pedigree. Roksan appeared on the hi-fi scene in the nineteen eighties with the Xerxes and have followed this up with a range of vinyl playback equipment. The Tabriz was their second tonearm and was designed to partner the original Radius turntable although it has found itself on many other decks over the years.

The basic Tabriz is a conventional pivoted design, incorporating offset bearing geometry, whereby the bearing is below the arm tube, and the arm tube itself is machined from a single block of aluminium that also encompasses the headshell. As standard, the Tabriz comes with a conventional counterweight and retails for £599 but the 'Zi' nomenclature signifies the addition of Roksan's high definition tonearm cable, plus the intelligent counterweight setup used on the flagship Artemiz. This sits the weight on a pivot point in a rider that slides on where the normal counterweight would fit, and the new weight is free to move in all planes, offering better dynamic stability over warps and lower centre of gravity.

### SOUND QUALITY

It has been a while since I last listened to a Tabriz Zi and it was like revisiting an old friend that I haven't seen for years. The Roksan immediately attracts your attention with its effervescence and sense of willingness to have a good time, making it a fantastic partner for rock, dance and bombastic classical music. It has a mischievous sense of fun and dynamism about it that rarely fails to raise a smile with the right material. Bass from the Tabriz Zi is punchy and fast, with plenty of impact and a fine sense of timing. Analogue synthesiser bass lines were deliciously well-rounded and snappy, whilst the upper bass was lithe and fluid, if a little behind the best in ultimate detail terms.

Up in the midband the Tabriz Zi is very clean and superbly ordered in soundstaging terms, pushing images

well to the left and right in a very accomplished manner. The central image was also very strong and well focused and the arm only belied its status as not quite top of the Roksan range in its ever so slightly curtailed depth perspective.

At the top end, the Tabriz Zi again proved a fun musical companion. It can have a certain zinginess at times, although this is well tamed by the addition of the intelligent counterweight and, provided that you choose your partnering cartridge carefully, it is not an issue. As an example, my AT-OC9 was just a little too strident at times but the Kontrapunkt b worked beautifully. Get the combination right, though, and the treble is crisp, detailed and insightful, topping off the arm's pleasingly vivacious nature perfectly. An interesting, endearing, evergreen tonearm that has great appeal even today.

### VERDICT ●●●●

With a dynamic and spirited character, the Tabriz Zi is just the thing to pep up an over-smooth turntable.

ROKSAN TABRIZ Zi £849

Henley Designs

+44(0)1235 511166

www.henleydesigns.co.uk

### FOR

- vivacious character
- wide soundstaging
- lively dynamics

### AGAINST

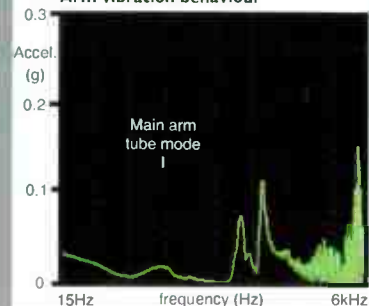
- match carefully to optimise treble

### MEASURED PERFORMANCE

The Tabriz arm has a first bending mode at a low 200Hz our analysis shows. The usual related second and third order modes are absent, but small, narrow 4th and 5th peaks show. In all the Tabriz is very well damped and quiet up the audio band to 1kHz. The bass and lower midrange region is as clean as the best, even though the arm is not as fundamentally stiff as some. High frequency headshell and tube modes were well suppressed too. In all the Tabriz measures well. NK

### ARM VIBRATION

#### Arm vibration behaviour





## CLEARAUDIO SATISFY CARBON £1,005

**T**he Clearaudio is somewhat unusual in this company because, as the 'Carbon' suffix might suggest, it is actually available in four different variants. The basic type has an aluminium armtube and retails for £860 but the increase to £1,005 of the review model brings a rather tasty carbon fibre armtube into play. As if this wasn't choice enough, satiné wood and ebony are also available should you prefer. As well as imparting a different sonic signature on the arm design, these also vary the effective mass of the arm itself, thus permitting good matching to a wide range of cartridges. Other than this, the Satisfy uses high quality Swiss sapphire bearings for both the vertical and horizontal planes and is wired with a continuous run of Clearaudio's Direct Wire. Tracking force is applied by an uncalibrated counterweight and bias by a very neat magnetic system that acts on the side of the bearing housing. As per the Inspire, the headshell is a very simple piece of drilled metal that bolts directly to a slot in the end of the armtube.

### SOUND QUALITY

Moving directly to the Satisfy from the Roksan was a very interesting experience as the two are quite different in

their sonic presentation, although equally enjoyable to listen to. The Clearaudio is a very smooth and languid performer that lets the music wash over you in a glorious wave of subtlety and understated insight. At the low end it has a lovely, big fulsome bass that never fails to entertain with its sheer presence and feeling, although it can lack a certain finesse and tautness at times with faster-paced material.

In the upper reaches of the spectrum, the Satisfy deals with the minutiae of musical detail very well indeed, picking up fine points buried in the back of recordings expertly, and presenting top end information without a hint of glare or spit.

Across the midband the Satisfy has a warmth and fine sense of intimacy that picks up instrumental

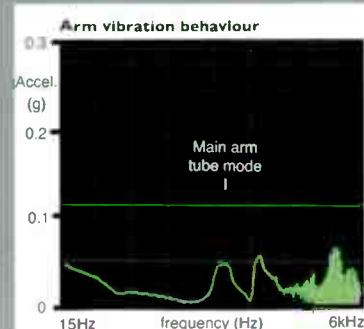
detail very well indeed. Of all the arms on test it has the best midband projection which plants vocalists perfectly in the centre of the image and stretches the backing material nicely behind and to the sides of them.

Despite the Clearaudio's innate subtle and composed nature, faster paced material did not faze it, and it remained a couch and enjoyable listening companion throughout the listening session. On this occasion, however, I found that a change back to my Audio Technica cartridge proved beneficial just to add an extra *souçon* of sparkle that the Ortofon occasionally seemed to be lacking. This proved a very successful combination and the result was a well-balanced and enjoyable performance.

## MEASURED PERFORMANCE

The Clearaudio Satisfy Carbon arm is very stiff with a main bending mode at a high 580Hz and the related third order bending mode at 1160Hz. As there are no modes lower than 580Hz in the Carbon it is both stiff and well damped suggesting as always that bass dynamics and stage width in the lower midband will be good. The tube is clean at higher frequencies and energy levels were low above 1kHz so there should be little treble character and a smooth presentation to treble.

### ARM VIBRATION



### VERDICT

A veritable smoothie, the Clearaudio Satisfy does exactly as the name suggests and is a highly enjoyable listening companion.

**CLEARAUDIO SATISFY CARBON** £1,005  
Audio Reference  
☎ +44 (0)1252 702705  
[www.audioreference.co.uk](http://www.audioreference.co.uk)

### FOR

- delightful midband
- good image placement
- smooth, unruffled nature

### AGAINST

- bass can lack finesse



## SME 309 £1,200

**T**he SME Series V was nothing short of a paradigm change for tonearm design back in 1987, and many wondered how they would follow it. The 300 series was the answer, effectively a stripped down V with a 12" option called the 312. The 309 tested here is the nine inch arm in the range and does indeed look very much like the V. However, it is rather simpler, with tracking force applied by counterweight alone and a detachable headshell. The 309 is not short of technology however, still making use of a tapered one-piece magnesium armtube with internal constrained layer damping for maximum vibrational absorption.

Equally those so-called compromise areas still have tricks up their sleeves; the detachable headshell clamps using a solid screw fixing at the side and the counterweight is mounted on a very fine screw thread that applies 0.5g of tracking force per revolution. The weight can then be locked in place once the correct force is set. Naturally the 309 mounts to the turntable using the usual SME base, which is a pleasure to use and a doddle to adjust, and comes in a typically exceptional set of packaging with all tools and jigs necessary to have you up and running in a jiffy.

### SOUND QUALITY

SME arms tend to polarise opinion in sound quality terms

and as I began listening to the 309 I remembered why. Frankly, the 309 is quite different in its presentation to all the other arms on test, simply because it seems to have very little character of its own. I do mean this in a very positive way, simply because the result is that there seems to be nothing to taint or embellish the sounds that you are supposed to be hearing. The music coming from my loudspeakers seemed a little louder, despite the volume control being in exactly the same spot, and everything I listened to suddenly seemed much more dramatic and intense. Indeed, one test track's vocalist seemed to have cleared his throat and moved his microphone about a foot closer to me, compared to the last time I had heard the track.

Bass is incredibly solid, fast, deep and detailed but without any hint of boom or overhang. Low notes started instantly, but, more

importantly, stopped in exactly the same way, never outstaying their welcome. Further up the frequency range, the midband is focused, precise and stunningly detailed with absolutely everything captured in vivid relief and set in a soundstage that projects out into the room like little else. Top this off with a treble performance that has a purity, clarity and mastery of insight and, frankly, I was quite startled by how some of my records sounded quite different to the sound I was used to. It's an incredible sound, one that's very mastertape-like, but some will find it a touch too 'hi-fi' for their tastes; the SME is a seat-of-the-pants performer – all drama and fireworks – and *perhaps* not the sort of arm you'd want to relax with at the end of the day with a glass of wine. This is pretty much the only chink in its armour, if indeed you regard it as such.

**VERDICT** ●●●●●  
 Astonishing clarity, focus, precision and impact make this a riveting performer – and its build and finish are peerless.

**SME 309** £1,200  
 SME Ltd.  
 +44(0)1903 814321  
 www.sme.ltd.uk

**FOR**

- superlative bass
- glorious detail and insight
- soundstage depth
- superlative build and finish
- effortless set-up

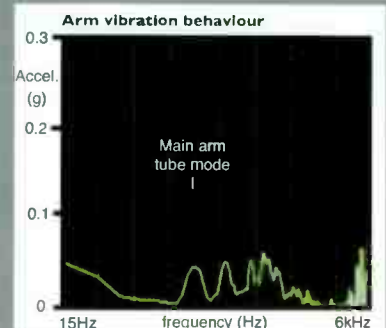
**AGAINST**

- cerebral nature not for all

## MEASURED PERFORMANCE

The SME309's tapered rolled arm has a first bending mode at a high 300Hz our analysis shows. There are two related modes, second order at 600Hz and the more common third order mode at 900Hz. All are very well suppressed though, showing this is both a stiff arm and a well damped one. High frequency energy is low around 1kHz and headshell modes above 2kHz are very low, as is common with SME's webbed headshell. The small under webs break up high frequency modes effectively and help a lot toward giving SME arms a smooth midrange and treble. NK

### ARM VIBRATION



Thinking about it in pure graft terms, a tonearm test requires more work than almost any other group test I can think of, given that each arm has to be mounted and aligned, the cartridge fitted and everything set up just so. If any areas on a tonearm setup are skipped or treated too casually, then there is no hope of obtaining the best results. Fortunately, those hours I spent on my knees slaving away in front of the turntable were rewarded many times over by the results obtained during this test. All of these arms are very fine musical performers and will have no problem gracing almost any turntable you care to think of. Each has its own character, however, and some will undoubtedly appeal to one person more than others, but I'll wager that not one will disappoint.

First to consider is the Roksan Tabriz Zi. This is a design that has been around for a few years now but, frankly, it still feels as fresh as a daisy. The 'Zi' upgrades command a premium over the standard arm but I believe they are worth it, turning a good mid-priced arm into one that is very good indeed. If you're looking for a design to put a bit of pizzazz and fun into your system then look no further – you've found it. The Tabriz Zi is a dynamic and gutsy performer that never runs out of get-up-and-go or feels like it's about to lose grip on the situation. This ebullient nature does mean that careful cartridge matching is a wise move if things aren't to become a little too over-zealous, but the Roksan is a fine design and a thoroughly enjoyable performer.

Almost diametrically opposite in sonic terms is the Clearaudio Satisfy. This arm is *much* smoother and more relaxing and is a perfect companion for those late-night listening sessions involving a dimly lit room, a single malt whisky or three and some smooth jazz. The Satisfy simply takes the music and pours it gently over you in a continuous wave of sumptuousness – it's a long hot bath compared to the invigorating power shower that is the Roksan! Once again, if things aren't to tip over from relaxing to soporific, then a perkier cartridge is a wise move but the Clearaudio is one of those designs that could extend your listening sessions almost indefinitely with its alluring sense of, "oh, go on, just one more track, then..."

Moving onto the ISOkinetik and the Inspire, we have an interesting counterpoint, with the arms being two sides of the same coin. Both are their manufacturer's ultimate

expression of a high quality budget design, but the ISOkinetik achieves this by fine tuning and careful selection and assembly of the arm's base components, and the Inspire by taking the components that could be improved, removing and replacing them. In many ways, their underlying sonic signatures are actually very similar, with both offering a fulsomely detailed midrange, a delightfully clean and insightful treble and the tight, fast, deep bass that Rega arms have long been known for. It is the finer details that mark the differences between the two designs – the ISOkinetik is that little bit more smooth and sophisticated, although capable of rocking with the best of them when required. In contrast, the Inspire is less dynamically constrained and sounds that little bit less congested when the going gets fast and furious. Both are exceptionally capable designs at the price. You could, if you like, think of them both as James Bond arms – the ISOkinetik is a bit more Pierce Brosnan and the Inspire more Daniel Craig but you'd be happy to have either on your side when going up against the baddie known as 'digital', who's out for world domination!

So, that leaves us with the SME. Usually with a test of this type I will spin a good few chosen tracks under each candidate and then reach for the notepad and start making notes. When it came to the SME's turn I realised I had been listening for over five hours and I hadn't written a thing. The 309 simply won't let your attention drift away from the music for a second. It doesn't shout, it doesn't show off and it doesn't attempt to pull any sonic party tricks to try and keep you amused. Quite simply, it just gets on with effortlessly pulling every single fibre of information from the record and making sure not a hint of this is lost on its way to your ears. The old "I heard things I've never heard before" is a well-used hi-fi reviewer cliché but even I was rather surprised, not to say slightly disappointed, by the way in which the 309, in its own quiet way, pointed out a few shortcomings in even my own tweaked reference Alphason arm. It may not *quite* have the SME V's jaw-dropping 'wow factor' but it really isn't far off. I can appreciate that it may just be a little too dramatic and forthright for some, but if you're not scared of what you might hear, you owe it to yourself to audition the SME. Excellent value though all the other contenders are, the premium priced 309 is thoroughly deserving of top spot on the podium. **AS**



**SME 309 - sonic fireworks, but you pay a premium price!**



**ISOkinetik ISO1000 - one of the best value arms around.**

"each has its own character, and some will appeal to one person more than others, but I'll wager that not one will disappoint..."

# POWERCUBE SPC

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*Wharfedale*





### HI-FI RACKS PODIUM T5 III £199

Hi-Fi Racks deal in wood, solid wood – no MDF or veneer – just pure oak, maple, cherry, mahogany and more. In fact, their products look more like furniture than accessories. I tested the oak-based speaker stands with a 185x240mm top plate (and four,

stick-on, isolation pads) on three legs. The base features four screw-in spikes which are stout and wide in form, providing a solid fit that settles the stands securely to the floor. I compared the Podiums with the Atacama HMS I pairing (£190), a metal-formed, three-legged, stand with mass loading Atabite filling.

Playing Jade Warrior's 'Floating World', the Podiums immediately sounded more open, when compared to the HMS I's. While the latter sounded relatively restricted, the Podiums freed the music, allowing it to breathe while giving it a natural tonality. Yes, the HMS I had a taller and more pronounced soundstage but the Podiums showed superior clarity in the midrange and treble frequencies, providing a sharper, more focused presentation. Bass on the HMS I's sounded fatter and fuller but was also bombastic and bloomy. The Podiums offered greater punch and grip. Playing Horace Silver's 'Cape Verdean Blues' on XRCD, the sax on the Podiums was more defined than the HMS I's with bass providing a rhythmic foundation. Most noticeable was the greater treble clarity

reflected in the shining cymbal work.

On vinyl, Ella Fitzgerald's 'Love For Sale' sounded smoother on the Podium and more natural. This allowed the natural texture of Fitzgerald's voice to successfully push through the mix. Here, the larger soundstage size of the HMS I was revealed to be nothing more than an unfocused, diffusive blur which the Podium successfully focused with the addition of finer detail. The analogue synth krautrock of Cluster on 'Cluster II' offered instrumental music full of extraneous detail, packed with granulations, pits, lumps and subtleties. The Podiums calmly and succinctly provided a clear, transparent rendition, losing the HMS I's sometimes confused presentation. The Podium T5 III pairing is a lightweight structure that features a simple, clean, classic design providing an ideal sonic base to a pair of speakers. The Podiums may pass the style test but it's the sound tests that impress more. Natural wood? Seems like nature knows best... **PR**

[Contact: +44 (0)1572 756447, [www.hifiracks.co.uk](http://www.hifiracks.co.uk)]

# soundbites

### PODIUM REFERENCE £129 PER TIER & £99 PER ISOLATION SHELF

This is a multi-tier shelf system with solid wooden legs connected by 10mm thick, high-tensile, bolt-like screws. Each tier features a 40mm hardwood shelf and four hardwood legs tipped by screw-in, adjustable isolation spikes that separates one tier from another. On top of each base shelf is a secondary isolation shelf, suspended by more spikes, that sits upon four locating discs. I compared the Podium Reference with the excellent Avid Isorak (£330 per shelf), which is my reference.

Spinning Skunk Anansie's 'Hedonism', the Podium sounded 'darker', the silences being starker and more dramatic. I'd guess that was due partly to the wooden construction of the shelf system but mostly to that extra shelf isolation provided. Thus, Skin's vocal performance gained greater prominence. Bass was also more focused and offered a tighter output

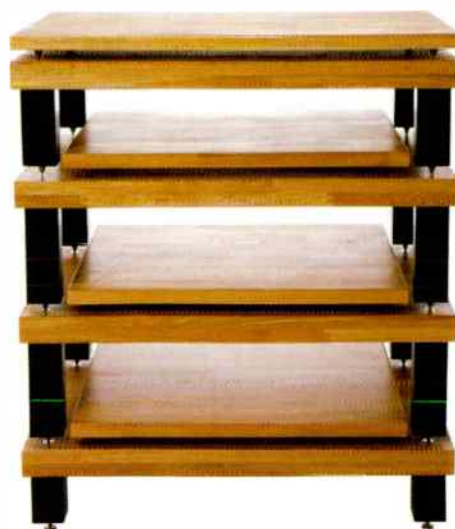
while midrange detail was unfurled, benefitting the acoustic guitar and jangly tambourine...

On Horace Silver's 'Cape Verdean Blues' XRCD, the piano had a stronger presence, offering a prominent reverb over a broad, expansive soundstage. The trumpet's innate 'buzzing' vibrations were more recognisable via the Podium. Moving to vinyl and the instrumental krautrock of Cluster and 'Cluster II' featuring analogue synths which attract noise and distortion like a flea to a dog. Isolation is doubly important here. The Podium gave the LP space to breathe. Ella Fitzgerald's 'Love For Sale' added a sweetness to her delivery while enhancing the complex vocal modulations to make that delivery more believable. Both the backing brass and strings melded more easily with her performance, being both melodic with added tonal relevance in the context of my system.

The Podium Reference system is both effective and efficient. It has

the looks, yes, but it's that secondary isolation shelf that squeezes more insight from your hi-fi, resulting in a dynamic realism that will reawaken your collection. Well worth considering. **PR**

[Contact: +44 (0)1572 756447, [www.hifiracks.co.uk](http://www.hifiracks.co.uk)]





# Magnetic Attraction

Noel Keywood is attracted to the unusual LFT-16 loudspeaker from Eminent Technology.

**D**o you want to hear a really *advanced* loudspeaker? One that you can afford buy! Here it is, the Eminent Technology LFT-16, price just £1,150.

What's the drawback? There are two. This review is of our third sample; you can read the tale of

the first two on our website, [www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk). Eminent, based in Florida, are a small company and not the slickest when it comes to maintaining quality control.

The other drawback is appearance; the LFT-16 is not going to win any beauty contests. A solid plank of wood forms the front baffle,

now made of real wood polished to give an attractive finish. It's strong and it's non-resonant, but the LFT-16 is hardly pretty in outline.

You'll notice though that this board has two unusual adornments screwed onto it, a large matt black slatted grille and a smaller one alongside it. These are the

loudspeaker's secret strength and the source of its uniqueness. Both are magnetic planar drive units. An aluminium track etched onto a light Mylar film sits between bar magnets. The audio signal passes through the aluminium track, setting up a magnetic field that interacts with the magnets, a electromagnetic motor in effect that drives the air in relation to the signal. The big advantage is the film is thin, light and does not store energy, so it suffers little colouration. It is open front and rear (a dipole) and the absence of a rear chamber removes another source of colouration. The advantage over an electrostatic is that no power supply is needed, while it lacks the metallic sheen of a ribbon.

A big drawback is low sensitivity, our tests revealing a miserable 80dB in the third sample, so high power amplifiers are needed! I pushed 50 Watts into the LFT-16s playing Lady Gaga's 'Bad Romance' really loud (95dB), where I would normally use 10 Watts or so, but they were able to handle it and sounded quite relaxed.

Eminent make their own magnetic planar drive units and buy in a 6in bass unit, which they house in a sealed ('infinite baffle') bass chamber. Magnetic planars aren't new; I first heard them in Leak 3090s I used way back in the early 1980s. They were fitted with Wharfedale's Isodynamic magnetic planar tweeter. Eminent's drivers cover a wider frequency range; in the LFT-16 the midrange unit works from 700Hz upward and the tweeter from 10kHz upward, our measurements show. The midrange unit resonates and peaks around 10kHz and I clearly heard this. The small 2in high super tweeter contributes little, filling in above 10kHz.

The LFT-16s are sturdily built. Styling is non-existent but finish now quite good. Rear terminals cater for 4mm plugs as well as American spades, but bare cables must be wrapped around the posts as the through-holes are occupied by wire links. The tweeter has three level settings; High, Medium and Low. High gives a little boost above 10kHz, Medium is now a dead terminal – well, it was on our review sample! – and Low cuts output above 10kHz by a few dB. High frequency output varies substantially in the lateral plane though, falling away off-axis. Listened to at a distance the High setting actually gives a near flat response when the speaker points direct down the room.

The LFT-16 comes in 'handed pairs' with tweeters on different sides. It's usual to place handed

loudspeakers with the tweeter on the inside, to lessen reflective cancellations from cabinet surface waves and physical discontinuities. It does work; I designed World Audio Design loudspeakers with tweeter on the inside, asymmetrically positioned, after hearing clear benefits of more certain and 'solid' imaging, during comparative listening tests.

Although we had two samples that were sub-optimal (i.e. they didn't work properly!) the bottom line with this loudspeaker is that it offers spectacular results in many areas at an affordable price. It is a real taste of high end at a peanuts price, in a room friendly package (well, size wise!). That's why I was so keen to review it irrespective of the problems we encountered (I reviewed their larger LFT-8b in our January 2010 issue).

Also, the LFT-16s are very well engineered. Bruce Thigpen obviously knows and thing or three about



loudspeakers. Even the sealed bass chamber measured remarkably well and bass quality is excellent. So whilst consistency might be questionable, the underlying engineering is top notch.

## SOUND QUALITY

Clarity, speed and timing are cliched necessities of audio and to get them, just raise the upper midrange; everyone else does it. What I love about the LFTs is that they don't do this and yet I've never heard such breathtaking clarity, sizzling speed from cymbals and metallic

percussion instruments and, given both, it is hardly surprising that the LFT-16 is right on the mark with its timing. Tambourines in Sade's 'When Am I Going To Make A Living' were sparkingly vibrant and pin sharp clear on both sides of the stage, they stood out like bright beacons. There's some upper treble emphasis, that's for sure. Treble has a hiss to it, but the LFT tweeter is super clean so it mattered little. I preferred the Low setting for the tweeter as this quite obviously removed the small amount of hissiness and gave perfect subjective balance. That the LFT-16 is balanced is quite obvious too; it comes across as wonderfully even and natural, relaxed yet deeply insightful at the same time.

Eminent make a good job of the bass chamber; it keeps up with the planar magnetic midrange unit, playing bass lines with enough expression to make the whole picture plausible, more convincingly than most Martin Logans. The repetitive bass line in Sade's 'Hang On To Your Love' rolled along nicely, propelling the song in firm fashion. There's no really deep bass but what is there gets on with the job, giving even-handed treatment across the bass scale. There's the expected small sense of box warmth and thrum, a slight tubbiness, but this at least adds some bulk to the bottom end. Strong bass lines in Angelique Kidjo's 'Fifa' album strode along nicely, with plenty of weight to them and a lively, bouncy quality.

You want insight, detail and clarity like few other loudspeakers can manage? The LFT-16 has them in spades, so much so it is frightening. Just like the larger LFT-8b, the small LFT-16 sets a standard few loudspeakers can match in these areas. I've always admired magnetic planar drive units since living with Leak 3090s; their Isodynamic treble unit I'll never forget: it delivered definitively smooth treble, nothing came close. The LFT tweeter is more prominent, very prominent in fact, but it spills out a stream of fine detail with chiselled perfection.

The LFT-16's sound stage stretched linearly between the loudspeakers, neither throwing the sound forward nor back. Yet images hang upon an open canvas with infinite space behind them. I'm not sure I have ever heard Duffy sound so convincing singing 'Warwick Avenue'; she was intimately present and exquisitely expressive in the way Duffy can be, because of the way she modulates her voice. There was plenty of midrange dynamism, at least with our Icon Audio MB845 MkII power amplifiers, so Duffy had

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X100 Tonearm

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Adam Smith - Hi Fi World

Hi-Fi World Verdict



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  - rhythmic coherence

- Against:
- nothing at the price

Price: £699



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X200 Tonearm also available

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convincing body.

So did Jackie Leven singing 'Boy Trapped in a Man', although the box added in some warmth and thuddiness to bass. Jackie fairly yelled out though; solid midrange dynamics again making these loudspeakers a lively listen, more so than most methinks and here they are a nose ahead of electrostatics. The twang of plucked guitar strings on 'Desolation Blues' jumped at me as Jackie crooned about 'winter in Kilbride'. The LFT-16s pulled me in very close; it was like sharing the singer's experience; they're almost frightening.

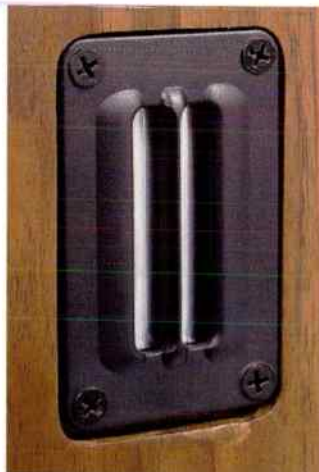
With 'Extremely Violent Man' the crashing guitar chords had real bite but were also richly textured. Hand drums staked out a steady, compulsive beat and Jackie sung threateningly centre stage, his deep resonant tones tumbling out at me. It was a great performance, one of the best.

In the same way the LFT-16s brought Jackie Leven close, they lifted Nigel Kennedy playing Vivaldi's 'Spring' into a joyous occasion. The lightning speed and deftness of playing that Kennedy manages was illuminated in no uncertain way, again the LFT-16s injecting a sense of dynamic resolution that made most rivals sound timid. I will point out again though that this is a strength of our MB845 MkII valve amplifiers, being revealed by a good loudspeaker. Use a transistor amplifier of questionable ability and you may just get a horrid screech – don't blame me!

As Massenet's 'Meditation' slipped gently past me the LFT-16s illuminated every little nuance of Nigel Kennedy's sensitive interpretation. His violin was full bodied and richly detailed too, with not a hint of the wiriness and phasiness so common with conventional loudspeakers, especially those with poor dome tweeters.

With larger orchestral performances like Holst's 'The Planets' the LFT-16s were convincing, with lively kettle drums pounding away in 'Mars' to give a sense of power to the piece. The drive units resolve timbral signatures of individual instruments with alacrity, horns were fruity and rich yet hard etched and clear and cuttingly fast. With volume cranked right up to very loud the LFTs sounded unstrained and in perfect control, even kettle drums sounded tight and in time with all else.

As a test of real life use I chose to push the LFT-16s with Lady Gaga and saw 50 Watts come up on a power meter with 'Bad Romance', SPLs toping 95dB on an SPL meter where I was sitting: the



speakers were chewing up power, yet sounded relaxed and in control. So these loudspeakers rock but they need a muscular amplifier. I used the LFTs with our Musical Fidelity AM550 pure Class A transistor amplifier and was pleased to hear less of a difference against the Icon Audio MB845 MkIIs than with many loudspeakers. Curiously, upper treble sounded more muted and there was less midrange depth, but then this is usually the case. Some of the loudspeaker's drama left in a huff and I would choose to use a high quality valve amplifier with the 16s. As they need high quality and high power, unless volume is kept in check, the loudspeakers are demanding in this respect.

What you have to bear in mind too is that the drive units are very, very revealing. This complemented well recorded classical works in particular: I was spell bound by the clarity yet weight of Arcadi Volodos' Steinway Grand as he played Liszt; chords and individual keys had ringing clarity and were sparklingly clean; the sound almost gleamed! Renee Fleming's superb voice powered out from these speakers; she has great power and projection as well as superb control and the LFT-16s placed her in a lovely live environment in front of me. As with the piano of Volodos, the LFT-16s were revealing to me the beauty of a good microphone feed.

Classical music well recorded was a delight through these loudspeakers. Their lack of character, lovely open clarity, impressive levity and strong dynamics made for the best performance I have heard since the last good electrostatic. Magnetic planars have a more damped sound however and are a tad smoother I fancy, but of equally low distortion – and I heard all this. It was a fascinating and great experience.

As well recorded live classical recordings came across beautifully so did well recorded Rock and Any Winehouse singing 'Back to Black' had never sounded so good, bless her.

### CONCLUSION

Eminent's LFT-16s may not be physically beautiful but their sound is gorgeous. What you get here is sound quality a step up on most else, at an affordable price. It's a fabulous loudspeaker, one well worth hearing, being something of an education about what a good loudspeaker sounds like – and the truth is exciting to hear. Before you spend a grand

### VERDICT

A unique loudspeaker with super sound at a low price, but needs careful matching and lots of power.

### EMINENT TECHNOLOGY

LFT-16 £1,150

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www.eminenttechnology.co.uk

### FOR

- pin-sharp imaging
- super fast transients
- crystal clear mid & treble

### AGAINST

- 'tubby' upper bass
- needs serious power
- dubious styling!

## MEASURED PERFORMANCE

Our third sample of the LFT-16 came without problems (sort of) and showed what the design is capable of. The bass unit works smoothly up to 700Hz, where the large magnetic planar unit takes over. This has very smooth output up to 6kHz, better than that of cone loudspeakers. Above 6kHz output starts to lift a little before the tweeter takes over at 10kHz. Although our response graph shows upper treble as +3dB or so up, in practice this was the best the speaker could manage on-axis and, at a distance it measured flat right up to 20kHz, this with tweeter output set to High I should add. Setting to Mid showed this connection was dead (!) whilst setting to low brought tweeter output down a few dB, quite a small change. On balance then the LFT-16 is a flat response loudspeaker and a very smooth and accurate one too. It will not sound bright and must be used on-axis for most treble. As modern 'speakers go it will sound 'soft' or 'warm' but it is in fact truthful and lack of humps and bumps indicates very low colouration and minimal intrinsic character. This is a loudspeaker likely to 'disappear'.

Eminent get the small sealed bass enclosure to work smoothly down to 55Hz and bass quality should be very good as both acoustic and electrical damping are strong. This is one of the best performances I have seen from a small sealed enclosure.

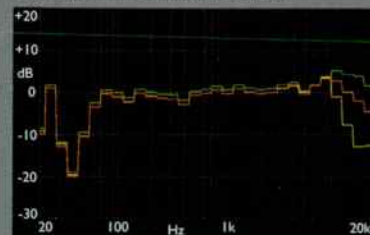
Sensitivity was low at just 80dB Sound Pressure Level from one nominal Watt of input (2.8V). However, as impedance measured 9 Ohms with pink noise it is also a true Watt. For this the LFT-16 produces low volume though,

so it does need a fairly powerful drive amplifier to go loud, around 60 Watts minimum. As a load it is resistive and very easy however, minimising differences of sound quality between amplifiers.

Not surprisingly the open backed panel exhibited very little colouration in our 200mS decay spectrum test.

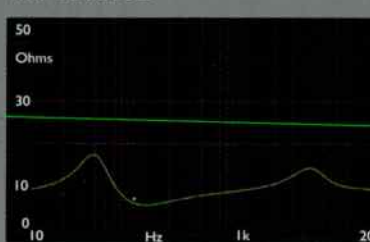
The LFT-16 is very well engineered. In many areas it is ahead of current practice and quite an education in what is possible. It should give superb sound quality but this is not a 'shouty' loudspeaker, but a 'quiet' one.

### FREQUENCY RESPONSE



Green - tweeter High  
Orange - tweeter Low  
Yellow - tweeter Medium

### IMPEDANCE



# mail



Visit our website at [www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk) or send your emails to [letters@hi-fiworld.co.uk](mailto:letters@hi-fiworld.co.uk). Letter of the month wins a pair of KEF Q100 loudspeakers.

## LETTER OF THE MONTH PRIZE



KEF Q100 LOUDSPEAKERS

For more advice see Letters from earlier issues at [www.hi-fiworld.co.uk/letters](http://www.hi-fiworld.co.uk/letters)

A pair of KEF Q100 loudspeakers are on their way to **HOWARD SPENDLOVE**, Letter of the Month winner in our **NOVEMBER 2011** issue.

## Letter of the Month

### META PHYSICAL

In response to Bill Lyon's letter I'm afraid that fettling metadata is a game for true obsessives – but the usefulness of your ripped music is less without it, as you've discovered. Presumably that's where the likes of Naim and Meridian really earn their money.

I use the excellent dbPoweramp software (with HDCD plug-in for CDs so coded) and found it worth upgrading to the full licence. In the rare event that I can't get a clean rip from that I try again with Exact Audio Copy – slower and less good on metadata but if that won't rip it then probably nothing will. This is probably an egg-sucking lesson but rip to a lossless format such as FLAC, not MP3. You can always compress further from FLAC but you can't recover data you've thrown away in MP3 coding!

Both will make a fair stab at capturing metadata from the Internet and try to validate the result against the on-line (again!) AccurateRip checksum database. If some tracks show as accurate in AccurateRip and some don't it's worth cleaning the disc and trying again. If all show as inaccurate you may have a different pressing from the one in the database.

It's easiest to review and correct the metadata before you rip. Get Album Title, Artist, Album Artist, Composer and Conductor (where appropriate) right and consistent. Just how many ways are there of spelling Handel's forenames?

Also review the track names to ensure they make sense – they won't always.

### illustrate

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**Derek Nudd uses dbpoweramp software for ripping CD, to incorporate metadata.**

One trick I haven't seen mentioned: where you have multiple artists (say orchestra, a couple of soloists and a conductor) separate them with semi-colons. This will allow a database such as Asset UPNP to search on anyone in the list rather than treating the list as a single, indivisible entry.

Where errors make it past the ripping stage you'll need to fix them with a tag editor. I use Audioshell, but it hasn't been updated in a while and I'd be nervous of trying it with Windows releases later than XP. Search for 'music tag editor' on the Web though (there it is again!) and you'll see several options.

Incidentally, I also buy high-resolution downloads from the likes of Linn and B&W. Guess what? The metadata is often incomplete there too!

The world of electronically-stored music is pretty immature – still at the WordStar stage for those with long enough memories. Hardware development steams on but the volume

of information at our disposal grows faster than our ability to manage it. I have great hopes for the future though because this direction has the potential to bring higher quality audio to the mass market – arguably the first time we've been able to say that since the LP! Hang in there.

**Derek Nudd**

Hi Derek, thanks for that. As you say, always rip to lossless, if you don't want simply to store in WAV format. Uncompressed WAV (i.e. CD 16/44 standard) sounds slightly better but of course lossless FLAC (and ALAC) have proper metadata handling. I have to say that metadata bores me rigid, but I understand it's the only practicable way of cataloguing large amounts of music. Still, I have 3,000-plus LPs and I always seem to remember where each one is (or thereabouts) in my record boxes so maybe we don't need metadata after all? **DP**



**The excellent Rega P3-24 has a wonderful arm, Rega's RB301, but the turntable is not ideal for piano we are told.**

### TOP TIP?

I would be grateful for some advice on a sensible vinyl upgrade path. I currently have a Rega P3 and want to upgrade, probably in stages, to as good as I can get within sensible limits. My main difficulty is choosing the best path; I think I will need to upgrade the cartridge (currently Elys 2), phono stage (currently board in Delta 290P), possibly the arm and finally perhaps the deck.

My thinking is that if I concentrate first on the cartridge, phono stage and arm then if I do upgrade the deck later these will not be wasted and could move with it – but where is the best place to start and which will give the biggest improvements in sound?

You have recently recommended the Goldring 1022 a few times and in the World Standards you also recommend the 1042. They are similar in price – what are the differences between them and is the 1022 better than the 1042?

You also mention in the Standards that the Dynavector DV10X5 “beats 1042 comfortably” and this is only a small amount more – is it much better?

Other cartridges I have considered are Audio Technica ATF3, Ortofon 2M Blue or Vivo Red. My preference is for a detailed but musical sound (not too clinical or cold). Do you have any advice on which is the most likely cartridge to offer this?

With the phono stage I have been considering Graham Slee Era Gold V, ANT Kora, Icon Audio PS2 or Trichord Dino – do you have any recommendations out of these and how they compare?

I read your recent review of the Inspire X100 which looked really interesting and have also been looking at the Audiomods arm which is similar in price. In the review you said the X100 was “the new standard by which other similar Rega-based designs should

be judged” but the Audiomods has also had great reviews and certainly looks stunning. Are there major differences between them and are there any other arms worth considering at this level?

Also, Inspire offer 12” arms – how much difference does a 12” arm make? Of course this would not fit my current turntable but if I do upgrade the deck is it worth looking for one that will take a 12” arm and leaving the arm upgrade until then?

This leads me on to the last part – the turntable. Your recent review of the Quest upgrade was very interesting and my main question is taking into account the changes planned above – would they combined with a Quest upgrade reach a reasonable reference level or would I be better to consider another deck altogether to get the most out of the arm, cartridge and phono stage?

Finally, assuming that the deck is probably the last element to be upgraded so my options are kept open – do you have any advice on what the priority should be if I do it in stages – cartridge, phono stage or arm?

And which will likely make the most difference to sound and performance?

**Bob Smythe**

The Goldring 1022 MM cartridge lacks the sophisticated treble of the 1042, which has a superior stylus. It

is also more compliant and a slightly better tracker. But the 1022 still has plenty of verve, it is a fine sound. I think you are best buying a Goldring for a smooth sound that isn't clinical. Modern MMs like the 2M Red and Blue can sound quite challenging, their treble is so strong.

I use an SME 312S 12in arm out of choice and it replaced a 312 supplied to me by SME founder Alastair Robertson Aikman. He was fairly dismissive about it at the time, saying it wasn't quite as good as some of their best. However, I found that whilst it may not have had the last ounce of bass control or lower midband clarity it was gloriously smooth and easy natured, quite firm and clear too, sufficiently so for me to use in preference to all else. Arms, like preamps, have the ability to be subliminally upsetting or even ruinous when not right and I like to stay with what I know and am happy with – and that meant the 312! It was then virtually unique, but 12in arms have gained popularity recently.

I finally swapped my old SME312 for a new SME312S and not only is it firmer and more emphatic than the 312, it is also ‘quieter’. This may be a cabling issue. Think ‘silky smooth’ as a generalisation for the sound of a 12in arm.

I suggest you upgrade the cartridge first, then the phono stage and finally the deck.

Now to a sobering comment recently made to me. A friend heard a Rega P3 and asked me why we never mention the fact that it wows. He span piano on LP and said that with sustained notes wow was obvious, in line with our measurements – yet we never mention it. Whoops! I haven't spent endless amounts of time with ours and haven't put on an LP with classical piano, at least that I recall. The Rega P3 RB301 arm is a good one of course, but speed stability of the P3 is mediocre. Be warned. Now over to David ... **NK**

I personally think the Dynavector 10x5 is better than the Goldring 1042; it's certainly more fun and



**Twelve inch arms are becoming popular: "they now outsell all else" one retailer tells us. But they need a big, big plinth..**

animated sounding, making the 1042 sound a little lifeless. The Audio Technica ATF3 is very good, but perhaps a tad too clinical for your Rega. We're just in the process of arranging a review of the Audiomod's arm, so I can't comment, but to date the Audio Origami modded RB251 is one of the best I've heard, with a beautifully open and musical sound – a world away from the stock arm.

As for the Quest upgrade, it's really a case of how far you want to take it. If you don't plan on upgrading for a while, or wish to 'stop' with something sub-£1,000, then the Quest is brilliant. It is not, however, a substitute for a high end turntable; even an affordable high end design like a Michell GyroDec would somewhat embarrass it. So yes, the Quest is great – to a point.

Re: phono stages, go to the ANT Kora if you want a smooth, even sound, or the Icon Audio if it's a warm and sumptuous balance you crave – both are superb, but the choice comes down to taste.

So what's your next step? Well, my feeling would be to get your Rega nicely fettled – get an AO mod for the arm, fit a 10X5 and mount the deck on a stout wall shelf, with the dustcover removed (all turntables sound better this way). Personally, although the Planar 3 is a little less speed-stable than the best, cleaning the belt, pulley and inner platter with isopropyl alcohol and making sure the Rega is 100% level minimises the deck's speed instability to the point where it's not obvious – not being perfectly level seems to really accentuate its speed issue. **DP**

### MATERIAL WORLD

*I intend to make/obtain, more than likely by DIY with expert help where necessary, isolation platforms for my equipment; Inspire LP12, Leema Tucana and Antilla, phono amp and power supply, and perhaps even the substation mains block.*

*My question is concerning materials. There are so many to choose from, all of which I have or can easily obtain. So what is "best" from acrylic, glass, MDF, bamboo wood, hardwood, granite, slate, marble, Torlyte or steel?*

*Then the under platform supports; wood cones, Sorbothane or metal spikes and three or four points? Domestically, identical materials would be ideal but sound quality is the main criteria. I look forward to your ideas and suggestions.*

**Mike Thompson**

Hi Mike. It is common to use well damped materials. Acrylic, slate, MDF and Torlyte are popular. Glass and steel are resonant and 'ring', but

this does add a zing that some like. I found Waterfall glass loudspeakers rang strongly but the colouration was literally 'glassy' and quite nice, if not strictly correct. Slabs of slate or marble are great for table tops I feel. I use a massive marble slab under my Garrard 401's Martin Bastin plinth.

I suggest you experiment with feet, but Sorbothane works well I have found. It will not take very heavy loads though. **NK**

### READ ALL ABOUT IT!

*English is not my "mother language" and not even the second or third I've learned so, knowing you'll understand, I beg you, in beforehand, to excuse my English. Especially the use of commas in big doses that I know you do not particularly enjoy in the UK.*

*The opportunity to write you a letter has been left open by your twentieth anniversary. I had to congratulate in one hand and in the other wanted to thank you too. So, here I leave my congratulations and thanks to you all, present and past Editors and Reviewers, for the excellent job you are carrying out, since the beginning of HI-FI World in 1991.*

*I first picked Hi-Fi World from a news stand for pure chance, I confess, as I was looking for Stereophile at Heathrow airport while waiting for a delayed flight back to Portugal and I needed something to wash out the bore.*

*torn off. The magazine used to arrive folded in two so, for two years I think I ended up buying a second issue at a news stand in Lisbon. It cost me a fortune.*

*Sorry, the electronic number was not a question at the time as it still isn't an option, at least for me. I have to hold the magazine in my own hands, smell it, feel it, read it from back to front, starting from the vinyl pages, then the ads, then anything about a new DAC or a fantastic new CD player and then, the rest of it. I like to read it sitting on the sofa, or at table in the morning, taking breakfast and I love to read it in bed at night when everybody else at home is already asleep. I love to have it on my desk and look inside the Mag for interesting sites' addresses in every issue thus I also use it as a guide to surf the internet.*

*It's the same with LPs vs. CDs. An LP is something more tangible than a CD, its bigger, nicer to hold with both hands and also each label has its own exclusive smell. Parlophone has a nice smell, Decca is quite neutral, Verve LPs have a distinctive smell too but, I'll never forget the smell of Capitols "The Beatle's First" and the Beatle's "Something New!" that I got in the mail 47 years ago, when I was ten! I still love their mix better than the equivalent European's records one.*

*I love going through the used equipment adds looking for any peace*



### Slate is heavy, looks good and makes a great material for plinths.

*It was your November 2002 issue. From then on, with very few exceptions, I bought HI-FI World every month.*

*I've been a subscriber for a few years but I abandoned subscription for a bunch of reasons, none having to do with the magazine, you or your former alter egos at HI-FI World.*

*At the time I was living in a flat and the mailbox was really too small so, the postman used to ruin the magazine's cover every month and sometimes, as a bonus, also some pages got partially*

*of kit that attires my attention. It's a HI-FI New World I get into every month that usually lasts for at least three weeks and then, it's time to start the long wait for the next issue. I love your Christmas issue and your yearly Awards one. Sometimes a reviewed item is intriguing enough to make me go and try to audition it at a Dealer. Some of my Hi-Fi purchases were big successes, I must say and resulted directly from your reviews which opened my mind to different perspectives and new paths to*





**Mario Tulio buys Hi-Fi World from a newstand in Lisbon. It is available around the world.**

achieve "musical nirvana".

You have sent me in a quest that 20 years ago I didn't even know existed. It has been a very rewarding journey and a good run for my money. I particularly like the monthly "Icon Audio's add". It is reassuring to know that they are succeeding as a company and at the same time launching quality products at real world prices. I've listened to PS3 a couple of weeks ago and was amazed. It is really good, especially with low output MCs. An outstanding phono stage.

I dropped all my other Hi-Fi mags' subscriptions, namely, Stereophile, Hi-Fi Choice, Hi-Fi News and Hi-Fi + (I used to buy this one for the exceptional graphics and the excellent pictures of esoteric equipment), some French and German one too.

Do you know why I kept attached to Hi-Fi World? Like Sir Winston Churchill used to say: (quote) "There is no such thing as public opinion, there's only published opinion" (unquote).

Hi-Fi World guarantees freedom to its readers. That's why. You suggest but you do not impose your views. Your readers are, by the end of the day, psychologically free to make up their own minds about every item you have reviewed.

When answering reader's letters, whenever you suggest something, you usually explain the reasons for your suggestions. That is rare and seldom to be found in modern journalism. You're publishing an outstanding Magazine, not running the "War Propaganda Ministry". Thanks for your achievement.

**Mario Kopke Tullo**  
Portugal

Hi Mario. Your English seems fine to me; your letter is barely edited here and it makes as much or more sense than most from the U.K.!

Thank you very much for your praise, all the way from Portugal. It is nice to know that listening to well reproduced music affects listeners

the same way around the world. We are proud to be a part of it. **NK**

### MORE

Just picked up a copy of the July issue at my news stand and found the article on cables very interesting. Please let's have more of same and less product reviews. Congrats on your anniversary!

**Joe Wdowiak**  
Canada

Thanks Joe. Well, the snow has cleared, but it is due back soon eh?

I am sure our editor David can find more worthy words on cables, even though they are the most peculiarly controversial and divisive topic in audio. Well, after Mac Minis that is! **NK**

Hi Joe - don't worry, we've got a whole lot more features saved up for this winter, to keep you warm through those crazy snowstorms of yours! **DP**

### ON THE WIRE

I found Neville Roberts article on cables very interesting. As a physicist myself, I was also sceptical about the effect of cables. While I could appreciate that improved screening might be of benefit, but the effects claimed by the nature of the conductor seemed hard to understand. At least I'm not completely alone.

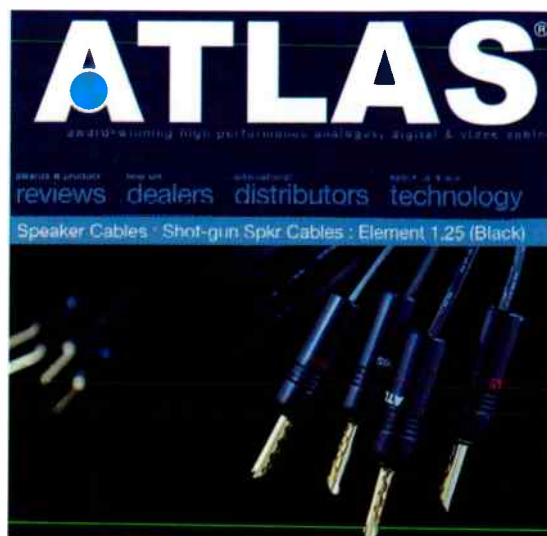
However, I was utterly sceptical about the effect of mains leads. How can something

from the wall socket to the component have any effect? And as such my system of Sondek/Valhalla/Akita/K9 / MFA120 and LS3/5as, subsequently replaced by SF Signums, provided 1000s of hours pleasure over a decade of listening, without modification. However, more recent experiences have called this belief into question.

While your article focussed on cables, my own experience suggests that the impact of cables on a system is secondary to two more significant sources of noise: Mechanical noise / resonance and mains noise, which raise the noise floor, masking fine dynamic and frequency details. Your article suggests that the effects of different cables are readily discernible in a £20k system. One would hope so, given that at this level manufacturers spend a much greater proportion of the budget on mains regulation and internal vibration suppression in their products.

However, it is here that I think the root of cable scepticism may arise. Most of us don't have the luxury of £20k systems, and usually start out with a system of £2k to £5k. Good equipment, but still modest in comparison to a reference system. Now many will be happy with this for years, as I was, but one of the first upgrades that may be considered is likely to be the interconnects. Reviews can give the impression that an interconnect upgrade may offer disproportionate improvements for a relatively modest expenditure (in the context of overall system cost).

However, while users may experience such interconnects making a modest improvement, it is not proportionate to their cost, reinforcing scepticism and suspicion of marketing hype. For example, in the system above, I found little discernible difference between a £50 cable and £200



**Moorgate Acoustics, Sheffield, made up a pair of Atlas Apex speaker leads for Giles and they made a "huge improvement: deeper, fuller, more dynamic sound".**

+ cables. I also tried an Isotek Gil Mini-sub, but could not identify any improvement. However, I have recently realised that this was due to the system not being sufficiently optimised for mains and mechanical system noise for the increased resolution of the interconnect to be perceived, as the effect was below the noise floor of the system.

My system is now Sondek/Valhalla/Akito/Goldring 1006 (which desperately deserves upgrading) & Dino/Dino+ / Cyrus CD8se2 / Sugden A2 I SE and the SF Signums. Recent optimisation has included: Sondek on wall shelf; dedicated SF stands for the speakers (massive improvement in bass depth and tightness as well as imaging across the board); Nordost Pulsar points under the CD (these I consider a component performance doubler: with them the component sounds as good as an unoptimised component of twice the price). CD is now on one Pulsar point

separation across the sound stage, but with a smoother response over the frequency range. The leads never made it back to the shop, such was the improvement!

In terms of assessing performance, what I find is that when something is right there's almost a sense of relaxation in the delivery of the music. It's the difference between the effortless delivery of a maestro and the same piece, performed equally well, but by someone for whom it's requiring all their abilities to deliver. There's a sense of having to work harder (don't you just love these objective, quantifiable and reproducible measures?).

Anyway, back to the point. There was an offer on AtlasNavigator interconnects, so I took one to try as I had been thinking about re-cabling with just one manufacturer's cables for consistency. With the new speaker cable in place, I found that I could

performance improvement, but a system wide program of optimisation needs to be considered. I would suggest that mechanical noise is the main culprit, followed by mains, and that these deserve addressing in this order, before considering interconnects. There is no single magic fix. All elements of system performance need to be considered together. Oh, and trust your ears!

**Giles Morrison  
Sheffield**

Very true, Giles. Although it's important to point out that – in my experience – one of the major transmission systems for airborne or floor/wall-borne vibration (i.e. mechanical noise) is... cables! Yes, those little wires, often resting on your equipment table (itself a great big receiver of airborne vibrations) pipe those vibrations straight into your arm, CD player or turntable



**Giles Morrison uses Vertex mains filters, and Vertex also have isolating cones and isolation platforms in their product range.**

with two Sorbothane blocks, on a lump of granite on more Sorbothane; amp is on Pulsar points on an acrylic shelf (which offers better mechanical damping than wood or glass); Vertex AQ Silver Jaya mains shunt on the first mains multiway socket; Vertex AQ Standard Roraima on CD player.

Up to this point I'd been using unbranded (Seduction Audio) interconnects and speaker cable (bi-wire silver-plated multicore) and found, as a result of the above upgrades, a vast improvement in dynamic range, resolution, imaging etc. and an extremely engaging sound. I then tried two £200 interconnects (MIT and Chorus), but found no significant improvement over the Seduction Audio cables. At this point you may think I'm supporting the argument for scepticism, but one side-effect of these upgrades was that some harshness in the treble had become apparent as fatigue after extended listening. So I asked my local Hi-fi retailer (Moorgate Acoustics, Sheffield) and they made me up a pair of AtlasApex speaker leads (in 2 hours - thanks Dave!) which I auditioned.

Huge improvement: deeper, fuller, more dynamic sound with greater

now easily determine the improvement delivered by the interconnect, which at £140, was cheaper than those I had previously auditioned. This was a bit of a surprise, but I think demonstrates the importance of system optimisation at other levels. I then tried the Atlas Electra, the next step up the range, which should have been a further step change in performance, but only demonstrated a slight improvement, with a little more refinement and sense of acoustic space.

My conclusion is that, if you can't hear a difference between different interconnects, it may be that there are unoptimised issues elsewhere. I believe this is probably an indication that in my system there is either further scope for optimisation, or I've reached the limits of performance. If so, I am stunned by the level of improvement in my system that has been achieved, though I do still believe that further optimisation will deliver yet more performance, without needing to upgrade components (which requires some discipline, I can tell you!).

My experience suggests that without considering mechanical and mains noise in system optimisation, upgrading interconnects alone is not going to deliver the anticipated level of

via the interconnects. That's why (I think) the cable dielectric also has a role to play in damping and/or sinking and/or isolating this noise from the componentry. As a result, I place my cables on little Sorbothane pads, so they don't rest directly on my equipment rack, and I ensure they don't touch a rear wall and/or floor. This has a huge effect on sound, I find.

I'm in the strange position of being regarded as a non-believer in cables by many manufacturers (apparently we don't review enough – so they say!), whereas many sceptical readers are outraged by my even reviewing a couple a month. In my view, cables emphatically do make a difference (note I said 'difference', not 'improvement'), but it depends on the rest of your system and how it is set up before that difference can be profound. If it's a dog's breakfast in terms of component choice and siting, you're unlikely to get big gains from expensive cables. As always then, it's a question of balance! **DP**

Thanks for the broad view Giles. It is a good point that all factors affecting

performance need to be considered and addressed systematically. Support structures do seem important and there's much anyone can do to build better shelves, solid tables and what have you – and this is a popular pastime with many readers.

From what we are told too, mains supplies can differ quite dramatically in regulation (ability to stay at one voltage whether used heavily or lightly) and cleanliness (i.e. waveform distortion and noise). Adam Smith, for example, suffers a poor mains supply and finds filters make a big difference, whilst I have a very clean and stiff supply that is less susceptible to change. This does of course mean that some users will not notice big differences, whilst others will – a confusing factor! **NK**

### ARMS AND THE MAN

Currently I have a Luxman PD44 direct drive turntable with a Roksan Tabriz arm, and an Ortofon 2m Bronze cartridge. Overall I'm very impressed with what it can do, but like all hi-fi nuts I want more. I plan to fit the 2m Black stylus assembly very shortly

But I am also wondering how good is my existing arm. I have contacted Roksan re their upgrade kit to take it to the Z1. The kit would cost me \$500.00 Australian, plus postage, and if it's something that Roksan has to fit it would involve me sending the arm back etc. so the cost would be around \$550.00 to \$600.00. I am wondering if this upgrade would be worthwhile. The only thing I can find out about it is that it improved the tracking on warped records, and mine are not warped. There is a local fellow selling an SME V on eBay, for \$1,900 I am tempted. What would your suggestion be...

A. How does my existing arm stack up?  
B. Would the upgrade to the Z1 be worthwhile?

C. Would the SME V be an upgrade, and if so relative to what I have now, would you consider it a slight, moderate, major or extreme upgrade?

I would appreciate your help, and I fully appreciate that ultimately it's my decision, but I would value your input.

**Peter Abbey**  
Australia

Hi Peter – yes, the Zi would be an improvement, and the SME Series V would be a very big improvement on this. It's a case of how much cash and how much determination. See this issue's tonearm supertest for more enlightenment! **DP**

### WARM SPELL

My first system was Linn LP12, Ittok arm with P77 cartridge, A60 amp and Heybrook HB2 speakers on Linn

**SME V pickup arm is an upgrade on most others, it is so good.**



Kan stands. It had a lovely sound, I should never have bought another hi-fi magazine.

A bigger house and the upgrade bug took me through SDI speakers (lovely sound but now out of business and were unable to be repaired), Beard P100 valve power amp, (same scenario) Rose valve preamp and matching Rose mono-blocks, (same scenario), Croft valve preamp (kept blowing valves).

Now back in a smaller room 12ft x 10ft and am still running the LP12, now with Lingo power supply SE upgrade recently done, Ekos arm with new bearings, fitted with new Ortofon Rohmann cartridge. Michell Iso HR phono stage to Lehmann Black Cube Linear headphone pre-amp and hence to Lehmann Black Cube Stamp Amplifier. Speakers are recently purchased Spondor SA1 on dedicated stands connected with amp by Vectour solid core cable. Very detailed sound but lacks the warmth, sweetness and 'must keep listening' factor of even my first system.

My musical tastes are varied but favourites would be John Martyn, Joni Mitchell, J.J. Cale.

Is the amplifier the item to change? Spondor suggest more power with the likes of Naim or Cyrus, but I wonder if that will just give me more volume (not required). My budget is around £1500 (though I would save up if more is required) and much though I love the valve sound, experience of buying new valves has put me off, so although not completely ruled out, solid-state would be preferable. Would Sugden fit the bill? Hope you can help and thanks for a fine magazine.

**Martin Cook**  
Brightlingsea

For a full bodied sound with good detail try either Naim and the Nait or Supernait, or Creek and the Evolution. Sugden Class A amplifiers are on the glassy side, if super clean and clear, and totally free of grain.



**For a big, full sound try a Naim Supernait shown here, or just the Nait.**

This goes for Class A generally and it may not be what you are looking for. **NK**

Yep – I'd go for the Creek Evolution integrated for a warmish, smooth sound; the Sugdens are a little too stark and bright (although smooth) for your tastes, methinks. If it's super big and sumptuous you want, the Icon Audio 300B/II integrated is a corker for just above your budget at £1,990. **DP**

### AND ANOTHER THING

Thanks for publishing my letter about the Yamaha CT7000. A couple of other things you might want to look at.

The new Hi-Q Supercuts from the vinyl factory. Staggering – the Previn Holst Planets is quite something. The vinyl itself is deathly quiet throughout – exceptional quality.

I obtained one of those Ed Saunders stylus for a Shure V15 MXR (the Micro Ridge one which stopped manufacture about two years ago), off eBay and cost about \$34 plus post. It's a cracker - a very good and amazingly cheap way of keeping this great cartridge going. It really does sound very good (although I can't compare with the original stylus now). Worth getting one just to keep that old Shure cartridge as a very fine spare. I've put it on the end of system no.3 (which was in development when I wrote earlier). This has a Project Perspective with the Project boxes, Quad 34 / 405 and a pair of refurbished JRI 49s. It's for my eldest daughter – wish my dad had got me a system like that!

Keep an eye out for those Realistic Minimus speakers - they are brilliant for computer systems.

**Simon Gregory,**  
Skipton

### YESTERDAY AND TODAY

I read with great interest the letter in the August issue from Tim Harrison in

which he raves about a Panasonic CD player blowing away his Resolution Audio Opus CD player. Having heard the Opus a few years ago and remembering being really impressed with the sound quality, I find it interesting to hear someone who says an ageing player from a brand not usually associated with high end sound can blow away a much more modern, highly respected and reviewed player. What is going on???

What the letter also did, following its references to the Technics brand, was to remind me of a couple of CD players that I heard from about the same era that certainly impressed me hugely at the time. They were, if my memory serves me right, the Technics SLP770 and SLP990 (I think these players became the SLP777 and

players, maybe one of the two Technics that I remember, or how about some of the early Phillips or Marantz models or something from the Sony ES range that got so many great reviews all those years ago. How about pitching them up against today's machines or some from the last couple of years. Let's see how much things have moved on and what, if anything, has improved.

Obviously, besides CD source components I'm sure that the same intriguing comparisons could be leveled towards amps, turntables and speakers. How would a Pioneer A400 amp or an early 1990s Rotel RA820 measure up against say a new Roksan or something similar, how would a pair of 80s KEF Coda 3 cope up against today's budget offerings, what about DP's revered

heavily modified shames many real high end and esoteric modern players (recently kicked a 3000 Naim into touch...even the Naim dealer scratched his head in disbelief!!!!).

Second hand has allowed me and no doubt many other Hi-Fi enthusiasts to buy into a level of performance that would be out of reach (certainly in terms of justifying parting with large amounts of cash at new prices), so a magazine that looks into and presents this market to a wider audience must be onto a winner in terms of capturing buyers and readers imaginations.

I'm sure that your readers would find these types of tests interesting, maybe a little amusing and a great trip down memory lane but also an opportunity to see and read about progress (if any) in Hi Fi World.

**Dave Mayer**



**Technics SLP990 CD player transfixed Dave Mayer.**  
(picture courtesy of Panasonic UK)

SLP999 respectively). When I listened to the SLP990 at a dealers in Derby I was totally transfixed, I still recall listening to Simply Red, Paul Young, Queen and some other music from that era and being amazed at the resolution and detail clearly coming through.

At the time my system had two really strong source components, CD was a second hand but brilliant Cambridge CD2 and analogue was a Townshend Rock/RB250/ATF3 set up. But I still remember how the Technics dug way deeper in terms of getting detail off the disc and presenting it in a really impressive way.

For years everything that I listened to never seemed to live up to the Technics quality that I had heard. More surprising was the fact that my own Cambridge CD2, itself a really highly rated and revered player at the time, didn't quite cut it in comparison. Unfortunately finances didn't allow me to buy the Technics and ultimately both me and my system moved on to other sources, but I still remember the SLP990 so clearly due to the impression that it made and left.

Maybe Hi Fi World could and should start doing some comparison reviews to establish if time has created rose tinted spectacle scenarios or whether some of those older players were in fact bloody brilliant and sadly overlooked and replaced all too quickly. For instance could you lay your hands on either the CD1 or CD2 Cambridge

Yamaha NS1000 against Yamahas latest Soaves???

Bear also in mind that interconnect and speaker cables, stands, mains conditioning are all way beyond what they were 20+ years ago and that this could also really lift some of these older components to levels that they could never have reached when they first came onto the market!!

The back pages of this magazine, e-bay and loads of dealers across the U.K (world!!) offer tons of second hand products. My own system is virtually 100% used gear, in fact my front end is a 17 year old Teac T1 transport, still mint, still working perfectly and although

Hmmm...We have a Cambridge CD1 (Adam is currently looking after it) and it is not up to current standard at all. In my experience very old product commonly sounds smoother and less harsh or bright than modern product, but also more vague and muddled. I believe much of this is down to component quality, which has improved considerably over the years. Circuits have changed less, often little. That's why rebuilds with new components can transform the sound of old amplifiers. I am generalising and there are old products that seem to last the distance but they are the exception rather than the rule in my experience.

Listening tests on old products are hampered by relative degradation; what you are listening to is the product in its aged state, that may or may not be representative of the norm. I recall Quad telling me their early 405 amplifiers were limited by poor electrolytic capacitors

**Cambridge CD1 was a great player in its time but sounds dated now.**



they had used, something they only became aware of much later after hearing a rebuild. And electrolytics degrade progressively. To get a Leak Troughline sounding good it usually has to be thoroughly overhauled. The real bargains are the products that have just slipped out of currency. No one wants something that has just become outdated, yet you get a modern design with plenty of life left in it at a low price. **NK**

### ONE FOR ALL CHANNELS?

*I was just reading your review of the TX-NR 609 and found it really helpful, thank you for this. I'd like to ask one question but understand if you don't answer as your websites no forum!*

*Its just that I've ordered this amp and wanted to buy some JBL Control One Pro speakers to go with it. They are, however, 4 ohms (whereas the JBL Control One speakers are 8 ohms). Following your tests, do you think it would be acceptable to use the One Pros or would I be better off buying the standard Ones? Do I risk the system overheating and is there something I should beware of?*

*Personally I would like to get the Pros and my girlfriend would prefer it too as she wants white speakers (the Ones don't come in white). Yet if I risk damaging the amp then of course I want to avoid that.*

**Daniel  
Cologne**

Hi Daniel, There is no problem using a 4 Ohm loudspeaker. All amplifiers can drive them nowadays and the Onkyo has plenty of reserve power, should you turn volume right up. **NK**

### TUBE-TASTIC!

*My time with the TRV-88SE valve amplifier has only improved as it's run in and the whole system has become even more fun with the addition of a TRI CD4SE CD player. I had the opportunity, one long holiday weekend, to take home this player from my local hi-fi store and when it came time to take it back I missed it almost immediately, it was if something essential had been taken away. So, I bought said CD4SE two days later! It's not an all-valve player, but has an Electro Harmonics EH6922 valve as a buffer in the output stage. Solid and well made at 8kg for it's relatively compact size, the casework has the deep red colour of the rest of the range and the solid aluminium remote with red end caps is worthy of such a nice machine and is a delight to use, no cheap plastic here!*

*Well, I lived with the stock valve for some six weeks and thoroughly enjoyed the tuneful aliveness of it's performance, it made me trawl through much of my*

*collection, I danced, I sang, I listened and I found it worth every cent of the \$2700NZD price tag.*

*Meanwhile, a musical buddy mentioned that he had a selection of various brand ECC88s that I might substitute for the EH6922 sometime, as I didn't think I had anything in my own small collection to swap in the player. Funnily enough, I had a look through some valves I had removed from a little used MC phono pre-preamp and there were two rarely used Mullard ECC88s in perfect condition. Out came the EH valve and in went one of the Mullards. The first hour sounded somewhat dire,*

*effortless with this player.*

*In fact, it's the way this player communicates the musical essence and emotional expression of a performance that really swayed me into realising it had quickly become an essential and integral part of the system. Something was missing without it. If you are able to secure a sample of this rather fun CD player, I'd be very interested to read of your impressions, considering your much vaster listening experience of the higher end CD players. For any future owners of a CD4SE, I can certainly recommend swapping out the stock EH6922 for another good brand.*



**Onkyo TX-NR609 will drive 4 Ohm loudspeakers with ease.**

*so I went out into the garden for a couple of hours and on returning to the lounge found an amazing transformation had occurred.*

*To say I was flabbergasted would barely describe how I felt, how can changing one valve make such a huge difference to sound of this player! I asked myself that a lot over the next weeks, often just shaking my head over the transformation with many discs. Just one valve! From the deepest bass to the most delicate high frequencies with triangles and gently brushed or struck cymbals at the back of the soundstage, the increase in transparency and fine tonal definition was astonishing to me. Not only had the soundstage increased in depth, but vocals projected forward from the mix, sometimes in front of the plane of my current KEF Q7 speakers and thereby separating the instruments on the soundstage, complete with their own cushion of ambient air.*

*Superbly recorded performances like Just Friends, from the LA4, are simply magic to hear, the ensemble alive in the room and every instrument focused and so intimately present. Being originally a direct to disc recording, even the CD layer of this sublime SACD is a joy. Bass has both better tonal definition and focused weight and I'm hearing small high frequency details that I've never noticed before. By comparison, the EH6922 is pleasantly warm, slightly less detailed, yet a little thickened in the spaces between instruments, while retaining the basic tuneful timing and communicative expression that is so*

*Regarding my delightful TRV-88SE amplifier, it will soon be joined with a pair of brand new Triangle Antal EX speakers, shortly after I return to Australian shores in late August. I can hardly wait to hear this combo of TRI amp, CD player and Triangle speakers in my new home that's waiting for me, especially after your experiences with amp and speakers, Noel!*

*Also, a set of new Shuguang Black Bottle KT88s will be on the way. I'm hoping the SlinkyLinks speaker cables I use will suit the more forward and slightly brighter Antals, otherwise I may have to look into replacing them with something a tad warmer, like the VdH Royal Jades or maybe something else you guys can recommend for me. I'd certainly appreciate any suggestions.*

*Once again, many thanks indeed for contributing to my musical joy! I would like to add my grateful thanks and appreciation to Paul and Andrew at Eastland Hi-Fi here in Gisborne, NZ for allowing me to bring home various items over long weekends, not only to give them feedback on the gear, but also time to listen in my own home to prospective additions to the system, the CD player and the excellent MusicStreamer II+DAC being the most recent.*

**Christopher White  
New Zealand**

### OH AND...

*I did mean to mention the fact that the TRI CD4SE player is the first and only player I've ever owned that I can just sit*



**Triode Corporation TRI 88SE amplifier persuaded Christopher White to buy their CD45SE CD player.**

down and really listen to music with, no matter the genre. At this moment I'm listening to David Gray's *Lost Songs 95-98* and it's utterly mesmerising. The only other CD player that has done that for me was quite a few years ago when a friend had a NAD Silver Line S1, it was connected to a valve preamp, upgraded Leak Stereo 12 monoblocs and Quad Electrostatics. From memory we were playing some female vocals in the form of Nancy Griffiths and it's just as well I was sitting down, because I just melted and sank into the couch. No other CD player has done that for me until now. I'll be happy if this is the last CD player I ever buy; sometimes I use my Apple laptop via Kimber USB cable to the MusicStreamer II+, through SlinkLinks ICs into the TRI amp and although there is yet another small increase in absolute purity and transparency in bass and high treble, I still prefer the emotionally communicative abilities of the TRI CD player, and whether some might say it's added distortion of the valve or something else, I'm not bothered. Participating in the musical event is far more important to me than sitting there going, "Yes, the transparency is stunning and that extra cowbell in the back of the soundstage is more noticeable now ..... but .. I'm not moved." The combination of the two TRI components is simply enchanting, made even more so by the addition of a Mullard 12AX7 in the front end of the TRI amp and the Mullard ECC88 in the CD player. Happyville!

### PADDING OUT THE TREBLE

I am infatuated with loudspeakers! Big or small, I love them all! It never ceases to amaze me how those vibrating cones 'n' domes get as close as they do to reproducing the sound of an orchestra in all its complexity. Even an understanding of Fourier analysis and a knowledge that a complex waveform is simply the sum of its constituent sine waves, is

insufficient to quell my sense of wonder!

But sadly, there is no such thing as the perfect loudspeaker. This fact is substantiated by Noel's comprehensive loudspeaker tests, which frequently expose speakers that exhibit an elevated treble, resulting in an overly-bright balance.

Now, I notice that Editor David is happy to tweak the tweeter level controls on his reference Yamaha NS1000Ms in order to match the acoustics of his latest listening room. Surely what's good enough for David is good enough for us mere mortals!

The incorporation of level controls, or L-pads, in loudspeaker design is currently out of fashion, but offers certain advantages. Unlike the treble control on an amplifier, which progressively rolls-off the higher frequencies, an L-pad in a loudspeaker circuit reduces the level of the tweeter across its entire operating range. This allows the user to reduce the overall tweeter level to match that of the bass/midrange driver.

An L-pad improves electrical matching since it maintains a constant impedance for the crossover network. It does so by simultaneously varying resistances in series and in parallel with the tweeter. Noel may be able to comment on the influence of L-pads on crossover design.

I suspect that the inclusion of L-pads may not be favoured by current loudspeaker manufacturers on grounds of cost. They may also be concerned that L-pads, if not adjusted properly, could

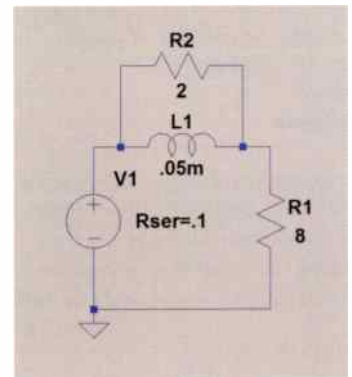
reduce the desired show-room impact of the loudspeaker.

To pad or not to pad, that is the question! Perhaps the experts at World Towers can give a definitive answer.

**Alan RJ Scott**

Hi Allan. You are absolutely right that a treble level control is much needed by many loudspeakers and adjusting tweeter output up or down (in practice - down!) would be very useful. I would like to see a Reference position commonly made available at least, where frequency response is set flat. This is best done using an L-Pad for the reasons you state, but just adding extra series resistance to the tweeter feed is usually acceptable. Loudspeakers like the Monitor Audio Platinum series need this badly, as they are great 'speakers poorly balanced. A Reference position enhance their value I feel. It is best achieved by simple mechanical screw or plug system of the sort Tannoy use, situated on the rear connection plate. This arrangement is cheap and long lasting.

But here's an obvious way of curing screaming treble that any resourceful tweaker can try. Just put an inductor (coil) in series with



**Put an inductor in series with a loudspeaker to damp down treble suggests Noel.**

one of the speaker leads (positive or negative, it makes no difference). A value of 0.05mH (millihenrys) will attenuate treble progressively. To limit the amount of attenuation at high frequencies put a resistor across the coil, 2 Ohms being a good starting point. These are only approximate values, because



**A series inductor rolls down treble by a few dB. Putting a resistor across it limits the amount of roll off, so high treble does not disappear altogether.**

# Letters On-Line!

You can now read our Letters on-line, from the last issue back to March 2010. That's a treasure trove of information and advice to our readers, as well as a fascinating catalogue of reader's systems and views. There's mountains of buying information, all just a click away on your computer or i-Pad. Have fun!

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**Monitor Audio Platinum – a great loudspeaker that needs a Reference setting, thinks Noel.**

loudspeaker impedance will not necessarily be 8 Ohms, but they are a useful starting point for experiment. It is possible to buy cheap inductance meters these days and a 0.05mH coil or thereabouts is small and easy to wind by hand. You can get the bits at Maplins.

For students and engineers, the software I used to quickly illustrate this possibility is a free Spice simulator, LT Spice, and you can find no end of amplifier circuits for it in the Yahoo based user group, including valve amps (whoo hoo hoo!). Just Google LTSpice. And don't forget Audio Tools by Studio Six Digital, for the i-phone. For minimal cost you can turn your i-phone into a loudspeaker measuring instrument, to guide you when tweaking. It's the only thing that makes me like my mobile phone! **NK**

### CLAIMS, DIRECT!

*I read with interest Noel's column where he was beginning to explore the mechanical properties of direct drive turntables and the flutter signatures that they generate. Would it be possible to expand this investigation so that it covers the different types of direct drive turntable, because they are not all the same! For example, the Technics that*

*you measured uses a motor with lots of windings on a laminated core but some have a simpler structure with a magnetic disc and fewer coils (for example, the Sony BSL type) and some, like a few of the bigger Bang & Olufsen models, use a linear motor wrapped into a circle. I imagine that these three methods would give rise to noticeably different behaviour under measurement. Do you think that it is possible that presence of quartz lock makes a measurable difference to anything other than drift?*

*I cannot help wondering if direct drive turntables got a rough ride in the very protective British hi-fi press during the LP's heyday because the British hi-fi industry lacked the necessary engineering and manufacturing skills to produce them in any meaningful way. After all, the British direct drive decks from the likes of Garrard, Monitor Audio and others simply rehoused a Japanese motor inside their plinths. Somehow I can't imagine that the likes of Technics, JVC, Sony, Yamaha et al would have gone to all that trouble and development expense if a basic Philips AC motor and a rubber band really was a better solution!*

**Jacob Lewis**

Yes, I tend to agree that the issue was muddled by a xenophobic UK press, but quite where sound quality differences lie in a turntable remains obscure to me. I never like single issue explanations: the sound of a turntable, like many other hi-fi items, is a complex mix of sonic influences from many active areas. Even if we could identify every input of influence, we still could not work out how they would interact. Best



**Technics used their own Linear motor within the SL-1200 turntable, with rotor magnets in the platter, seen here.**

**TimeStep** upgrade its performance with improved servo control circuits.

not too worry too much about it and listen instead! **NK**

I grew up reading the UK hi-fi magazines in the nineteen seventies and eighties, and by the time I'd got to my twenty first birthday I was under the impression that all direct drives were utter worthless garbage, despite not really ever having heard

one properly! I moved to Japan, bought a Pioneer PL600 for pennies from a junk shop, set it up properly with a Goldring 1042 and was totally gobsmacked by its sound. I just could not understand why it sounded so powerful, vital, energetic and full of life compared to my expensive Linn LP12 belt drive set-up, back home. Of course the Linn was better in some other ways, but this hands on experience absolutely befuddled me, as it went against all my teachings from the UK hi-fi press. Subsequent purchases have lead me to believe that direct drive, done properly, is easily the equal of belt drive, and often better, but of course as Noel says you can't get too reductive about it; it's the turntable as a whole you're listening to. I feel that direct drive has a distinct sound, just as does idler and belt – and it's a case of choosing the one that suits. Personally speaking, there are only a handful of belt drive turntables I could now live with, and I love these (such as the Michells) for the things they do that the direct drives I've heard cannot (tonally accuracy, soundstaging). As ever in hi-fi, it's different strokes for different folks, but I agree that the late seventies anti-direct drive propaganda of the UK hi-fi press was not its finest hour! **DP**

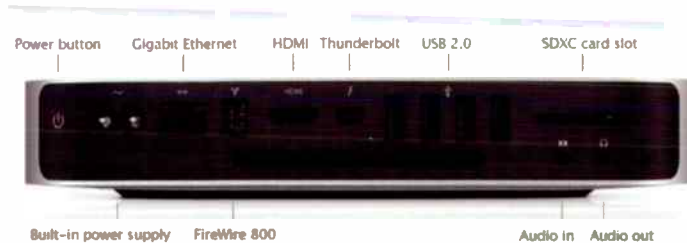
### FILE COUNSEL

*My son was flicking through your July issue and noticed my name on your letter of the month. May I say thanks to David and Noel for taking the time to answer the ramblings of a mad man. Does this mean I have won the KEF loudspeakers? Both my sons have*

*already claimed them as theirs!*

*Since my letter I have done some more research and am still very confused. In David's first paragraph he states that through his system ALAC is inferior. What is David's system? I only ask as I have tried ALAC with iTunes on my PC and I get the same results but on my Mac it is a very different story. I have made the assumption that the*





**The latest Mac Mini, now optimised for OS-X Lion – but it has no disc drive. Digital audio connection is via S/PDIF TOSLINK. (picture courtesy of Apple Computer)**

Mac deals with iTunes or ALAC or both in a different way to a PC.

In paragraph 2 you ask why not WAV? I would agree that storage is not an issue but data tagging/album info is. ALAC also works better in iTunes and sounds the same as AIFF (in my opinion and in my system).

In paragraph 3 - I cannot disagree with but would only comment on how likely it is to happen.

Paragraph 4 - the Mac Mini has an optical output and I have tried it: it does not sound as good as the USB with the Benchmark.

You also mention asynchronous. I believe the Benchmark's USB input is asynchronous, this could be why it sounds good using this input. It would be interesting to see what results you would get using the same equipment as me.

To summarise – I believe there are a lot of factors at play here and it must come down to the individual engineering of each system, from computer hardware/software/file type compatibility and onto the DACs. I think this is a subject that will develop and shape as it becomes a popular option with hi-fi enthusiasts. It's strange that something as simple as a file type can cause so many different opinions. It may not be as simple as lossless means lossless after all.

Thanks once again for a brilliant publication. Apologies for my spelling and grammar, my son was not impressed.

**Alex Cohen**

Hi Alex - yep, you're absolutely right; there are so many variables and computer audiophiles are on a steep learning curve. It's a case of suck it and see, and then write in with your findings. We'll share them in the letters pages, and of course run periodic reviews and features to enlighten (confuse?) further! **DP**

You are obviously having fun there Alex. I hope your sons at least allow you to keep the headphones. **NK**

### DATE WITH DESTINY

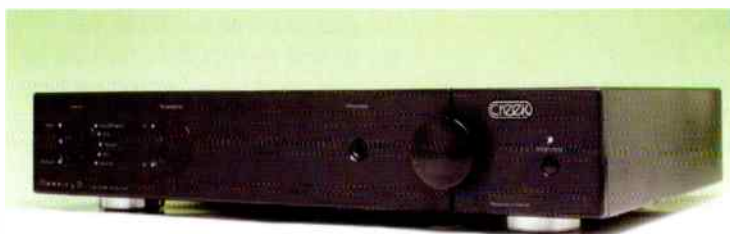
I was most interested in Noel Keywood's review of the new Creek Destiny 2 in the March issue with his reference to upper mid glare or spitch that many transistor amplifiers seem to suffer from.

My particular interest in this aspect is that over a period of time now I have been experiencing exactly that problem with my own ageing John Shear Phase 6 preamp and two Phase 3 Reference power amps bi-wired to a pair of Audiovector M3 Signature speakers via Cardas Quadlink speaker cables. I thought the problem may lay with my Eikos CD player so I have packed it off to Tom Evans for his full spec. upgrade.

Your review of the Creek has made me wonder whether my amps may also be contributing to the problem, but in any event I feel my amplification is ready for change and I have to say the Destiny 2 sounded it may well be what I am seeking, but your expert advice and guidance would be appreciated. I can go up to £3,000 to make the change and would be happy to consider integrated or another pre-power, but with a built in MM phono board. My musical tastes are very varied, mainstream rock/pop/country/classical.

**John Langley**

The Creek Destiny 2 I would put in a field of its own sonically. It is enormously powerful sounding but ultimately smooth and spitch free. The nearest alternative comes from Naim, although they are not the same. You should not balance



**Creek Destiny 2 - one of Noel's fave integrated amplifier raves!**

fundamental sound quality against the presence of a phono board. Instead get what will appeal to you sonically and last the course, then get an additional external phono preamp; the world is awash with them at present. **NK**

### BLACK DISCS

I am a recent reader of your superb magazine, a convert from one of your rivals. Your open honest refreshing approach is a world away from the thin

forced presentation of other magazines. Having read your vinyl section with great interest for the last couple of issues. I feel inspired to dip my toe in the waters of the shiny black discs once more. The last record player I had was an elderly Goodmans midi system from the 1980s. I read with a special interest your feature on combining old and new components. In particular the Beogram turntable, very stylish! I have seen a few on eBay and have been considering chancing my arm. Any opinions on how it may stand up in my current set up, which comprises a Creek Evolution 2 amp, Exposure 2010s CD player and Mission 780 speakers. I am also wondering where I should look in mind to replace my loudspeakers? They have served me well for many years, but I do just feel that they might not be doing full justice to the Creek and Exposure. Any replacements would have to be similar sized and be happy close to a rear wall. Have considered Arcaydis DM1 which are online only, but can be returned with no quibble. Triangle speakers also intrigue me with their smart looks. You also seem to hold the Usher S520 in high regard. The MAD 1920's look excellent but they are a tad pricey for me. Any suggestions would be greatly welcomed. Keep up the good work.

**Austin Rushworth**

The B&O Beograms are superbly engineered decks and well worth a punt, providing you get a good, well preserved, untampered with example (this is a challenge in itself on eBay, alas)! They're not 'state of the art' in sound but a good one will still sound very nice indeed, and give your Exposure CD player a very strong run for its money. As for speakers,

the Usher S520s are absolutely superb compact standmounters and cracking value for money at around £350 - I'd recommend these for your Creek amp. **DP**

### ON THE RECORD

Hi I am in the process of upgrading my turntable system to a Mitchell Orbe turntable, SME IV arm and Ortofon Cadenza cartridge which will be fed into my Musical Fidelity Nu Vista integrated amp and Kef Reference 205s (first



**An Icon Audio PS1.2 will warm up the sound of your system, says David.**

generation) speakers. However, I am having a problem choosing a suitable phono preamp? Funds are limited at the moment and therefore, I was looking at the A.N.T Audio Kora 3T SE or LT (which are currently available with 35% discount) or the Icon Audio PS 1.2 being the current upper price limit both of which had good recent reviews? My musical tastes are Prog, Rock, Blues, Folk and Male/Female acoustic fairly eclectic by not Classical. Can you please give some advice/help? Your recent review on the A.N.T indicated that it was not best suited to rock, though I do listen to other music types and would/does the LT version give significant audio improvements over the SE for double the price? I am a bit concerned with user adjustment of the bias for best sound and much prefer the designer to have already done that for you? Or would the Icon Audio PS 1.2 be the better bet (though not available with the same level of discount that the A.N.T is currently on, which is a factor for me) Are there any other phono stages you would recommend within the price limit?

**Andy**

Okay – in your system with your SME tonearm, I'd be tempted to go for the Icon Audio PS1.2. Not because it's better than the ANT Audio Kora 3T Ltd. (it isn't), but it will warm up your SME slightly, giving a nicely big, wide sound whereas the ANT will be more 'matter of fact'. In absolute terms, in my view the ANT LTD is better than even the more expensive Icon Audio PS3, although again it's less sumptuous, and so often it's a case of getting a synergistic sonic match for best results. All of the aforementioned phono stages are excellent, by the way and anyone would be happy with them. You're talking £3,000 before you start getting a really significant improvement, which is why we recommend them so often! **DP**

### DISC DILEMMAS

A friend bought a Rega Planar 3 for me, for my birthday, but it's cut to take a Rega or Linn arm. I'm wondering which to fit? I like the Linn Akito, but as I have never heard a Rega don't know what it's like and whether to fit a Linn or Rega RB250/300. Can I put moving coil cartridges on it and which cartridges would benefit the most - an Ortofon Rondo Red maybe. I have got a Linn K18 cartridge and am told that an Audio Technica AT120 stylus will fit on it; I know the K18 is old, so is it worth it? Another item on the turntable agenda is which phono stage – do I buy moving magnet only, or go for MM/MC as I hope to get a Linn LP12 eventually.

My current system is a Cyrus 8vs2/PSX-R amp, Monitor Audio BX2 speakers and a NAD C515 BEE CD player with Chord Crimson Plus interconnects and Chord Carnival Silverscreen which I have biwired. When I got the Cyrus 8, I bought a NAD phono stage and to be honest the Cyrus just outclassed it, so I need a good one. Is the Creek OBH-18 any good for it? I did have a Linn Axis at the time the NAD phono stage was on there, and the sound was poor indeed. I'm using a Linn Intek at the moment, so as to save on buying a phono stage, but it sounds inferior to my new Cyrus. Budget would be around £300 but I'd like to see what you recommend first; it will be secondhand unless I can get a

decent one at reasonable price new. The tonearm budget will be £200.

**Lee Dodd**

Hi Lee - I'd go for a Rega RB250 in your Linn, which you can get modified by Origin Live ('Structural Modification') for better sound at a later date. This will easily outperform a Linn Akito, in my review. Yes, you can put a moving coil on it - my choice would be Audio Technica's ATF-3; this would far outperform your old Linn K9. I'd go for a MM/MC phono stage (obviously), my choice would be a second-hand Trichord Dino, on your budget. **DP**

### NEW MUSIK

Dear Mr Price,

Well, that was a shock, opening my July issue and seeing my name there. As a treat I'm playing 'From A To B' as I type, and must say I prefer 'Living By Numbers', 'Dead Fish' and (I have the bonus tracks CD) 'Missing Persons'. Not as powerful as the Landscape stuff (in terms of umph, if that's a legitimate term), but still of high quality. I have all three New Musik albums (on CD) and feel that production quality, of the level achieved by Tony Mansfield, is rare these days - it's all churn-it-out and count the cash; quality? "Excuse me? We're releasing our songs on MP3, we don't care about quality..."

I think that a golden age has passed. From the 50s to the mid-80s was a gradual increase in quality - although technology can certainly get in the way of a great recording. Some of the early Elvis records are magical, both in their simplicity and the beauty and purity of his voice. Then the money seemed to make itself known - it's always been there, protesting at the (sometimes - Fleetwood Mac! 'Tusk' anyone?) excesses of the artists, balanced against the cost of recording studio time - and the amount of really creative musicians/artists started to decline. Maybe this was a result of computers moving in and removing all the hard work? Who would give artists such as Kraftwerk, Can, Klaus Schulze and even Jean Michel Jarre a recording



**Don't let its sedentary looks put you off - ANT Audio's Kora 3T LTD is a superb phono stage...**

contract these days, if they were just starting out? "Nah mate, too weird. Don't you watch X Factor or BGT these days? Aren't Jedward great? (SFX sound of cash registers)" I despair, I really do.

Anyway, rant over. Maybe I'm just getting old... Still wishing you and the mag all the best (and hope you sort your NS1000s and their wall problems soon).

### John Malcolm

PS As your knowledge of Japan is large, how about an article on Yellow Magic Orchestra, especially Ryuichi Sakamoto (thanks Wikipedia for spelling)? As inventive as Kraftwerk surely?

Hi John - thanks for that. I think YMO (as the Japanese always called them; they do like acronyms!) were geniuses, with 1980s 'BGM' ('Back Ground Music') as their high watermark, artistically (and stunningly well recorded, too). I actually interviewed Haruomi Hosono (arguably the brains behind the trio, but that's another argument for another day) in Tokyo in 1992 for another magazine, and found him an incredible character. He told me that Kraftwerk and YMO kept a very close eye on each other artistically, during the 1970s, although Hosono's favourites were The Flying Lizards (remember them?) and Laurie Anderson. But I digress... not sure if I dare subject the readers of this magazine to two pages of trivia about a Japanese electropop combo, but I could bore for Britain on this subject. Is there anyone else out there who'd read it? Don't all shout at once! **DP**

### CABLE IMPEDANCE

In the reply to a reader's letter Noel stated that audio cables do not have a characteristic impedance. This is incorrect. Even a piece of string has a characteristic impedance. Whether it matters sonically is another question but I think it's important to get the facts right.

The usual equation used for the calculation of  $Cl$  is  $Z_0 = (L/C) / 2$  where  $L$  and  $C$  are the values per unit length. However this only applies at high frequency as we shall see.

The full equation for the calculation of  $Cl$  is  $Z_0 = ((R + j\omega L) / (G + j\omega C)) / 2$  where  $R, L, G$  are per unit length and  $F$  is any frequency.  $G$  is the conductance of the dielectric and is usually very, very small so can be ignored. So a cable such as an audio cable has a  $Cl$  depending upon these parameters. Cable length does not matter.

At low frequency the terms  $j\omega L$  and  $j\omega C$  are very small compared to  $R$  so  $R$  dominates. As

frequency increases the above terms become much larger so the equation simplifies to  $(L/C) / 2$ .

A cable specified as 75ohm, is that calculated for high frequency not audio frequency. A typical coax cable will have a  $Cl$  very much higher than 75ohms at audio frequencies. So the idea of loading 75ohm coax with 75ohm will not work from the impedance matching point of view as well as it's a bad way to treat a line stage as Noel says.

So unless you deliberately manipulate the cable's parameters most audio cables will be a mismatch to their source and load impedances. This will result in some of the signal being reflected back down the cable and reflected again. The number of reflections being related to the amount of mismatch. The speed of propagation of the reflected signal is related to the dielectric material of the cable but is usually between 3 to 5ns per meter. This effect can be seen experimentally on the leading edge of a square wave transmitted down a mismatched line. The leading edge has a series of small steps at twice the expected delay time.

If you adjust the load (or source) impedance towards the nominal  $Cl$  the height of the steps decrease, to a null. If the cable did not act like a transmission line this would not happen. Delatraz described the experimental set up in detail with the same results. Similarly Richard Black. I have verified these results myself.

### Geoff Mead

Technically that is so and I suspected someone might pick this up! But as you say the reactive components fall out of the issue at low frequencies and, as they are the determining factors of Characteristic Impedance, in practice a cable does not effectively have a characteristic impedance at low audio frequencies.

Time delays of nanoseconds (10 exp-9 seconds) where cycle times are 0.05 milliseconds or more are not especially significant I suspect and unlikely to explain cable sound differences, but it is interesting all the same. **NK**

### PLATTER MATTER

I have an old Townshend Rock turntable which I am modding and trying to bring up to scratch. The platter is very early and consists of a formed dish approx 1.5ins thick and filled with plaster of paris. Due to the method of manufacture and poor design it requires an alloy centre to locate the platter correctly. However it is impossible to centre the platter correctly as one cannot establish a datum to work from. I therefore am considering turning up a new platter using acrylic as the material.

My question is can you advise which grade of acrylic I should use and a possible supplier? The platter is quite heavy in its original form and I would like maintain or slightly add to the original weight. Manufacturing the platter from scratch enables me to make sure everything is correctly in line and to the best standard I can achieve.

I hope you can assist me to keep this old warrior alive and fighting; at its best as it can give quite a respectable account of itself. During my attempts to 'up the ante' I have pulled together various redundant parts and brought them into use, it comprises a Rega RB300 arm rewired and counter-weight modded, and a power supply put through a smoothing device which enables me to adjust speed whilst running, and maintains the use the original AC motor. This is all finished off by the addition of a rebuilt Decca Supergold (London) cartridge.

The addition of the Decca cartridge has had the most effect: the music has a vitality that is quite astounding and challenges my Orbed GyroDec SE, which makes me even more determined to carry out what will be the final mod to this deck.

### John Lancaster

PS The original platter weighs 5.5lbs

Hi John. Grades of acrylic are a bit beyond our knowledge I am afraid to say. I suggest you contact Townshend Audio for this info. **NK**

### MAD ABOUT THE GUIDE!

I am so pleased to see your old Buying Guide back up and running on the internet. I was using it on a very regular basis up until it's disappearance from Net and quite frankly, (as daft as it may sound) when it went I was lost without it! Thing is, all the stuff that I wanted in the mid 1990's but couldn't afford is now available 2nd hand at good prices (e.g. eBay and cash converters) and this guide is absolutely ideal for helping out with research on this older (but goldier) stuff (for example turntable cartridges and mid end CD players as upgrades). Apart from product reviews, I find it very useful for checking this 1990s stuff's price when new to give a good feel for where the item sits in the pecking order and welcome help with likely component matches. Today's Buying Guides are pretty useless to me. I'm a lot happier now I've got the use of yours again.

### Richard Franks

Thanks for writing in Richard. We resurrected this guide in response to your request and this of so many others who wrote in from around the world. Now we understand the value I hope we can improve this listing slowly. **NK**

# Stone Roses

Noel Keywood auditions Wharfedale's hefty new Jade 5 loudspeakers...



**W**harfedale loudspeakers, in their heyday, produced around 200,000 loudspeakers per annum, I was told recently by Gordon Proven, who managed the Bradford based company when it was a part of Rank Leak Wharfedale. Those are big numbers by today's standards. But perhaps they'll return for Wharfedale because it now exists as Wharfedale the manufacturer and as Sino Wharfedale Trading, one of China's largest audio distributor. Behind the new Jade 5 loudspeaker reviewed here then is a long history and still a big company.

The new £1,500 Wharfedale Jade 5 is a large floorstanding loudspeaker measuring 1 metre high (1,055mm), 246mm wide and 400mm deep. Those dimensions give it quite a presence; this is no small loudspeaker. Weighing 27.5kgs it is however moveable, even if with some little effort. Anyone wanting something larger than a conventional 1m high loudspeaker like the Jade 5 may be interested in the Jade 7, and there are two smaller standmounters in the range as well.

Wharfedale under its founder Gilbert Briggs produced loudspeakers of quality for the people and today's Wharfedale follows the tradition. The Jade 5 uses a number of interesting ideas to keep it relevant in a market far more heavily fought over than in Gilbert Briggs day. A three way floorstander with bass, midrange and treble units, the bass units use what Wharfedale term Acufiber; a cone material woven with glass and carbon fibre strands. Ridges that act as wave breaks are moulded into the material.

Interestingly, it was Alex Garner of Wharfedale who described the need for wave breaks back in the 1970s, when introducing the Leak 2000 Series loudspeakers. Their plastic cones used punched holes (as well as a rear plastic damping layer) to control cone behaviour, so this is not a new idea. Our own use of damping ribs in World Audio Design loudspeakers showed they are very effective, so the ribs of the Jade 5 bass drive units are of proven value.

An unusual 75mm shallow midrange unit with an aluminium and pulp cone is used to cover the midrange, working from 340Hz up to 2.4kHz. Wharfedale say. Above 2.4kHz an aluminium dome tweeter covers treble.

Interestingly, Wharfedale use sealed 'infinite baffle' cabinets in all their Jade series loudspeakers; there are no ports. Bass loading is described as 'Aperiodic' which basically translates to a closed box with a degree of leakage, enough to damp down the single bass resonance peak of the system. Our measurements clearly show this has been achieved; the Jade 5 'looks' like a sealed cabinet loudspeaker, but with better load characteristics that improve amplifier matching. Designer Peter Comeau talked about this technique as used on the Dynaco A25 loudspeaker in a series of loudspeaker design articles he wrote for this magazine, and which you can find on our website under Loudspeakers/Technology.

I think I am right in saying the idea is to improve upon the acoustic damping and load characteristics of ported loudspeakers, at least as they are commonly implemented. However, many modern ported designs work very well and there are no easy improvements to be had here. But we can expect bass of a different quality at least from the Jades as a result of Aperiodic loading.

The Jade 5s were strongly built from a wood laminate and well finished too, although they are conservatively styled and detailed; ours were rather sombre. IAG's own Caste Knights were more eye catching than the Jades.

The rear carries four large, gold plated terminal posts that enable bi-wiring. They accept 4mm plugs, spades and bare wire.

## SOUND QUALITY

Given 48 hours with Monitor Audio's De-Tox disc didn't do much to run in the Jade 5s; they sounded tight and bass-deficient. Pummelling them for a further 48 hours with pink noise at high level changed matters though: these speakers need a lot of running in. Their bass opened out and became fulsome. Spinning Angelique Kidjo's 'Fifa' album, with its prominent bass lines that run right down to 30Hz our analysers tell us, had the Jades pounding out bass with an eagerness that – well – did not surprise me since I once owned a pair of giant Airedales. Wharfedales should have heft and the new Jade 5s certainly do. Fed by our grippy Musical Fidelity AMS50 Class A power amplifier, they

pushed out big, muscular bass lines that firmly underpinned the Benin rhythms of 'Fifa'. Notes were placed evenly on the bass scale and the Jades moved down the scale nicely, although they produced little in the way of subsonic rumblings. They play the musical instrument scale right down to the lowest (40Hz) notes strongly and I was made well aware of every note. Those that crave or demand the last ounce of tightness and control will not be overly impressed, for although the Jades don't boom and overhang as some underdamped ported loudspeakers, they still give bass a slightly inflated presence, even in our large room which makes no modal additions. But all the same, extra bass is more acceptable than no bass and the

"if you like bracing, taut, barrel-chested Rock music, you'll love this loudspeaker..."

balance was right for the marque, and likely for most listeners too.

With a great modern recording (I can hear the tape machines wow in 'Fifa', which dates it a little!) like Eleanor McEvoy's 'I'd Rather Go Blonde' the Jades show how up-front they are, chiseling out Eleanor just forward of centre stage and putting plenty of light onto her violins, a presentation underlined by 'Away From You'. Here the Jades threw information at me; they are forward, explicit with vocals and leave nothing out, so Eleanor's lyrics were spotlit and specific. However, whilst impressive for their 110% rendition, it was obvious from the off that the tweeter of the Jades is prominent and sibilants hissed and occasionally spat. The upper peak revealed by our measurements can give a hard quality, so careful matching with smooth front ends is needed, I feel.

With 'I'd Rather Go Blonde' the Jades hung out a big sound stage just in front of the speakers on which images were solid and sharply edged, yet full bodied and vividly described. The Jades miss nothing, leave nothing out and are unrelenting. In this they are very modern loudspeakers, as they are in bass control, yet at the same time they were neither beguiling nor sweet.

With a real heavy hitter like Adele's 'Rolling in the Deep' I found I could wind volume up until the walls shook and the Jades kept a great grip on the backing bass line and the big kick drum, whilst the insistent piano staked out the songs thematic

strand. Depth perspectives were not great, backing singers being brought up behind lead vocals and 'Rumour Has It' reinforced this; backing singers were too close. There was too much coming from the tweeter and it seemed at times to be eclipsing all else, including the Jade's talents.

Running the Rock fireworks display that is Safri Duo's 'Samb Adagio' brought together all the qualities I have described so far, with synths all but working their way across the room a few feet in front of me (I was 12ft from the speakers!) whilst the pounding bass beat was grippy and strong. There were no subsonic rumblings, but this helped keep bass sounding fleet of foot and free from following phantoms. Percussion beat me about the ears

though and here the Jades were hard of tone and unforgiving.

As Toto's 'I Will Remember' kicked off, that the Jades are *mightily* impressive as Rock machines was obvious, percussion hitting me from extreme left and right with force, making for an expansive soundstage. The panning of drums across the



soundstage was made apparent through the loudspeaker's visceral impact, body and power. The Jades were ever impressive with well recorded music tracks, for their speed and prominent but controlled bass.

Spinning older, less well recorded material wasn't always such a happy experience though. Compressed depth perspectives and shimmering treble did nothing to flatter the

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power of Steve Earle's 'This Highway's Mine'; I know it's difficult to keep the highs of this track in check whilst at the same time bring out the chiming guitar work and the energetic bass lines. In many ways the Jades did well, but again the tweeter rather spoilt it all by laying a hard patina over proceedings and emphasising the less than sweet highs. 'Billy Austin' sounded dramatic as always, but percussive edges were a tad on the sharp side for my tastes.

Spinning a 'bracing' recording of Nigel Kennedy playing Vivaldi's 'Spring' brought a bright metallic quality to strings that was implausible and none too pleasant either. That the Jade is balanced to sound fast and hard-edged with Rock did it no favours on this recording, I'm afraid to say.

Large orchestral works like

'The Planets' were reproduced with a crisp verve, and Mars fairly sped along, the Jades picking out orchestral sections with impressive ability, separating brass from strings with an ease that eludes other loudspeakers. Timbral differences between instruments were well differentiated, due to their own intrinsic neutrality. Again though, whilst the stage was obviously big and wide, it lacked depth, so the orchestra was not layered backward, and the general projection was a forward one.

Changing over to our Icon Audio MB845 monoblock valve power amplifiers was a very worthwhile move, adding bass depth. It gave kettle drums more heft and brought a bigger dynamic into play. Depth perspectives improved too. Rock music also benefitted from the MB845s, gaining depth and heft. The Jade's wide sound stage produced a impressive swathe of sound and a nice canvas for the panned drums in Steve Earle's 'This Highway's Miine', which now worked well; some great bass thundered out to support this heavy rock ballad. I found the Jade 5s certainly like a powerful valve amplifier, where they

can really and truly sing, but the trouble is that this really isn't the sort of amp they're likely to be used with. It's an unusual proposition to combine £1,500 loudspeakers with six thousand pounds' worth of tube amplification. If you can do this, you'll be handsomely rewarded, but not everyone can...

## CONCLUSION

Wharfedale's new Jade 5 is an interesting floorstander. It's been voiced for a very particular sound, and in this it is highly successful. If you like bracing, tight, taut, barrel-chested Rock music, you'll love this loudspeaker. But still you'll need a particularly smooth front end and amplifier, ideally a big booted tube design. If you're looking for more even-handed all rounders, the Jades fare less well.

A very well engineered and revealing loudspeaker, the Jade 5 nevertheless has a distinctive personality that won't suit all – so an extensive audition is strongly recommended.



## MEASURED PERFORMANCE

Wharfedales are known as having a big, bold sound and the Jade 5 is acoustically proportioned to maintain this character. It has a pronounced bass peak of +5dB around 80Hz and this will give the Jade conspicuously bouncy and obvious bass. Low roll off rates put a lot of low frequency energy into the room as well so although the Jade 5 is not flat down to low frequencies it still excited our 24Hz room mode strongly and this indicated that in larger rooms subsonics may be apparent. A bass peak is indicative of low acoustic damping and a boomy sound, but the impedance curve shows electrical damping is high; this may well be a loudspeaker best driven by solid-state amplifiers with a high damping factor, than valve amps with a low one, according to tastes.

Sensitivity was mediocre for a modern speaker of the size, measuring 87dB, and this likely due to the unusual aperiodic bass loading method. All the same, 40 Watts or so will make the Jade 5 run very loud. Impedance is quite low right across the audio band and overall impedance measured just 4.7 Ohms, but the load is substantially resistive and will be easy on amplifiers, minimising differences between them.

The Jade is flat across the critical midband but has a plateau lift in output above 3kHz from the tweeter. This will add brightness to the sound. The tweeter has a pronounced peak at 20kHz and could do with a phase

plate to damp the effect. This will be unnoticeable most of the time, although a piercing quality to high treble may be occasionally detected; the tweeter is unsophisticated by modern standards.

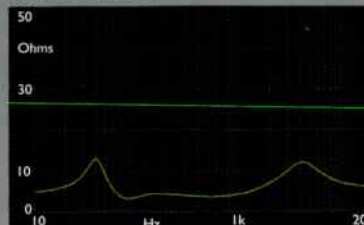
The Jade 5 had an unusually clean decay spectrum, especially in the lower midband and it should exhibit low levels of colouration or impinging character. However, the bass looks a bit hot, as expected, with overhang around 80Hz.

The Jade 5 measures well, but it has some distinctive characteristics. A lively and dynamic sound, with obvious bass and treble content exists, but colouration is low. NK

### FREQUENCY RESPONSE



### IMPEDANCE



### VERDICT

Big, powerful, vivid and insightful, these are great Rock loudspeakers – but need careful matching.

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 www.wharfedale.co.uk

### FOR

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- clear, explicit midband
- expansive sound stage

### AGAINST

- sharp and brightly lit
- limited stage depth
- needs careful matching

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### WOLFSON DIGITAL SILENCE DS-101A £40

From the famous British DAC chip manufacturer comes this active noise-cancelling in-ear headphone, which consists of two earbuds and an inline unit which contains the signal

processing electronics and battery. For mobile 'phone users there is also a microphone in one of the earbud leads and a button on the electronics unit which allow the user to take a call without having to fumble for the handset itself. The battery is charged via a short USB cable and no other charger is supplied; thirty hours use is claimed. Usefully, when the unit is switched off the noise cancelling system is bypassed and the earbuds become completely passive, making it easy not only to assess their quality but the effect of adding the noise cancelling process as well. The earbuds are of the type which come with little soft rubber 'mushrooms' that fit to the ear, three sizes are included and it is reasonably easy to get a comfortable fit. Their quality is fair and perfectly workable, especially if your source is simply music files stored on a mobile phone. Bass could

be stronger, but at least the treble is largely free of harshness and jangle.

Switching in the noise cancelling function means that the incoming music signal has to be combined with the 'anti-noise' one and then amplified together before going on to the phones. Despite a short, silent delay between these two modes the difference in sound is clear as the midrange moves forward and the general level of detail and left recedes, although it cannot be denied that the noise cancellation is very effective. The difference is most marked if you have invested in a music player with a serious headphone stage like the Sony X series or the HiSound Studio, the advantages of this of course are lost when the DS-101A is used in noise cancelling mode. A fine buy for the jet-setting portable or mobile phone user on a budget. **TJ**

# soundbites

### SOUND TO GO EDIFIER MP250 £49

If you have music stored on your laptop then you'll know that its built-in loudspeakers aren't up to much. Even some sound systems designed or endorsed by famous hi-fi manufacturers seldom give more than an unsatisfying tinny rattle, lacking in both volume and impact. This little gadget aims to improve your sonics by providing better loudspeakers and a more powerful amplifier in a neat, self contained, portable unit. It plugs into your computer's USB socket and streams out the music data, converting it back to analogue and playing it through four tiny drive units. Each channel has two 25mm full range drivers which look like miniature foam roll-edged woofers but are actually smaller than some cone-type tweeters. Bass is boosted by a central auxiliary bass radiator (ABR) which is shared between the two channels. The housing of the MP250 is nicely styled, well finished and has won a prestigious IF design award, putting it in an elite category shared with some very fine equipment indeed. The unit is powered by the USB connection and has an extra 3.5mm line level input so it can be used with portable

audio equipment too. There is only one control, a button which raises the volume is pushed repeatedly and lowers it again if pushed and held – a novel and interesting way to go about things, but you soon get used to it.

Careful placement is the key to obtaining the best results. In free space the bass is understandably weak but fills out considerably when the cabinet is backed with something and the drivers are very directional when it comes to treble so it really does pay to experiment. At its best the MP250 was certainly

an improvement over my Sony notebook's built in loudspeakers when playing compressed files and provided plenty of volume as well as extended frequency response at both ends of the audio spectrum. Things get a little painful if the volume is over extended and the Class D amplifier produces a slight background 'sizzle' when playing quietly, but overall it's good given the size of the cabinet and the modest price. A built-in battery option would have made it more useful for non-USB sources, but this aside it's fine little computer audio gadget. **TJ**



# Bella Figura

**Bel Canto's CD2 is one fine looking silver disc spinner, thinks Rafael Todes, but does it sound as good as its name suggests?**

**T**he term "bel canto" is literally the Italian for "beautifully sung", but in classical music refers to a school of singing, principally 19th century Italian opera by Rossini, Bellini, etc., where vocal tunes were legato (smooth), and sung over a seamless range. It is therefore in audiophile terms a high bar to live up to! The company that takes this name is actually American, not Italian, and was set up in 1990 by John Stronczek in Minneapolis. Employing twelve people, it makes a range of products including Class D amplifiers, some DACs and a tuner which have met with great acclaim in the States. This side of the pond however, the brand seems to remain a relatively well-kept secret...

The £2,695 CD2 is a versatile machine. It is a CD player in its own right, with the choice of digital output to a DAC via BNC, (S/PDIF adapter included), TOSLINK or AES (XLR), and either single ended outputs or balanced. These drive a preamp, but at the flick of a switch on the rear panel, a built-in preamp kicks in that can drive a power amplifier directly. The player upsamples to up to 24b/192 to drive its internal DAC, or can feed an external DAC similarly. The player is supplied with a wall wart, which looks a bit on the cheap side for a machine of this calibre, but this can be upgraded to a LNS1 power supply for £399, which provides a stable, isolated and low noise base for the precision digital and analogue audio circuitry. This requires a special cable which costs £75. There is an even more advanced power supply, the Virtual Battery Supply (VBS) capable of driving up to three devices that costs £1,300.

Bel Canto make a range of DACs, the 3.5VBS being the most advanced costing the same price as the player. So with this CD player, comes the

ability to use it as a standalone affair, or it allows for a chain of upgrades via DAC or power supply, to turn it into a rather different animal, so for around £6,700 you get Bel Canto's CD player with their top spec power supply and DAC. For the purposes of this review, I'm going to look at it firstly as a standalone player, and then examine how the addition of a first class DAC improves it, and finally, to look at how it rates as a transport only.

In the flesh, the unit is an elegant, minimalist design, half-width, with an oval window cut into an aluminium panel, sporting some green LEDs to provide the standard information. The drive is top-loading, with a substantial puck to hold the CD in place. Once mastered, it is very simple to use, and feels incredibly solid compared to plastic drawers I have known.

## SOUND QUALITY

Listening to 'Tombeau de Couperin' by Ravel, the Chicago Symphony Orchestra conducted by Sir Georg Solti, the 2nd movement – a Sicilian dance rhythm – the Bel Canto gives a tonally rich, densely packed sound. The violins have a weight and authority which I find really attractive to listen to; it's a sound with a good solid core to it, nice bite and articulation with no hint of sheeny CD-itis. Rhythmically, the music has an authentic swagger to it which draws the listener in.

The sound stage is reasonable, certainly not outstanding, but decent for a player that costs under £2,700. Bass grip again is reasonable for such a product, it's not the last word in tightness, but overall this is good value. There is definitely something very analogue-sounding about the player, which

makes it pleasurable to listen to for long periods – there's none of the 'hi-fi brilliance', which as George Bernard Shaw put it, "is like giving oxygen to a mouse; first it excites it then it kills it!"

The opening of Mahler's Resurrection Symphony No 2, with the CBSO conducted by Sir Simon Rattle, has the cellos and basses grunting like a herd of elephants; it is an outburst of sorts, almost vocal, as the sections play in unison. The CD2 makes a beautiful string sound timbre, it is fruity and lush, but the whole thing seems to sound slower than I am used to with this recording. It almost sounds like an exercise in pedantry, and precision...

Connecting the more expensive Weiss DAC202 immediately opens up the soundstage, and gives more detail to the





"there is definitely something very analogue sounding about the player, which makes it pleasurable to listen to for long periods..."

bass as you hear the decay in the bass notes more clearly – some of this pedantry dissolves into a more articulated and detailed grunt. It is delightful to hear the first orchestral climax arrive with such raw power, and with a natural aural map as to where all the instruments are sitting. Changing power supply to the LNS1

further draws the soundstage back, so that you are really aware of the hall in which the symphony was recorded. You can feel the magnitude of the surrounding space. There is much better microdynamic control of the phrasing, particularly from the opening bass rant, and the story being is more compelling as a result.

No longer am I so aware of each beat of the music, but am drawn into the grammar of the phrasing. It is only relatively recently that I have been able to appreciate the depth of soundstage in digital reproduction. It is not something which was to be found with cheaper CD players, and has until recently fallen short

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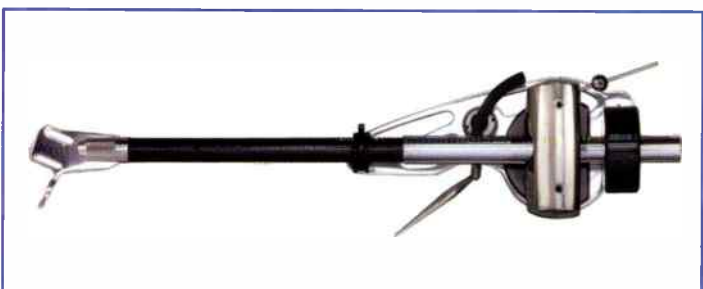


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of the imagery I get with good vinyl reproduction.

The Scherzo from Mahler's 5th Symphony on DG, conducted by Bernstein is a *tour-de-force* with this combination. The Weiss adds several rows to the depth of the orchestra, the transport gives a rich, nuanced string sound, and the deep *pizzicati* of the bass section acquires a tightness with the improved power supply. There is a lovely clarity to the orchestral timbres, without sounding bright or sharp edged. When the big orchestral climaxes arrive, the combination keeps good order – so while the music is almost out-of-control, the equipment isn't!

Listening to the excellent Cyrus CD Xt SE+ transport, which costs £1,550, the opening of Mahler's second symphony is more rounded sonically. There seems to be less detail to the bass, while it is a pleasant sound, it lacks the definition that the Bel Canto has, almost as if there is a cloud of dust surrounding the music. Cello and bass notes don't have the same sting and attack. The soundstage doesn't have the same sense of layering that the Bel Canto provides as a transport. It is quite hard to tell that the basses and cellos are playing an octave apart, both pitches being subsumed into a single note. On this recording, the Bel Canto does a better job on its own than the Cyrus does using the Weiss DAC202. This surprisingly shows the importance and contribution that a good transport makes.

Using Bel Canto's 3.5VB

DAC with a LNS1 power supply, made an interesting contrast to the Weiss DAC202. On the Mahler Scherzo from the 5th Symphony, the Weiss has a lean, precise tautness, whereas the Bel Canto seems to roll up its sleeves and get down and dirty. It's a full bodied sound, even richer than the CD2 transport used as a player, with plenty of weight and slam. The top end is smooth and velvety. On my system with B&W 802s on Townshend Seismic cradles, the bass control is more of an issue with the Bel Canto DAC than the Weiss, and can be improved by the even more expensive power supply, the VBS and an aftermarket DC lead from Coherent Systems. Even with these improvements, the outlay comes to less than the cost of a Weiss, but

choice will be down to individual taste. My own preference is for the aquiline meticulousness of the Weiss for its studio-like accuracy.

**CONCLUSION**

This is certainly a fine sounding and musically revealing CD player, which is great value for money, and has the ability to be upgraded *à la* Naim by improving power supplies, etc. It has a sophisticated, analogue-like sound which gets straight to the guts of the music. It also works well as a transport – when put together with a first-class digital convertor it yields tighter, more detailed bass, a greater openness to the sound and a thoroughly engaging performance. I hope this well-kept secret of a silver disc spinner receives the recognition that is accorded to it on the other side of the Atlantic; I for one am only too happy to sing its praises!

**REFERENCE SYSTEM**

- Weiss DAC202 digital convertor
- VAC Auricle Musicblöc power amplifiers
- B&W 802D loudspeakers
- Townshend Seismic Speaker Cradles
- Chord Indigo Plus cable
- Coherent Systems 5D digital cable
- Chord Epic Twin speaker cables

**MEASURED PERFORMANCE**

Frequency response shows just a slight roll off at high frequencies our analysis shows, measuring -0.2dB at 20kHz. The CD-2 should sound tonally balanced and certainly not bright in consequence, as it is otherwise ruler-flat in frequency response from 2Hz up to 10kHz.

Distortion levels were low for 16bit CD, down at the lower limit of what is possible, with 0.018% distortion at -60dB for example, as good as it can get and up with the best. The Bel Canto recorded a healthy EIAJ Dynamic Range value of 100.5dB as a result, again putting up with the best players, although 102dB is possible from the best.

Output from the unbalanced phono output measured exactly 2V and from the XLR this rose to 4V. All performance values were the same from XLR as phono; both were tested.

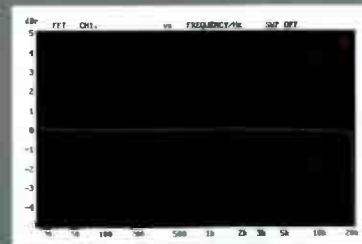
Jitter values were poor for a modern player, with signal-related jitter measuring 420pS on a 1kHz -60dB signal, where 40pS is common and less is possible. Random jitter was high too, but clock drift minimal.

The CD-2 measured well except in terms of jitter, where it was poor and below current standards. NK

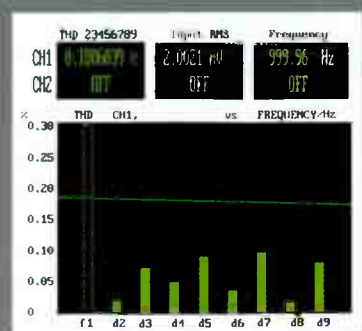
Frequency response (-1dB)  
CD 2Hz - 21kHz

Distortion	%
0dB	0.003
-6dB	0.0017
-60dB	0.18
-80dB	4.3
Separation (1kHz)	108dB
Noise (IEC A)	-102dB
Dynamic range	100.5dB
Output	2V

**FREQUENCY RESPONSE**



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**AGAINST**

- nothing at the price

# First Class

Tony Bolton lives the high life as he reviews the Piega Premium 1 loudspeaker...

**A**side from the obvious attractions of glorious mountain scenery, Switzerland is probably best known for its precision engineered products. Regular readers will know that I am very enamoured with the cartridges produced by Benz Micro, and now, at the other end of the audio chain, I find myself listening to the loudspeakers produced by fellow countrymen, Piega...

Based on the shores of Lake Zurich, and founded in 1986 by Leo Greiner and Kurt Scheuch, the company has taken a rather unconventional route in developing its range of speakers. The Premium series range from the Premium 1 standmounts, priced at £2,200 for the aluminium finish models looked at here (black anodised is available for £2,420) up to the Premium 7 Towers at £5,500.

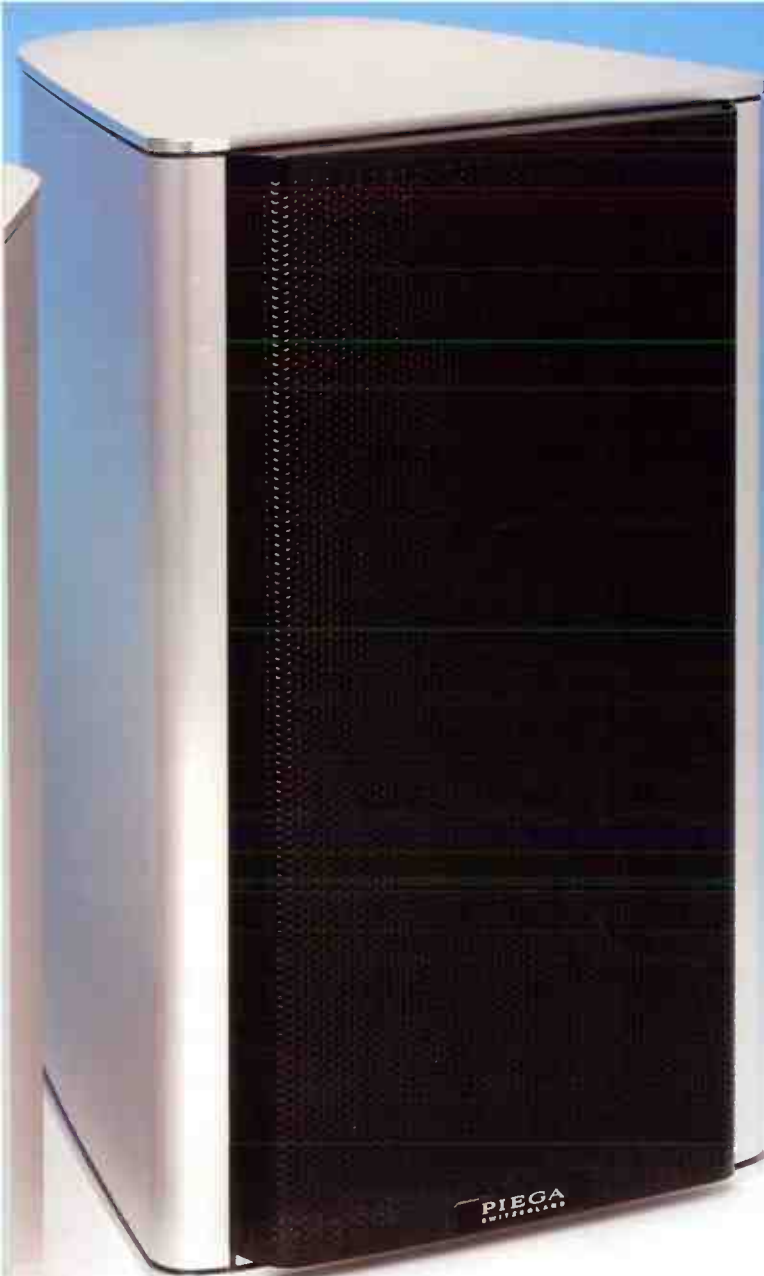
All boast an aluminium casework

which is extruded under 7,500 tons of pressure from a 3 ton alloy block. The 310x190x210mm C-shaped structure has 7mm thick, Idikell sound-deadening material inside it (a thermoplast made from bitumen and mineral fillers that is used in applications ranging from the car industry to the Space Shuttle, apparently) which results in a 7kg cabinet that sounds reassuringly dead when rapped with the knuckles.

In this model there are two drivers. The lower notes are handled by a conventional cone, made of what

is described as a "multilayer compound material", while the higher frequencies (above 3.5kHz) are reproduced by a ribbon tweeter. This is made of a 0.02mm thick aluminium membrane which is mounted on a glass fibre reinforced epoxy carrier that is positioned in a subchassis made from rubber elements with high damping properties. It is activated by neodymium magnets situated behind it. At the back are





two very well made binding posts and two small reflex ports to enhance the bass output. The metal grill is sprung into place in two vertical slots on the front, so when removed there are no unsightly holes on display. Overall, it's impossible to criticise the quality of build and finish of these loudspeakers – in an already high reaching market, it is superlative.

I initially ran the speakers in for seventy two hours on a diet of Isotek's System Enhancer disc and a classical compilation CD before moving them downstairs onto a pair of sand filled Atacama stands, to be powered by the Leema Tucana II solid-state integrated amplifier; they need a strong source of power so I feel valve amplifiers would be inappropriate (electrically, if not sonically). The instructions recommend positioning between ten and fifty centimetres from a wall, and in my five by six metre front room I found that a position about thirty centimetres from a wall gave adequate bass response.

"musically coherent and exciting, there was a definition to the higher frequencies that made things sound very much 'in the room'..."

### SOUND QUALITY

My first impression, on playing some jazz, was this loudspeaker's lightning transients – of both the rhythm, and the attack and decay of sounds. I settled into some of my favourite tracks, mesmerised at the way the music seemed to have received an adrenaline shot.

Gene Krupa's drumming was spectacular during a particularly vivid performance of 'St. Louis Blues', in perfect counterpoint to the gyrations of Goodman's clarinet. This LP was made from acetates recorded of the Goodman band on tour in

the late thirties, and doesn't have the balance and definition of their studio recordings, but was freed from the three and a half minute time restrictions of the ten inch 78 format, with the result that the band relaxed and let rip. Musically it was coherent and rather exciting, with a definition to the higher frequencies that made things sound very much 'in the room', but also had the effect of pointing out the age of the recording and some of its sonic inadequacies. Despite this, I enjoyed it, focusing mostly on the musical content, and being surprised at just how much musical information the fairly primitive recording equipment had managed to note down. Krupa's kick drum was clearly defined, as were the differing layers of instruments above it, allowing me to peer into the mix with an almost forensic appreciation.

In some ways I found the sound contradictory – I was obviously listening to an aged recording, but instead of it sounding restrained, and struggling to escape from the grasp of the speakers, it was spread across the living room carpet in front of me, occupying the whole space in front of the speakers. I normally find ultra revealing systems tend to only shine with really well recorded material, yet here were a pair of speakers that gave a realistic overview of the recording, without belittling it in anyway.

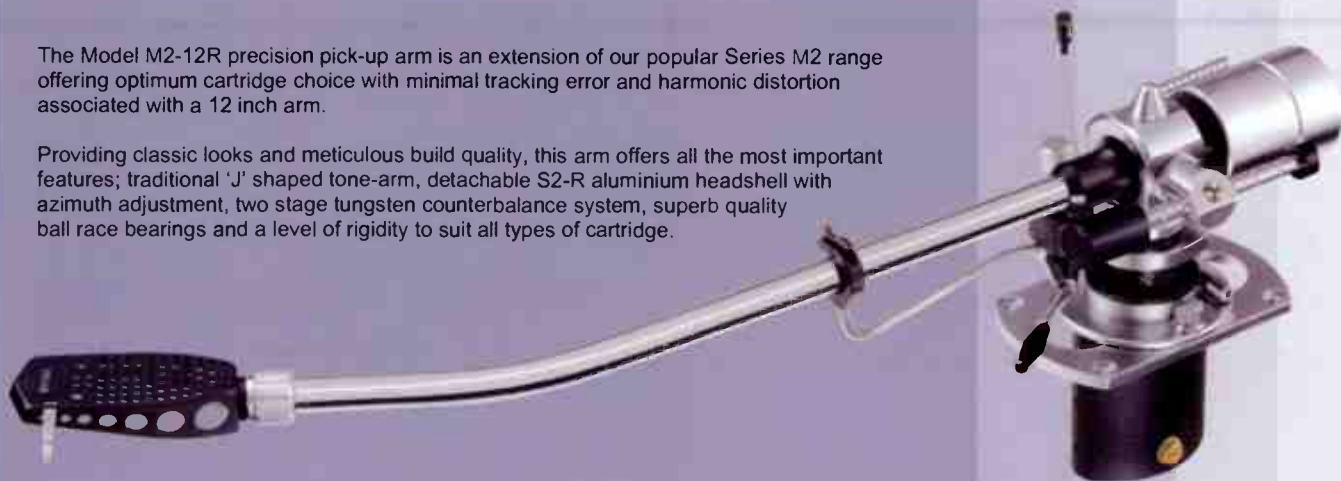
Over the evening I worked my way from jazz through to the gently electronic sounds of 'Air' and a four track CD of three mixes of the

1998 hit 'Sexy Boy'. The first version is the well known one from the 'Moon Safari' LP, whilst the other two have a breakbeat rhythm that these speakers revelled in. The bass had shape and dexterity, although it lacked a serious amount of weight. It went low, but was not of the floor shaking variety. The final track is called 'Jeanne' and is a simple mix of guitar, tambourine, synthesised strings and vocals provided by French singing icon Françoise Hardy. I played it three times in succession, exploring new details in a voice that I know well. She stood in front of the instruments,

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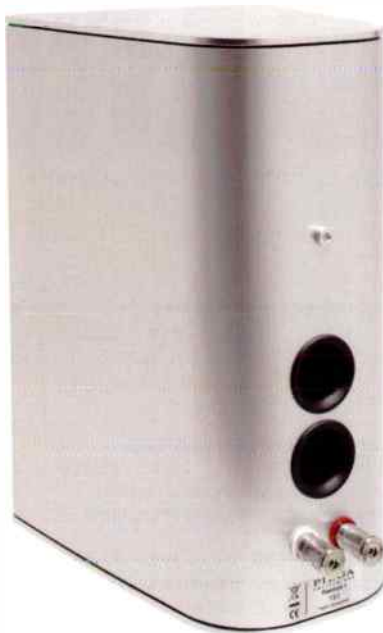
a clearly defined three dimensional entity, and it was this dimensionality that I am used to from vinyl, but rarely find with CD, that proved so fascinating. In fact, several tracks were repeated during listening, where the presentation had such a different viewpoint to the one that I was used to, that I felt that I was almost exploring the tracks for the first time.

The following evening I spent playing classical music ranging from the majesty of Wagner through to the soothing sounds of the Capella Antiqua Munchen. The massed male chorus, with occasional solo voices were displayed in a large cathedral-like acoustic, with the sounds decaying into silence over a period of several seconds, in a most natural way. Certain tracks, such as the 'Gloria in excelsis Deo' had an intensity that made me, a very lapsed Catholic, feel almost intimidated by the chanting of these ethereal monks that I had invited into my sitting room. Whilst 'Congregavit nos in unum' had the feeling of a folk song, with the chorus answering a soloist, and a swing to the music that I would not normally associate with such ecclesiastical sounds.

Such ability to explore music's hidden depths, does of course come with a caveat. In this case, the revealing nature of these speakers was not just confined to the music. I was, at times, all too aware of the age of some of the discs that I was playing. The uber-definition of the higher frequencies took no prisoners when describing the groove walls. The odd pop and crackle appeared and disappeared very quickly but I found myself having a love-hate relationship with the sound – enjoying its openness and speed, but also wishing that even very lightly played records would produce less background noise in this environment.

These speakers are very honest, and also very demanding of the source and amplification fed into them. They are so open at the higher frequencies that I would err towards the smoothness of Ortofon cartridges rather than toward the equally exposed Audio Technica sound (the Benz Micros sit somewhere between the two). And in the same way, I would be very wary of solid state amps that didn't have the Tucana II's exemplary smoothness. Higher powered valve amps, such as Icon Audio's MBI50s or 845s would also match well, but less well engineered products would have their inadequacies clearly displayed.

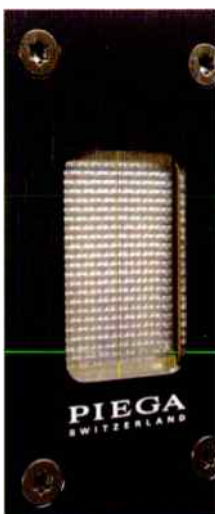
Provided that the rest of your hi-fi is up to feeding these speakers with the quality of information that they desire, then they will provide a spectacularly detailed description of whatever you are playing through them. I felt as though both my



seating position in relation to the music, and the lighting of it, had undergone a major transformation. I certainly noticed little details and shapes in the sound that I had not previously been conscious of, and found fascinating, but as a primarily vinyl based music user, I also found detail that I would not necessarily want to be so aware of.

**CONCLUSION**

Everyone balances their system both to their sonic tastes but also



**MUSIC USED**

Air, 'Sexy Boy', Source Records VSCDT 1672, 1998  
 Benny Goodman, 'Complete 1937 - 38 Jazz Concert No. 2', Columbia Records (USA), OSL-180, 1960  
 Capella Antiqua Munchen, 'Gregorian Chant II', RCA Records RL 30383, 1978

the demands of their chosen music carrier. The Piega Premium 1s will suit some tastes, and certainly be a fascinating insight into what is there in the recording, but will not be everyone's cup of tea. Musically they seemed to have no favourites, but do take care in matching appropriate ancillaries. I would regard extended auditioning as a must in this case. I am still in the honeymoon period with them, fascinated by the way they describe sounds, but they do demand your attention all of the time, and some recordings may not be the most relaxing listen. However, despite their attention to the smallest of details in the sound, they remained very musical and thoroughly engaging to listen to. Matched well they are superb, get it wrong and you will be left in no doubt about it.

**VERDICT** ●●●● £  
 Beautifully made Swiss speaker with engaging but distinctive sound.

**PIEGA PREMIUM 1** £2,200  
 Hi-Fi Brokers  
[www.hifibrokers.co.uk](http://www.hifibrokers.co.uk)

- FOR**
- open and detailed sound
  - wickedly fast rhythm
  - excellent imaging
- AGAINST**
- can sound over-explicit

**MEASURED PERFORMANCE**

Frequency response of the Piega Premium 1 is impressively flat over most of the audio band, from bass frequencies right up to high treble, around 5kHz. However, a steady lift in output above 5kHz will add sharpness and make treble sound incisive, when there is a lot of it in a recording. A small amount of bass lift around 250Hz may also add a small sense of tubbiness, or fullness to lower frequencies, an effect that can usefully bulk up the sound of small loudspeakers. Overall then, the Premium 1 is reasonably flat and even in its tonal balance, but with added high treble and likely strengthened detailing.

Below 80Hz the port takes over and it has huge output, +12dB in SPL terms, above the bass unit at 60Hz. The port peaks at 60Hz and has strong output down to 45Hz, a characteristic that will give the Premium fast and enthusiastic bass, but not subsonics. This loudspeaker has been well proportioned to do its job of reproducing musical instruments well, without attempting too much.

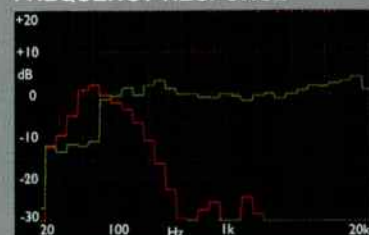
The impedance curve is fairly normal, underlining broad bass unit damping from the port, indicated by the small residual side peaks centred around 60Hz. Although impedance measured 7 Ohms this value was strongly influenced by the large centre peak; in practice the Premium 1 uses a 4 Ohm bass unit and the amplifier 'sees' 4 Ohms at low frequencies. Sensitivity was reasonable at 86dB, meaning

around 60 Watts will be needed to go loud.

The decay spectrum was clean down to 400Hz, but below this frequency there is some obvious time domain smearing and the 'speaker looks a little 'hot'. This suggests the small cabinet is returning energy back out through the bass cone and some form of boxiness or tubbiness is usually the result.

The Premium 1 is knowledgeably engineered all round and will give good results, but it has distinctive features. NK

**FREQUENCY RESPONSE**



Green - driver output  
 Red - port output

**IMPEDANCE**



# WORLD STANDARDS

Your guide to the best products we've heard that are currently on sale in the UK...

## TURNTABLES

**REGA RPI 2010 £225**  
Pleasing sound, fine build and ease of set-up and use make this a great first 'real' hi-fi turntable.

**REGA P2 2008 £300**  
Excellent value for money engineering, easy set up and fine sound.

**REGA P3-24 2008 £405**  
Seminal affordable audiophile deck with fine bundled tonearm. Tweakable, and really sings with optional £150 outboard power supply.

**MICHELL TECNODEC 2003 £579**  
Superb introduction to Michell turntables - on a budget. Top quality build and elegant design mean it's still the class of the mid-price field.

**FUNK FIRM VECTOR II 2009 £860**  
Innovative engineering gives a nimble, pacy and musical sound that's one of the best at the price.



**MICHELL GYRODEC SE 2005 £1,138**  
Design icon with superlative build and finish. Sound is beautifully smooth, effortless and exceptionally expansive. No longer peerless at the price, but still a brilliant platform.

**MARANTZ TT-1551 2005 £1,299**  
Cracking all in one deck/arm/cartridge combination, this must surely be the best sounding 'plug and play' package at this price point.

**ROKSAN RADIUS 5.2 2011 £1,450**  
Although getting expensive, the latest Radius is a highly grown up package with a flowing yet engaging nature; a fine package.



**AVID DIVA II SP 2010 £2,000**  
New twin belt drive and power supply make this a more commanding performer, although there's a substantial price hike. Speed, dynamics and detail are hard to beat anywhere near the price.

**INSPIRE ECLIPSE SEv2 12 2010 £2,349**  
Finely engineered, smooth and detailed sounding deck offering valuable twelve inch tonearm compatibility.

**NOTTINGHAM ANALOGUE HYPERSPACE 2010 £2,390**  
Deliciously spacious, lyrical and beguiling sounding turntable, but lacks ultimate grip.

**MICHELL ORBE 1995 £2,500**  
The top Michell disc spinner remains a superbly capable all rounder with powerful, spacious sound that's delicate and beguiling.

**DR FEICKERT WOODPECKER 2010 £3,445**

Elegant deck with great low frequency solidity, coherent soundstaging and a precise midband.



**LINN LP12SE 2010 £3,510**  
Surely hi-fi's most iconic turntable, the legendary Sondek goes from strength to strength. New Keel subchassis and Radical DC motor add precision and grip to one of the world's most musical disc spinners. Expensive, though.

**ACOUSTIC SIGNATURE STORM 2011 £3,612**  
An excellent high end design with a smooth, solid, open and lyrical sound and razor sharp styling and build.

**FLETCHER AUDIO OMEGA .S 2010 £3,699**

Charming high end turntable that's a fitting testament to the late Tom Fletcher.

**PALMER 3 2010 £3,750**  
Eccentric hand built high end turntable with a pleasingly smooth, sweet and lucid sound.



**E.A.T. FORTE S EVO 12 2010 £4,750**  
Excellent premium price turntable with power, precision and passion aplenty, but relaxed and easy going by nature too. Great value package with the Pro-ject Evo 12" arm option.

**ACOUSTIC SOLID ONE 2007 £4,050**  
Huge turntable, both in terms of sheer mass and sonic dynamics. Fit up to three arms and enjoy, just don't damage your back moving it...

**SME MODEL 10A 1995 £4,556**  
Exquisitely engineered deck and SMEV tonearm combo that's an extremely accomplished performer with classical music.

**AVID VOLVERE SEQUEL 2007 £4,600**  
Stylish high end vinyl spinner with industrial strength build quality and a sound to match. Exceedingly neutral yet powerful sound is edge-of-the-seat stuff.

**BRINKMANN BARDO 2010 £5,845**  
Unique high end direct drive turntable with amazing grip and focus, albeit not the most romantic of natures.



**McINTOSH MT10 2008 £8,995**  
Big, expensive, controversially styled and glows more than some might consider necessary, but an astonishingly good performer.

**EAT FORTE 2009 £12,500**  
Lavishly finished two box, two motor turntable with gorgeous Ikeda 407 tonearm bundled. Exceptionally stable and unfussy performer with a relaxed but highly enjoyable gait.

**TONEARMS REGA RB25I 2009 £136**  
Capable way past its price point, the new 3-point mount version of the classic RB250 serves up a taut and detailed sound. A little lean for some tastes, but responds well to rewiring and counterweight modification.

**MICHELL TECNOARM A 2003 £442**  
The late John Michell's clever reworking of the Rega theme, using blasting, drilling and rewiring! Surely the best overall performer under £500.

**ORIGIN LIVE SILVER 3C** 2010 £599

Excellent mid-price tonearm with a clean and open yet lyrical sound.

**HADCOCK GH-242 EXPORT** 2010 £770

Consummately musical, lyrical sounding tonearm, but needs the right turntable. Excellent value.

**SME 309** 1989 £767

Mid-price SME comes complete with cost-cut aluminium armtube and detachable headshell. Tight, neutral sound with good tonality, but lacks the IV's pace and precision.

**FUNK FIRM FXR II** 2010 £1,175

Clever reworking of the ubiquitous Rega platform, the FXR II gives a wonderfully musical, almost unipivot like performance.

**AUDIO ORIGAMI PU7** 2007 £1,300

The classic Syrinx PU3 updated to spectacular effect. Hand made to order, with any mass, length and colour you care for. Fit, finish and sound truly impressive.

**NAIM ARO** 1987 £1,425

Charismatic unipivot is poor at frequency extremes but sublime in the midband; truly emotive and insightful.

**HELIUS OMEGA** 2008 £1,595

Stylish and solid lump of arm with fabulous build quality, that turns in a dynamic and weighty performance.

**SME SERIES IV** 1988 £1,620

Offers nine tenths of the SMEV's magic at just over half price. Exquisitely built and finished, and a design classic. Faces stiff competition these days, but lovely nevertheless.

**SME 312S** 2010 £1,750

Twelve inch magnesium alloy armtube plus SMEV bearings makes an impressive transcription tool with an insightful yet composed sound. Superlative build completes the package.

**GRAHAM PHANTOM** 2006 £3,160

Sonically stunning arm with magnificent bass dexterity and soundstaging. Build quality up to SME standards, which is really saying something!

**TRI-PLANAR PRECISION** 2006 £3,600

Immaculate build, exquisite design and one of the most naturally musical and lucid sounds around.

**SME SERIES V** 1987 £2,389

Vice-like bass with incredible weight, ultra clear midband and treble astound, although some don't like its matter of factness!

**LINN EKOS SE** 2010 £3,700

Subtle mods over the years, including revised bearings and the recent new wiring has kept it a serious contender in the superarm stakes. Has a commanding musicality all of its own.

**OL ENTERPRISE 3C** 2010 £4,500

Few if any pivoted arms come close to this arm's combination of liquid musicality and forensic grip.

**CARTRIDGES****AUDIO TECHNICA AT-95E** 1984 £25

Great starter cartridge that's detailed and musical beyond its price. Superglue the stylus in for better sound!

**AUDIO TECHNICA AT-F3/III** 2010 £189

Great value entry level moving coil with detail and grip you just can't get from similarly priced moving magnets.

**ORTOFON 2M RED/BLUE**

2007 £60/£120  
Modern, high resolution budget moving magnets that are always an engaging listen.

**GOLDRING G1042** 1994 £239

One of the best MMs going, with sweet and extended treble and punchy, muscular bass.

**ORTOFON VIVO BLUE2011** £275

Super new budget moving coil cartridge from respected Danish manufacturer; a real step up from previous efforts.

**DENON DL103R** 2006 £295

Awkward to get working properly with a poor mounting arrangement, yet it rewards with a musical performance that makes similarly priced cartridges sound cold.

**DYNAVECTOR DV10X52003** £295

Distant descendent of the classic Ultimo 10X, this has warmth and sweetness in spades, allied to a punchy bass. Beats G1042 comfortably.

**ORTOFON 2M BLACK** 2007 £350

Staggeringly good high-end MM that uses a stylus from the MC Jubilee and easily rivals similarly-priced MCs

**DYNAVECTOR DV20X-H2003** £395

Deliciously sweet sound with fantastic get-up-and-go makes this a great value budget MC. High output version works a treat with valve phono stages too.

**AUDIO TECHNICA AT-OC9MLIII** 2010 £399

New stylus and cantilever breathe life into this feisty, punchy and detailed performer.

**ORTOFON RONDO BRONZE** 2005 £500

Excellent mid-price moving coil with real rhythmic alacrity and a decent deal of finesse.

**LYRA DORIAN** 2007 £649

Incisive and musical, this baby Lyra is one of the most powerful and revealing MCs at its price point. Beware the sharp treble, though!

**BENZ MICRO GLIDER L2** 2008 £650

Crisp, clean and detailed MC; particularly impressive at both ends of the frequency spectrum

**ZYX R-100H** 2005 £799

Exceptionally tight sounding and detailed cartridge with the musical skills to match, this is up with the best at the price, with a presentation all of its own.

**TRANSFIGURATION****AXIA** 2007 £890

Musically adept and highly resolute cartridge with impressive tracking abilities. Top end lift means careful matching required, however..

**BENZ MICRO WOOD SL** 2010 £945

Highly finessed Swiss moving coil that plays music with riflebolt precision.

**ORTOFON CADENZA BLUE** 2009 £1,000

Musical, out of the box sound, allied to real finesse, makes this a great do-it-all high end moving coil.

**ORTOFON CADENZA BRONZE** 2010 £1,350

Smooth and engaging high end MC with a slightly warmer and more relaxed presentation than its superb bigger brother.

**ORTOFON CADENZA BLACK** 2010 £1,650

Ultra incisive, transparent and dimensional moving coil with grip and punch aplenty.

**ORTOFON MC WINDFELD** 2008 £2,250

Ortofon's new flagship MC is a sophisticated and alluring performer that takes the vinyl experience to a new level.

**KOETSU RED K SIGNATURE** 2007 £2,399

The new K Signature adds a hefty dose of insight and finesse to the already impressive Red and the results are fabulous.



**DIGITAL SOURCES**

**MUSICAL FIDELITY V-DAC** 2010 £170  
Clear, concise, low distortion sound belies giveaway price. Superlative value for money.

**CAMBRIDGE AUDIO DACMAGIC** 2010 £230  
A flexible new DAC, this is an impressively rhythmic and detailed performer.

**ARCAM rDAC** 2010 £300  
Cracking budget DAC sporting a fulsome and musical sound with gorgeous build and styling.

**MUSICAL FIDELITY M1 DAC** 2010 £400  
Surprisingly sophisticated upsampling DAC with oodles of detail and air, but bass isn't quite as powerful as it could be.

**STELLO DA100 SIGNATURE** £750  
Superbly finessed sounding DAC at the price, with strong driving bass and plenty of air and space.



**CAMBRIDGE AZUR 840C** 2006 £800  
Well built CD player with a silky, yet detailed sound and a whole host of useful facilities. Excellent value for money.

**NAIM CD5i** 2008 £895  
Naim's new italic 'i' variant improves even further on the original mid-price classic, offering super tight, grippy and musical sound.

**ROKSAN KANDY K2 CD** 2010 £900  
A charmingly musical performer at the price, this is a surprisingly sophisticated CD player for the money.

**BENCHMARK DAC-1S2009** £930  
Power, precision and poise - allied to real seat-of-the-pants musicality, this DAC justifies its premium price.

**MUSICAL FIDELITY M3 CD** 2011 £995  
Excellent mid-price machine with slick slot loading and an open and inviting sound.

**ELECTROCOMPANIET PD-1** 2011 £1,250  
Quirky but highly capable digital convertor with an effective wireless radio option (£250) and balanced outputs.

**SIMAUDIO MOON 300D** 2010 £1,290  
Lovely fluid sounding DAC with a deep, dark, velvety tonality.



**CYRUS CD8 SE** 2008 £1,350  
Bespoke Servo Evolution mech makes this the most musically engaging machine at the price, with super smooth tonality to boot. Optional PSX-R adds bass and dimensionality.

**DENON DCD2010AE** 2010 £1,700  
Powerful, open sound allied to a rich tonality and satisfying subtlety make this an excellent mid-price buy.

**NAIM DAC** 2010 £1,995  
Superb high end digital convertor with a probing, punchy and forensically detailed sound.

**MERIDIAN GO8.2** 2011 £2,400  
Everyman's modern high end CD player; the stylish, well made Meridian has an extremely enjoyable yet refined and accurate sound.

**MARANTZ SA-KI PEARL CD** 2010 £2,500  
Finely honed affordable high end silver disc spinner, this has a musical lucidity that's unexpected at this price.



**LEEMA ANTILLA IIS ECO** 2011 £2,995  
Stable and smooth yet superbly detailed and musically engaging, this is class of the £3,000 CD player field.

**CHORD QBD64** 2008 £3,000  
Bespoke architecture gives a uniquely musical sound that's beguiling yet proffers dizzying incision and grip.

**ELECTROCOMPANIET EMC-IUP** 2009 £3,450  
Quirky yet extremely capable high end upsampling CD spinner, with a musical fluency that beguiles more than it impresses.



**ACCUSTIC ARTS CDP1MK2** 2007 £3,985  
Styling not to everyone's taste but build quality is impeccable and the performance is stunningly musical.

**ESOTERIC X-05** 2010 £4,495  
Superlative 'affordable high end' CD/SACD spinner with excellent build, massive detail and great poise.

**WEISS DAC202** 2010 £4,600  
Brilliantly open and insightful sounding DAC with a range of useful features.

**ELECTROCOMPANIET EMP-1/S** 2011 £4,650  
Epic in scale, lavish in tone and exuberant in its musicality, this is a memorable SACD spinner. Quirky in operation and modest in finish, though.

**NAIM CDX2-XPS2** 2003 £4,950  
A fine high end machine, but add an XPS2 and it becomes one of the most charismatically engaging 16bit machines we've ever heard. Plays music with such passion!

**NAIM CDS3** 2003 £7,050  
The most polished Naim CD to date; tremendously capable and musical, but lacks the Rottweiler quality of the cheaper CDX2-XPS2.

**DCS DEBUSSY** 2011 £7,500  
Compact, stylish DAC bringing the gloriously smooth, svelte, spacious sound of dCS to a wider audience.

**ACCUSTIC ARTS DRIVE 1 MK2/TUBE DAC 2** 2007 £7,980  
Superbly built high end CD transport and DAC combo that shows just what the format can be capable of. Very tangible, musical sound with wonderful dynamics and glistening harmonics. Only curious styling and clunky build detract from its brilliance!

**DCS PAGANINI DAC** £9,599  
Digital rarely sounds better; dCS's bespoke Ring DAC makes for power, punch and insight on an epic scale. Add clock and upsampler for an even more profound experience.



**NAIM CD555/555PS** 2006 £14,000  
Very probably the best CD player yet made - certainly the most expensive; a digital *tour de force*.

**NETWORK**

**NAIM HDX** 2009 £4,405  
Interesting one-box network enabled hard disk music system gives superb sonics together with impressive ease of use.

**LINN KLIMAX DS** 2007 £9,600  
Landmark network music player, offering brilliant sonics at up to 24/96 resolution from hard disk/NAS. Expensive, but you can hear why...

**PHONO STAGES**

**CAMBRIDGE AUDIO 640P** 2009 £99  
Excellent entry level design that raises the bar for budget phono stages. Crisp, smooth yet brightly lit sound on both MM and MC that's a vast improvement on most budget inboard designs.

**GRAHAM SLEE ERA GOLD V** 2004 £370  
Warm, open and musical nature makes this a great budget phono stage.

**ICON AUDIO PSI.2** 2007 £599  
Excellent valve phono stage with good range of facilities and fine imaging abilities.



**CHORD CHORDETTE DUAL 2010** £799

Well presented mid price designed with detailed sound and USB input for archiving.

**ASTIN TREW AT8000 2010** £880

Expansive, detailed, powerful sound makes this a leading sub-£1,000 contender.

**A.N.T. AUDIO KORA 3T LTD 2010** £995

Exceptionally musical and natural sounding all discrete transistor phono stage, with highly lucid, valve-like presentation.

**AVID PULSUS 2010** £1,100

Powerful, propulsive, expansive sound puts this right at the top of the £1,000 phono stage tree.

**QUAD QC24P 2007** £1,200

Dynamic performer that can be used on its own as a complete phono-level preamp.

**ICON AUDIO PS3 2008** £1,500

Super sounding valve phono preamplifier, with an expansive, engaging and organic nature that makes vinyl sheer joy!

**SUTHERLAND 20/20 2010** £1,999

Well engineered, smooth sounding solid-state phono stage with a charm of its own.

**EMILLE ALLURE 2010** £2,495

Just as the name suggests, this is a lovely way to play LP with an exceptionally open and lucid sound.

**AVID PULSARE 2010** £3,800

This superbly built, well specified phono stage has a powerful and authoritative sound that bristles with detail and energy.

**WHEST PS.30 RDT SE2011** £4,500

The least solid-state sounding Whest we've heard, this builds on the family strengths of precision and grip but adds a welcome poise and fluidity.

**NAT AUDIO SIGNATURE 2011** £5,633

Sophisticated sounding, unusually engineered MM and MC phono stage, but faces stiff competition at this lofty price.

**AMPLIFIERS****ICON AUDIO STEREO 40/III 2010** £1,200

Excellent starter tube integrated, with plenty of detail and an expansively musical sound.

**AUDIOLAB 8000S 2006** £400

In another life, this sold for three times the price, making it a stand-out bargain now. Very clean, powerful and tidy sound but not the world's most beguiling.

**NAIM NAIT 5i 2007** £725

The italic 'i' version remains one of the most musically competent and dynamically engaging integrations at the price.

**CAMBRIDGE 840A V2 2007** £750

Version 2 addresses version 1's weaknesses to turn in a mightily accomplished performance, offering power, finesse and detail.

**SUGDEN MYSTRO 2010** £1,225

Sugden's first Class AB integrated in a long time surprises; rollickingly good fun, it loses surprisingly little in smoothness to its Class AB siblings.

**NAIM NAIT XS 2009** £1,250

With much of the sound of the Supernait at half the price, this is powerful, articulate and smooth beyond class expectations.

**CREEK DESTINY 2 2010** £1,445

Beautifully voiced integrated amplifier with a distinctly seductive, tube like sound. A solid-state superstar!

**SUGDEN A21A S2 2008** £1,469

Crystalline clarity, dizzying speed and forensic detailing makes this seminal design the most musical at the price, but power limited so needs sensitive speakers.

**CYRUS 8XPD 2010** £1,500

A quality integrated that suits all genres of music providing insight and clarity in a compact but flexible package.

**ANATEK A50R 2007** £1,600

Simple integrated amplifier with super bass grip and effortless dynamics.

**VINCENT SA-236MK 2010** £1,749

Big, powerful and expansive sounding hybrid transistor amplifier, with a lively, musical nature.

**NAIM SUPERNAIT 2007** £2,475

Integrated *tour de force* from Naim that combines impressive functionality and connectivity with super sound.

**AUDIO RESEARCH VSI60 2009** £3,298

Load of tube power allied to a strong bass and smooth open midband makes this a grin-inducing listen.

**LEEMA TUCANA II 2010** £3,495

Polished high end integrated amp that combines power, detail and genuine musicality with a good range of facilities.

**SUGDEN IA4 2007** £3,650

Goody amount of Class A power, icy clarity and a breathtakingly fast, musical sound make this one of the very best super-integrations.

**QUAD II CLASSIC 2010** £4,500

Beautiful retro styled integrated amplifier with a subtle, supple sound - although needs matching to speakers that are easy loads.

**QUAD II CLASSIC INTEGRATED 2010** £4,500

Thoroughly modern music maker with classic style and great pedigree, this amp sings with gentle music but is no headbanger!

**SIM AUDIO****MOON 6001 2010** £5,750

Sturdy build, useful facilities and a wonderfully relaxed, seamless and even-handed sound will win this many friends.

**MUSICAL FIDELITY****AMS351 2010** £6,000

One of the best high end integrations we've come across, this combines hear-through transparency with musical get-up-and-go.

**DARTZEEL****CTH-8550 2010** £16,500

Charismatic and quirky high end solid-state integrated amplifier with superb sound and a charming visage.

**HEADPHONE AMPLIFIERS****FIDELITY AUDIO HPA 100 2011** £350

Great little headphone amplifier with a lively yet refined and open sound.

**MUSICAL FIDELITY****X-CAN V8 2008** £350

Open and explicitly detailed sound plus serious bass wallop and the ability to drive anything to very high levels makes this a great partner for most mid-to-high end headphones.

**PREAMPLIFIERS****CREEK OBH-22 2008** £350

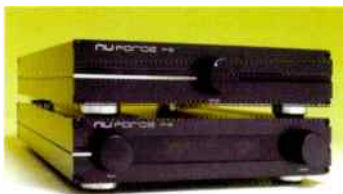
Brilliant value budget passive, with remote control, mute and input switching, plus an easy, a neutral sound.

**ICON AUDIO LA-4 2011** £800

Uses early 6SN7 triodes for liquid sound, has plenty of gain and remote control.

**NUFORCE P-9 2007** £2,200

Impressive two box preamp with superb resolution and an engaging sound.

**DPA CA-1 2010** £2,650

Excellent solid-state preamp with a meticulously detailed and propulsive sound, but a deep velvety tonality.

**MELODY PURE****BLACK 101D 2007** £3,295

The clarity and openness of valves plus firm grip and fine detail make this a preamplifier masterclass.

**MF AUDIO CLASSIC CII SILVER**

2010 £4,500

One of the best preamplifiers we've heard at any price, this transformer coupled marvel does very little wrong; its powerful, clean, open yet delicate sound is unmatched at or near the price.



**MODWRIGHT 36.5 PRE/PSU**  
2010 £5,995

Exceptionally open and expansive, yet musically expressive sounding high end preamplifier.

**MUSICAL FIDELITY PRIMO**  
2009 £7,900

Seriously expensive, but one listen explains why. Wonderfully exuberant sound that can only come from a top quality tube design.

**POWER AMPLIFIERS**  
**XTZ AP-100** 2010 £520

Decently smooth yet usefully muscular, this power amp punches way beyond its price point in sonic and value terms.

**QUAD 909** 2001 £900

The latest current-dumper has a smooth and expansive character with enough wallop to drive most loads. Not the most musical, but superb value all the same. Lovely build, finish and Quad's legendary service are nice.

**NUFORCE REFERENCE 9SE V2**  
2006 £1,750

Brilliant value for money monoblocks with massive power and super-clean, three dimensional sound.

**DPA SA-1** 2010 £2,850

Pacey, engaging and rhythmic almost to a fault, this solid-state power amplifier isn't the world's most powerful but is none the worse for it.

**QUAD II-40** 2005 £3,230

Modern tube monoblock power amplifiers with plenty of power, liquid and open mid-band and spacious, airy treble. Explicit, engaging sound, but not as euphonic as some.

**ELECTROCOMPANET NEMO**  
2009 £4,450 (EACH)

The Norwegian power station is as cool as a glacier tonally, yet impresses with its sheer physicality and fleetness of foot. 600W per channel makes for a massive bang per buck.

**ICON AUDIO MB845 MkII** 2010  
£5,500

With 120W from big 845 valves right down to low frequencies, this power amplifier has massive dynamics and bass swing, yet is easy on the ear.

**QUAD II-80** 2005 £6,000

Quad's best ever power amplifier, this is a dramatic performer with a silky but dark tonality, blistering dynamics, serious power and a compellingly musical sound. They don't come much better.

**MUSICAL FIDELITY AMS50**  
2010 £7,000

Mighty, assured high end full Class A integrated proffering icy clarity allied to real musicality. Lacks the lucidity of the best tube amps but redeems with power and punch.

**LOUDSPEAKERS**

**Q ACOUSTICS 2020** 2010 £140  
Great little standmounters with a friendly, fun yet surprisingly refined gait. Excellent value starter speakers.

**ACOUSTIC ENERGY NEO I**  
2007 £199

Tidy and well balanced standmounters with pleasing clarity and detail.

**MISSION MX2** 2011 £200  
Sophisticated sound allied with real musical insight makes these small standmounters super value for money.

**ACOUSTIC ENERGY NEO I v2**  
2010 £225

Civilised sounding speaker with fast and tuneful bass.

**B&W 686** 2007 £279  
B&W's new baby standmounters offer a sophisticated and mature performance that belies both their dimensions and price tag.

**WHARFEDALE DIAMOND 10.3**  
2010 £290

Great small standmounters for audiophiles on a budget; dry punchy sound with impressive soundstaging at the price.

**MORDAUNT SHORT AVIANO 2** 2010 £300

Classy sounding standmounter at a still affordable price.

**KEF IQ30** 2009 £330

Beautifully built, classily styled standmounters with exceptional image projection and a very clean, detailed sound.

**USHER S-520** 2006 £350

Astonishingly capable budget standmounters that offer detail and dynamics well beyond their price and dimensions.

**XTZ 99.25** 2010 £640

Disarmingly open and refined at the price, these standmounters bring unexpected civility, refinement and insight to the price point. Exceptional value for money.

**ACOUSTIC ENERGY AEI CLASSIC**  
2006 £845

Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.

**SPENDOR S3/S5** 2004 £950

A natural successor to the BBC LS3/5a, whose impressive neutrality, imaging and evenhandedness makes this a superior, if less charismatic, loudspeaker.

**MY AUDIO DESIGN**

**MY1920** 2011 £1350  
Exceptionally smooth, spacious and refined mini monitors that beguile and excite in equal measure.

**ELAC BS243** 2010 £1,000

More transparent and spacious than they've a right to be at this price, these refined mid-price standmounters represent top value.

**RRR FS100** 2007 £1,055

Mind-boggling amount of loudspeaker for the money. Big and sturdily built with serious bass and awesome soundstage scale. A real bargain.

**ONE THING AUDIO ESL57**  
2007 £1,450

One Thing Audio's modifications keep the good old ESL57 at the very top of the game.

**GURU QM-10P** 2007 £1,595

Quirky but adorable standmounters that are way off the pace in respect of detail and power, but well capable at playing a tune and pulling you in to the music.

**USHER BE-718** 2007 £1,600

Beryllium tweeters work superbly, allied to a fast and punchy bass driver. The result is subtle, smooth and emotive.

**MARTIN LOGAN SOURCE**  
2008 £1,600

Brilliant entry level electrostatics, giving a taste of loudspeaker esoterica for the price of most moving coil boxes. Tremendous clarity, evenness and delicacy, although not the world's most powerful sound.

**SPENDOR S8E** 2008 £1,895

Generously large, silky smooth delivery, this dynamic sounding floorstander is an excellent all rounder.

**ISOPHON GALILEO** 2007 £2,100

Big standmounters that really grip the music and offer quite startling dynamics and grip.

**MONITOR AUDIO PL100** 2008 £2,300

The flagship 'Platinum' series standmounter has a lovely warm and delicate sound with superlative treble.

**EMMINENT TECHNOLOGY LFT88** 2010 £2,300

Brilliant ribbon/moving coil hybrid with seamless, delicate and expansive yet tremendously musical nature.

**PMC OB11** 2008 £2,950

Cleverly updated floorstanders give scale and solidity in slim and well finished package.

**MY AUDIO DESIGN****MYCLAPTON SE 2010 £3,299**

Powerful, dynamic, musical yet refined, this unconventional point-source design yields dramatic sonic benefits.

**MAD MY CLAPTON GRAND MM****2010 £3,599**

Distinctive coaxial standmounters with wonderful soundstaging, bright lucid midband and true musical insight.

**YAMAHA SOAVO I.1 2009 £3,000**

Musical, transparent large floorstanders with impressive dynamics and cohesion. Excellent build and finish.

**MOWGAN AUDIO MABON****2007 £3,995**

Massively capable loudspeakers that offer dynamics, scale and clarity in an elegantly simple package. Wide range of finishes, too.

**B&O BEOLAB 9 2007 £5,000**

Technically impressive and visually striking loudspeakers with sound quality that more than matches their looks.

**TANNOY DEFINITION DC10T****2010 £5,000**

Wonderfully wide and open, super fast and amazingly engaging to listen to.

**ECLIPSE****TD712z/2 2011 2011 £5,100**

Flawed genius, and wilfully so. These loudspeakers don't do everything well, but what they can do is profound and enthralling: rhythms, dynamics and soundstaging.

**ARS AURES MI 2006 £5,995**

Sublime build and finish allied to an insightful, assured and even-handed musical performance makes these an essential high end audition.

**QUAD ESL-2905 2006 £5,995**

The old 989 with all the bugs taken out, this gives a brilliantly neutral and open sound like only a top electrostatic can; still not a natural rock loudspeaker, though.

**SPENDOR ST 2010 £5,995**

This classy sounding, superbly presented big floorstander will appeal to those seeking high end sonics with subtle looks.

**REVOLVER CYGNIS 2006 £5,999**

Revolver pull out all the stops and show what they can do with this magnificent flagship loudspeaker. A superb monitor that is like a mini B&W 801D in many ways.

**VIVID V1.5 2010 £6,000**

Breathtaking transparency, superlative coherence and dizzying speed make these one of the best standmounters ever made - providing you like their 'studio sound'.

**GERMAN PHYSIKS LIMITED II****2011 £7,800**

Don't be fooled by the austere looks; this is a superbly enjoyable omnidirectional speaker with a wonderfully fast, expansive sound.

**USHER BE-10 2009 £10,500**

Clever high end moving coil design with immense speed and dizzying clarity allied to epic punch. Needs the best ancillaries to fly, though...

**B&W 801D 2006 £10,500**

In many respects, the ultimate studio monitor; dazzling clarity and speed with commanding scale and dynamics.

**ISOPHON****CASSIANO 2007 £12,900**

Drive units featuring exotic materials allied to superlative build quality result in an immensely capable loudspeaker. Not an easy load to drive, however.

**REVOLVER CYGNIS GOLD****2010 £15,000**

Vast in scale with effortless dynamics and an easy, barrel chested bass, these big bangers are great for lowish power tube amps. Large room needed!

**MARTIN LOGAN CLX LINEAR****2010 £15,990**

Meticulously crafted electrostatic that's free from traditional limitations, this is one of the very best loudspeakers money can buy.

**ACCESSORIES****WADIA I701 2010 £349**

The first iPod dock to extract the music digitally, letting you hook your little Apple direct to a DAC for superior sound.

**ISOTEK AQUARIUS 2010 £795**

Highly accomplished premium priced mains conditioner that delivers the sonic goods, unlike so many others.

**TOWNSHEND MAXIMUM****2003 £800**

Classy ribbon supertweeter with flexible level settings and cool styling - you'll be amazed at the difference it makes, especially with Quad electrostatics.

**HEADPHONES****JAYS V-JAYS 2010 £49**

Wonderful little budget over-ear portable phones with a clean, smooth sound to beat the best of the rest at the price.

**SENNHEISER MX-550 2005 £19**

Our unqualified recommendation for those seeking a serious sounding pair of in-ear phones. Smooth, detailed and musical.

**SENNHEISER PX-100 2002 £29**

Cracking pair of lightweight open back cans ideal for personals, but good enough for real hi-fi use. Superb build allied to a smooth and engaging performance make them the spiritual successor to the HD400s.

**GOLDRING DR150 2006 £70**

Excellent build and fine sound makes these budget cans superlative value for money.

**SENNHEISER HD-590 1998 £199**

The company's best real-world cans to date. Open and smooth with plenty of detail. Brightly lit midband makes them an ideal partner for a valve headphone amp.

**SENNHEISER HD-650 2004 £250**

A super all round reference design with crisp, detailed and even sound allied to superlative build and comfort. Cable upgrade yields great results.

**SENNHEISER HD800 2010 £1,000**

The ultimate expression of the Sennheiser philosophy offers massive speed, clarity and insight, although lacks some of the charm of the softer, more beguiling rival Staxes.

**STAX SR-007T OMEGA****II/SRM-007T 2006 £2,890**

Simply the best headphones we've ever heard at any price, these sweetly translucent electrostatic earspeakers are like no other headphone, or loudspeaker for that matter...



**Our Four Cornerstones are: Quality – Performance – Value – Service You won't be disappointed!**

**Warning:** Unstable international exchange rates, plus increasing copper/silver and valve/parts prices will force price increases without warning. 2011.10.04

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Fabulous huge 845 triode mono block amplifiers. NEW improved version of the original. Now with "Low Distortion Tertiary" transformers 90+90w. **5 Globes HI Fi World**  
**From £3499.95**

Low Distortion  
Tertiary Transformers



all designed by David Shaw

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**Only £499.95**



**4+Globes HI Fi World**



Low Distortion  
Tertiary Transformers

## NEW Stereo 60 MK III 85+85w

Total redesign with new KT120s New Tertiary transformers New power supply, very low distortion. Huge power in 1 box!  
**"High power. good timing" Hi Fi Choice Recommended**

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Low Distortion  
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Only 121Hx28Wx31D (cm)  
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## The Icon CDX1 CD Player

Several unique features 3 power supplies. Valve rectifier, valve & choke regulated. Hard wired analogue output stage. With a top quality 192kHz 24bit player. Upgradeable.

**From £1199.95 (upgradeable)**  
**"Great for any mood or style of music"**  
**Awarded 5 Globes HI Fi World**



## LA4 MK II Line Preamp

**"...Majorod on musical flow and attention to detail, Distortion very low 0.0003% Enormous headroom, bandwidth very wide, very low noise..." NK Hi Fi World, awarded 5 Globes**

**From only £899.00 (upgradeable)**



## NEW 150w Mono Blocks

150+150w of pure UL valve power (or 100 + 100w of pure triode). Using 4 KT90, KT88 or KT120. Based on our award winning MB90s. Unlike transistors, these giants retain the Icon warmth and texture at volumes, giving massive headroom and very low distortion. Various upgrades available. **Now available with the new KT120!**

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Stereo 40 MK III our best ever value amplifier. It has everything! 40+40 watts, Triode mode, Valve rectifier. Remote control. Tape loop. Standby switch. KT66/KT88 EL34/6550 compatible. Two rave reviews in HFW and HFN.

**From Only £1299** *New 2A3 Model Now In Stock!*

"...Bristling with musical energy, smooth & sweet..."  
P Rigby HI Fi World  
Awarded 5 Globes

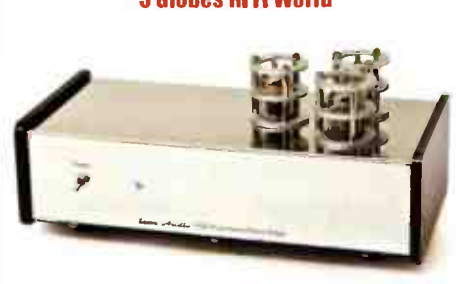
Low Distortion  
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## NEW PS 2 All Valve Phono Stage

Pure valve to get the best from vinyl. All triode. No feedback. Passive RIAA. High output. "One box" design. Rediscover your vinyl collection! **From only £449.95** complete

**"Injects excitement and vigour into vinyl performance, yet smooth with it. An excellent budget phono stage"**  
**5 Globes HI Fi World**



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**45+45 Watts of Single Ended Heaven**  
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Tertiary Transformers

## NEW Stereo 25 MK II

NEW high quality headphone socket for private listening. NEW 6SN7/6SL7 valves for better definition. Upgraded output transformers for better bandwidth. 35+35w. Alps pot, 4/8 Ω outputs, Supplied transparent cover

**FREE EL34 UPGRADE WORTH £100 (Limited offer!)**

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## PS 3 All Valve Phono Stage

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**"Outstanding Product" Hi Fi News**

All triode. Passive RIAA. Custom British MC TX option. Very quiet, high output. With the best possible Power supply. Valve rectified & regulated for definition and smoothness, 14kg.

**From only £1599.95 complete (inc MC TX)**



Common Features: Icon Designs by David Shaw. Hand built 'Point to Point' wiring. Designed and finished in Leicester UK. No printed circuit board. ALPS Volume control. Gold plated terminals. Audiophile components.

Silver Teflon audio cable. Steel & alloy plate construction. Soft start. Comprehensive manual Inc DIY valve change info Plexiglas valve cover included. "Proper" valve amplifiers are heavy because good transformers need lots of iron

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## INTERCONNECTS

## TELLURIUM Q

## BLACK

2010 £276/3m

A deep, dark, velvety performer that's nevertheless highly musical, it represents excellent value as mid-price cables go.



## TECHLINK WIRES

## XS

2007 £20

Highly accomplished interconnects at an absurdly low price. Stunning value for money.

## WIREWORLD

## OASIS 5

2003 £99/M

Excellent mid-price design with a very neutral, silky and self-effacing sound. Superb value for money.

## CHORD COMPANY

## CHAMELEON 2

£90/M

One of our favourites, these are musical performers with a smooth yet open sound.



## DNM RESON

2002 £40/M

Neutral and transparent - a steal!

## VDH ULTIMATE

## THE FIRST

2004 £260/0.6M

Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space results in a cracking cable for the money.



## TCI CONSTRICTOR

## 13A-6 BLOCK

2003 £120

Top quality 'affordable' mains outlet block, with fine build and good sonics. Well worth the extra over standard high street specials, which sound coarse and two-dimensional by comparison.

## MISSING LINK CRYO REFERENCE

2008 £375

Currently our favourite 'affordable high end' interconnects, with a deliciously smooth, open and subtle sound without a hint of edge or grain. Superb value, inasuch as it's as good as some designs at three times the price.

## TUNERS

## DENON TU-1500AE

2006 £120

Excellent entry level analogue tuner; slick sonics and fine feature count make it a bargain.



## CAMBRIDGE

## AUDIO 640T

2005 £250

Sweet sounding digital/analogue hybrid with fine build and finish at the price.

## ARCAM FMJ T32

2009 £550

Excellent hybrid FM/DAB+ tuner with a smooth, engaging sound. Factor in its fine build and it's a super value package.

## CREEK CLASSIC

## TUNER

2006 £550

No tuner offers better sound per pound; wonderfully three dimensional and smooth from bottom to top.

## MICROMEGA FM-10

2010 £750

Don't let the modest proportions fool you, this is a state-of-the-art modern analogue tuner with bespoke internals giving a warm, expansive sound.

## MYRYAD MXT-2000

2005 £800

Sumptuous sound and excellent build is all most will ever need in a tuner; superb.

## MAGNUM DYNALAB MD-90T

2010 £1,295

Exceptionally able, but commensurately priced, audiophile tuner that cannot fail to charm.

## MAGNUM DYNALAB

## MD-100T

2006 £1,895

One of the best ways to hear FM that we know; superbly open and musical sound in a quirky but characterful package.



## SYSTEMS

## YAMAHA CRX-M170

2007 £200

One heck of a lot of quality performance on DAB, CD and FM for £200! Optional matching £120 NX-E300 loudspeakers aren't too shabby either.

## TEAC DR-H300DAB

2008 £329

Nicely built and styled mini with fine performance on all sources that even plays DVDs!



## NAD C-715DAB

2008 £429

Small, neat looks cover a truly capable system that shows just what a compact design can achieve.

## ARCAM SOLO MINI

2008 £650

Half the size and two-thirds the price of a full-sized Solo, the Mini gives very little away in terms of performance to its bigger brother.

## SHANLING MC-30

2007 £650

Quite possibly the cutest all-in-one around with fine performance from the CD player, tuner and MP3 player input. Very low power, though.



## PEACHTREE AUDIO

## IDECCO

£1,000

Excellent sounding iPod dock, impressive DAC and fine amplifier section make this an excellent one box style system.

## ARCAM SOLO

2005 £1,249

Excellent all-in-one system, with a warm, smooth and balanced sound to match the features and style.

## LINN CLASSIK MUSIC

2008 £1,250

Neat update of the original and best one-box stereo system; superbly musical sound beats equivalently priced separates.

## NAIM UNITIQUITE

2010 £1,350

Great little half width one-box system with truly impressive sound allied to a wealth of source options.



## MERIDIAN F80

2007 £1,500

Fantastically built and versatile DVD/CD/DAB/FM/AM unit, designed in conjunction with Ferrari. Ignore nay-sayers who sneer that it isn't a 'proper' hi-fi product; most see sense when they listen to it...



## AURA NOTE MUSIC CENTRE

2007 £1,500

Lovely shiny CD/tuner/amplifier with fine sound quality and dynamic abilities.

## NAIM UNITI

2009 £1,995

Uniquely versatile one box music system with excellent ergonomics and sonics to match. A landmark product for Naim.

## LINN CLASSIK

## MOVIE

2007 £2,250

Superbly built all-in-one that offers excellent sound across all formats and is surprisingly easy to use.



## MERIDIAN SOOLOOS 2.1

2010 £6,990

Thanks to its crisp styling and bright, colourful touchscreen, plus excellent search facilities this is one hard disk music system with a difference. Best partnered to Meridian active loudspeakers.

## MARANTZ 'LEGEND'

2007 £22,000

The combination of SA-7S1 disc player, SC-7S2 preamp and MA-9S2 monoblocks delivers jaw-dropping performance.



# Big Squeeze



Neville Roberts takes the already fine sounding Logitech Squeezebox Duet network music player to a higher level by the simple expedient of tweaking some of its electronic components...

**T**he world turns, and hi-fi moves with it. In the past couple of years we've seen ever more interest in streamed music, with a host of network music players popping up – one of the latest and most easily accessible being Logitech's Squeezebox Touch. Another very popular model is the Duet, from the same company, which despite the different user interface is a very similar thing – basically a good entry level machine with none too much attention paid to the finer details of the sonics.

If you've used and enjoyed your Squeezebox, you may find yourself wanting more. Well, the good news is that there's no need to start saving up for your £10,000 Linn Klimax DS just yet, as the Squeezebox is tweakable, just like your budget CD player. The judicious application

of a soldiering iron and some choice passive components won't quite knock the Linn in to a cocked hat, but it will make what you've

already got a far more enjoyable experience – one that sounds less like hi-fi and more like music.

The difference between the new Touch model and the older Duet is that the former is a one-box unit

that has the receiver and display together and can accommodate 24bit 96kHz sampling in native mode (i.e. formats up to this resolution do not need to be transcoded down before streaming to the receiver by the Squeezebox Server software). The older Duet however, as the name implies, has two units; a wireless remote control display and a receiver, which can only handle 24bit 48kHz files before transcoding is required. If you're not a prodigious hi res user then the latter is something of a bargain – it can now be picked up for a song (new or secondhand) and as I found, responds well to some choice modding...

Although there are various companies now offering Squeezebox mods packages (and indeed new 'off-the-shelf' modded Squeezeboxes), I opted to invoke the spirit of *Hi-Fi World* and do the mods myself. So I was interested to find that the ever-tweaky Fidelity Audio are happy to supply individual items for the soldiering iron wielders among us, and so that's who I used to source my componentry!

## BREAKING IN

The first task was to remove the lid from the Squeezebox Duet's receiver unit to see what was inside. Peeling back the four corners of the self-adhesive mat on the underside, reveals the screws that are removed to loosen the lid. This exposed the modern printed circuitboard (PCB), which alas sported an array of surface-mounted devices (SMDs). Well, I wasn't expecting tag strips, but I had hoped for a more conventional design with plated-through holes and components soldered on the

underside! Removing SMDs from a PCB is somewhat challenging, but more about that later...

The standard Duet receiver, being very competitively priced, has to keep discrete component count to a minimum where possible. There are only three electrolytic capacitors in the receiver: one 220µF for the DC input bypass and the other two are 10µF used to couple the output analogue audio from the Wolfson WM8501 DAC to the phono sockets. The remainder of the essential power supply decoupling capacitors are all low value SMDs. The 9V input power is provided by a 'wall-wart' switched-mode power supply and is dropped down to the 5V required to power the DAC by a SMD 7805 regulator on the PCB.

As with good comedy, the secret of good digital reproduction is in the timing – so the clocks were in my sights for upgrading, along with the power supply. Fidelity Audio supply a number of clock modules, including a Micro Clock for £89, which is designed for use in the Duet receiver and features dual oscillators and split low noise 3.3V rails. They will also supply a set of six Oscon 470µF 6.3V electrolytic capacitors at £2.65 each for additional power supply decoupling, plus a Rubicon 1,000µF 16V to go across the 9V DC input.

## INITIAL LISTENING

Before getting carried away with my soldering iron, I carried out some listening tests with the unmodified receiver. I had a few digital master recordings at high resolutions and bitrates, as well as a set of the Bach Brandenburg Concertos performed by Musica Florea. The latter

Inside view of an unmodified Squeezebox Duet receiver...



...and the modified receiver inside.



recording is available as a CD from Amazon and also as a free download from [www.rozhlas.cz/d-dur/download\\_eng/\\_zprava/brandenburg-concertos-free-downloads--366308](http://www.rozhlas.cz/d-dur/download_eng/_zprava/brandenburg-concertos-free-downloads--366308) in either MP3 or FLAC (Free Lossless Audio Codec) 16/44 format which will play directly on the Duet receiver. This gives the opportunity to compare the CD with an equivalent digital source played through the Duet.

Compared to playing the CD on my PrimaLuna ProLogue Eight Mk.2 CD player, the Duet performed well and gave a fine all-round musical performance. However, A/B tests with the CD revealed that bass on the Duet was a tad uncontrolled and the top end noticeably harsher compared to the CD. Also, the soundstage was somewhat two-dimensional on the Duet. It was time to heat up the soldering iron...

**OUT WITH THE OLD**

Following the helpful instructions from Brent at Fidelity Audio, I first needed to remove four SMD capacitors and two oscillator crystals from the PCB before I could install the Micro Clock. The problem with removing SMD components is that you need to heat up the component enough to melt the solder, which unfortunately also melts the adhesive that binds the copper track to the PCB! This often means that you end up removing part of the track along with the component and thus you don't have any pad left to solder the replacement to. Furthermore, pads often have two tracks going to them, so removal of a pad breaks part of the circuit! Of course, a highly skilled professional like myself would *never* have these problems (cough!), but should this happen, I can confirm that you can easily scrape some spare track further along from the pad and use a tiny strand of wire to remake any connection that has become inadvertently broken. A good magnifying glass or, better still, a jeweller's loupe eyeglass is useful here.

Next, two of the Oscon capacitors were fitted to the Micro Clock (they are not fitted as standard

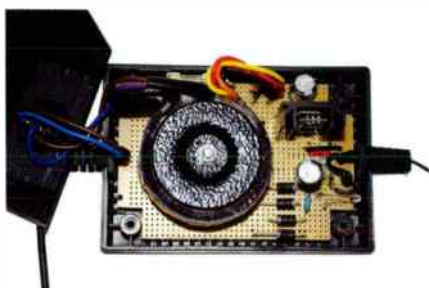
since a variant of the clock can be used in a Squeezebox Touch and there is not enough space to fit the Oscons in the Touch). The Rubicon was then fitted to the spare pads next to the power input socket and the remaining four Oscons strategically soldered into spare pads on the PCB. Finally, the clock was wired to two of the pads that were exposed when the crystals were removed; the power leads were connected to the power supply input socket and the clock module itself fastened to the receiver PCB with a couple of double-sided adhesive pads.

Repeating the listening tests revealed that the top end had been significantly tamed and the raspy edge to strings had completely disappeared. In fact, it was very similar to the CD. However, what was quite surprising was the improvement to the imaging – the performers had clearly moved their chairs around to fill a very three-dimensional area in my living room! In fact, I have to confess that it was now superior to the CD performance in this respect – quite an achievement.

Encouraged by the results to far, I turned my attention to replacing the noisy 'wall-wart' 9V switched-mode power supply with a nice linear design. As can be seen from the attached circuit diagram, a handful of quality components, including a nice toroidal transformer and some



Inside view of the new receiver power supply fitted with the Fidelity Audio Spower voltage regulator.



View from the top of the power supply interior.



The new power supply showing the On/Off switch.

"you can transform a humble Duet to outperform a good CD player..."

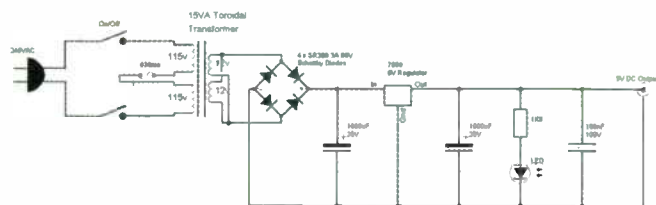
Schottky rectifiers from Farnell, can be assembled into a neat case from Maplins, and all for around £35. Incidentally, if anyone is put off by the idea of building a replacement power supply from scratch, Fidelity Audio can supply their own beautifully made complete unit, utilising their Spower voltage regulator, specifically for the Duet. I was not disappointed with the result – the previously loose bass performance had now been reigned in and I was getting sumptuous deep and crisp notes from the double-bass, but also drums were tight and

punchy – lovely.

As a final touch, I replaced the LM7809 9V voltage regulator with an Spower regulator from Fidelity Audio – a drop-in replacement for the 7809. At £42, the Spower regulator is a lot more expensive than a 7809, but it is a worthwhile investment nevertheless. With the Spower regulator fitted, the Duet managed to extract more detail from the music – I could now hear the bowing action as the horse-hair excited the strings of the double-bass.

**CONCLUSION**

The overall result is that the Duet now outperforms the CD equivalent – something I was not expecting. For a relatively modest outlay, you can transform a humble Duet to outperform a good CD player when fed with studio-quality digital sources. All-in-all, a highly enjoyable project yielding an outcome that exceeded expectations – what more could you ask for?



Logitech Squeezebox Receiver Power Supply

Circuit diagram of the new receiver power supply.

CONTACT:  
**FIDELITY AUDIO**  
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# Hot Stuff

Tony Bolton finds the cockles of his heart, and his room, warmed by the thermionically powered Cayin A55-T integrated amplifier...

**B**ased in Kelkheim, in the Taunus hills near Frankfurt, Cayin Audio started as distributors of high end audio equipment, but in 1996 started retailing their own brand of valve amplifiers manufactured in China by Zhuhai Spark Electronic Equipment Ltd., to Cayin's own design. The range has expanded over the years and now includes phono stages, tuners and CD players (as reviewed by DP in the March 2011 edition). The A55-T amplifier reviewed here is the second up in their range of integrated units and retails at £1,460.

Aesthetically, it is a pleasing design, with a thick brushed alloy front panel housing three knobs for power, volume (a motorised ALPS Blue velvet unit) and source selection. The back contains the usual range of RCA phono sockets and quite substantial speaker binding posts, with separate posts for the 4 and 8 Ohm outputs. The top is covered in a grey metallic paint finish with the bias adjustment sockets and screws neatly set to each side of the two pairs of Cayin branded KT88 valves. The preamp section uses two Cayin 12AU7s and two Electro Harmonix 12AX7EH valves.

A plastic remote control duplicates all of the fascia controls and adds the ability to switch from Ultralinear (or Distributed Load as it is sometimes called) to Triode mode. It proved nicely responsive in use, allowing small changes in volume without overshooting the desired setting. The amplifier itself seemed solidly built, although a weight of 13kg is not particularly heavy by integrated valve amp standards, and well finished.

## SOUND QUALITY

I tried both the 8 and 4 Ohm outputs with the Chario and Kelly speakers, both rated at a nominal 6 Ohm impedance, and found a fuller bodied sound using the 4 Ohm taps. This seemed to apply whether in Triode or Ultralinear setting. Given the relatively modest power outputs available I was not surprised to have the volume control at the ten o'clock setting driving the Charios in Ultralinear mode to obtain a normal listening level in a five metre by six metre room. Changing to Triode operation required the volume upping to the eleven o'clock position to obtain the same perceived sound level, but I was rewarded with a sweeter and slightly more melodious sound, although there seemed to be a little loss in bass weight.

Zen Lemonade's CD 'Lemon Soul' allowed the amp to demonstrate its love of anything rhythmic in music. The first track, 'Super Panam Calling' is a gentle mid-paced tune, with a mixture of gently 'shushing' drums and a synthesised sound not dissimilar to a Celeste, providing backing to Michelle Adamson's vocals. It was enticing, luring the listener into the album, ready for the more uptempo drums and driving bass guitar of the next track 'Juicy Science'. The 140bpm drive of this track pounded out of the speakers in a very enjoyable manner, the amp reproducing a capacious recorded acoustic that seemed to allow space for the sounds being portrayed. Here I felt that the Ultralinear setting was essential, otherwise bass seemed a little reticent in a piece of music where its presence is essential to the

shape of the sound.

Playing this again later, through the more amp-friendly 95dB efficiency Kelly KT3s, confirmed this. Even without the Chario's twin subwoofers soaking up the Watts, there was a slight loss of the solidity to the sound, that was really required for anything with a pronounced bass line to it.

Staying with rhythmic orientated sounds I moved over to vinyl and a 1960 EP of the 'Dutch Swing College Band'. This is trad jazz in the late fifties, early sixties idiom, lacking super deep bass, and therefore benefitting from the greater fluidity of the sound in Triode mode. Again the music filled the space both between and in front of the speakers in a satisfying way. Unlike the previous track's stereo image, which extended beyond the speaker boundaries, this mono sound was encased between them, but still seemed to have enough space and air around the performers for the presentation to seem realistic. I was aware of a sweetness to the sound that slightly





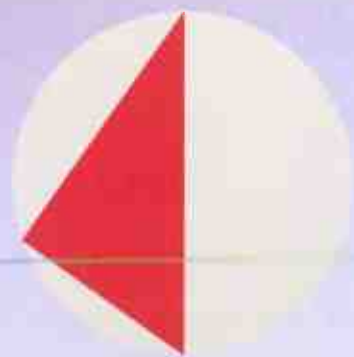
"the Cayin played it beautifully, getting into the rolling beat and playing the cutting guitar well..."

took away a little of the rasp of a hard played saxophone, but also had the effect of dulling the effect of the odd pop and crackle on this fifty one year old record.

Moving onto somewhat harder edged sounds from nineteen sixties R'n'B guitar band The Zombies proved interesting. Their version of Smokey Robinson's 'You Really

Got A Hold On Me' features Colin Blunstone's close miked vocals, which displayed a pleasing rawness and intensity. Halfway through, the track metamorphoses into The Animals' 'Bring it On Home To Me' for a verse before returning to the original song. The blend is seamless and seems a totally natural pairing. The Cayin played it beautifully, getting into the





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rolling beat, and playing the cutting guitar well, although I was still aware of a slightly sugary nature to the sound that other valve amps, such as Icon Audio's Stereo 40 Mk.III (see *HFW* April 2010) seemed to avoid. I wouldn't describe it as cloying or even that obvious, but there was a definite tendency to a warmer, slightly softer presentation of the music, compared to what we have got used to with a lot of twenty first century thermionic designs.

Valve amps and classical music have traditionally been a successful blend, and here was a case in point. Mozart's opera 'Le Nozze di Figaro' washed out of the speakers effortlessly. Mezzo-Soprano Fiorenza Cossotto seemed in excellent voice as she sang Cherubino's aria 'Non so piu cosa son, cosa faccio' from Act I. The character is lovestruck, and in awe of every woman who looks at him, and the confusion and intensity of his emotions was clear to hear. Again, the Cayin found the beat, layering the voice over the skipping rhythms depicted by the orchestra. I found the focus to be very much on the music, with less attention paid to background information, such as the background acoustic of the recording venue, so I tended to focus on the tunes being played rather than getting involved in imagining the recording event itself.

This changed a little when I plugged in the Piega Premium 1 speakers, reviewed elsewhere in this issue. These are very open in their

sound and proved a good counter-balance to the warmer nature of this amp. I was more aware of the shape and space of both the music, and the environment in which it was recorded. The detailed treble extension provided by the Piega's ribbon tweeter suited the smooth delivery of sound from the Cayin, adding extra shape to vocals, almost as though the singer had moved a couple of inches closer to the microphone.

Overall a very good performance by the Cayin. It revelled in displaying the fundamentals of music; its beat and shape, and proved particularly adept at portraying vocals. Imaging was good, with a strong central focus, with other sounds spread well around a generous soundstage. Its mellifluous nature seemed very well suited to the classical and jazz genres, providing in Triode setting an almost liquid presentation that was thoroughly enjoyable. I felt that electric guitars and other harder defined sounds had some of their edges gently chamfered off, and if this is your usual musical fare then I would be tempted to look elsewhere. It seemed a bit too well mannered to be really comfortable with hard driving guitars, although as I have said, the rhythmic side of things was very well catered for. Bass was adequate in weight, but not floorshaking, however the midrange detail and refinement more than made up for it.

**CONCLUSION**

The Cayin A55-T would be the perfect

**MUSIC USED:**

Mozart 'Le Nozze di Figaro', Giulini cond: Philharmonia Orch and Chorus, Wachter, Schwarzkopf, Cossotto, Taddei, Moffo. EMI Records, SLS 5152, 1961

Dutch Swing College Band, 'Dutch Swing College Favourites', Philips Records, BBE 12435, 1960

'The World of the Zombies', Decca Records, SPA 85, 1970

Zen Lemonade, 'Lemon Soul', Dragonfly Records, BFLCD 53, 2002

antidote for a forward or edgy sounding digital source, but would be a little lost if the tonal balance of your system errs towards the warm side already. When paired with very open sounding speakers, the results were excellent, with the already good imaging gaining extra focus and descriptive capabilities. The competition at this price is intense, but if you want something that is easy and enjoyable to live with sonically, and has pleasing looks, then this is well worth auditioning.

**REFERENCE SYSTEM**

- Clearaudio Master Solution/Carbon turntable
- Benz Micro Ace cartridge
- Leema Agena phono stage
- Leema Antilla IIS Eco CD player
- Chario Ursa Major loudspeakers
- Piega Premium 1 loudspeakers
- Kelly KT3s loudspeakers

**MEASURED PERFORMANCE**

The Cayin produced 36 Watts into 8 and 4 Ohms running in Ultra Linear mode, which is about right for KT88s run conservatively in push-pull. Output tube lifetime will be relatively high as a result. In Triode mode power fell to 20 Watts from both output taps.

The output transformers don't have a lot of metal in them and bass distortion was high, measuring 0.5% at 1 Watt and 2% close to full output. Triode mode reduced these values just a little, from 0.5% to 0.35% for example, and lessened third harmonic. Distortion values were low in the midband and at high frequencies, at low power outputs. However, levels climbed to a not-so-good 1% close to full output and if pushed hard some muddle may be apparent. At modest powers the Cayin produced second harmonic though and will likely sound very easy on the ear. Bandwidth was good in UL and Triode mode, reaching 50kHz / 36kHz.

Sensitivity was fair at 400mV but Damping Factor very low at 1.2 in both modes, so well damped loudspeakers are needed if bass is to sound controlled.

The Cayin A55-T puts a

reasonably good performance as KT88s running in push-pull go, but Quad, EAR and Icon Audio all manage better. This is an amplifier that will likely sound easy and sweet, but not so dry and clean as possible. NK

Power	36 Watts
CD/tuner/aux.	
Frequency response	5Hz-50kHz
Separation	63dB
Noise	-95dB
Distortion	0.1%
Sensitivity	400mV
Damping factor	1.2

**DISTORTION**





# WORLD STANDARD TESTS

How we perform all the tests, and what they mean, is detailed on our website: [www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk). Go to the *product category* (e.g. Loudspeakers), then *Tests*.

Hi-Fi World tests all products before they are reviewed. Many fail this first hurdle, rejected for a variety of faults. Pre-testing is crucial but only Hi-Fi World does it. For those products that pass, our measurements give our reviewers invaluable information about behaviour. Hi-Fi World is the only magazine, worldwide, sufficiently well equipped to be able to apply comprehensive tests in all product categories. Here's how we do it...

## LOUDSPEAKERS

Loudspeakers are tested with the industry standard Clio measurement system from Audiomatica of Italy, giving results understood and accepted by manufacturers worldwide. Measuring microphones are a Bruel & Kjaer mic. capsule on a B&K SPL meter and an Audiomatica microphone. Our tests include decay plots and coloured contour maps, as well as unique distortion measurement that provides valuable insight into bass behaviour. See our website [www.hi-fiworld/loudspeakers/tests](http://www.hi-fiworld/loudspeakers/tests) for more detail.

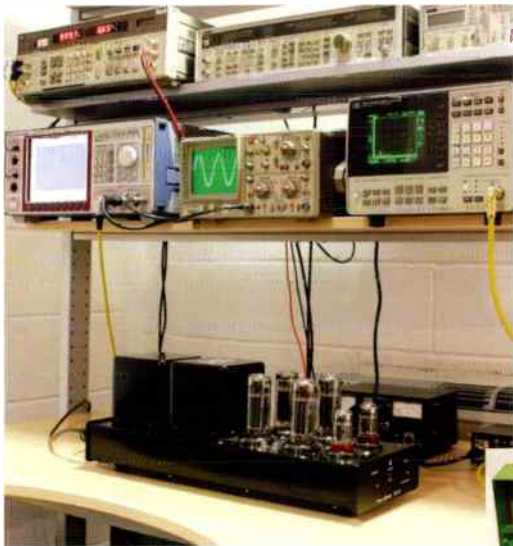


## PICKUP ARMS

Our unique arm vibration tests are made using a special miniature Bruel & Kjaer accelerometer attached to the arm's headshell, at the cartridge mounting position, as our picture shows. This reveals arm tube bending modes and high frequency vibrations in the headshell, that degrade sound.







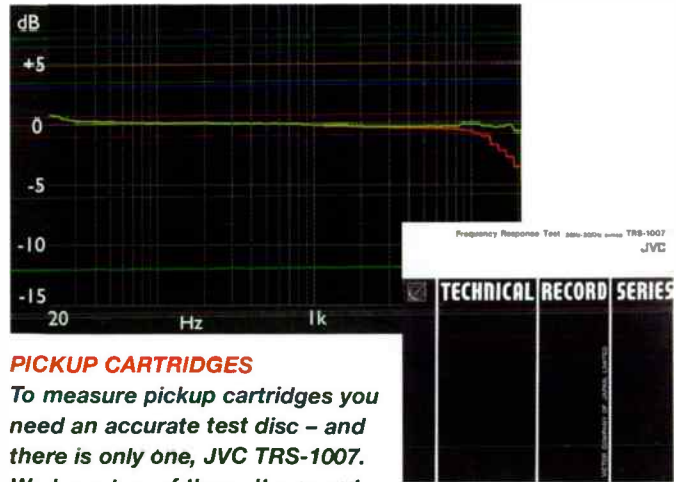
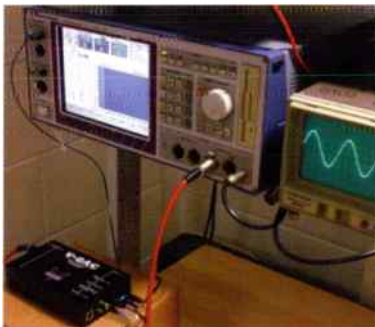
**AMPLIFIERS**

Amplifiers are connected to large resistive loads, 8 ohms and 4 ohms, and all parameters including power and distortion are measured by a Rohde & Schwarz UPL, the world's most advanced audio analyser. The loads are custom built to our specification, able to absorb 200 Watts without generating high frequency distortion due to magnetic hysteresis caused by iron content in the wire. This allows us to measure crossover distortion at 10kHz accurately and understand its influence upon sound.



**DIGITAL CONVERTORS**

DACs are connected to the digital signal generator of our Rohde & Schwarz UPL analyser and their analogue output sent to the analyser for analysis. We can measure all parameters and even pre-jitter the signal to test effectiveness of reclocking, allowing us to uniquely determine impact on sound quality.



**PICKUP CARTRIDGES**

To measure pickup cartridges you need an accurate test disc – and there is only one, JVC TRS-1007. We have two of them. It was cut at half speed and needs special equalisation, but is super accurate. That is why our cartridge measurements are of unparalleled accuracy, matching those of Ortofon for example, who also use TRS-1007.



**VHF/FM TUNERS**

Top quality VHF/FM tuners demand the use of a reference standard RF signal generator and for this we use a Leader 3412 Standard Signal Generator. An external MPX filter and post-equalisation network complete the picture, giving super accurate data for analysis in our Rohde & Schwarz UPL analyser.



**TURNTABLES**

Analysing turntable speed stability is thorny. We have just bought a Kenwood 180FL Wow & Flutter meter to get a high resolution analysis from its frequency demodulated speed stability output, important to see what Direct Drives are really doing.



**CD, DVD AND BLU-RAY PLAYERS**

To test CD and SACD players you need top quality test discs – and they come from Philips, inventors of the medium. We use Philips discs, as well as Sony and Denon for CD. We use the expensive but comprehensive Burosch DVD test disc set, with top resolution 24/192 PCM data, for DVD and Blu-ray players.

# WORLD CLASSICS

Here is our list of the great and good from audio's glorious past, products that have earned their place in hi-fi history. You'll also see some oddities which aren't classic as such, but are great used buys. The year of introduction is given, alongside the original UK launch price.

**We do not sell these products. It is for your information only.**

## DIGITAL

**CAMBRIDGE AUDIO CDI** 1986 £1500  
Inspired Stan Curtis redesign of Philips CD104, complete with switchable digital filter. Lean but tight and musical performer.

**CAMBRIDGE AUDIO CD4SE** 1998 £200  
A touch soft in the treble and tonally light, but outstanding in every other respect.

**LINN KARIK III** 1995 £1775  
The final Karik was a gem. Superb transport gives a brilliantly tight, grippy dynamic sound, albeit tonally dry.

**MARANTZ CD73** 1983 £700  
A riot of gold brushed aluminium and LEDs, this distinctive machine squeezed every last ounce from its 14x4 DAC -super musical



**MARANTZ SA-1** 2000 £5,000  
The greatest argument for SACD. This sublime Ken Ishiwata design is utterly musically convincing with both CD and SACD, beating most audiophile CD spinners hands down.



**MERIDIAN 207** 1988 £995  
Beautifully-built two-box with pre-amp stage. Very musical although not as refined as modern Bitstream gear. No digital output.

**MUSICAL FIDELITY TRIVISTA** 2002 £4000  
When playing SACDs, the sweetest, most lucid and lyrical digital disc spinner we've heard. Old school stereo, pure DSD design. CD sound is up in the £1000 class, too! Future classic.

**MERIDIAN MCD** 1984 £600  
The first British 'audiophile' machine was a sweeter, more detailed Philips CD100. 14x4 never sounded so good, until the MCD Pro arrived a year later.



**NAIM CDS** 1990 £ N/A  
Classic Philips 16x4 chipset with serious attention to power supplies equals grin-inducing sonics.



**SONY CDP-101** 1982 £800  
The first Japanese CD spinner was powerful and involving. Brilliant transport more than compensated for 16x2 DAC, and you even got remote control!

**SONY CDP-R1/DAS-R1** 1987 £3,000  
Sony's first two boxer was right first time. Tonally lean, but probably the most detailed and architectural sounding machine of the eighties.



**SONY CDP-701ES** 1984 £890  
Sony's first ever bespoke high end audiophile machine used a 16x2 DAC to provide a clinically incisive sound; supreme build quality allied to the pure unadulterated luxury of a paperback-sized remote control.

**TECHNICS SL-PI200** 1987 £800  
CD version of the Technics SL-1200 turntable. Massively built to withstand the rigours of 'pro' use and laden with facilities - a great eighties icon. Sonically, it's pure fun, with hefty bass that can still show weedy modern players a thing or two!

**YAMAHA CD-X1** 1983 £340  
Nicely built 16x2 machine with a very sharp and detailed sound; sometimes too much so. Excellent ergonomics, unlike almost every other rival of the time.

## COMPACT DISC TRANSPORTS

**TEAC VRDS-T1** 1994 £600  
Warm and expansive sound made this a mid price hit. Well built, with a slick mech.



**ESOTERIC P0** 1997 £8,000  
The best CD drive bar none; TEAC's Tokyo boys pushed the boat out in style. Brilliantly incisive, ridiculously over engineered.

**KENWOOD 9010** 1986 £600  
The first discrete Jap transport was beautifully done and responds well to re-clocking even today.

## DACS

**CAMBRIDGE AUDIO DACMAGIC** 1995 £99  
Good value upgrade for budget CD players with extensive facilities and detailed sonics.



**DCS ELGAR** 1997 £8500  
Extremely open and natural performer, albeit extremely pricey - superb.



**DPA LITTLE BIT 3** 1996 £299  
Rich, clean, rhythmic and punchy sound transforms budget CD players.



**PINK TRIANGLE DACAPO** 1993 £ N/A  
Exquisite; the warmest and most lyrical 16bit digital audio we have ever heard. Clever plug-in digital filter modules really worked!



**QED DIGIT** 1991 £90  
Budget bitstream performer with tweaks aplenty. Positron PSU upgrade makes it smooth, but now past it.

**TURNTABLES**

**ARISTON RDI1S 1972 £94**  
Modern evolution of Thorens' original belt drive paradigm, Scotland's original super-deck was warm and musical, albeit soft. Still capable of fine results today.

**ADC ACCUTRAC 4000 1976 £300**  
Bonkers 1970s direct drive that uses an infra red beam to allow track selection and programming. More of a visual and operational delight than a sonic stunner.

**PIONEER PL12D 1973 £36**  
The beginning of the end for the British turntable industry. When vinyl was the leading source, this brought new standards of noise performance and stability to the class, plus a low friction S-shaped tonearm. Later PL112D was off the pace compared to rivals



**PIONEER PLC-590 1976 £600**  
Sturdy and competent motor unit that performs well with a wide range of tonearms. Check very thoroughly before buying due to electronic complexity and use of some now-obsolete ICs.

**DUAL CS505 1982 £75**  
Simple high quality engineering and a respectable low mass tonearm made for a brilliant budget buy. Polished, smooth and slightly bland sound.

**GOLDRING LENCO GL75 1970 £15.65**  
Simple, well engineered motor unit with soft, sweet sound and reasonable tonearm. Good spares and servicing support even today from specialists. Eminently tweakable. Similar 88 and 99 motor units are budget 301/TD124 rivals.

**LINN AXIS 1987 £253**  
Simplified cut-price version of the Sondek complete with LVX arm. Elegant and decently performing mid-price package. Later version with Akito tonearm better.

**LINN SONDEK LP12 1973 £86**  
For many, the Brit superdeck; constant mods meant that early ones sound warmer and more lyrical than modern versions. Recent 'SE' mods have brought it into the 21st century, albeit at a price.



**MARANTZ TT1000 1978 £ N/A**  
Beautiful seventies high end belt drive with sweet and clean sound. Rare in Europe, but big in Japan.



**MICHELL GYRODEC 1981 £599**  
Thanks to its stunning visuals, this bold design wasn't accorded the respect it deserved until recently. Early examples sound cold and mechanical, but now right on the pace. Clean, solid and architectural sound.

**TECHNICS SP10 1973 £400**  
Seminal Japanese engineering. Sonics depend on plinths, but a well mounted SP10/II will give any modern a hard time, especially in respect of bass power and midband accuracy.

**REGA PLANAR 3 1978 £79**  
Brilliantly simple but clean and musical performer, complete with Acos-derived S-shaped tonearm. 1983 saw the arrival of the RB300, which added detail at the expense of warmth. Superb budget buy.

**GARRARD 301/401 1953 £19**  
Heavy metal - tremendously strong and articulate with only a veiled treble to let it down. In many respects, better than the seventies 'superdecks' that succeeded it.



**ROKSAN XERXES 1984 £550**  
Supposedly the first to 'better' the LP12. Super tight and clean sound, with excellent transients. Less musical than the Sondek, but more neutral. Sagging plinth top-plates make them a dubious used buy.

**SONY PS-B80 1978 £800**  
First outing for Sony's impressive 'Biotracer' electronic tonearm. Built like a tank with a clean and tidy sound, albeit lacking involvement. Scarily complicated and with no spares support - buy with caution!

**THORENS TD124 1959 £ N/A**  
The template for virtually every 1970s 'superdeck', this iconic design was the only real competition for Garrard's 301. It was sweeter and more lyrical, yet lighter and less impactful in the bass.



**TOWNSHEND ROCK 1979 £ N/A**  
The product of academic research by the Cranfield Institute, this novel machine has an extremely clean and fluid sound. Substantially modified through the years, and capable of superb results even today.

**TRIO LO-7D 1978 £600**  
The best 'all-in-one' turntable package ever made, Trio/Kenwood threw their 'engineering best practice' book at this one with startling results. Clean, powerful and three-dimensional sound, ultimately limited by the tonearm.

**TONEARMS ACOS LUSTRE GST-1 1975 £46**  
The archetypal S-shaped seventies arm; good, propulsive and involving sound in its day, but ragged and undynamic now.

**AUDIO TECHNICA AT 1120 1978 £75**  
Fine finish can't compensate for this ultra low mass arm's limited sonics - a good starter arm if you've only got a few quid to spend.

**ALPHASON HR100S 1981 £150**  
First class arm, practically up to present-day standards. Buy carefully, though, as there is no service available now. Totally under priced when new, exceptional.



**SME 3009 1959 £18**  
Once state of the art, but long since bettered. Musical enough, but weak at frequency extremes and veiled in the midband. Legendary serviceability and stunning build has made it a cult, used prices unjustifiably high.

**GRACE G707 1974 £58**  
This early Japanese example of the tonearm art has a smooth, lyrical sound. Imported by Linn, fitted to early LP12s. Sonically way off the pace now, though.

**REGA RB300 1983 £88**  
Inspired budget esoterica. Detailed, tight, neutral sound but tonally grey sounding in absolute terms. Responds well to tweaking, and its cheaper RB250 brother better still.



**SME SERIES III 1979 £113**  
Clever variable mass design complete with Titanium Nitride tube tried to be all things to all men, and failed. Charming nonetheless, with a warm and inoffensive sound.

**HADCOCK GH228 1976 £46**  
Evergreen unipivot with lovely sweet, fluid sound. Excellent service backup.



**LINN ITTOK LVII 1978 £253**  
Arguably the first 'superarm'; Japanese design to Linn specs made for a muscular, rhythmic sound with real dynamics. Now off the pace, but the final LVIII version worth seeking out.

**NAIM ARO 1986 £875**  
Truly endearing and charismatic performer - wonderfully engaging mid-band makes up for softened frequency extremes.



**TECHNICS EPA-501 1979 £ N/A**  
Popular partner for late seventies Technics motor units. Nice build and Titanium Nitride tube can't compensate for middling sound.

**INTEGRATED AMPLIFIERS/COMBOS**

**DELTEC 1987 £1900**  
Fast, dry and with excellent transients, this first DPA integrated is the real deal for eighties obsessives. Ridiculously punchy 80W per channel from a tiny, half-size box. Radical, cool and more than a little strange.

**ROGERS A75 1978 £220**  
The prototypical Audiolab 8000a – lots of sensible facilities, a goodly power output and nice sound in one box. The later A75II and A100 versions offered improved sonics and were seriously sweet and open to listen to.

**EXPOSURE VII/VIII 1985 £625**  
Seminal mid-eighties Exposure pre-power, offering most of what rival Naim amps did with just that little bit extra smoothness and sweetness. Still, it's by no means 'sweet' by today's standards, being lean, punchy, musical. It's also possessed of that quintessentially eighties look – frumpy black steel boxes with rough silk screened logos!



**SUGDEN C51/P51 1976 £130**  
Soft sounding early Sugden combo with a plethora of facilities and filters, complete with seventies-tastic DIN socketry. A sweet and endearing performer as you'd expect, but lacking in power and poor load driving ability, so partner carefully.

**VTL MINIMAL/50W MONOBLOCK 1985 £1,300**  
Vacuum Tube Logic was one of the Europe's biggest tube names in the eighties, and it shows. Rugged, professional build and finish allied to a lively and punchy sound (albeit with limited power) make them an excellent used buy.

**A&R A60 1977 £115**  
Sweet and musical feature-packed integrated; the Audiolab 8000A used its blueprint to great effect.



**CREEK CAS4040 1983 £150**  
More musical than any budget amp before it; CAS4140 loses tone controls, gains grip.

**AUDIOLAB 8000A 1985 £495**  
Smooth integrated with clean MM/MC phono stage and huge feature count. Extremely reliable, too. Post '93 versions a top used buy.



**MCINTOSH MA6800 1995 £3735**  
Effortlessly sweet, strong and powerful with seminal styling to match.

**SUGDEN A21 1969 £ N/A**  
Class A transistor integrated with an eminently likeable smoothness and musicality. Limited inputs via DIN sockets.

**MISSION CYRUS 2 1984 £299**  
Classic eighties minimalism combines arresting styling with clean, open, lively sound. Further upgradeable with PSX power supply.



**MUSICAL FIDELITY A1 1985 £350**  
Beguiling Class A integrated with exquisite styling. Questionable reliability.



**NAIM NAIT 1984 £350**  
Superb rhythms and dynamics make it truly musical, but tonally monochromatic. Fine phono stage, very low power.

**NAD 3020 1979 £69**  
Brilliantly smooth, sweet and punchy at the price and even has a better phono stage than you'd expect. The archetypal budget super-amp.



**MYST TMA3 1983 £300**  
Madcap eighties minimalism, but a strong and tight performer all the same.

**ROGERS CADET III 1965 £34**  
Sweet sounding valve integrated, uses ECL86 output valves, even has a half useable phono stage, sweet, warm a good introduction to valves



**ROTEL RA-820BX 1983 £139**  
Lively and clean budget integrated that arguably started the move to minimalism.

**CHAPMAN 305 1960 £40**  
Smooth pre/power combo with a sweet and open sound. Not quite up to Leak/Quad standards but considerably cheaper second-hand.

**PREAMPLIFIERS**

**AUDIOLAB 8000C 1991 £499**  
Tonally grey but fine phono input and great facilities make it an excellent general purpose tool.

**CROFT MICRO 1986 £150**  
Budget valve pre-amp with exceptionally transparent performance.

**AUDIO RESEARCH SP-8 1982 £1,400**  
Beautifully designed and built high end tube preamplifier with deliciously sweet and smooth sound. Not the last word in incision or grip, but that didn't matter to those who aspired to it.

**CONRAD JOHNSON MOTIV MC-8 1986 £2,500**  
Minimalist FET-based preamplifier from the Yank valve specialists is brilliantly neutral and smooth with a sly, light balance in the mould of Sugden high end stuff. Something of a curio, but worthwhile nonetheless.

**LEAK POINT ONE STEREO 1958 £ N/A**  
Good for their time, but way off the pace these days. Use of EF86 pentode valve for high gain rules out ultra performance. Not the highest-fi!

**LINN LK-1 1986 £499**  
A brave attempt by the Glasgow boys to bring remote controlled user-friendliness to hair-shirt audiophile hi-fi. Didn't quite work, but not half bad for under £100.

**LECSON AC-1 1973 £ N/A**  
Amazing styling courtesy of Allan Boothroyd can't disguise its rather cloudy sound, but a design classic nonetheless.



**QUAD 22 1958 £25**  
The partner to the much vaunted Quad II monoblocks - cloudy and vague sound means it's for anacrophiles only.

**QUAD 33 1968 £43**  
Better than the 22, but Quad's first tranny pre isn't outstanding. Responds well to tweaking/ rebuilding though...

**NAIM NAC32.5 1978 £ N/A**  
The Salisbury company came of age with this, their classic high end pre. Brilliantly fast and incisive sound that's a joy with vinyl but a tad forward for digital.

**POWER AMPLIFIERS**  
**HH ELECTRONICS TPA-50D AMPLIFIERS 1973 £110**  
Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain. Not exactly stylish, however.

**LEAK STEREO 20 1958 £31**  
Excellent workaday classic valve amplifier with decent power and drive. Surprisingly modern sounding if rebuilt sympathetically. Irrepressibly musical and fluid.



**LEAK STEREO 60 1958 £N/A**  
Leak's biggest valve power amp offers 35 Watts per channel and more low end welly than the smaller Stereo 20. Despite concerns over reliability their rarity means high prices are the order of the day.

**LECSON API 1973 £ N/A**  
Madcap cylindrical styling alluded to its 'tower of power' pretensions, but it wasn't. Poor build, but decently clean sounding when working.

**MARANTZ MODEL 9 1997 £8000**  
Authentic reproduction monoblocks still more than cut the sonic mustard. Highly expensive and highly sought after.

**MICHELL ALECTO 1997 £1989**  
Crisp, clean and beautifully controlled with gorgeous styling. Partnered with the £1650 Orca this sounds delicious!

**LEAK POINT ONE, TL10, TL12.1 1949 £28**  
Early classics that are getting expensive. Overhauling is de rigueur before use, using original parts if possible. Surprisingly crisp and musical sound, that's far more modern than Quad IIs. Deeply impressive when in fine fettle.



**MUSICAL FIDELITY XA200 1996 £1000PR**  
200W of sweet smooth transistor stomp in a grooved tube! Under-rated oddity.



**QUAD II 1952 £22**  
The all-time classic valve amplifier, with a deliciously fluid and lyrical voice. In other respects though, it sounds hopelessly dated. Low power and hard to partner properly



**QUAD 405 1978 £115**  
The first of the current dumpers is a capable design with smooth, effortless power and a decently musical sound. 606 and 707 continue the theme with greater detail and incision.

**QUAD 303 1968 £55**  
Bullet proof build, but woolly sound. Off the pace, but endearing nonetheless. Some pipe smoking slipper wearers swear by them!

**KRELL KMA100 II 1987 £5,750**  
Ludicrous monoblock version of the giant KSA-100 is one of the seminal eighties transistor power amplifiers. Massive wallop allied to a very clean and open Class A sound makes this one of the best amplifiers of its type, ever.

**RADFORD STA25 RENAISSANCE 1986 £977**  
At the time, very possibly the least cool amplifier on the planet – and we're not talking heat dissipation here. This reworking of Radford's original late sixties design was possessed of a wonderfully rich, old school valve sound with enough power (25W) and lots of subtlety.



**PIONEER M-73 1988 £1,200**  
Monster stomp from this seminal Japanese power amplifier, complete with switchable Class A and Class B operation. Clean, open and assured sounding, albeit a tad behind the pace on high speed dance music. Rosewood side cheeks and black brushed aluminium completes the eighties-tastic experience.



**PHONO STAGES CREEK OBH-8 SE 1996 £180**  
Punchy, rhythmic character with oodles of detail makes this a great budget audiophile classic. Partner with a Goldring G1042 for an unbeatable budget combination.



**LINN LINNK 1984 £149**  
Naim-designed MC phono stage built to partner the original Naim NAIT - yes, really! Fine sound, although off the pace these days.

**MICHELL ISO 1988 £ N/A**  
This Tom Evans-designed black box started the trend for high performance offboard phono stages. Charismatic, musical and punchy - if lacking in finesse.

**TUNERS MARANTZ ST-8 1978 £353**  
Marantz's finest radio moment. Warm, organic sound plus an oscilloscope for checking the signal strength and multipath.



**CREEK CAS3140 1985 £199**  
Excellent detail, separation and dynamics - brilliantly musical at the price. T40 continued the theme...

**NAD 4040 1979 £79**  
Tremendously smooth and natural sound allied to low prices and good availability make this budget analogue esoterica. Needs a good antenna to work properly, however.

**NAIM NAT03 1993 £595**  
The warm, atmospheric sound is further proof of Naim's proficiency with tuners.

**PIONEER TX-9500 1976 £295**  
Another of the serious classic solid-staters. Boasts the usual high end Jap package of fine sound, brilliant sensitivity and superb build.

**LEAK TROUGHLINE 1956 £25**  
Series I an interesting ornament but limited to 88-100MHz only. II and III are arguably the best-sounding tuners ever. Adaptation for stereo easy via phono multiplex socket. Fed by a modern outboard decoder they're deliciously lucid with true dimensionality.



**YAMAHA CT7000 1977 £444**  
Reputedly the best of the classic Jap analogues, this combines sleek ergonomics, high sensitivity and an explicit, detailed sound.

**QUAD FM4 1983 £240**  
Supreme ergonomics and styling allied to a pleasingly lyrical sound with plenty of sweetness and detail made this one of the best tuners around upon its launch.



**REVOX B760 1975 £520**  
More of a semi-pro machine than a domestic bit of kit, the Revox offers superlative measured performance although the sound isn't quite as staggering as the numbers. Fine nonetheless, and surely the most durable tuner here?

**NAD 4140 1995 £199**  
Brilliant affordable digital tuner has a smooth, detailed musical sound plus sensible real-world facilities.

**ROGERS T75 1977 £125**  
Superb mid-price British audiophile design, complete with understated black fascia. Fine sound in the true Rogers mould – smooth and sweet with fine dimensionality.

**SANSUI TU-9900 1976 £300**  
A flagship Japanese tuner designed to steal sales from the likes of Accuphase and Revox, it boasts superlative RF performance and an extremely smooth and lucid sound, along with very fine build and finish.

**SONY ST-5950 1977 £222**  
One of the first Dolby FM-equipped tuners, a format that came to nought. Still, it was Sony's most expensive tuner to date, and boasted a very good sound quality allied to brilliant ergonomics.

**SEQUERRA MODEL I 1973 £1300**  
Possibly the ultimate FM tuner. Massive in terms of technology, size and features dedicated to extracting every ounce of performance from radio, including impressive multi-purpose oscilloscope display.



**TECHNICS ST-8080 1976 £180**

National Panasonic's specialist hi-fi brand was a big hitter back then, and this is no exception. Superb FM stage makes for a very clean and smooth listen with lots of detail and depth.



**ANALOGUE RECORDERS**

**YAMAHA TC-800GL 1977 £179**

Early classic with ski-slope styling courtesy of Mario Bellini. Middling sonics by modern standards, but cool nonetheless!



**AIWA XD-009 1989 £600**

Aiwa's Nak beater didn't, but it wasn't half bad nonetheless. Massive spec even included a 16x4 DAC!

**NAKAMICHI CR-7E 1987 £800**

The very best sounding Nakamichi ever - but lacks the visual drama of a Dragon.



**PIONEER CTF-950 1978 £400**

Not up to modern standards sonically, but a great symbol of the cassette deck art nonetheless.



**REVOX A77 1968 £145**

The first domestic open reel that the pros used at home. Superbly made, but sonically off the pace these days. B77 better, but couldn't match the Japanese.



**SONY WM-D6C 1985 £290**

Single capstan transport on a par with a Swiss watch, single rec/replay head better than most Naks. Result: sublime.



**SONY TC-377 1972 £N/A**

A competitor to the Akai 4000D open reel machine, the Sony offered better sound quality and is still no slouch by modern standards

**DIGITAL RECORDERS**

**SONY MDS-JE555ES 2000 £900**

The best sounding MD deck ever, thanks to awesome build and heroic ATRAC-DSP Type R coding.



**PIONEER PDR-55SRW 1999 £480**

For a moment, this was the CD recorder to have. Clean and detailed.

**MARANTZ DR-17 1999 £1100**

Probably the best sounding CD recorder made; built like a brick outhouse with a true audiophile sound and HDCD compatibility.



**KENWOOD DM-9090 1997 £500**

Serious and sophisticated sound thanks to well implemented ATRAC 4.5; surprisingly musical MD recorder.

**SONY TCD-8 DATMAN 1996 £599**

Super clean sound makes this an amazing portable, but fragile.

**LOUDSPEAKERS ACOUSTIC RESEARCH**

**ARI8S 1978 £125**

Yank designed, British built loudspeaker became a budget staple for many rock fans, thanks to the great speed from the paper drivers, although finesse was most definitely not their forte...

**BBC LS3/5A 1972 £88**

Extremely low colouration design is amazing in some respects - articulation, stage depth, clarity - and useless in others (both frequency extremes). Came in wide variety of guises from various manufacturers building it under licence. Partner with Rogers AB1 subwoofers for an extra two octaves of bass!

**LOWTHER PM6A 1957 £18 EACH**

This seminal full-range driver is still manufactured. High sensitivity, as fitted to many classic horn designs.

**HH ELECTRONICS TPA-50D AMPLIFIERS 1973 £110**

Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain. Not exactly stylish, however.

**TANNOY WESTMINSTER 1985 £4500**

Folded horn monsters which certainly sound good if you have the space. Not the last word in tautness but can drive large rooms and image like few others.

**JR 149 1977 £120**

Infamous cylindrical speaker that was ignored for decades but now back in fashion! Based on classic KEF T27 / B110 combo as seen in the BBC LS3/5a. Doesn't play loud, needs a powerful transistor amplifier, but rewards with fine clarity and imaging.



**SPENDOR BCI 1976 £240**

Celestion HF1300 tweeter meets bespoke Spendor Bextrene mid-bass unit - and the result is a beautifully warm yet well focussed sound. A little bass bloom necessitates careful low-stand mounting, but these prove that the seventies did have some fine designs after all!

**QUAD ESL57 1956 £45 EACH**

Wonderfully open and neutral sound puts box loudspeakers to shame. Properly serviced they give superb midband performance, although frequency extremes less impressive. Ideally, use in stacked pairs or with subwoofers and supertweeters.



**KEF R105 1977 £785**

Three way Bextrene-based floorstander (complete with castors!) gave a truly wide-band listen and massive (500W) power handling. A very neutral, spacious and polite sounding design, but rhythmically well off the pace. The quintessential nineteen seventies loudspeaker.

**IMF TLS80 1976 £550**

Warm and powerful nineteen seventies behemoth with transmission loading and a mixture of KEF and Celestion drive units. Impressively physical wideband sound but rhythms aren't its forte.

**MAGNEPLANAR SMGA 198X £800**

Technological loudspeaker with genuinely musical abilities; fast, smooth, open, dry.



**MISSION 770 1980 £375**

Back in its day, it was an innovative product and one of the first of the polypropylene designs, warm, smooth, clean and powerful sound.



**MISSION 752 1995 £495**

Cracking Henry Azima-designed floorstanders combined HDA drive units and metal dome tweeters with surprisingly warm results. Benign load characteristics makes them great for valves.

**HEYBROOK HBI 1982 £130**

Peter Comeau-designed standmounters with an amazingly lyrical yet decently refined sound. Good enough to partner with very high end ancillaries, yet great with budget kit too. A classic.

**CELESTION SL6 1984 £350**

Smallish two way design complete with aluminium dome tweeter and plastic mid-bass unit set the blueprint for nineteen eighties loudspeakers. Very open and clean sounding, albeit course at high frequencies and limp in the bass. Speakers would never be the same again...

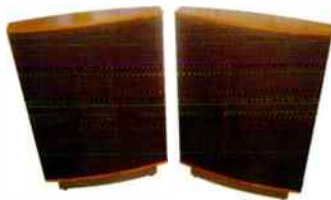
**LEAK SANDWICH 1961 £39 EACH**

Warm sounding infinite baffle that, with a reasonably powerful amplifier can sound quite satisfying.



**QUAD ESL63 1980 £1200**

An update of the ESL57, with stiffer cabinets. Until the 989, the best of the Quad electrostatics



**YAMAHA NS1000 1977 £532**

High tech Beryllium midband and tweeter domes and brutish 12" woofers in massive sealed mirror image cabs equals stunning transients, speed and wallop allied to superb transparency and ultra low distortion. Partner carefully!



**MISSION X-SPACE 1999 £499**

The first mass production sub and sat system using NXT panels is a sure-fire future classic - not flawless, but a tantalisingly unboxy sound nevertheless!



**CLASSIC CONTACTS**

When a classic goes 'pooof' your troubles have just started, but there may be a good ending. Replacing failing parts can improve the sound, so here is a short listing of all these companies who specialise in getting a classic up and running again after its deposited a small ring of soot on your ceiling!

**GT AUDIO**

(Graham Tricker, Bucks)  
Leak Troughline specialists. Also Quad and most classic tuners, radios and amplifiers restored, repaired.  
Tel: 01895 833099  
Mob: 07960 962579  
www.gtaudio.com

**TECHNICAL AND GENERAL**

(East Sussex)  
Turntable parts - wide range of spares and accessories, plus arms and cartridges.  
Tel: 01892 654534

**CARTRIDGE MAN**

(Len Gregory, London)  
Specialist cartridge re-tipping service and repairs. High quality special cartridges.  
Tel: 020 8688 6565  
Email: thecartridgeman@talktalk.net  
www.thecartridgeman.com

**QUAD ELECTROACOUSTICS**

(Cambs) Quad's service department, able to repair almost all Quad products, from the very first. (Also Audiolab, Mission & Wharfedale).  
Tel: 0845 458001 | www.quad-hifi.co.uk

**Dr MARTIN BASTIN**

(Shropshire) Garrard 301/401 restoration, renovation and service. Special plinths; rumble cures, etc.  
Tel: 01584 823446

**ARKLESS ELECTRONICS**

(Northumberland)  
Specialist in repairs, restoration and modifications to all amplifiers, valve or solid state, ancient and modern.  
Tel.: 01670 530674  
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**CLASSIQUE SOUNDS**

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www.wembleyloudspeaker.com

**CLASSIC NAKAMICHI**

(Paul Wilkins, Worthing, West Sussex).  
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www.bowersandwilkins.co.uk

**ONE THING**

(Coventry) Specialist in electrostatic panel manufacture and repair. Can refurbish ESL 57s and 63s as well as Leak Troughlines and Quad IIs.  
Email: one.thing@ntlworld.com  
www.onethingaudio.com

**LORICRAFT AUDIO**

(Terry O'Sullivan, Bucks)  
Garrard 301/401 and their own 501 repair, spares and service.:  
Tel: 01488 72267  
www.garrard501.com

**EXPERT STYLUS COMPANY**

(Wyndham Hodgson, Surrey) Stylus replacement service for all types of cartridge. Including precise profiling for 78s. Tel: 01372 276604  
Email: w.hodgson@btclick.com

**OCTAVE AUDIO WOODWORKING**

(Bristol) Unit 2, 16 Midland Street, St Phillips, Bristol. Tel: 0117 925 6015  
www.octave-aw.co.uk

**REVOX**

(Brian Reeves, Cheshire)  
Revox tape recorder spares, service and repair. Accessories also available.  
Tel: 0161 499 2349  
Email: brian@revoxservice.co.uk  
www.revov.freeuk.com

**SOWTER TRANSFORMERS**

(Brian Sowter, Ipswich)  
Large range of audio transformers for valve amps, cartridges, line drive, interstage plus all associated services.  
Tel: 01473 252794  
www.sowter.co.uk

**LOCKWOOD AUDIO**

(London)  
Tannoy loudspeaker parts, restoration and repair. Also Epos and TDL loudspeakers.  
Tel: 020 8 864 8008  
www.lockwoodaudio.co.uk

**ATV AUDIO**

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World Radio History





### TEAC UD-H01 £299

Affordable DACs are like trying to take a Tokyo taxi at 2 a.m. – you wait in vain for hours and then seven turn up with their ‘for hire’ lights on, one after the other. We heard literally nothing for years on the DAC front, and then suddenly there was an explosion of the things, as they seemed to breed and then began to fill my listening room like Tribbles on the Starship Enterprise. First the Cambridge Audio DACMagic resurfaced, then the Arcam rDAC, then the Musical Fidelity V and M series, and so on. Now it’s got to the point that almost every new digital product is a DAC of some description or other, all touting that hallowed USB connectivity for computer audio, now in asynchronous form at a dealer near you...

Well, please now take a bow before TEAC’s new UD-H01, then hand it your business card – or should that be credit card? The princely sum of £299 gets you a very neat little alloy fronted box just a little larger than a Mac mini (215x55x215mm). It’s nicely made in its way – especially the brushed metal fascia – but the black plastic top doesn’t look so good and the unit does get surprisingly hot in use. It’s a shame TEAC couldn’t have charged a few pounds more and done the casing in metal too, which would sound superior, sink the heat better and look classier still. Trouble is, it’s got the Arcam rDAC to beat, which is superior in terms of build and finish at the price.

Still, the TEAC has some surprises of its own; it sports two BurrBrown

1795 DACs, which claim to offer 32bit/192kHz capability. This looks like it’s turning into a late eighties style digital numbers war, and in this context the UD-H01 is the undisputed winner – 32 is better than 24, is it not? Well yes, but many so-called 24bit music files struggle to achieve this; just a few years ago I heard pro audio engineers telling me their 24bit analogue-to-digital converters were barely scratching true 20bit resolution, so 32bit digital word lengths are academic. There’s also a Tenor 8802 chip inside, giving asynchronous USB Audio Class2 high-speed input from PCs or Macs – this works alongside conventional TOSLINK optical and S/PDIF coaxial inputs. For computer use, it’s swings and roundabouts, as the optical kills all the electrical noise (of which there is a *lot* inside any computer) but likely has a more jittery input than the A-USB.

The little TEAC has some nice audiophile touches; the XLR balanced outs are great on a £299 DAC, although Cambridge Audiophiles will point out their original nineteen nineties DACMagic had them on a £99 product, so it’s nothing new. The UD-H01 also sports a toroidal power transformer inside, an IEC mains input (so you can experiment with cables easily) and a headphone output (full size 6.3mm). There’s also a series of LED tell tales for the input sampling rate: 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz or 192kHz. Overall, it’s a sweet, and not obviously too cost-cut package.

That pretty well sums up its sonics, too. Even played immediately

after a £7,500 dCS Debussy DAC, it didn’t disgrace itself! Basically what I heard was a surprisingly couth and composed sound at the price, with none of that slight upper midrange clanginess of the Arcam rDAC, and a good deal more bass weight than the Musical Fidelity M1 DAC. It’s probably fair to say that the treble has been rolled off ever so slightly, as the TEAC sounds smooth and a touch muted at the very top, so it lacks the distinctive ‘zing’ heard on many Japanese DACs of yesteryear. Scritti Politti’s ‘Perfect Way’ had a surprising rhythmic bounce – it almost made the dCS sound a little heavy footed – and good deal of detail from top to bottom. Music seemed to romp along, the TEAC throwing out great dollops of detail into a wide and stable soundstage. My only real carp was the treble, which was a touch imprecise and splashy compared to Musical Fidelity’s (admittedly more expensive) M1 DAC, but it was perfectly pleasant and fit-for-purpose all the same.

TEAC’s UD-H01 is a very nice little digital convertor; it stands up well even in the tough competition of the £300 DAC market, brings a useful mix of facilities and very capable performance which isn’t comprehensively bettered until you spend two and a half times as much on CEntrance’s DACmini USB or Stello’s DA100 Signature. It’s also well made, and makes a perfect aesthetic match for TEAC’s forthcoming range of mini components, of which this is the first.

**DP**

[Contact: +44 (0)845 1302511, [www.teac.co.uk](http://www.teac.co.uk)]

# Soundbites

# A LITTLE AUTUMN

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**SONNY STITT**  
**Four Classic Albums**  
**Avid**

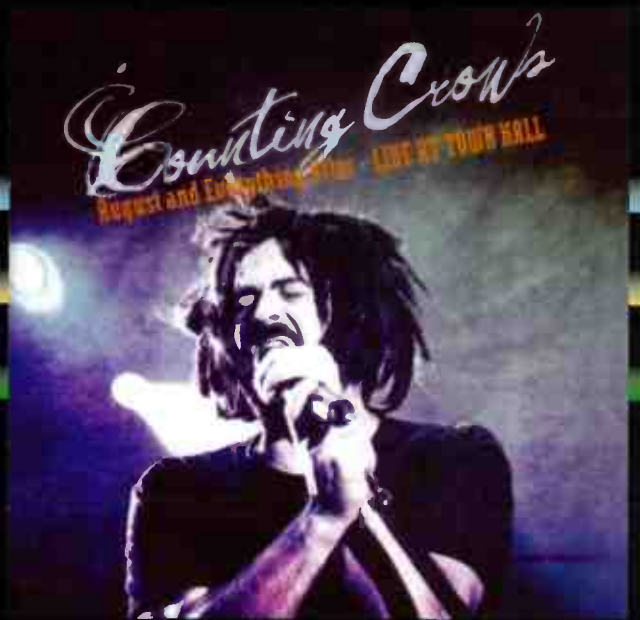
Avid has a range of top quality jazz on a value for money CD format, often packing four albums onto two CDs or three albums with bonus material. This package features the great Sonny Stitt on four LPs, who plays both alto and tenor sax. Stitt was strongly influenced by Charlie Parker and, although his style would broaden as he gained experience, allowing other influences, such as Lester Young, to widen his range, you can often hear Parker during his solo work. Here, this two CD package includes the album, 'Saxophone Supremacy' (1961) in which Stitt largely tackles standards such as 'Lazy Bones', 'Personal Appearance' (1957), originally recorded for Verve, sees Stitt playing both alto and tenor sax. Excellently recorded, it is also notable for featuring a very young Bobby Timmons, who had debuted only the previous year alongside Kenny Burrell. 'Sits In With Oscar Peterson' (1960) also features Stitt on both sax variants alongside the noted pianist for a 1959 session with Ray Brown and Ed Thigpen plus 1957 recordings that provide a jam session vibe, dancing around standards such as 'Easy Does It'. Finally, 'The Battle Of Birdland' keeps the Peterson connection while paying tribute to

his influences such as Charlie Parker and Louis Armstrong.

In all four albums, Stitt offers a complex delivery, presented in a nonchalant, easy style while featuring a potent power reserve. You can hear the monster behind the laid-back front which makes Stitt exciting and often unpredictable. Also look out for Avid's other new releases this month: four albums collection from Herb Ellis - 'Meets Jimmy Guffre', 'Nothing But The Blues', 'In Wonderland' and 'Thank You Charlie Christian' plus Jim Hall's three album collection - 'Good Friday Blues', 'Folk Jazz', 'Jazz Guitar' with bonus material from Paul Desmond's 'First Place Again'.

**COUNTING CROWS**  
**August And Everything After**  
**- Live At Town Hall**  
**Eagle Records**

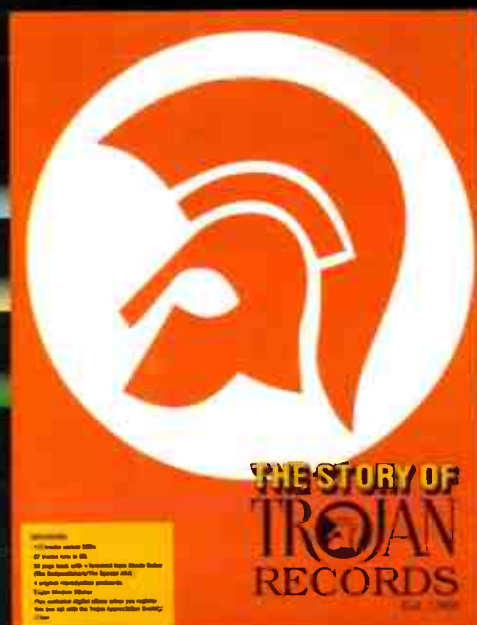
It was a weird introduction to the world of rock and fame because they appeared, to great media effect, on the scene almost by mistake. At the 'Rock & Roll Hall Of Fame' ceremony, in 1994, they were a late replacement for Van Morrison who failed to show, the band were subsequently introduced by Robbie Robertson of The Band. As they were thrust on stage, they did have an album already under their belt, recorded the previous year, the



studio version of this live outing, which proved to be a dark and downbeat affair but which formed the basis for enormous success that the outfit enjoyed for the rest of the decade and into the noughties, forging the sound of their own heroes with a contemporary twist.

'August And Everything After' proved to be the first in a range of albums that have been remarkable for the consistency in quality alone. Using the band's debut album as content, this live interpretation was recorded in New York City on 18 September 2007. Retaining that almost mountain-folk edge to their rock presentation, the band weave complex rhythms and subtle melodies that sink slowly into the mind. This is a lively session with an obviously enthused and appreciative audience.

As an accompaniment to the CD, also look out for the DVD via Eagle Vision, of the same name which spans 119 minutes and provides the album again but with a few differences. For example, the DVD version doesn't include 'Talking' or the 'Introduction To Sullivan Street'. On the other hand, you do get a bonus interview with Adam Duritz (vocals) and Charlie Gillingham (keyboards). This DVD is particularly worthy of mention because it's the first ever video release from the band.



**THE STORY OF TROJAN RECORDS**  
**Various**  
**Trojan**

Arriving in a sturdy box, this grand overview of the classic reggae label includes five discs packing in 123 tracks. Each disc has a theme, so disc one features twenty-five tracks of UK hits including The Upsetters' 'Return of Django', The Pioneers' 'Longshot Kick De Bucket' and The Maytals 'Monkey Man'. The second disc looks at artists such as Bob Marley ('Stir It Up'), Desmond Dekker ('Sentimental Reasons'), Max Romeo ('Me Want Man') and The Heptones ('Soul Sister'). Disc three examines the great producers such as Lee Perry, Edward 'Bunny' Lee, Harry Mudie and Linval Thompson while disc four features the labels such as Attack, Grape and Duke. The fifth disc is packed with rarities such as Val Bennet & The Carib-Beats' 'Where Did the Russians Go' and Winston Samuels' 'Lick It Back'. To put that lot into some form of context, there are sixty-seven tracks that have appeared on CD for the first time with twenty of those which are previously unreleased on any format.

Along with the music is a fifty page book with a foreword from Rhoda Dakar (The Bodysnatchers/ The Special AKA) detailing the label's history. You also get four

reproduction double-sided postcards recreating fliers and original promotional material, a Trojan Window Sticker and an exclusive twelve track bonus digital album when you register the box set with the Trojan Appreciation Society.

According to the Trojan Product Manager, Chris Howarth, "the concept was to present something that would appeal to both the diehard fans and those simply wanting to discover more about the iconic label." Despite the worthy Trojan compilations and sets released over the past several years, I've been waiting for a comprehensive examination of the label, such as this, for some time. Packed with goodies, it's well worth the wait.

**BETTY MADIGAN**  
**Am I Blue? & The Jerome Kern Songbook**  
**Sepia**

If you have an interest in interpretive singers of the Great American Songbook, from Frank Sinatra and Peggy Lee to the more obscure such as Felicia Sanders and The Ames Brothers, then lend an ear. An often ignored and little known singer, Madigan sang on the club circuit in the fifties while appearing on local TV. She went national with record contracts for both MGM and Coral and this new CD reflects both of



those terms with a single album from both labels.

Setting the tone for the album itself, her debut LP, 'Am I Blue?', was released in 1957 via MGM, including classic songs such as Hoagy Carmichael's 'I Get Along Without You Very Well', Cahn & Chaplin's 'Please Be Kind' and Wolf & Herron's 'I'm A Fool To Want You'. All strong material which is both stirring and emotional, reflecting her effusive vibrato that breaks into small pieces before your ears. Her next album features work via Jerome Kern. Released by Coral in 1958, the LP kept the Kern theme but, over the twelve included tracks, span the broad expanse of associated lyricists from the likes of Oscar Hammerstein to Dorothy Fields with songs like 'She Didn't Say Yes' and 'A Fine Romance'.

In addition to the two albums you also get a selection of bonus tracks featuring her chart hits of the time such as 'Joey', 'Always You' and 'True Love Gone'. A great value set that provides a surprisingly broad and in-depth examination of an obscure but interesting vocalist who offered an easy clarity to her delivery, a simple presentation that allowed the song to talk. Fans who enjoy the singer taking a backseat to the most important element, the song, will enjoy this CD. **PR**



**A sophisticated product built by a respectable company, if there's one machine able to redeem the weird but-not-so wonderful 'Stereo 8' format then the Akai CR-83D is it, says Tim Jarman...**

# Super Loopy

**S**tereo 8 was originated in 1964 by Bill Lear (of Lear Jet fame), along with a group of major American electronics and car manufacturers. The design of the cartridge aimed to improve on a previous system, the 4-track Muntz 'Stereo Pak', by extending the playing time and reducing the mechanical complexity of both the cartridge and the player to optimise the format for its intended application, providing stereo sound in cars. Clever innovations were the inclusion of the rubber pinch roller in the cartridge rather than in the deck, meaning that a simpler player only needed to provide a rotating capstan to complete the transport mechanism, and automatic track switching at the end of each programme.



Inside a Stereo 8 cartridge, the tape forms an endless loop which is wound onto a single spool. This is driven by the movement of the tape itself which is pulled out from the centre whilst at

the same time being reeled back in around the outer edge. The problem with this scheme is that different diameters at these two points imply different linear tape velocities, so to resolve this conflict the tape was deliberately wound loosely and allowed to slide over itself on the spool, assisted by a special layer of lubricating material on the reverse side. The 8 tracks were used as four sequential stereo programmes with a small length of conductive foil at the splice which operates the automatic switching function. At a tape speed of 9.5 cm/s (twice that of Compact Cassette), a Stereo 8 cartridge holds about the same amount of material as an LP record so the same albums could be released on both formats, the only problem being that the Stereo 8 version required three breaks instead of one.

Stereo 8 players soon became available as an option in many American cars and by the end of the nineteen sixties home players, and recorders were also offered. These were very popular in their home market but in Europe, where the Philips Compact Cassette had been in the shops for about the same amount of time, they did not

enjoy the same degree of success. Nevertheless, Stereo 8 eventually *did* become ingrained in British audio culture and its supporters claimed that it provided better sound quality than the Philips system. This belief was based mainly around the higher tape speed but since the tracks themselves were no wider and the tape formulations nothing special the difference was never that clear cut. To make matters worse, the system was dogged by poor speed stability because of the inconsistent interface between the deck mounted capstan and cartridge mounted pinch roller, the high drag on the tape and the fact that one of its surfaces needed to be lubricated.

Most decks used a moving two channel head to select the different tracks, making accurate azimuth adjustment difficult to maintain and both cartridge and equipment manufacturers seemed to have varying ideas about what the correct equalisation should be. Stereo 8 cartridges also could not be rewound (or indeed fast forwarded at any great rate) so finding the start of the programme or repeating a particular song quickly was simply not possible. By contrast, the Compact Cassette

naturally lent itself to the production of high quality, versatile transports and the introduction of technologies like Dolby NR and chrome tape forced the makers of cassette decks to design and calibrate their products to a far higher degree of accuracy. By the early nineteen seventies there could be no doubt that the Philips system had Stereo 8 beaten on all counts, but a few manufacturers persisted with it, possibly due to the large American market that still remained...

## HARD TIME

The Akai CR-83D contains numerous design details that attempt to make Stereo 8 as painless as possible. The capstan is carefully ground with both roughened and polished sections in order to gain the best traction on the tape without causing excessive wear for example, and the head is polished to a high degree to reduce friction and the possibility of contamination at this point. While no Stereo 8 deck can rewind the tape, the CR-83D can at least fast forward it at roughly 3x speed and can be set to play just a single programme, all four programmes in sequence or repeat the whole tape endlessly. It can also record, something that is unusual with Stereo 8, so you aren't just stuck with listening to cheesy American music of late nineteen sixties and early nineteen seventies! Stereo 8 cartridges do not have a record interlock feature like Compact Cassettes, so with the CR-83D you have to press the record and pause keys first before inserting a cartridge – a nice feature.

Because you can't see the tape, it is hard to know where the splice in the loop is, something that could make planning a recording difficult. Of great help in this area is the Akai's real time counter, which looks like a little clock in the centre of the front panel. The dial is calibrated in minutes and has two hands, one black and one white. Once the tape loop has circulated once, the white hand shows the total amount of time available on each track. The black hand is then automatically reset every time the splice comes around and therefore shows how far into the track the tape currently is. This, combined with the illuminated track indicator, is an excellent addition that transforms home Stereo 8 recording from impossible to merely awkward!

As well as the routine American stuff the back catalogue of Stereo 8 pre-recorded material includes a wonderful archive of music from the experimental, progressive and psychedelic era. This gives the format

a unique flavour but beware, some of these cartridges are now very collectable (e.g. expensive) and may be completely worn out by the time you get them, still good examples are well worth seeking out.

I started my listening tests with a rare new old stock copy of Tangerine Dream's first album 'Phaedra', a sort of pre-'Autobahn' slab of Teutonic electronic weirdness that seems to be very much at home on Stereo 8. The nature of the music masked the

"Zager & Evans' eponymous second album is a real feast of strangeness. It sounded just right in the slightly dull, slightly wobbly world of Stereo 8..."

tape speed stability problems and instead allowed me to enjoy Stereo 8's real strength over Compact Cassette, a truly spacious sound stage that no doubt results from the simpler equalisation that higher tape speed makes possible.

Despite this, the recording still lacked a certain sparkle but even this was soon forgotten as an expansive sound tapestry wrapped itself around my listening room.

Not so easy to forgive were the regular breaks in the music caused by the track switching points. The foil splice is in effect a large drop-out and so to mask it without wasting too much valuable tape space the recording engineers fade the music down just before the break and back up again afterwards. This feature reached a peak in annoyance value whilst listening the Pink Floyd's 'Dark Side Of The Moon', which has breaks in the middle of 'Time', 'Us And Them' and most unforgivably, 'Money'!

Better produced and with no breaks was Zager & Evans' eponymous second album, a real feast of strangeness that sounded just right in the slightly dull, slightly wobbly world of Stereo 8. Nowhere near as bright as the other recordings I tried, this album sounded authentic on the Akai in a way that it just doesn't seem to on more modern formats. Soft edged and oh so whimsical, it was a tape that I couldn't resist coming back to again and again. Finally, a Glen Campbell hits compilation took me straight to Stereo 8's heartland and sounded pretty credible, all things considered. Bright and stable, only a slightly high level of hiss really separated this recording from the equivalent LP



mid-way through its wear cycle being and played on a modest turntable.

## CONCLUSION

So after this journey of discovery, had I learned to love Stereo 8? In a word, no. In simple hi-fi terms even the Akai CR-83D would have been miles off the pace when new compared to a similarly priced cassette deck (such as Akai's own GXC-39D) and cassettes went on to improve a lot in the next ten or so years. The Akai is however an excellent way to explore another side of the music of its period, being both authentic and cool in a way that no modern equivalent could ever hope to be. Students of seventies culture should consider it a must, whereas for audiophiles it's somewhat less compulsory!

## ON THE ROAD

The Akai CR-83D was made at a time when the Japanese really had reliability licked and so electronically at least there isn't too much to worry about, the occasional dirty switch contact, blown light bulb or noisy transistor is the worst that one is likely to encounter. Mechanically too its mostly good news, the belt is very easy to replace and the rest is as solidly built as one could ask for. Wear to the head, capstan, guides and track-switching contacts are common faults in all Stereo 8 decks, due no doubt to the ability to play continuously for extended periods. As no parts are available one either has to refinish the originals or adapt similar components taken from other machines.

For the 21st century Stereo 8 user, the tapes are another problem. After many playings the lubricant wears away and the level of wow becomes intolerable, making the cartridge useless. Even if a cartridge has never been used it is worth inspecting the foam pressure pads behind where the head goes. In time the foam degrades into a sticky mess that transfers onto the tape if played, ruining it completely. With care the cartridges can be opened and draft excluder foam substituted for the pads, a couple of layers (shiny side out of course!) is usually enough. Some better quality cartridges have felt pads mounted on sprung metal levers, these normally need no attention in this area. Also inspect the rubber roller, if it has gone hard or sticky then transferring one from an unwanted cartridge is the best idea.

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"Like Steve Jobs, I love the sound of my big turntable and large loudspeakers..."



## david price

**A**sked to come up with a list of hi-fi visionaries, who would you include? Gilbert Briggs, Raymond Cooke, P. G. A. H. Voight, Peter Walker, Akio Morita and Norio Ohga perhaps? Well, the list is long, and I'm sure you've got some great suggestions – but would anyone add to that list the name of Steve Jobs?

Apple's recently deceased supremo was always an audiophile. Indeed, I remember a photograph of him, circa 1982, sitting cross legged on the floor of his minimalist listening room, behind which is a pile of vinyl and a (then) brand new, state-of-the-art turntable and cutting edge planar loudspeakers. Look carefully ([www.twitteringmachines.com/category/audiophiles/page/3](http://www.twitteringmachines.com/category/audiophiles/page/3)), and you'll see that's a Michell GyroDec and Acoustat Model 2s...

An interesting and rather distinguished choice of equipment. Mr Jobs – not the sort of thing you'd pick up at Laskys on the way home from shopping on Saturday afternoon! Doing my best Lloyd Grossman 'Through the Keyhole' mid-Atlantic accent, "who would live in a house like this?" Well, the individual in question would have impeccable taste, access to money, and an abiding interest in, and passion for, design.

At the risk of ending up in Private Eye's 'Pseud's Corner', the young Steve Jobs was fascinated by the notion of design as form following function; you don't 'style' something, but rather it looks as it looks simply as a result of what it's designed to do. Lest we forget, in 1982 there were very few exo-skeletal turntables such as the GyroDec – it was truly radical. Yet it was built like that to dispense with the plinth, which itself is a sound degrading structure. Ditto, the Acoustats weren't simply tall and thin because they looked good in a

lifestyle sort of way, but because they were electrostatic panel loudspeakers which needed to be built that way.

Little did Jobs know in 1982 that he'd go on to create one of the most important products of the modern audio age – the iPod. Of course, Englishman Jonathan Ive actually designed it, but Jobs put him on the project, sensing a need for a digital music 'jukebox' (as we used to call them back in 2002) which interfaced effortlessly with your computer. Although 'early adopters' had been using MP3 rippers on their PCs for years beforehand, the iPod pulled in the general public and made computer audio sexy instead of geeky. It was a task suited to Mr Jobs, combining his love of music, hi-fi and computers altogether, seamlessly. Sony, lest we forget, that great Titan of portable music in the nineteen eighties (with the Walkman), had singularly failed to do this by the late nineties, leaving the fruit ripe for picking by Apple!

Of course, the iPod is *not* universally loved in the hi-fi industry, and even now there's still a degree of sniffiness about it in many areas. I personally don't use it for serious music listening (although it does podcasts well enough); for any serious mobile music I keep a well fettled Sony Walkman cassette player which knocks the iPod into a cocked hat sonically, even when playing uncompressed, CD-quality files. So I can understand why many purists regard it with scorn, but it is of course an amazingly popular bridge into our world of audiophile music reproduction that so many people own. Thankfully now, there are dozens and dozens of 'crossover' products designed to integrate it into a grown-up hi-fi system.

The next step after the iPod is of course a network music player, which will play all those music files on your

computer, but in much higher quality, through your hi-fi system. Products ranging from Logitech's Squeezebox Touch to Naim's Uniti let you hear an altogether sweeter and more detailed rendition of your music 'files'. Beyond this lies the mysterious world of hardcore computer audio, and this for many who're upgrading from an iPod, is a step too far.

Item Audio's DAT | USB, which I tested this month, is an amazing contraption in many ways. It gives truly excellent sound quality (inasmuch as a USB transport can, which is effectively what it is), and huge operating flexibility. The flip side of this though is fiddly operation and vast physical bulk – the absolute antithesis of the iPod. When faffing around syncing my Android 'smartphone' (an ironic name if there ever was one) to the Gizmo plug-in for the Item Audio's JRiver software, I began to realise why the world took to Steve Jobs' products with such glee...

We've had too many years with the PC. Given that a 1982 BBC Micro offered a far more seamless user experience than almost all PCs that came after it – and that Steve Jobs set to correct this with his wonderfully easy to use Apple computers – it's a bit of shocker to be fiddling around with so-called 'Personal Computers' still. You'd think we'd invented a computer that didn't need fiddling with by now! However, some will still want the power and performance that a highly configurable audio PC offers, and so it's great to have the option. As for me, I'm sticking to vinyl as my primary source, as no digital I've heard comes close – not even 24/192 via a top digital to analogue convertor.

Like Steve Jobs, I appreciate simplicity of use and love the sound of my big turntable and large loudspeakers. ●

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# "Germany's Bear Family record label infuses its releases with innocent, magical enthusiasm..."



## paul rigby

I'm not a fan of hunting but I can see where the protagonists are coming from when they bemoan how their 'sport' has been diminished by the laws on their activity. Mainly because I draw parallels with the collecting of music. Instead of 'hunting' around that car boot sale at 6am, to possibly walk away with that rare 7", you now have the Internet. The Internet makes the collecting of music pedestrian. In many respects, Germany's Bear Family record label infuses its releases with that innocent, magical enthusiasm which connects you with the hunt.

I've just received a batch of CDs from the label which are all connected, in some way, with country music. This is a label which loves physical product, eschews downloads and produces crafted packages on totally obscure or little known artists. Consultant for a forthcoming Bear Family CD release on Jim Ford, Jeb Loy Nichols (artist, musician, author and country/reggae expert) has a theory on that. "I'm an American and the prophet is always unloved in his own land. There is a German/American connection and the occupative nature of the American forces in that country for many years. You also had music stars who toured 'Europe' but that often meant just touring German Air Force bases. Jim Reeves was one example of this. Elvis Presley was another."

There is an argument that the Germany people declared, 'well, we've seen what you've got, what else is there?' but took their interest to extraordinary, even archaeological levels. "There is a lust for the authentic, especially in the West," said Nichols. "The guys who recorded this stuff in Nashville and Memphis

didn't have this, it's the guys on the outside looking in who have this almost hysterical need for things to be 'real' and layered, so they can peel back each layer to 'discover' eternally. That's the great thing about Bear Family, it's their level of enthusiasm, it's bald and far removed from the often bloodless and academic approach seen elsewhere."

The love of their craft can be seen in their packaging – this stuff isn't just wheeled out. Take this new batch which appears in digipaks and mini box sets. Warner Mack's new digipak CD, 'Baby Squeeze Me' is a case in point. If I can use a footballing metaphor, he would be a journeyman player, which is not to denigrate him in any way, more to praise Bear Family because it would be unthinkable to see a major label give Mack this sort of attention, Mack was one of the people singing honky tonk that was so important during the sixties. A honky tonk hero who never had huge hits but was a staple of the genre. "Merle Haggard – a true great – was, later, a country star. But who was he listening to? Warner Mack. The same respect should be paid to country singer, Lee Emerson." Emerson wrote a range of minor hits and appears on a CD entitled, 'It's So Easy For You To Be Mean' on twenty three tracks plus twelve demos from the sixties and seventies.

Johnny Tillotson was another, "Tillotson played around 250 shows a year, throughout the midwest and the south, had a couple of hits but no more," said Nichols. And yet Bear Family have devoted a beautiful double CD box set to a range of outtakes. Not a 'Best Of...', mind you, outtakes! This is train spotter stuff and the more wonderful for it. All

from Tillotson's Cadence label era incidentally, which is packed with truly meaty, hardcore, quality material that gets the adrenalin of any self-respecting fan bubbling.

That forensic detail can plainly be seen in the compilation: 'Gonna Shake This Shack Tonight!' which features thirty-four country songs from the obscure Sage & Sand record label. The artists within often rode life like a bucking bronco such as Lonnie Barron who reportedly bragged to a man that he'd made love to his wife and daughter, and was subsequently shot by the husband as Barron attempted an escape through the bathroom window and then had to watch the husband stand over his body, pull the trigger and end his life with a second bullet. It's a plot for a Johnny Cash song, surely? Well, you certainly just don't see this sort of thing with Kylie Minogue or Justin Bieber...

Even how a song is sung is marked in stark contrast by the new Prisonaires CD release, 'Only Believe', featuring twenty-eight tracks. They recorded and sung their songs, with the help of Sun Records supremo, Sam Philips, while in prison. "Pop star Johnnie Ray sang one of their songs, 'Just Walkin' In the Rain', a huge hit for him. When Johnny Ray sang it, it's a beautiful song," said Nichols. "When the Prisonaires sing it. You think, 'They're not walking in any rain'." The poignancy is immense.

It's this sort of enlightenment that a label like Bear Family can bring and it also somehow allows you to join the cultural dots, reconnecting real life with music. It wasn't all about corporatisation, big bucks and fast cars. Real people were involved. These releases bring that point home with gusto. **PR** ●

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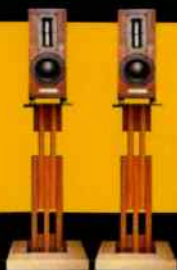
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## tony bolton

**M**ost of us think we have a pretty definite idea of what we like and dislike in the way of sound, both in volume and tonality. However, certainly in this job, you periodically come across some equipment that causes you to question your preferences. In my case this happened this month with the arrival of the Piega Premium I loudspeakers reviewed on p54 of this issue.

Each of us tune our systems to reproduce sound in a way that we find pleasant, and that, we hope, gives us (to quote the old Quad advert) "the closest approach to the original sound". This actual concept is flawed to begin with. To start with, everyone's hearing responds to audio stimuli differently, and no one, even as a child, has perfect hearing. There are even differences in response to the same sound across the genders; women's hearing tends to have a better response to high frequencies than men's, for instance. So it begins to be apparent why there is such a plethora of equipment out there, all claiming to get the reproduction of recorded sound exactly right, and why each of us tend to individually tailor a system to suit our ears.

Having chosen your equipment, hopefully after suitable auditioning and reading our reviews and advice on the subject, the boxes are taken home and plugged in, and the next set of variable parameters come into play – the listening environment. All rooms sound different, partially due to varying construction methods, and also choice of furnishings and the location of the equipment itself.

My sitting room measures approximately six by five metres, and would in fact be nearly square were it not

for a large bay window that runs the length of one wall. Over the years I have tried just about every conceivable layout for the room and the system, and have settled on having the system firing diagonally across the room, partially to avoid standing waves, and also to obtain a compromise between the best sound that I can get, and the usage requirements of the other household members.

My other system lives in a upstairs room that is approximately three by five metres, with the system firing the length of the room. It is also heavily damped by several thousand books and records which line the walls, resulting in a very focused sound, with excellent imaging and quite good bass extension for the room size.

Both systems sound different to each other but I enjoy both in a slightly different way. The Clearaudio/Leema/ Chario set up downstairs gives quite a big, at times almost architectural sound, whilst upstairs is the sound is more intimate.

Another factor that also comes into play is the type of music played and the chosen medium of reproduction. My record collection covers all three speeds and groove sizes, dating from 1906 up to new recordings, and covers about seven hundred years in musical genres [you don't look *that* old – Ed.]. Over the years I have chosen equipment that allows me to try and get the best from such a wide range of music and recording techniques, but that still allows me to get inside the recording without compromising musical integrity. It's a compromise for sure, but one that I think works quite well...

However, the arrival of the Piegas caused me to question certain assumptions that I had about musical

presentation. Both of my systems are tuned to be a few degrees warmer than what some would consider to be a neutral sound. I want to be able to enjoy my records for the music contained in the grooves, and not necessarily dive for cover behind the sofa at every pop or crackle that appears. But I also want to be left aware of any deficiencies, without them being thrust rudely in front of me.

The Piegas rather crossed that barrier, as they are very honest in their reproduction of sound, getting me very close to the actual recording itself, but at the same time they were also too honest about the condition of some of the records that I played, for me to actually enjoy the music, at certain times. And it's important to point out here that these were not worn out discs – these loudspeakers take no prisoners, even with brand new pressings [I know the feeling – Ed.].!

So I have been left with some questions about what I actually *want* from a system. I really loved their honesty and the 'seat of the pants' ride that they were capable of giving, but also wanted them to be a little more reticent in certain areas, so that I could relax and just enjoy the music. As a result I've been doing a bit of head scratching and have decided that, on balance, in the long term I will continue along the path that I have tended to follow, fascinating as the Piegas have been.

It has certainly been a good experience to be made to question that choice of path, and to have a different perspective on my music as it is presented to me. Sometimes a change is as good as a rest – even if it just reminds you why you've got the system that you have. ●

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"when a loudspeaker sounds good with both classical and Rock, it is seriously good..."



## noel keywood

I shouldn't say this, but much of what we review – and even more of what we don't – does not excite me a great deal. Too many products are formulaic, their designers believing that because they spent time and effort with a computer design package getting supplied-in parts to work together, somehow the result is distinguished.

It isn't. This month though, I've listened to and been bowled over by a product that is truly original and well designed, by someone who *really* knows what they doing. It is the LFT-16 loudspeaker, from Eminent Technology founder Bruce Thigpen.

Mr Thigpen has a lot on his mind I suspect because he is, I am told, supplying IMAX Cinemas with his rather extraordinary rotary subwoofer that reaches down to d.c. (a steady flow of air in one direction) and can push doors open. It looks like an aeroplane propeller – see it at [www.rotarywoofer.com](http://www.rotarywoofer.com).

Hands up those who thought of this before he did? Loudspeaker design claims tend to leapfrog each other backward to improbable beginnings. For example the plasma tweeter is traced back to the noise that came from Victorian carbon arc street lights (see William Duddell on Wikipedia) around 1900, before electronics were invented. But in the case of the rotary subwoofer I doubt anyone will try and claim prior knowledge, the idea is so apparently bizarre and completely novel.

Generating subsonics with a propeller having moving (variable pitch) blades is more than a little imaginative, and this tells us Bruce Thigpen sees things a little differently to others. He can also put unusual ideas into practice: selling flat-to-d.c. subwoofers into IMAX cinemas is pretty impressive, since generating

subsonics is part of their core business and you'd think they had sufficient ability there.

As Bruce explains, output from cones decreases steadily as frequency goes down, if their excursion is limited, as it must be in practice, so cone bass units are not ideal for the task. That's why you see them stacked up in big banks when great volumes of air must be moved. Frank Whittle saw the need to move large quantities of air at low speed using a fan and predicted the rise of the high bypass turbofan jet engine some time ago (see his book 'Jet', available from Amazon) as an air mover, so perhaps we'll see super subwoofers in the near future based on modified Rolls Royce Trent engines. That'll make a system take off!

Bruce Thigpen's other wonder are his planar magnetic loudspeakers, like the LFT-16 I review this month, but these are not ground breaking or unique. As I mention in the review, magnetic planar drive units go back a bit: Leak used them in the 1970s, in their Isodynamic headphones and in the tweeter of their 3090 loudspeaker. Magnepan produce 'Maggies' and they have a following too. But the LFT-16 has its own patented technology according to a sticker on the loudspeaker, and although you can patent any idea including that of a chocolate teapot, it doesn't mean it is a good one.

What bit is patented I've yet to ask Mr Thigpen, but irrespective the planar magnetic drive units of the LFT-16 just provide *amazing* sonic results. Importantly they do so right across the bit of the audio band where the ear is most sensitive (according to its sensitivity curve, the inverse of the Fletcher Munson loudness curve). This is where conventional loudspeakers go all wonky, just one mark against them in any comparison.

Our loudspeaker measurements

also reveal a very smooth acoustic output, smoother than that from mechanically complex cone assemblies. This points to low colouration, exactly as expected from a lightweight mylar film with an aluminium conductor etched onto it.

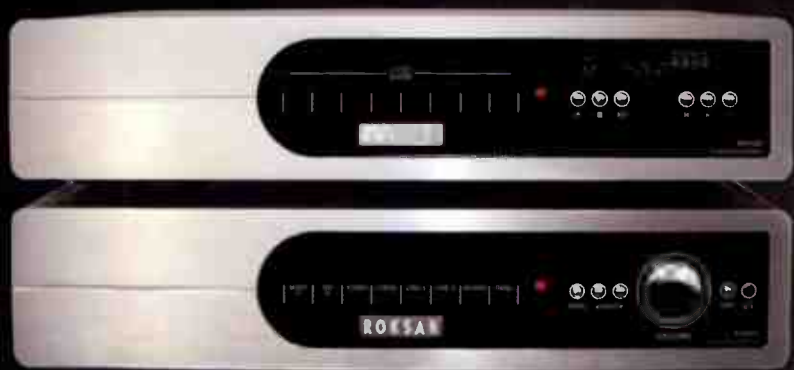
It may well be that this 'composite' of aluminium on a synthetic film is inherently better self damped than a pure film driven by electrostatic forces, which suffers myriad complex modes, as Philips once showed in a research paper. The implication here is that electrostatic loudspeakers are not as perfect as believed. Certainly there appears to be a difference in sound quality and the rather 'dark', silky smooth quality of the magnetic planar I find very attractive.

Also attractive is this loudspeaker's sense of dynamism. It gives a great sense of body and power to the human voice, communicating dynamic inflections like vibratos well. Fine details like the brushing of cymbals are gently conveyed, but sudden crescendos as delivered by Renee Fleming direct into a microphone have force. This makes the LFT-16s an exciting listen with classical, but also with Rock music – and when a loudspeaker sounds good with both then it is seriously good.

What you get here is a loudspeaker with absolutely no artificial emphasis of the sort used by every loudspeaker manufacturer, with the honourable exception of Tannoy.

And do you know what? The LFT-16s are more dynamic, 'fast' and detailed than any cone loudspeaker. Which just goes to show that all the qualities we crave in a loudspeaker come from making a better one, not from formulaic fiddling with the same old ingredients under the illusion that you are designing a product of distinction. ●

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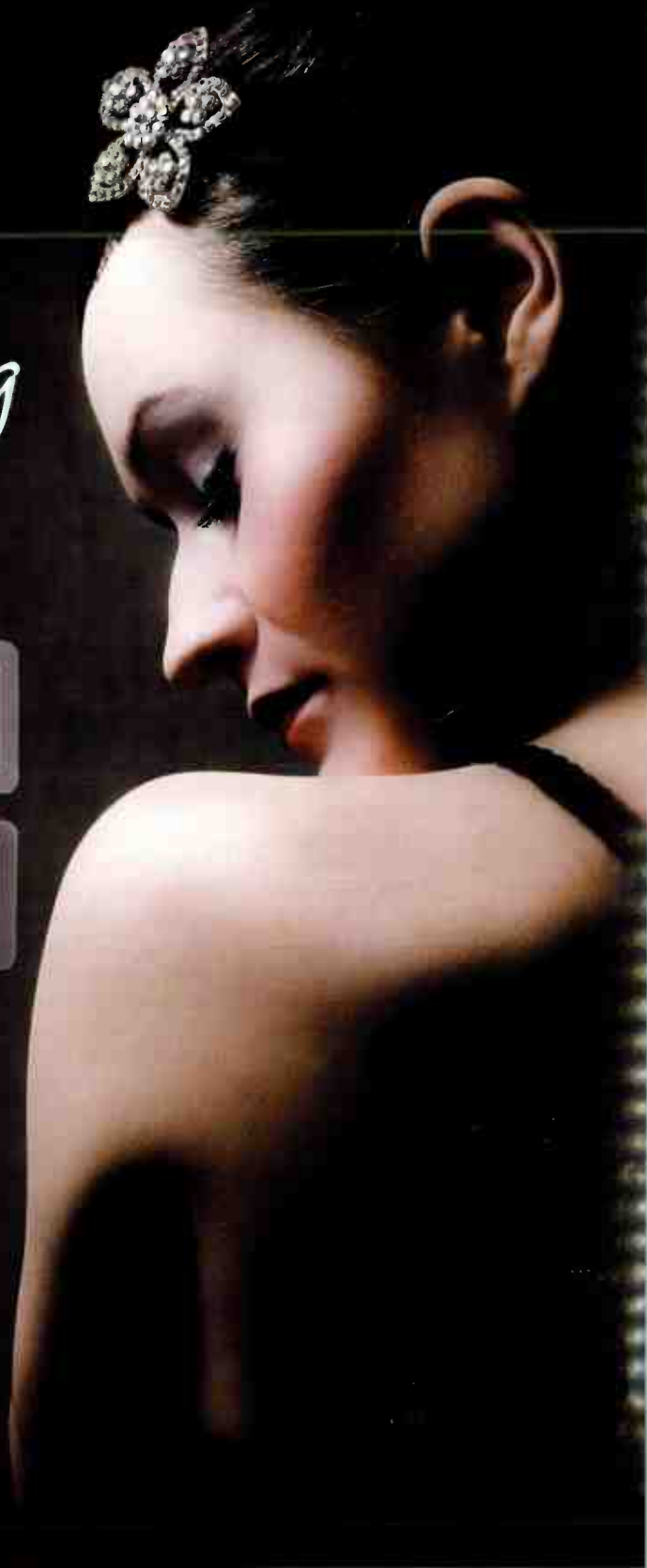
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World Radio History



"I still appear to have over thirty turntables..."



## adam smith

It has been an interesting few weeks in the Smith household, not least because I've been the only one in it for over a fortnight. My good lady wife has been working in the USA in her capacity as guru of all things accountancy-wise, leaving poor little me to fend for myself. Fortunately I have had no chance to sit and feel lonely without both wife and cat (the latter who sadly passed away last month) as I've been having a manic time, and it's all been audio-related. Naturally the conclusion of a tone-arm group test took up a good portion of it but I then realised that John Howes' autumn Audiojumble was smack bang in the middle of my wife's absence and that there was a large pile of equipment that required my attention before I could sell it.

Consequently the week of the 3rd October saw me dashing home from work each evening to immerse myself in a frantic orgy of cleaning, soldering, oiling, re-foaming and general fettling. The result was a shiny and (mostly...) working pile of tantalising goodies that attracted a great deal of interest at the Audiojumble. The trusty Range Rover came home a good deal lighter and funds for the Smith rare turntable fund were swelled by a pleasing amount. Consequently, this called for a celebration, so I did the obvious thing – yes, that's right, I logged onto eBay and bought a turntable!

The whole reason for my big clearout follows the events of last year when an incredibly rare Thorens TD224 autochanger appeared on eBay. As this is something of a holy grail for me and it ended the day after last year's Audiojumble, I decided I would not spend a penny at said event, but save it for the Thorens. I duly did this, passing over an absolute bargain in the form of a Sony PS-8750 turntable (fear

not, editor DP bought it instead) and subsequently piled a silly bid onto the Thorens – far more than it would ever reach, I felt sure. You can see what's coming next, can't you? Yes, that's right, I was outbid but, after sulking for about a week, I experienced something of an epiphany. I decide that whilst my precious turntable collection was indeed lovely, it did actually consist mostly of some very nice, but rather middle-of-the-road items rather than true exotica. Consequently I decided it was time for me to let some of these go and to place the money in a fund, ready for the next rarity to appear, which I would then leap on with the enthusiasm of a feline high on catnip.

It hasn't been going too badly, although I still appear to have over thirty turntables, so I clearly had far too many in the first place. As to that new one, it is a Sony PS-6750, the 8750's smaller brother and although editor DP will undoubtedly tell me that it isn't quite as good as his 8750, I am all ready to counter with the 'mine is manual, yours is better' argument which could run and run [yeah, but yours isn't quartz locked and mine is! Ed.]. It had to be collected from Cirencester, which I did the very next day. You see, that was a busy week as I had to be in Epsom the following evening to collect some loudspeakers...

Ah, yes, big loudspeakers – another of my downfalls. This time it was to be my second pair of Bang & Olufsen Beovox MS150.2s – the Danes' largest ever passive design. The first pair came to me via Haden Boardman, and in a most uncharacteristic fit of charity, I re-foamed them and gave them to guru of all things B&O, Tim Jarman. He then insisted that I sit down and listen to them after he had made a few

more top secret tweaks of his own and, frankly, I could have cried – they were stunning. Two years on and I have finally found another pair but, rest assured, these are not going anywhere – even if I do buy the Leak 3090s that a very fine gentleman of my acquaintance is determined to sell me, presumably to sit alongside my 2075s. I wonder exactly how many pairs of huge 1970s loudspeakers are considered socially acceptable in one house?

The trip home from Epsom took me past Mr. Jarman's door and I called in to collect another little project in the form of a Philips CD471. Both David and Tim are fans of early Philips machines but my enthusiasm for them has been cooled by the fact that every Philips-badged player I have ever bought has miserably failed to work. The 471 was no exception and internal inspection appeared to reveal a missing lens above the laser which I mentioned to Tim. After he'd finished laughing at this absurdity, he offered to take it home and inspect it. It was my turn to laugh the next day, when he sheepishly confessed that the fault was indeed the fact that the lens appeared to have fallen off the laser assembly! Anyway, a replacement was duly procured and I have to agree with Tim and David – it does sound rather nice.

So there we are, I have spent the last few weeks immersed in audio and have thoroughly enjoyed it but, good grief, look at the time! I have a flight from America to go and meet so I must stop now. House tidy? – check. Shopping and washing done? – check. All purchases hidden? Well, all except the B&O speakers, because they are a tad too large to successfully camouflage. Still, at least I have an hour's journey time to practice my very best innocent face and my protestation of, "Those? New? No, darling, I've had them for ages..." ●

# vinyl section

## contents

DECEMBER 2011

[www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk)

### ORIGIN LIVE DC MOTOR 100

Tony Bolton tries this impressive Sondek motor modification.

### ANALOGUE ANATOMY 102

Tim Jarman waxes lyrical on the basics of turntable design.

### ATTRITION

'Demonstro 1981-86' is the Vinyl On Demand ([www.vinyl-on-demand.com](http://www.vinyl-on-demand.com)) double album release that features early, previously unreleased tracks and demos from the band's earliest years. Of post punkish mode, the band's dark, early electronica allies them with the likes of Coil and Test Department. Often coldly ethereal and hauntingly affecting, the band are not afraid to undercut the texture with melodic synth rhythms.



## news

### NEW & OLD FROM MOV

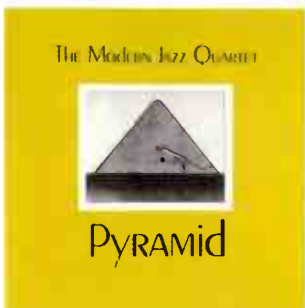
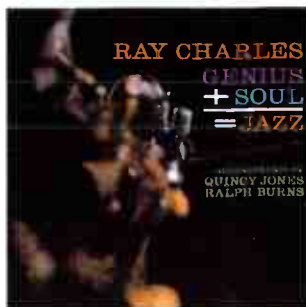
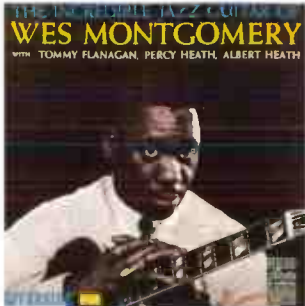
Intelligent punks, Peter Perrett's The Only Ones were undervalued and unfairly dismissed by many rock fans. Amongst a heap of new releases listed below, Music On Vinyl ([www.musiconvinyl.com](http://www.musiconvinyl.com)) has two albums by the boys; the classic self-titled 1978 debut featuring hit single, 'Another Girl, Another Planet' plus the second album, 1979's 'Even Serpents Shine'.

More contemporary fare from MOV includes The Coral's 2002, self-titled album, a neo-psychedelic indie LP with plenty of unique aspects packed with a melange of bouncy, happy, snappy grooves; Basement Jaxx's 1999 debut happens to be one of

the best dance albums of all time, certainly one of the most accomplished dance-based debuts. Yes it is Americanised but the innovation and variety push it to new heights; Primal Scream's 'Evil Heat' (2002) features a rocking skew that is highlighted by ex-Bloody Valentine guitarist, Kevin Shields but its experimental approach split fans.

Watch out for Weather Report's 'Mr. Gone' (1978), not one of their best but it has magical moments; Herbie Hancock's 'Death Wish' soundtrack, a stop-start soundtrack that doesn't benefit the lack of moving images; Faithless' 'Outrospective' (2001) seemed to chase the dancefloor hit culture to extremes and into a cul-de-sac; Art Brut's new release, 'Brilliant! Tragic!' fits into the art rock club of Franz Ferdinand but this album revisits the band's debut and doesn't quite make it. On a more positive note, check out 'Whistle Bait', a compilation featuring twenty-five rockabilly tracks over two slabs of vinyl including Johnny Horton, Jimmy Murphy and Freddie Hart.





## WAX TIME JAZZ

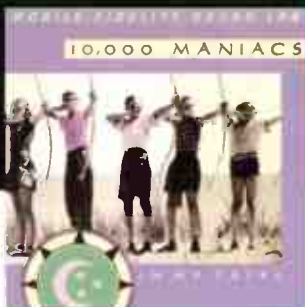
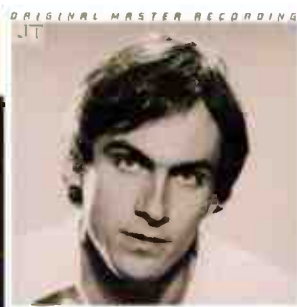
Jazz specialist Wax Time has released a range of classic jazz LPs. Hitting the ground running is Ella Fitzgerald's mighty 'Mack The Knife' (1960), recorded in Berlin and accompanied by The Paul Smith Quartet in which she forgets the lyrics of the title track but brilliantly recovers. Ray Charles' 'Genius+Soul=Jazz' (1960), an excellent crossover piece that combines soul with jazz that also features Count Basie that dumps his pop stylings for hardcore Hammond organ riffs with a primarily instrumental approach. Wes Montgomery's 'The Incredible Jazz Guitar Of...' (1960) is a simply marvellous recording from this influential, modern guitarist with hard bop and modal progression that puts this LP into the essential category. Also look out for The Modern Jazz Quartet's 'Pyramid' (1960), an inspiring and creative piece at the height of their powers.

## ROD, JT, ROBBIE & 10,000 OTHERS

Mobile Fidelity ([www.mofi.com](http://www.mofi.com)) has released a selection of well mastered LPs including Rod Stewart's 'Gasoline Alley' (1970), a supremely confident, primarily acoustic piece featuring covers and rock'n'roll songs played almost like folk songs – one of his best.

James Taylor's 'JT' (1977) was his debut for Columbia balancing the darkness of his early work with a lightness of his contemporary mood, a solid progression.

Also look out for 10,000 Maniacs' 'In My Tribe', a creative high and breakthrough LP from 1987, a late-eighties campus favourite featuring socially-aware folk-pop plus The Band's 'Stage Fright', their third release, full of intimate, personal and troubling thoughts about friends, family and the group itself. In this album, the outfit invites you into their world.



JOHN CAGE / READING  
DAVID TUDOR / MUSIC  
NEW ASPECT OF FORM IN  
INSTRUMENTAL AND  
ELECTRONIC MUSIC



## GETTING BACK

Offering a varied selection of vinyl that sits within the exotica genre, the Get Back label features John Cage and David Tudor's 'Indeterminacy: New Aspect Of Form in Instrumental And Electronic Music' (1959) with a split album, Cage's 'Reading' and Tudor's 'Music'. Here, Cage read ninety stories, his speed determined by the story's length. In another room, beyond earshot of Cage, David Tudor, performed miscellaneous selections from Cage's Concert for Piano and Orchestra and played prerecorded tape from Cage's Fontana Mix.

Also from Get Back and sounding almost like a French Pentangle, Chalot takes a traditional French and Italian folk approach to songs but her fragile, rather spacey presentation combines with Chalot's perfect delivery of great clarity. 'J'ai Vu Le Loup' (1979), her debut, is accompanied by 'L'Entree dau Temps Clair' (1982) features her classical guitar presentation. Also look out for soundtracks from Federico Fellini's 'Amarcord' (1973), 'La Dolce Vita' (1960).



MARC CARROLL IN SILENCE



## ...AND FINALLY

'In Silence' (One Little Indian; [www.indian.co.uk](http://www.indian.co.uk)), is a twelve track compilation of Marc Carroll reflecting his stripped singer-songwriter approach plus his folk and psychedelic-affected delivery tones. It's an introduction that loses a little of the full album impact. Jim O'Rourke's 'Old News #5' (Editions Mego, [editionsmego.com](http://editionsmego.com)), a vinyl-only release, delves into his synth/electronica archive in the studio and live mixing drone-like vibes and chaotic experimentation. Direct from US-based Sundazed ([www.sundazed.com](http://www.sundazed.com)) is Neighbourhood Children's one and only album, the hippyified, 1968 self-titled LP of

psychedelic pop resembling the Turtles, featuring fuzz guitar, baroque touches that is fresh, breezy but never over commercial. **PR**





# Power Games

Tony Bolton performs live experiments with Origin Live's Advanced and Ultra DC turntable motor kits...

Some years ago I fitted an Origin live DC Motor kit to my Linn Sondek and was sufficiently impressed that it has remained *in situ* ever since. I recently discovered that the kit has been upgraded since mine was made, and that various options were now available including a choice of motors and transformers, so I decided to investigate further.

There are now three models in Origin Live's range of DC Motor kits, the standard, retailing at £255, and the Advanced and Ultra kits under review here. They are broadly similar,

comprising of an outboard control box, a 'wall-wart' mains adapter and a DC motor which replaces the unit in the turntable. The two kits under discussion

each come with the DC 100 motor as standard, however I elected to try the DC 200 motor option (also available as a standalone purchase for £250) and the Upgrade Transformer.

This is a separate unit which replaces the 'wall-wart' and plugs straight into any Origin Live control unit.

The different control units are identifiable by the colour of the LED on the front; red for the Standard unit, green for the Advanced and blue for the Ultra, the casework of which is in black extruded aluminium instead of the silver of the other two models. Although most turntables use an AC motor, they do have certain drawbacks, the main one being the cogging effect as the coil rotates past the poles. This can have the effect of causing a slight snatch in the rotation of the platter, which the rubber belt is intended to go some way to ironing out. This in turn can jerk the stylus in the grooves, causing an effect that is often perceived as 'surface noise', and incorrectly put down to a worn record.

## GETTING GOING

Fitting is relatively straightforward on a Sondek, although other turntables may require more complex attention. The first task is to place the deck somewhere where you can access the underneath easily (remembering to remove the outer platter before moving the deck, in the hopes of not upsetting the suspension). A Linn jig

is the ideal tool, but since I don't have one I improvised using one of our dining chairs with the seat squab removed! I secured the turntable to it with a couple of lumps of Blu-Tak.

*Important – if you have a Valhalla power supply fitted, then leave the turntable unplugged from the mains for at least an hour before removing the baseboard. The Valhalla unit contains lethal voltages until the capacitors have fully discharged.*

Once underneath, with the outer platter removed it is a simple job to detach the old motor and any power supply components. The instructions recommend removing the belt guide as well. A blanking plate, bearing the Origin Live logo is also supplied should you wish to remove the now redundant switch from the bottom left of the deck's top plate. The new motor should fit into the space occupied by the old one, with the supplied brass washers acting as spacers between the motor top plate and the underside of the Linn top plate. It is recommended that the motor is fixed with only one screw, nipped up tightly enough to hold the motor in the desired position. This is set by measuring the distance from the centre of the spindle to the centre of the motor pulley and



The new Origin Live motor fitted...

should be between 127 and 129mm.

Once installed, the instructions recommend at least four hours of running before the speed is set, since the bedding in of the electronics will cause some initial speed drift. A card strobe disc is supplied to ascertain the correct speed. Speed is selected by rotating the knob on the front of the control unit. Adjustment is made by inserting a small flat bladed screwdriver into the screw heads protruding through the back of the box, between the two sockets for mains and motor connections.

After the initial running in period, I then set to work adjusting the motor to run as quietly as possible. This is accomplished by adjusting the position of the motor in relation to the turntable top plate and also by turning the small screws that hold the top plate to the motor body. It will never be as quiet as an AC motor. Origin Live advise that this is due to the motor being "cogless" and relying on a different type of brush to conventional units.

My original motor made enough noise, even after adjustment, that I encased it in bitumastic car sound deadening material and bubble wrap to dull the noise. The DC 200 motor comes with a rubberised covering fitted which reduced noise to about the same level as I had achieved on my old motor.

It is worthwhile putting the outer platter upside down on the inner one, and switching on. Reinstating the outer platter in this way loads the suspension of the deck and allows you to make a visual check that the belt is running correctly and that nothing is catching anywhere.

**SOUND QUALITY**

After all of this a further two to four days running in is required before the sound is at its best, and this is precisely what the new motor got! Before starting this exercise I played through a selection of records, and after waiting for all the running in process to be finished, settled down for a re-run.

For me one of the advantages of this drive method is the ability to spin the Sondek at any speed including 78rpm, so first back on the platter was a 1943 12inch pressing of Fats Waller and his Rhythm doing a particularly fine version of his composition "Ain't Misbehavin". The record was in quite good condition, and had been cleaned, but still displayed some levels of surface noise and occasional distortions, typically due to being played with the steel needles that were in almost universal usage when it was new.

Using the Advanced kit first, I was immediately impressed with the reduction in surface noise and the improvement in separation between the instruments. There was more precision to the sound as well, and the interplay between Waller's piano and Zutty Singleton's drums towards the end had more impact and detail. Moving over to the Ultra control unit brought further improvements along the same lines, while adding the Upgrade Transformer had the effect of deepening and tightening the bass. There was a sufficient magnitude of difference between the Advanced model and the Ultra plus Transformer arrangement, that a casual listener could well have thought that I was playing different pressings of the same record.

Moving over to microgroove with Von Karajan conducting with Von Karajan conducting 'Mars' from Holst's 'Planet Suite' demonstrated this vividly. The size of the soundstage increased quite obviously as I worked up through the different drive options, increasing both in width and depth. The brooding intensity of the piece also seemed to go up quite a few notches, with the difference between piano and fortissimo becoming more pronounced.

The next record that I tried was a bit of late nineteen sixties psychedelia from Country Joe and the Fish. The title track of their second LP, the 'I Feel Like I'm Fixin' To Die Rag' is an anti-war song instrumented as an old fashioned honky-tonk ragtime number, but recorded to produce a thin and quite blaring sound. Since the record is not in first class condition the effect could be a little rough on the ears in places. The Advanced kit was a definite improvement over the old one but the real improvement came with the Ultra and the Upgrade Transformer fitted. The mush seemed to pretty much disappear and I was able to follow the lyrics quite easily against the raucous accompaniment of the band.

The last record was Morcheeba's 'Big Calm'. It sounded good anyway before all of these changes, but now seemed to gain new layers of depth and detail that had me replaying tracks to explore aspects of the arrangement that had been present but not as noticeable during previous playings. Vocals were better projected, and seemed to be richer in their tonal palette, with little details of phrasing and enunciation being more obviously displayed.



The new OL DC 200 motor left, with the old (sound proofed) unit on the right.

**CONCLUSION**

The Linn Sondek is a very good turntable but can be improved upon in various areas, and the motor unit is one of them. All of these kits are a substantial improvement in sonic performance over the original AC motor and, as I have found, have increased in their capabilities in the years since I first fitted one.

If you already use an Origin Live motor kit then I would recommend investing in the Upgrade Transformer. It is effective with any Origin Live motor and probably offers the best value for money upgrade for current users.

If you are using either a Valhalla or Lingo power supply then the effect will be quite dramatic, with a level of openness and precision to the sound that will both surprise and impress listeners. The bass benefits most obviously, with the bloom in the sound of a standard Sondek disappearing, along with a lot of perceived surface noise from your records. Bass notes also seemed to gain a level of weight, shape and speed that helped the music seem both more precisely played and more agile. The midrange and the treble acquired greater levels of detail and definition, and the whole effect has made my listening more enjoyable and involving.

If you can afford it, buy the Ultra kit and the Upgrade Transformer, if not then discuss the differing options of motor and control unit with the manufacturer to decide which offers the best value in your circumstances.

If you balk at doing the fitting yourself then dealers are available who will do it for you.

Overall then, this is an effective and substantial upgrade that rejuvenates a classic and well respected turntable – and as such comes highly recommended.



Origin Live Advanced DC Motor Kit	£345
Origin Live Advanced DC Motor Kit (DC 200)	£477
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**AGAINST**

- motor not as quiet as AC units

# Analogue Anatomy

Ever wondered what bits make up a record player? Hi-Fi World's duty doctor Tim Jarman gets out his allen keys to dissect a typical turntable...

**A** turntable is a complex mixture of sub-systems, all with a defined purpose, all specified in such a way as to be able perform their roles without letting down the other parts.

Like any system, the turntable is easier to understand when it is broken down into its component parts. Ignoring the arm and cartridge, there are six key sections which make up the complete machine and understand the function of each one is of great value when considering how to obtain the best sound quality from your records.

## PLINTH

The plinth needs to be rigid without being resonant; if not it traps ground and airborne mechanical vibrations coming from the speakers and feeds them into the suspension (and ultimately to the stylus). When this happens, the sound gets muddled, or in the worst case you can get

acoustic feedback making the deck unlistenable.

There are two different constructions – low mass or high mass. The former doesn't trap vibrations so much, allowing them to dissipate by going

to ground, whereas the latter does trap them but attempts to 'sink' them or damp them out by its sheer mass. Generally belt drive decks use the former, and direct drives use the latter.

Some manufacturers construct their plinths from natural materials such as wood or stone, others use exotic plastics and resins specially blended for the task and some even attempt to dispense with the plinth all together, leaving the turntable's basic structure on show (which then becomes a sort of plinth in itself).

A rap test with the knuckles, as one does with loudspeaker cabinets, is a good basic test of quality, as is a visual inspection of fit and finish. It is sometimes possible to alter the sound of the complete turntable by adding extra stiffening members to the plinth, making it more rigid. Not every change is an improvement however, so try to validate any modifications by detailed listening tests before committing to anything irreversible.

A lid is also often a feature of the plinth, and removing it almost *always* improves the sound, often very dramatically as essentially it's a big 'microphone' for airborne vibrations, which are then fed into the deck. This simple expedient can produce an improvement as profound as spending many hundreds of pounds on a new tonearm, so try it!

## SUBCHASSIS

Just as you can divide up decks between light and high mass plinths, so you can differentiate between them by the type of subchassis used. Most belt drive units use a suspended type, mounted on springs. Often, as with Linn Sondeks for example, it's mounted inside the plinth and not visible; it holds both the main bearing and the arm mount and/or armband.



This method of construction keeps the record and stylus in firm registration whilst allowing the complete assembly to float freely in space, effectively isolating it from low frequency vibrations by springs.

The other type is the non-suspended subchassis, popular on budget belt drives (like Regas and Pro-jects) and also on big, high mass plinth belt drives. The jury is out on which is the better system, both having their respective benefits; sprung subchassis seem to isolate better, but in conjunction with a (non suspended, fixed) belt drive pulley they can lead to slight speed instability; high mass plinthed, non-suspended direct drives don't suffer this at all but can suffer some blurring of the sound due to vibration ingress. As with so many aspects of turntable design, it's six of one and half a dozen of the other!

## BEARING

One thing that's fairly uncontroversial is the bearing, which needs to provide a secure, low friction home for the turntable's platter spindle. From here on though, the jury's out – as there are various types of bearing arrangements. What's straightforward is that the bearing supports the central spindle of the platter, and so must both carry the weight and prevent any sideways





movement whilst at the same time offering minimal resistance to the rotating shaft.

Tightly controlled tolerances and a carefully maintained film of oil are the usual methods that are employed. With time the oil can dry up or change consistency, at which point it must be washed away with solvent and replaced, preferably with fully synthetic oil such as Mobil One (0V40, or similar).

A worn bearing makes the turntable produce excessive rumble or in extreme cases scrape the subchassis or plinth. Both situations require skilled attention to resolve the problem.

To carry the thrust load needle points, ball bearings, plastic blocks and even magnets have all been employed over the years, and sometimes the bearing is inverted.

## MOTOR

Another hotbed of debate for designers and customers alike, a wide variety of motors are used in turntables, from AC types locked to our 50Hz mains frequency or to an internal oscillator (such as the Rega P3 and Linn LPI2), to DC brush motors with various forms of servo control (Michell Orbe), to DC brushless types that employ magnetic sensors and electronic circuitry to



'commutate' a fixed group of coils (Technics SLI200). The type used depends largely on the choice of drive system [see box], but in all cases the goal is quiet, consistent running and speed accuracy with sufficient torque and power to be able to accelerate the platter rapidly and to maintain the correct speed even in the face of changing load conditions. A motor that does not run at a constant speed causes variations in musical pitch and tempo, both of which are subjec-

tively annoying – this is universally understood, but the method by which this is achieved isn't!

The mechanical performance of a motor can be improved by ensuring the power supply to it is stable and free from noise. Some manufacturers offer power supply units that synthesise an accurate model of the ideal mains supply waveform to give maximum performance from older designs.

The best turntable motors employ a quartz crystal as a frequency reference to give perfectly accurate speed control that never drifts out of adjustment. Sometimes the motor is mounted on its own subchassis to further isolate any vibrations that it may create. A simple tweak is to make sure the motor pulley is clean and free from rubber particles or dust (if it's a belt drive); all decks will benefit from a nice clean mains plug free of oxidation, and even a high quality power cable driving the turntable if possible.

## SUSPENSION

Compliant suspension components are often used to prevent vibrations passing between the various parts of the turntable. They are found between the plinth and the subchassis and around the mountings for the motor for example and can take the form of rubber blocks, springs, foam, lever arrangements or simply the careful forming of



the mechanical parts. All suspension systems need to be damped and often foam is used for this purpose;

"the vinyl record player is an analogue measuring instrument of extreme precision..."

do not neglect it as it can deteriorate with age. In the case of turntables whose rigid structure does not allow for any internally suspended parts the suspension is often built into the feet, either by including springs or soft, compliant materials, or even air filled rubber bladders.

There's normally a procedure for locking out the suspension for

## SETTING UP

A turntable cannot just be dumped anywhere in your listening room if the best results are to be obtained – whilst CD players are sensitive to placement, record decks are hypersensitive and so care should be taken siting them. Ideally your deck should be positioned on a solid stand, away from the loudspeakers and preferably not in a corner or an alcove which traps vibrations and sends them straight at your deck! Keeping the room warm is also a good idea as the cartridge and motor will perform at their best under these conditions. It goes without saying that everything should be kept clean, from the stylus tip to the driving surfaces of the belt, pulleys and idlers if they are present. If your deck is a belt drive of any age, then renew the belt with an original equipment type from the manufacturer – as a rule this should be done every couple of years.

Cartridge tracking weights are often suggested by manufacturers but these should be taken as guidance values only, the optimum working point is best discovered using a test record. Generally the upper end of the suggested scale gives the best results; remember that too little weight does far more damage to the records than too much. Most tonearms also have an adjustment for anti-skating, this is a countering force to the arm's natural tenancy to swing towards the middle of the record. The scale is usually calibrated to match the amount of tracking weight that is applied but remember that the exact amount varies depending on whether the stylus tip is spherical or elliptical.

whenever the turntable is being transported, it is essential to follow this as a lot of damage can occur otherwise. Equally it is wise to check that internal wiring (such as the tonearm cable) or displaced parts are not 'short circuiting' the suspension by allowing direct mechanical contact between suspended assemblies. This can result in seriously degraded

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Pulsare Phono Stage



performance, so careful attention should be paid to dressing arm and power cable inside the deck when setting up, lest they become vibration 'hotlines' feeding mechanical noise straight into the tonearm. For turntables with no suspension at all, placement is critical – a flimsy shelf or rack simply will not do.

## THE PLATTER

The platter supports the record during play and so it is what the stylus is reacting against as it passes along the groove. As well as being flat and true, the platter must also be well damped or the forces acting upon it may make it ring and this will certainly

be picked up by the cartridge.

Various materials and have been tried

over the years

– diecast alloy was once popular but

the trend today is more towards high density plastics whose acoustic characteristics match those of the vinyl that records are made from. A good mat can help to isolate vibrations and damp any ringing; this is a popular upgrade for some models, and is generally pretty inexpensive considering the excellent results it can yield.

Some platters are simply a disc of material that rests on an external hub beneath but others have features such as pulleys for belts or idlers to drive on or specially prepared finishes from which the servo system monitors the turntable's speed. Handle these types with care as even small amounts of damage to these areas will be audibly obvious.

Sometimes the platter is retained on a tapered shaft and not secured in any other way, be careful if you have to invert the whole turntable as it may suddenly fall off and damage the cartridge or arm if it is not supported. To separate platter from shaft, lift platter slightly and rap the top of the shaft with a screwdriver handle. This breaks the bond and is the way to separate engineered tapers. Do not yank the platter upward to separate it, nor try and lever it off.

It's also a good idea to remove the platter, and the inner platter if your deck has one, for transportation – if this is not done then it can wreck the main bearing (for decks with heavy platters).



## DRIVE SYSTEMS

Three drive systems are commonly used in hi-fi turntables – idler, belt and direct drive. Which is the best system is still hotly contested, but it's true to say that just as important as which type is used is how well it's implemented – we have heard terrible examples of all three!



**IDLER:** a small rubber 'idler' wheel runs between the motor shaft and the inside of a rim under the platter. The idler gives the required flexibility between the other two surfaces to transmit the torque and different diameter steps in the motor shaft allow the speed to be changed easily. Idler drives were popular in the autochangers of the nineteen fifties and sixties

because they could easily provide enough power to operate the mechanisms that were driven from the turntable shaft, and as the early hi-fi designs were derived from these changers they used idler drives too. The angle of the linkage is normally arranged so that extra loading draws the idler into firmer contact, something that can give idler drive turntables an excellent sense of speed and timing. The drawback of idler drives is that they tend to generate high levels of rumble, something that can be reduced by ensuring that all the driving surfaces are clean and that the idler itself is in good condition and not hardened or dented (as can happen if the turntable is left 'in gear' with the motor switched off). Famous idler drive turntables include Lencos and the classic Garrard 301 and 401 series.

**BELT:** this is the most common technique used in hi-fi turntables. A belt running between the motor pulley and the rim of the platter provides the necessary reduction in speed and isolation of mechanical noise that are required with little in the way of mechanical complexity. This layout also allows really effective suspension systems to be designed relatively easily, the elasticity of the belt forms part of a mechanical filter and can be tuned for optimum results. Some designs use a ground flat belt instead of a round or square section one as this eliminates the possibility of wow being generated by variations in the cross sectional area of the belt. Most modern belt drive turntables use a servo controlled DC motor but AC types have also been used, normally with a stepped pulley so that the speed can be changed mechanically. The necessary flexibility of the belt can give rise to small, low frequency speed variations which are sometimes noticed as a subtle smearing of musical tempo as the platter accelerates and decelerates with relation to the motor speed. Belt drive turntables are made at every price point from a basic Pro-Ject or Rega to the mighty Linn LP12. Excellent wow and flutter figures can be achieved, but some listeners still believe belt drives have a diffuse sound.



**DIRECT:** sometimes seen as a modern invention, but turntables using this system were in fact available as far back as the nineteen thirties, when HMV produced one with an eddy current motor comprising a large copper disc and mechanical regulator. Later on in the early nineteen seventies the big Japanese firms all produced decks with slow running direct drive DC motors which were controlled electronically, making them stable enough to compete with belt drive designs. For ultimate stability a quartz crystal was used as a reference, giving academically perfect results that remained accurate for decades. Because the motor is typically large, heavy and cannot be decoupled from the platter designing suspension systems for direct drive turntables is not easy and some believe that the motors 'cog', frequency modulating the music with unwanted extra effects. This problem led to development of an alternative direct drive format that used a linear motor wrapped in a circle instead; these supposedly do not 'cog' but can introduce hum into the cartridge from their powerful coils. The best known direct drive turntable today is the recently discontinued Technics SL1200, a design which is fast, pacey and rhythmically explicit, as well as extremely robust and reliable.

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# Show Time!

David Price and Noel Keywood report from the always-interesting National Audio Show, held at Whittlebury Hall at the end of September...



A stunning array of exotic kit in the Analogue Alchemy room, and the first analogue tape deck of the show was spotted here too, in the shape of a late seventies Tascam cassette deck... DP



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As new improved valves appear new amplifiers are designed to use them. Okay, the KT90 is not new but Icon reckon they have found a good one and have built the MB90 MkII [above right] around it. Think power - this baby delivers 120 Watts. NK



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Thorens TD125 in SME plinth. SME cut out. £ 295	Thorens TD125 in Thorens plinth/Thorens arm. £ 249
Ortyn MCA-76 pre amplifier. Boved/mint £ 179	Sony CDP-911E CD player/remote/book. Cost £300 £ 119
Sony SCD-NB770QS SACD CD player. M channel £ 79	Rotel RB-965BX (Discrete) CD player. £ 149
Sony SACD CD player model SCD-XP770 & rem. £ 79	Linn LP12 armboard for Linn arm. Ex condition. £ 20
Cambridge Audio CDS CD player with remote. £ 49	Cambridge Audio CDS. Black finish. Boved remote £ 59
Ortyn MCA-76 phono pre amplifier. Rare. £ 149	Garrard 401 in SME plinth system. Good condition. £ 599
Michell Focus 1 & Michell arm. Excellent. £ 399	Ortyn MCA-10 battery MC phono pre amp £ 149
SME series 3 tonearm. Nice condition. £ 249	SME 3009 series II improved non improved from... £ 199
Marantz CD63 CD player and remote. £ 30	Arcam DV78 DVD player. Manual remote. Silver. £ 249
Denon DCD-620 CD player. Good condition. £ 29	Arcam Alpha 75E CD player. Award winner. £ 159
STD 3055 with SME mount. Black finish. £ 129	Thorens TD150. Teak finish. No lid. Nice condition £ 99
Nad 504 CD player. Ex condition. No display £ 49	SME 3009 Series II arm. Early split weight version. £349

## SPEAKERS

Audiovector Mi 1 speakers Light cherry. Cost £1250 £ 399	Pair Celestion little one speakers. Black. £ 29
B&W DM3 loudspeakers £ 159	Pair Wharfedale Super10, RS DD drive units. Mint £ 199
Tannoy 605's. Black ash finish. £ 59	Kef 101/2 Mini Monitors loudspeakers. Walnut. £ 239
Rogers Export monitors. Slight cabinet damage.. £ 249	Quad ESL57 mains transformer. New. boxed £ 49
Celestion 5000 using ribbon tweeters & stands. £ 249	Quad ESL63 full rebuild from.... £1290
Klipsch Tangent 300 speakers. Blik. 96db efficient. £ 175	Ruark Talisman MK1 speakers. Excellent condition £ 159
Heco 3305 speakers. A classic. New/unused/boxed. £ 199	Wharfedale Diamond 9.1 Ex condition & boved £ 129
Kef Coda 7. Black finish. Boved & mint. £ 69	Miller & Kreisel M&K VX-4 active subwoofer. Blik £ 229
Celestion DL12 floor standing speakers £ 129	Pioneer 3 piece speaker set. Brand new. Cost £200 £ 99
Aeon Acoustics Linear speakers. Ribbon tweeters. £ 399	Bose Acoustimass -5.2. 1speaker & submanual. £ 199
Pair Quad ESL63 loudspeakers. Fully reconditioned with all new panels, socks etc. 12 months warranty. Awesome £1699	Pair Quad ESL57 speakers. Fully reconditioned including 2 new Otec treble panels. Awesome sound & dynamics £1799
Pair Quad ESL57 speakers. All fully serviced with full 3 months warranty. Hear what ESL57s should sound like. From Celestion Little one speakers in white. Boved. £99 £ 49	Kef C20. Black finish. £ 59

## OTHER ITEMS

Creek OBH-15 MM MC phono pre amp. Boved. £ 149	Quad FM2 valve tuner. Sound amazing. £ 149
Pioneer CT-S670D cassette deck 3 hd Digital input £ 79	Rotel RB-950BX tuner. Boved. £ 49
Denon TU260L II Stereo tuner with RDS £ 29	Rotel 850 stereo tuner. £ 29
Quad 66 FM tuner £ 199	Nakamichi 600 cassette deck. Very rare. Nice cond. £299
Transparent powerlink Schuko plug. 1.9M £ 149	1000PF paper in oil capacitors. Used in Leak amps. £ 3.99
Hitachi FT-5500 FM tuner. A real classic. £ 599	Transcriptors Stylus balance weights in jewel box. £ 79
Quad FM valve tuner to go with Quad 22.2. From... £ 40	Stunning Quad FM1 valve tuner. Boved. Rare cond. £ 125
Mission Cyrus AMI FM tuner. Grey finish. £ 79	Meridian remote for 206 series. Rare & good cond £ 99
HQ balanced phono pre amplifier. Awesome. £ 249	Akai AT-K33 L FM AM stereo tuner. Mint & boved £ 39
Yamaha YSP 800 5.1 speakers with digital amps. £ 299	Quad FM3 tuner in excellent condition. From.... £ 99
Top quality PIO capacitors 0.1 and 0.22uf £ 5.99	Marshall ECC83 12AX7 specially selected valves. £9.99
Paper in oil capacitors. Metal bodies. I use these on all Quad II rebuilds and they sound amazing. 0.1 and 0.22uf £8.99	Rupert stands for Quad ESL57 £ 239
Rupert stands for Quad ESL57 £ 239	George stands for EL563 speakers £ 239

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The Symmetry room had some really sexy looking Hi-Fi Man headphones on display - these HE300s sounded super when partnered by a Schiit tube headphone amp, just released in the UK. DP



Astin Trew were showing a beautiful Acoustic Signature turntable and previewing their forthcoming Concord series of high end separates, including a phono stage [below], preamplifier, Firewire/USB DAC, CD player/network music player and integrated amplifier. Watch this space for a review soon... DP



Leema had an impressive range of new half-width Elements separates, complete with a snazzy 24/192 DAC with Leema's own custom Asynchronous USB - it sports a buffer display to show the DAC speeding up or slowing down the computer's datastream, on-the-fly. DP

This Art Loudspeakers Emotion Classic 12 caught my eye - a big trad 3-way with a humungulous twelve inch woofer - a Wharfedale Diamond it is not! DP







*Spot the difference! This Technics SL-1210 turntable is missing its strobe markings. That's because the new platter is custom made to be less resonant than the original mazak casting, so adding less to the sound. NK*



*This floated my boat - a really well made bookshelf-sized active mini monitor from Focal that sounded unexpectedly fine! DP*



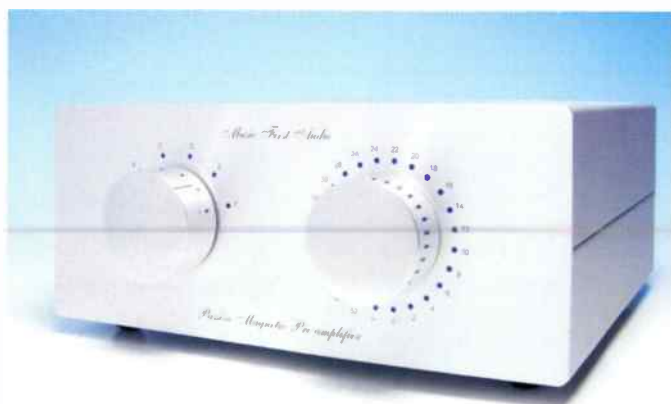
*We got the chance to do a direct comparison between the standard Linn LP12 and one with £399 Spoke modifications - the latter was audibly superior. DP*

*The Itern Audio room was a mix of many things, from monster loudspeakers to top quality computer audio from the likes of Aurender and MSB - plus a humungous £15,000 Proteus tube power amp. The Stereo Knight passive preamp at £1,450 also seemed an enticing proposition. DP*



*A German Acapella horn with its astonishing plasma tweeter. This isn't the same tweeter used by Lansche, we were told, but their own unique design. NK*





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- Noel Key wood ~ Hi Fi World

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*It looks like yet another valve amp, and it is - but it isn't! This Einstein is Direct Coupled no less - and not even via a capacitor. To prevent destruction of the loudspeaker when a valve dies, it has protection circuits. The arrangement uses two 6C33C strapped in parallel to provide a low output impedance. Direct coupled amps usually distort badly due to load mismatching, but we were told this amplifier does not. Wow! NK*



*When not tooling around in his classic Ford Mustang, Elac's Oliver John is showing his company's latest wares. We really loved the BS243 standmounter, and the Elac room was a chance to revisit it; they had a fine sound. DP*



*The sartorially sublime Mr Ishiwata achieved a superb sound from a pair of high end Marantz integrateds, bridged, driving Wilson Benesch loudspeakers. DP*



*The Origin Live room showed Mark Baker's new line of loudspeakers - as with everything from this company it's a little different to the fray. Produced in conjunction with university design students, they show real freshness of thought and sounded special too. DP*



*This Chinese made Cayin was adorned by a most peculiar looking power valve - we were told it is a redesigned 845 triode! NK*

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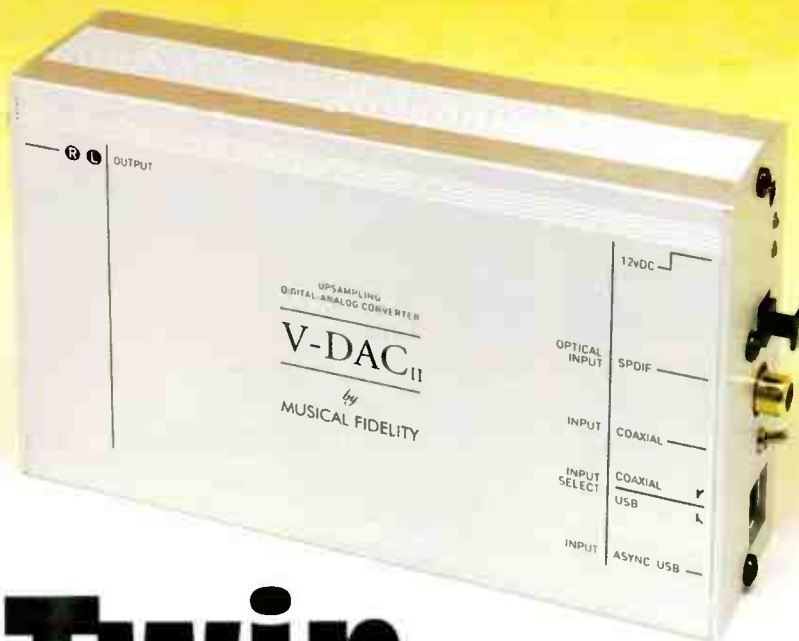
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# V-Twin

Rafael Todes samples the new, updated V-DAC II from Musical Fidelity...

To say the original V-DAC wasn't beautiful is an understatement – it looked like it could have been made in a former Soviet republic. But it was however, one of the best sounding DACs around for the money. This new V-DAC II is a classier looking device. Where its predecessor was a black box with bizarre graphics, the new arrival is constructed from machined aluminium, which is thicker than before, with Musical Fidelity's more usual typeface. Whilst proportions are virtually the same, there is a huge difference to the 'perceived' quality.

It has the same inputs as before, S/PDIF and TOSLINK, with a toggle switch to change between USB and the other inputs. There are a pair of LEDs, one for power, the other to show active digital connection. Power is via a wall-wart, which can be upgraded to a V-PSU for £150. The other significant change is that the USB input is now asynchronous, and capable of handling 24bit/192kHz. In other words, it does technically in one box what a combination of the first V-DAC plus the V-Link do.

## SOUND QUALITY

Listening to Wagner's 'Götterdämmerung', the 'Tagesgrauen' and orchestral interlude from the 'Ring Cycle', using a Bel Canto CD2 as a transport, the V-DAC II shows that it means business. It throws out a fine soundstage, and there is more detail than with the original V-DAC – more texture, more shine

to the sound than before. When the big climax arrives with brass blazing, it keeps good order, and manages to differentiate the contrasting orchestral textures well. Compared to the previous model, stage depth is improved and there seems to be more polish to the sound – it sonically glistens in a way that its predecessor didn't.

Listening to the last movement of Mozart's '39th Symphony', on the Linn Records label, conducted by Sir Charles Mackerras, on the High-Resolution USB input from my laptop, the DAC produced a bouncy, energetic performance with good separation of instruments. It captured the boisterous sense of fun of the piece in a thoroughly unrepressed way!

The Scherzo of Beethoven's '4th Symphony' (Sir Colin Davis and the Leipzig Gewandhaus Orchestra) is the height of maverick rhythmic invention, and illustrates the difference between the new and old V-DACs. There is a hint of grain around the strings on the old, the new version having a cleaner sound, slightly

deeper soundstage, and I am aware of how the new unit copes better with the massive Beethovenian crescendo that occurs and makes it all the more terrifying!

The original V-DAC was a fine product, and Musical Fidelity have advanced its cause significantly with this new iteration. And of course, sartorially speaking, it's a giant step forward too!

### VERDICT

Super value entry level digital convertor with a clean, crisp and engaging sound – plus worthwhile asynchronous USB.

### MUSICAL FIDELITY

V-DAC II £199  
Musical Fidelity  
+44 (0)20 8900 2866  
www.musicalfidelity.com

### FOR

- spacious, airy treble
- midband insight
- asynchronous USB
- build and finish

### AGAINST

- nothing at the price

## MEASURED PERFORMANCE

Our analysis shows the V-DAC has flat frequency response to 10kHz with just a very slight roll down above this frequency. This characteristic will ensure the DAC does not sound unduly 'warm' but at the same time it should lack brightness or glare.

Distortion levels were as low as they get from 16bit PCM, measuring 0.18% at -60dB and this resulted in a very good EIAJ Dynamic Range value of 101dB. With 24bit resolution distortion dropped to a very low 0.02% at -60dB, and this is as good as it gets from 24bit PCM, so the V-DAC gets the best from high resolution audio as well as CD.

Output measured a normal 2.25V and noise a low -116dB.

The V-DAC II measured well in all areas and should give excellent sound quality. NK

Separation (1kHz)	118dB
Noise (EC A)	-116dB
Dynamic range	101dB
Output	2.2V

### FREQUENCY RESPONSE



### DISTORTION



Frequency response (-1dB)	2Hz - 21kHz
CD	
Distortion	%
0dB	0.0003
-6dB	0.0005
-60dB	0.18
-80dB	4.6

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ROGUE AUDIO 66 MAGNUM REMOTE PREAMP (ONE OWNER FROM NEW)  
ANTIQUE SOUND LABS LJO1 PRE AMP/HEADPHONE AMP  
MUSIC FIRST SILVER PRE SPECIAL ORDER TWIN VOL.POTS  
3 RCA/2 BALANCED INS.1 RCA/2 BALANCED OUTS (ONE OWNER FROM NEW)  
ANTIQUE SOUNDLABS MINI PHONO (2 BOX WITH NOS MULLARD VALVES)  
PAFORTH 200M SPECIAL ORDER KT-90 MONOBLOCKS WITH VOL.CONTROL  
SPECIAL ORDER BUILD (ONE OWNER FEW MONTHS USE ONLY)  
ART AUDIO JOTA CHROME/GOLD CHASSIS/VOL.POT. SINGLE  
ENDED 32B VALVE AMP (ONE OWNER FROM NEW \$12000 NOW?)  
BALANCED AUDIO TECH. BAT VK-60 POWER AMP (6BK? ONE OWNER FROM NEW)  
PATHOS INPOWER CLASS A HYBRID MONOBLOCKS (SUPERB 9K?)  
ART AUDIO INTEGRA 30W INTEGRATED INC.P/ STAGE (ONE OWNER FROM NEW)  
WORLD AUDIO DESIGN KT-88 INTEGRATED VALVE AMP (WAD BUILT)

## SOLID STATE

DENON PMA-510H ULTRA RARE HI END INTEGRATED GOLD (30 KILOS!!) ONE OWNER  
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NAIM 102 REMOTE PRE (OLIVE CASE)  
MUSIC FIRST SILVER PRE SPECIAL ORDER TWIN VOL.POTS  
3 RCA/2 BALANCED INS.1 RCA/2 BALANCED OUTS (ONE OWNER FROM NEW)  
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H-CAT P-12A AMERICAN PRE AMP (E2500?)  
PASS LABS ALEPH P PRE AMP  
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OPA THREE BOX PRE AMP EXCLT  
ALCHEMIST FORSETTI 2 BOX PRE RCA/XLR (ONE OWNER)  
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CELESTION A-2 SANTOS ROSEWOOD  
CURA CA-30 FLOORSTANDERS ( E3000 ONE OWNER FROM NEW)  
AURUM CANTUS LEISURE 3 SE (LAST PAIR E1350)  
AURUM CANTUS BLACK ORCHID (LAST PAIR E1300)  
SMELL TYPE-C MKIV AMERICAN WALNUT  
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PROJECT DEBUT

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MERIDIAN 500 TRANSPORT (ONE OWNER)  
AUDIOMECA KREATURA CD PLAYER (CLOCKED)  
WADIA 1701 IPOD DOCK (E400+)  
ENSEMBLE DIRONDO DI-CHRONO TRANS. DAC/PRE AMP (9K?)  
CHORD 1500E DAC/DIGITAL PRE AMP (E6800 ONE OWNER FROM NEW)  
ACCUHASE DP-90 TRANSPORT (E8000?)  
THETA CARMEN CD/DVD TRANSPORT  
EMERGE S-2000 160 GB MUSIC SERVER  
MICROMEGA STAGE 2  
ONKYO NDS-1 MEDIA TRANSPORT  
MERIDIAN 203 DAC  
MARANTZ CD-17 KJ SIGNATURE (ONE OWNER FROM NEW)  
PERPETUAL TECH. P3A 24/96 DAC MOONWRIGHT SIGNATURE-2 (LAST 1)  
PERPETUAL TECH. P3A 24/96 DAC MOONWRIGHT SIGNATURE-2  
PERPETUAL TECHNOLOGY P1A DIGITAL ENGINE (LAST ONE)  
PIONEER CLO 925 LASER DISC PLAYER (ONE OWNER FROM NEW)  
DENON 3910 UNIVERSAL PLAYER (ONE OWNER)  
VACUUM TUBE LOGIC JLT SACD/CD PLAYER (LAST 1 E1300)  
VACUUM TUBE LOGIC JLT SACD/CD PLAYER  
THETA OATA UNIVERSAL CD/DL PLAYER (ONE OWNER) RARE  
THETA PRO GEN III DAC GLASS & BALANCED OPTIONS (ONE OWNER)  
MERIDIAN 602 TRANSPORT 606 DAC  
MICROMEGA CLASSIC SOLO XLR/RCA  
SONY CDP-X33ES CLASSIC HEAVYWEIGHT ONE OWNER  
NAD CS411 CD PLAYER  
DENON 2910 UNIVERSAL PLAYER

## TUNERS/TAPE/DAT/MINIDISC/MISC.

REVOX A-77 MKIV HIGH SPEED TWO TRACK ONE OWNER FROM NEW  
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TECHNICS TF-550 RDS TUNER (ONE OWNER)  
AVI REF.7 BANO TUNER (ONE OWNER)  
KRELL KAV 300R RARE TUNER AMP (E3950 ONE OWNER FROM NEW)  
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TECHNICS BX RS501 CASSETTE DECK(ONE OWNER)  
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**ARCAM rDAC**

This award-winning DAC combines excellent sound and build quality with all the necessary features.

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**AUDIOLAB M-DAC**

Audiolab's award-winning DAC improves the sound quality of all digital sources including 24-bit/192kHz via its coaxial input.

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**DENON DNP-720AE NETWORK AUDIO PLAYER**

Enjoy internet radio and online digital content along with AirPlay support for streaming music from your iPad, iPhone or iPod touch.

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**DENON DBP-2012UD UNIVERSAL DISC PLAYER**

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**MERIDIAN AUDIO CORE 200 • DSP3200**

Perfect for bringing all your audio sources together, the Audio Core 200 and DSP3200 Digital Active Loudspeakers combine to form a compact, yet powerful and versatile stereo system.

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**NAIM UNITI CD / AMP MUSIC STREAMER**

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**PLAY:3**

New ZonePlayer with built-in speakers - just add a Sonos Bridge to create a wireless hi-fi system. Available in black or white.



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**SONOS MULTIROOM PRODUCTS**

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**MARANTZ NA7004 NETWORK AUDIO PLAYER**

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**OLIVE MUSIC SERVERS**

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**CYRUS MUSIC STREAMERS**

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world; all in true hi-fi quality. With the n-remote you can quickly find specific albums, artists or tracks and it makes browsing your network music library a real pleasure. With its sleek body, full colour screen and two-way control, the n-remote is just one of the features that make the new Cyrus streaming music players very special.



**CYRUS STREAMLINE • STREAM X • STREAM XP**

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## Ex-demo and second hand items

### Digital

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Classe CDP300 Universal Player S/H	4950	2195
Heed Audio DACtilus DAC BNIB	370	269
Krell 505 Evolution SACD player x-demo	9189	6499
Krell SACD Standard III x-demo	6587	4950
living Control Music Box 3 BNIB	2887	1499
living Control Room Box4 BNIB	1712	999
Primare CD30.2 CD player S/H	1500	699
Quad CD67 RARE S/H	N/A	499
Wadia 170i Transport BNIB iPod dock	499	349
Wadia 381 Sliver xdemo	6749	4999

### Analogue

Bel canto Phono VB S/H	1299	995
Heed Audio Quasar MM/MC 2 box Phono stage x-demo	740	499
Mark Levinson No320s Phono Module x-demo	995	499
Notts Analogue ACE spacedeck/SME IV 6 months old S/H	3600	2450
Pink Triangle LPT/New Heed Orbit PSU/Roksan Tabriz S/H	N/A	599
Roksan TMS/Atremiz/DS5 Turntable S/H	N/A	2199

### Preamplifiers

Audolici AP01 preamplifier S/H	2100	999
Bel canto Pre3 S/H	1899	895
Conrad Johnson Classic Phono x-demo	2400	1750
DPA CA1 preamplifier BNIB	2650	1699
Krell KAV250p preamplifier S/H	2398	995
Krell Evolution 222 preamplifier black xdemo	9998	6999
Mark Levinson No380s Preamplifier	N/A	2299
Spectral DMC15SS BNIB full warranty	6850	4795

### Amplifiers

Audio Technica AT-MA50 Mixing Amplifier S/H	399	149
Bel canto S300 S/H	2000	995
Chord Electronics SPM1400 B mono S/H	12000	3999
Classe CA2200 Power Amplifier 8 months old S/H	3950	2799
DPA MA1 class A monos BNIB	4400	2999
DPA Power Plus BNIB	950	649
Electrocompaniet AW250R S/H	4999	2499
Krell Evolution 302 black x-demo	12900	8999
McCormack DNA125 power amplifier S/H	1999	995
Prima Luna Prologue 2 Silver S/H	1690	1199

### Loudspeakers

Avalon acoustics Opus Cherry S/H	15000	5999
Avi Neutron Cherry S/H	N/A	229
Focal JM Lab Electra 1007be Classic + stands S/H	3499	1799
Martin Logan Fresco pair inc stands S/H	1500	699
Martin Logan Quest Light Oak (new panels) S/H	N/A	1299
Martin Logan Summit X Cherry xdemo	12998	9799
PenAudio Charm Sub modules x-demo	2175	1499
PenAudio Serenade x-demo	7250	4999
Quad ESL63 Black serviced S/H	N/A	1399
Sonus faber Cremona Elipsa Maple x-demo	12980	7999

### Cables and Accessories

Apollo 80cm single column Stands S/H	149	99
CD 4 pillar 60cm stands HEAVY! S/H	279	149
Electrocompaniet ECS1 M6 feet x4 BNIB	189	49
Jadis KT90 Valves x 4 BNIB	600	300
JPS Ultra Dual bi wire 2x8 Spades to banana S/H	549	279
JPS The Power AC+ 2m UK-IEC mains cable S/H	400	199
Leider Silver balanced 0.5m Interconnect S/H	N/A	179
MIT Terminator II Biwire 2x10ft S/H	599	249
MIT MH750 Plus 2x5m speaker cables S/H	N/A	499
Partington Super Dreadnought 60cm S/H	199	159
Siltech HF9-G3 AES/EBU 110 ohm Digital 1m S/H	420	175
Spectral MI-350 20ft interconnect S/H	2100	899
Spectral Mi-330 UL2 1m BNIB	800	399
Spectral MI-330 UL2 1.5m BNIB	850	425
Spectral MI-330 UL2 10ft BNIB	965	479
Spectral MI-330 UL2 15ft BNIB	1125	579
Spectral MI-330 20ft interconnects x-demo	950	449
Spectral MH-750 25ft speaker cables x-demo	2000	995
Stereovox 2x2.5m HDXV speaker cable S/H	350	169
Stereovox HDVX 0.5M digital S/H	199	75
Transparent Premium RCA 0.5m digital interconnect S/H	329	149
Transparent Balanced Reference 2x30ft x-demo	6345	3299
Transparent Reference SC 2x10ft x-demo	6192	3199

### Tuners & Tape decks, power supplies

Magnum Dynalab FTR remote/Preset Tuner for Etude S/H	395	179
Naim Audio NAT O1 Silver bumper FM Tuner S/H	N/A	950
Yamaha RX V795RDS AV receiver S/H	N/A	149

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Midland Audio X-change are looking for Audio Research, Krell, Mark Levinson, Naim Audio, SME, Wadia.





### CAMBRIDGE AUDIO ID100 £150

Beware – docks for Apple i-items may use analogue or digital audio, because the multipin output connector offers both. Manufacturers commonly don't make clear which one is used, but best quality comes from the digital feed because it is not sullied by the player's internal digital convertor. Cambridge, being nifty when it comes to digital devices of quality, recently introduced the iD100 dock for iPod, iPhone and iPad. It extracts their digital output so high quality conversion to analogue can take place outside the player.

There are no analogue audio outputs, meaning no onboard DAC, so you cannot just connect it into your stereo with a pair of phono cables. Instead it has a full array of digital outputs, meaning S/PDIF in balanced AES/EBU form via an XLR socket, an optical TOSLINK and an electrical link via a phono socket.

You need either a high quality standalone DAC, an amplifier with a digital input or an AV receiver to use the iD100; I plugged it into my Marantz SR8002 AV receiver. This makes sense because it is an A/V item, handling video as well as audio.

Yes, there is a video output too, so when I played Within Temptation's 'Angel' I could watch the lovely

Sharon den Adel as well as listen to her divine soprano voice. To do this you have to use a supplied cable to deliver (analogue) Composite or Component video, either to receiver or TV. S-Video is available too but needs a different lead, with an S-Video connector, not supplied with our sample. There is no HDMI digital video/ audio output.

The unit will charge a docked item, and charging can be switched off to lessen noise, Cambridge say. A USB output is fitted for computer synchronisation.

Connecting up is simple enough for audio, but the video plug was a tight fit in the socket and I had not been brutal enough pushing it in. The result was a blank screen. Once this problem was identified and sorted I could then get video up on screen, from my iPhone. It is, however, mostly low quality mpeg4 that looks bad on a big HD display. You can load your own video, and Adobe Premiere Elements will produce iPhone video.

The iD100 comes with a remote control but using it is not easy. The onscreen display of the iPhone is not sent to the TV (but this is coming soon Cambridge told me), only video content, so navigation is via the iPhone screen, on a dock that might be 15ft away. You need good eyesight. Menu navigation is via a step-back

Menu button that is not especially useful, because the menus are not readable at a distance.

I ripped various WAV tracks from CD to my iPhone 4 and compared them to the original CD, in this case spun on a Cambridge 650BD Blu-ray player, and the two were very close, although some slight softening of treble seemed apparent. Measurement showed jitter was very low though.

The iD100 allows you to realise the full sound quality potential of Apple ALAC losslessly compressed music files, WAV that you load up yourself and 256kbps AAC compressed iTunes Plus, which offers decent basic sound quality. As fate would have it, during the review up popped a new album from Within Temptation, 'The Unforgiving' in the iTunes store, reminding me this is a great way to hear good Rock music that otherwise gets little exposure in today's mainstream music channels.

I still don't love my iPhone, but it has its uses and with the Cambridge iD100 it now acts as a music source, alongside my Garrard 401 and Cambridge 650BD Blu-ray player. So the iD100 is a great little widget to have, I think. **NK**

[Contact: +44 (0)845 900 1230,  
[www.cambridge-audio.com](http://www.cambridge-audio.com)]

soundbites

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MERIDIAN M2 Active loudspeakers with stands. Rosewood finish in excellent condition. Also NVA P50 passive pre-amplifier with cables. Resonable offers invited. Buyer collects. Tel: 01733 571 139 (Peterborough)

TOWNSHEND EDCT new latest speaker cables, 2 metre, 4 lengths, configured bi-wire piggy back banana plugs. Present price £1000. 6 weeks old, £400, include cine-can packaging. Tel: Dave 07729 600 847 (West Sussex)

MYST TMA3 integrated amplifier, phono MM, £195. Four Golden Dragon EL84 valves, new, £20. Rotel 965 BX Discrete CD, £60. Dual 505.1 silver, Nagaoka MP11 Boron, £45. M&K V-125 Sub, £175. Tel: 01722 334 694

HITACHI AM/FM tuner FT5500 Mk2, £55. Tel: 01344 886 324 (Windsor)

NAD C350 integrated amp. Excellent condition, £175. Creek OBH-8SE MM phono stage with power supply. £90. Both items like new. Buyer collects Middlesex. Tel: 07913 478 149

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**REVO K2 £299**

Described as a “stunning column of aluminium and rubber” and “a world-class, hi-fi grade audio device”, the new Revo K2 is an interesting radio. It’s a part of a new wave of audio products at (entry level) hi-fi prices, an emerging premium niche that the likes of B&W Zeppelin did so much to carve. It’s not hi-fi, nor does it try to be, but it’s not your average cheap rubbish radio either! Historically, only Roberts (in its golden age) and latterly the high end Sony radios, Tivoli and Vita ever occupied this section of the market.

The K2 does lots of things, starting with DAB, DAB+, FM and internet radio (via Wi-Fi). It also has a small retractable motorised iPod dock (very James Bond!) at its base, which offers full audio and video playback from iPod, iPhone and iPad. There’s also access to the online music service Last.fm and the ability to wirelessly stream music files from any connected PC or Mac, so it’s a network music player too.

The radio is well finished in Revo’s neat brushed aluminium, first seen on the very impressive Heritage launched last year, and topped with a rubberised plastic control panel. The buttons on our early sample felt a little imprecise, but the production models should be better. The OLED display is the same as that fitted to the Heritage, which means it’s excellent and one of the very best around, with information including station type, and scrolling radio text. You can also get it to display bitrate, buffer capacity, signal quality, and so on. The bundled radio aerial is a thick, chunky telescopic item that’s about as good as I’ve seen on a DAB receiver, although it’s not needed if you listen via internet radio, as the Wi-Fi twig is built in.

Inside, Revo are very proud of its design. It has two side firing balanced mode radiators (BMRs) per channel, plus a centrally mounted forward firing speaker. These are aspirated by twin class D amplifiers, putting out a claimed 40W total, and this goes via a digital signal processing preamplifier “designed to exhibit the performance characteristics of a significantly larger device”, the company says.

Round the back there’s a wealth of connectors, including line level stereo RCA and digital optical



outputs, an Apple video out and 3.5mm headphone jack – plus the DC power input from the supplied ‘wall wart’ power supply.

A supplied credit card-type remote control is supplied, and the unit sports Revo’s new RadioControl app for Apple’s iPod and iPhone, which not only acts as a full remote control to select DAB, FM, internet Radio, Last.fm, and control volume up/down, play, pause, love/ban and EQ settings, but also enables users to access and control the playback of their entire music library from any connected PC, Mac or DLNA-compliant device. It’s available as a free download, free of charge from the iTunes AppStore from October 2011.

The Revo is nice to use; on first switch on a set-up wizard greets you which makes hooking it up to your Wi-Fi router a breeze, and everything else is very straightforward. The top mounted controls are nicely accessible, but I do wish there were discrete preset buttons; sadly accessing them requires more button pressing. Whilst a big step up from £100 Pures, for example, the Revo isn’t quite close enough in build to products such as the Bose SoundDock and Arcam rCube which feel more substantial and more exotic, despite being not much more

expensive. Still, the design provides a vast number of facilities in a very small space – which will be crucial to some.

Sonically, the K2 is very good, having a clean and open sound. Revo is to be applauded for using BMRs, which gave an expansive feel to the radio, which diffuses music around the room in a way you wouldn’t expect from something of such a modest footprint. It’s clean and crisp and detailed, making it easy to pick out individual strands of the mix, and enjoy the flow of the music. Across all the sources, the K2 performed well, although you’re well aware of the difference between, say, 48kbps internet radio on BBC 5Live and lossless via an iPod. My only criticism is that I’d have liked just a teensy bit more treble extension – it didn’t sound muffled, but others do better right up top.

Overall then, the Revo K2 is a fine do-it-all radio cum iPod speaker with original and satisfying styling, all in a very neat package. An ideal Xmas present for the audiophile or radiohead wanting that little something for the spare room or bedroom, but who doesn’t have much room for it! **DP**

[Contact: +44(0)1555 66 61 61,  
[www.revo.co.uk](http://www.revo.co.uk)]

# soundbites

# NEXT MONTH

January is Hi-Fi World's annual Awards Special, so you'll be able to read a ten page feature on the greatest bits of kit we've had through our hands in the past twelve months. There's so much more though, from the stunning new Wadia S7i digital disc spinner [pictured] and Emis Audio HVA1 valve amplifier, to the Design Build Listen Wand unipivot tonearm and B&W P1 loudspeakers. Here's just some of what we hope to bring you:



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# 808 STATE

## BLUEPRINT

### ZTT SALVOC051

"a wider overview of this important and influential British techno tour de force..."

**N**umerous rock albums have caught the spirit of their age with impeccable timing – from The Beatles' 'Sgt. Pepper' to The Sex Pistols' 'Never Mind the Bollocks' – but the same can't be said for electronic music. Kraftwerk's 'Computerworld' from the beginning of the eighties perhaps, and 808 State's '90' from the very end; synthesiser musicians seem more interested in soundtracking the new generation than trying to define it.

That's precisely what 808 State's '90' did. Released in December 1989, its timing was perfect, just at the point where the late eighties underground house music scene had surfaced into the global phenomenon that was soon to be dubbed 'rave'. It was a time of hope for kids of a certain age, with everything from the fall of the Berlin Wall to the release of Nelson Mandela fuelling optimism, the like of which we haven't seen since. The Cold War was over, and it was time to party – and pumping on the stereo was 'Pacific State'...

Peaking at no.10, this song didn't storm the UK charts; instead its appeal was more viral. Played all over the place in 1989, from Berlin bars to night time Radio One and thousands of clubs across Europe, its combination of hypnotic, high tempo percussion, gliding keyboards and chirping electronics made for a relaxed, hypnotic vibe. It wasn't so much a song as a mood.

Founder members Darren Partington and Andrew Barker had been DJing at Manchester's Thunderdome (a rival to the legendary Hacienda, run by Factory Records) in 1988; "we'd play 'Pacific' off cassette, and we started to realise that the atmosphere in the

club completely changed when that tune was on... we started to realise it's gonna work", said Barker. They teamed up with "old man" Graham Massey and put the track out via Martin Price's (owner of Eastern Bloc record shop) label. It became the last track of the night at the Hacienda for six months, and a monster Ibiza hit.

'90', the album from which it came, was packed with similar tracks. Its charm was its unpretentiousness; ironic considering it was released on ZTT Records, arch practitioners of the Dark Arts of pop subterfuge (Frankie Goes to Hollywood, and all that). '90' wasn't trying to be a manifesto for the developing rave culture, it was simply a collection of infectious five minute techno tunes from a bunch of music-mad Mancunians.

What set 808 State apart from rival early nineties techno practitioners was their craftsmanship; samples were taken from the finest seventies rare groove tracks, sounds came from the best classic analogue synthesisers (at a time when they were way out of fashion) and drum machines – one of which, the 1980 Roland TR-808 Rhythm Composer – gave them their name. Its thumping kick drum sound, spacey cowbells and tinny handclap sounds are all over '90', along with that trademark fuzzy hi-hat and thin, dead snare. It was a contrast to the studied digital perfection of Kraftwerk's 'Electric Cafe' for example. But along with such an obvious love for their influences and the technology, 808 State had the knack for melding simple, catchy little tunes with infectious rhythms.

1991's 'Ex:el' showed the band's darker side; longer songs, minor chords, complex beats and collaborations with Björk and Bernard Sumner. 'Nimbus' showed how their

sound had matured; bigger, harder and crisper with more breakbeats and fatter basslines. 1996's 'Don Solaris' continued the trend, with a symphonic feel and greater space inside the electronic soundscapes. It also sported a collaboration with Brian Eno on 'Lopez', with lyrics by Nicky Wire. 808 State started in the late eighties as good time guys, so obviously a product of the rave generation, but by the latter half of the nineties were writing polished, powerful and penetrating music that hasn't dated even now.

'Blueprint' chronicles this; it's an eclectic mix of classic album tracks, alternative mixes and remixes (including the Aphex Twin's remix of 'Flow Coma', one of the first ever 808 State tracks) which together showcases much of their best work. It's nicely packaged (the artwork being the original circuit diagram of the Roland TR808 drum machine), and has an introduction penned by Orbital's Paul Hartnoll, plus a very readable band interview. It's topped off by two brand new tracks 'Spanish Ice' and 'Metaluna', and several tracks have been completely re-recorded, revisited and updated by the band.

Whilst the '90' album is surely their finest hour, 'Blueprint' reels in their best years with an intelligent selection of top 808 State material, lovingly repackaged. A refreshing 'greatest bits' compilation, there's a good few hits for newcomers, plus enough new and/or quirky material for completists and collectors. For those wanting a simple chronological 'greatest hits' package, '808:88:98' is the album to go for, whereas 'Blueprint' offers a deeper and wider overview of this important and influential British techno *tour de force*. A great package for newbies and collectors alike. **DP**



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## Behind the Scene

A world renowned authority in audio and acoustics, Dr. Joseph D'Appolito designs crossovers and does the final tuning for Usher's speaker systems. Consulting to a couple of famous audio companies, Dr. D'Appolito finds the tremendous value of Usher's products a pleasant surprise in today's high end audio world.

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