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JUNE 2012

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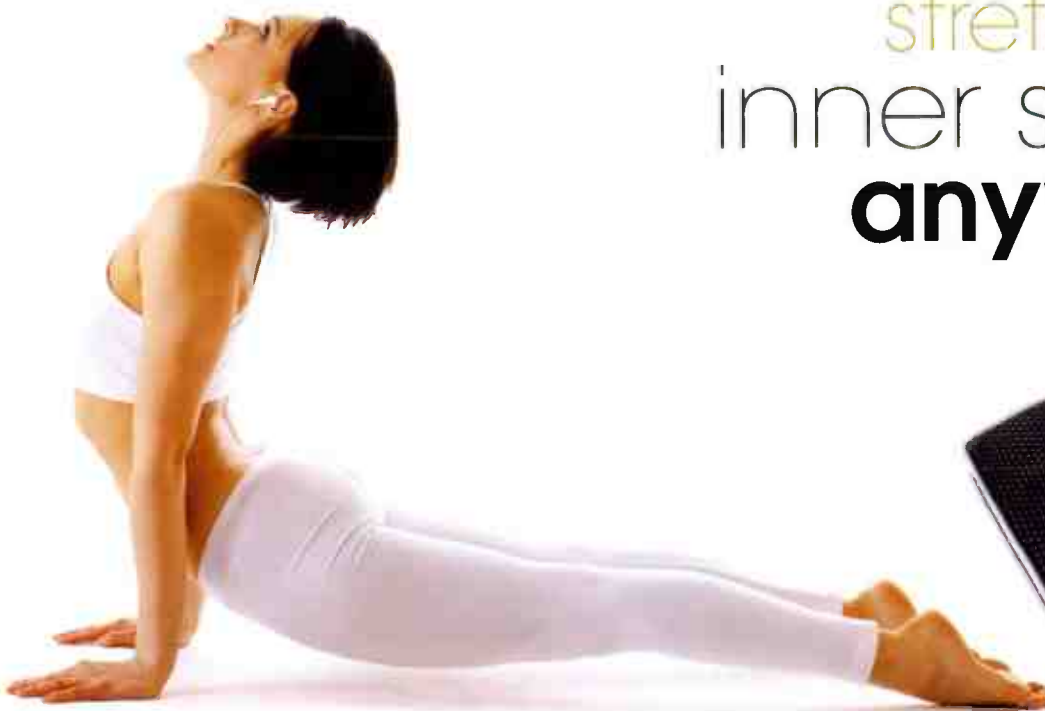
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World Radio History

welcome

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verdicts

| | |
|-------|--------------------|
| ●●●●● | OUTSTANDING |
| ●●●● | EXCELLENT |
| ●●●● | GOOD |
| ●●● | MEDIOCRE |
| ●● | POOR |
| £ | VALUE |



The gorgeous, sculpted Red Reference CD player from Chord Electronics is a product I have lusted after since it was launched – and it is now in MkIII status. How time flies. One reason is buried in the history of this magazine. We interviewed its designer, Rob Watts, long long ago when he started Deltec Precision Audio and designed some fascinatingly unique digital products. It was great to speak to Rob yet again, this time by telephone, about the technology behind the Red Reference

MkIII. A player like this is so unusual but advanced there is nothing else remotely similar, making it vital to speak to the designer to get the facts within our report right.

Stealing in through the back door, metaphorically speaking, came the amazing Tellurium Q power amplifier. It doesn't have the arresting looks of the Red Reference, but again inside this product lies something very different: a single-ended transistor amplifier. Mad - but not bad! Read our report to find out why.

You thought digital cables couldn't affect sound quality? We all thought that, or were told it by those 'experts' who don't know how little they know. Hi-Fi World readers know better though! Two great letters from readers this month tell us why digital cables matter, how they affect sound quality and also tell us where digital is going. Fascinating. I'm dreaming of fibre optic cable runs around my house already, using ultra fine, glass high tech. cables. Forget ethernet cables. And TOSLINK cables? "Gaslight" (to paraphrase a certain classical conductor commenting upon LP after hearing CD).

Over in the parallel world of AV, Blu-ray is its standard bearer behind and appears to be going nowhere. Silver discs are now viewed as "yesterday" (they too have become gaslight!). Manufacturers are furiously giving their AV products network connectivity to move away from reliance on silver discs, including Blu-ray. We review two AV products that illustrate just what is happening to AV as it morphs into more than just Home Cinema support technology.

There's a lot going on out there and this month's issue of Hi-Fi World brings it to you. I hope you enjoy!

Noel Keywood,
Editor.

testing (see 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.



ELECTRONIC MAGAZINE

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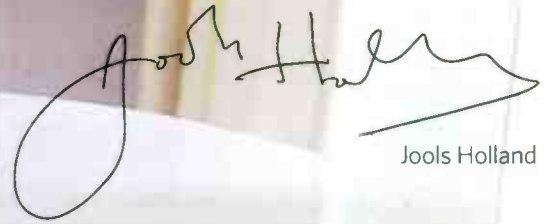
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Paul Rigby listens closely to some audio items

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
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- ▶ 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 was introduced to 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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HARTVIG DECK

Made in Denmark, the Hartvig TT Signature turntable is based on a composite material as a sandwich of MDF and acrylic along with a platter that is constructed from aluminium and acrylic. The Hartvig includes a Teflon coated bearing of hardened steel with a precision honed bronze shell holding a ceramic ball. Complete with a battery-powered power supply, DC-charged microprocessor motor, elastic core absorption feet and an adjustable armboard, the turntable will retail for a dollar equivalent of around £20,000.

To find out more call [+45 40 59 18 23](tel:+4540591823) or visit www.hartvigaudio.com.



MONSTER HEADPHONES GO BLING

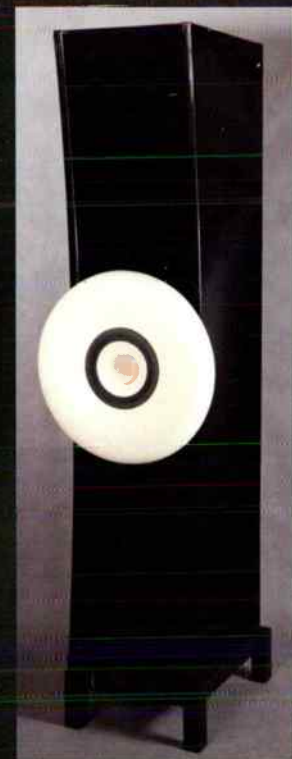
Exclusive? You can only buy them in Harrods at the moment. That's the Monster Diamond Tears – Edge headphones. Created in alliance with J.Y. Park, founder of JYP Entertainment a purveyor of hits for the denizens of the pop charts, bon viveur and man about town. Does the likes of Sennhesier and Stax have anything to worry about, however? It would seem so because, according to the press release, in addition to the essential Control Talk Universal facility for hands-free phone and music control, the wired connector is reportedly 'tangle free'. It gets better because there is a 'tangle free' cable too. The press release also lists, for this new headphone, as one of its five top features, a Monster Cleaning Cloth. Price is £250.

Monster has also teamed up with classic popular funk and R&B band, Earth, Wind & Fire for the release of a set of in-ear headphones called Gratitude. Why 'Gratitude'? The press release misses it but, as any EWF devotee knows, 'Gratitude' was the band's top selling, rather splendid live album released in 1975,

featuring such excellent tracks as 'Shining Star' and 'Yearnin' Learnin'".

Finished in rose and gold, the in-ears were, reportedly, personally tuned by EWF members. No, I don't know what that means in practical terms, either, but, nevertheless, the Gratuities do include noise isolation, a new ear canal sculpture to provide a deeper, secure, fit plus a carry case. Price is £199.

For more information, click on www.monsterproducts.com.



SANDGLASS FROM BODNAR AUDIO

Designed around a full-range driver, with no requirement for a cross-over, the Sandglass speaker system is presented within a bespoke cabinet design that reportedly strengthens and improves wave dispersion while boosting bass response.

The speakers are available in two versions, with either a 170mm or 200mm Sonido driver, while the company recommends that both be run by triode amplifiers with a relatively low power output. Standing tall at 160cm, Bodnar Audio says that the 170mm version is contained in a narrower cabinet that is better suited for smaller listening rooms. Finishes include piano black with a custom leather front panel in a range of colours.

Prices range from £3,299 to £3,499 for the standard finish and from £4,890 to £4,990 for the piano finish.

Click on www.bodnaraudio.com or www.fidelityart.co.uk for more information.

AKKUS

A new range of speakers from Akkus includes a family of variants. The V1, V3 and V4 will be available in the UK. Featuring 18cm mid/bass drivers and 28mm silk dome tweeters across the range, along with rearward facing bass ports, the V1 includes 87dB efficiency, measures 235x360x350mm and weighs in at 14kg, the V3 offers 88dB efficiency, measures 300x500x995mm and weighs in at 31kg and the V4 offers 89dB efficiency, measures 235x430x995mm and weighs in at 35kg.

Prices are £1,790 for the V1, including stands, £2,790 for the V4 and £3,490 for the V3 with, says the company, any variant of veneer available to buy.

Click on www.akkus.com.pl or www.fidelityart.co.uk for more information



ADDON FOUR

Designed in Sweden, the Audio Pro Addon Four is a lifestyle speaker product with a wireless facility and is ideal for use as an iPod dock. A 2.1 channel system. Available in white or black gloss lacquer, it arrives in a single box containing a small bass speaker and twin globe-shaped satellites, spanning 100mm in diameter.

Within the bass speaker, three discrete amplifiers (one packing 30W and two others at 12W each) power a 165mm woofer. The bass cube's 230mm design includes stereo phono and 3.5mm mini-jack inputs, which can be switched using the system's remote.

The Audio Pro's optional WF100 wireless dongles are plug-and-play. That is, you plug the TX100 transmitter into any audio source (i.e. 3.5mm, phono, USB) and connect the RX100 receiver to the Addon Four. No software downloads are necessary.

Ring **0843 289 7195** or click on www.sav-distribution.co.uk for more information.

FATMAN MI-TUBE

A compact valve amplifier with Bluetooth, the Mi-Tube measures just 183x145mm but offers 28W of audio per channel. Fatman promises a 'radical' new hybrid valve design, based upon a theoretical paper produced over 50 years ago. What could it be? Bluetooth streaming to a valve amp seems radical enough.

In addition to two standard RCA phono inputs, Bluetooth connectivity enables audio to be streamed wirelessly, ideal for smartphones, laptops, iPhones, iPads and iPods.

Available in glossy white and black, the unit will also be available with several custom top covers including a Union Jack and a crystal encrusted "bling". Price is £240.

Click on www.fat-man.co.uk or bling, er, ring **0203 086 7330** for more information.



ORITON SUPPORTS YOUR HI-FI

A new company, Oriton, has announced the release of a new anti-distortion suite consisting of a rack system, cables and support cones.

The R33 Support System is a brightly coloured shelf and platform arrangement that targets both vibrations and resonances. Constructed of carbon fibre for lightness and strength, the main part of the structure is constructed from a dampening polymer. Created without the use of any glue, to reduce any further vibration, the shape of the 20mm acrylic shelves has been decided upon to reduce the build up of standing waves. To that extent, each shelf is supported by four vibration control units, made from a proprietary damping material, while the overall adjustment of the shelving system is performed using your heaviest piece of equipment at the lowest level (using a supplied t-bar).

Oriton's one and only interconnect is the Black Racer. Built on the same, anti-distortive, philosophy, the cable has been specifically designed to reduce transference noise between equipment. Based on a copper core, it has a proprietary filler that both protects the copper signal core and reduces vibrations by acting as a shock absorber. Over the top is a mesh shielding which further protects the audio from both RFI and EMF, adding an earth return to boot.

Finally, the SC-35 Support Cones are designed to attack vibration. Using an advanced castellated design to allow for a more precise cone placement, the SC-35 consists of two support cones, an outer cone which, in turn, supports the inner cone. The inner cone is damped from the outer cone by a viscous-elastic coupler and remains in contact with the outer cone which acts as a drain and removes vibrations from within the equipment.

Oriton reports that placement of each cone has significance. For example, placement should start with one cone directly under the transformer or CD drive of your equipment, with a further two placed for stability forming a triangle at 2, 6 and 10 o'clock. Larger equipment may require additional support to avoid flexing.

Click on www.oriton.co.uk for more information or call 01633 549530



SENNHEISER IN-EAR

In addition to the release of the high-end HD700 and HD800 headphones, Sennheiser is also working on a high-end, in-ear model. Known as the IE-10, the proposed price point will be £599 but the final price will be conformed nearer to the release date which should be sometimes around May.

Sennheiser is also currently working on two headphone amplifiers which it describes as, "...a digital and an analogue variant." More details were not forthcoming. It is possible that the headphone amplifiers are, at least partly, a response to the design of the HD800 headphones, that company's top-of-the-range model. User experience has found the HD800s difficult to run, requiring a headphone amplifier with enough power to do the job. For example, until this point, the company has been recommending that the HD800 be driven with the likes of a Lehmann Black Cube Linear (£750). Expect to see the new headphone amplifiers released during May.



MOVE WITH THE BEAT

Inspire Hi-Fi is on the move to new and larger premises but Inspire fans shouldn't be too concerned because it's only two minutes brisk drive from their old location in Chesterfield, Derbyshire and two minutes from J29A of the M1.

The shiny new contact is: Inspire Hi-Fi Limited, Units 3 & 4 Prospect House, Colliery Close, Staveley, Chesterfield, S43 3QE. Note the new phone number: 01246 472222. You can also call the mobile 07932367555 or click on www.inspirehifi.co.uk.

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SONOS – NEW APPS

Users of the Sonos wireless music system can look forward to new controller apps for both PC and Mac. The new software promises faster access to music with an improved search facility that will seek artists, albums, songs and stations from your music library, internet radio and music services using a single search box. Other enhancements include instant volume control, a one-touch Party Mode offering simultaneous volume changes in grouped rooms while the Sleep Timer and Alarms are now accessible from the main window. Finally, a Mini Controller lets you control your music while you're working in other apps.

THE MAIN MAN

Atlas Cables has launched a new range of power cables as part of its EOS line. Five new items have been released, including a new high-performance four-way mains distribution block, new high-end mains cables and a new purpose-designed audiophile mains plug.

The EOS Power Cords have been designed to filter against harmful incoming AC-power-dumping disturbance effects to earth while also guarding against airborne RFI.

Created from high-purity Oxygen-Free Copper conductors, available in either 2.0 or 4.0mm-square configurations, it is housed in a high-pressure, low-temperature-extruded PTFE insulating dielectric.

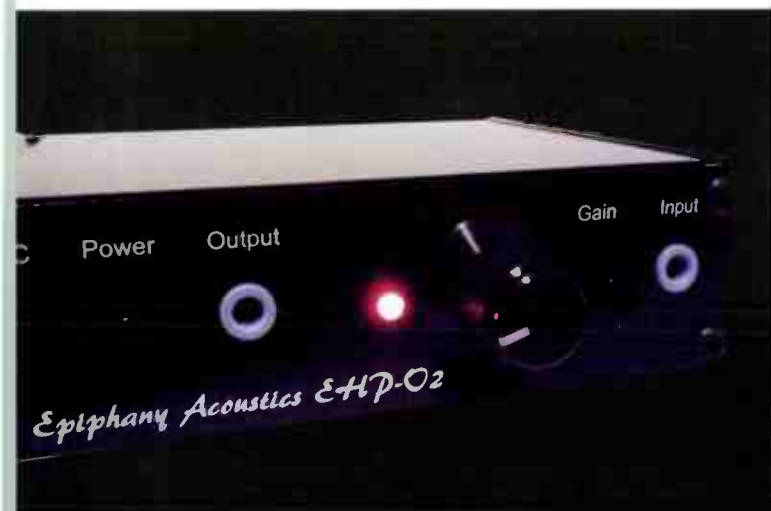
The three conductors are twisted to reject Electro-Magnetic Interference, wrapped, as they are, in plastic-bonded aluminium foil which helps to reject RFI.

Available in a variety of terminations, the EOS 2sq 13A plug to Rhodium 10A IEC plug 1m retails at £160 while the EOS 4sq 13A plug to Rhodium 10A IEC plug 1m is priced at £200.

Next, the EOS four-way mains distribution block features power sockets held in a separate sub-chassis inside a substantial steel outer casing, again to reject interference, with 'Star Wiring' for the positive, neutral and ground for extra isolation. Prices include: UK 13A 220V four-way at £500, Schuko 220V four-way at £550 and Nema 110V four-way at £546.

Finally, the Power Plug, priced from £45 each, has been constructed from polycarbonate with copper-bronze pins which are highly polished then plated with 1.25 microns of pure Rhodium for a reportedly cleaner sound.

Call 01563 572666 for more information or click on www.atlascables.com



FOR PORTABLE EARS

In the market for a portable headphone amplifier? The Epiphany Acoustics EHP-O2 is a battery-powered unit that comes equipped with two rechargeable NiMH batteries that promise an eight-hour time between charges and an in-built power management system which allows it to be plugged into the mains continuously via the AC adaptor without damaging the batteries. The box includes a gain knob, input and output sockets. Hand built in the UK, it is priced at £100.

Click on epiphany-acoustics.co.uk for more information.



Red Reference

Chord Electronics have updated their top CD player, the Red Reference, to MkIII state. Rafael Todes listens to his violin and is impressed.



It is obvious when picking up the Chord Electronics Red Reference III CD player that its designer John Franks means business. At 14kg, and the solidity of a wrought-iron fire grate, the unit sports handles on each side to make it liftable. This is aesthetically more pleasing than the Audio Research front rack mounts, and does genuinely assist in picking the unit up.

The second most striking feature of the player is how the CD transport is mounted

a magnetic puck, which cannot be mislaid. The door hinge is extremely robust: it has interleaved fingers and phosphorous bronze bearings – and Chord claim that the 14kg player can be supported by the hinge alone. Not a fact I'd like to verify! Finally, there is a Cyclops-like glass eye at the top of the player, which gives a view into the innards of the machine.

Control is via the front panel, where twelve stainless steel ball buttons perform the standard operations. A red numerical display shows the frequency of the up-sampled output, which is set to 176.4 kHz. The mechanism of the transport is a Philips Pro 2 affair, isolated from the assembly carrier block mechanism with springs and dampers.

On the digital side, Chord have opted not to use one of the usual-suspect chips, but instead a custom chip designed by Rob Watts, formerly of Deltec Precision Audio fame, who has over 30 years' experience in the field.

Each section of the critical pulse array has its own ground planes, separate power planes and power supplies. This helps to provide tolerances that are exemplary, even at this substantial price. The digital signal is filtered and re-clocked to four times the original sampling frequency 176.4 kHz, using a Watts Transient aligned

filter algorithm, before conversion to analogue.

Usefully, the player has a USB input, marked USB HD, which can asynchronously play High Definition music files up to 192 kHz from a computer. In this mode the player's clock control's proceedings, not the computer clock. It means a computer feeding the player must work asynchronously though, and to get both PCs and Macs to do this Chord Electronics have their own software, supplied on a CD or downloadable from their website. It allows Macs to run at 192kHz sample rate, where 96kHz is standard at present. PCs cannot work asynchronously without driver software being loaded.

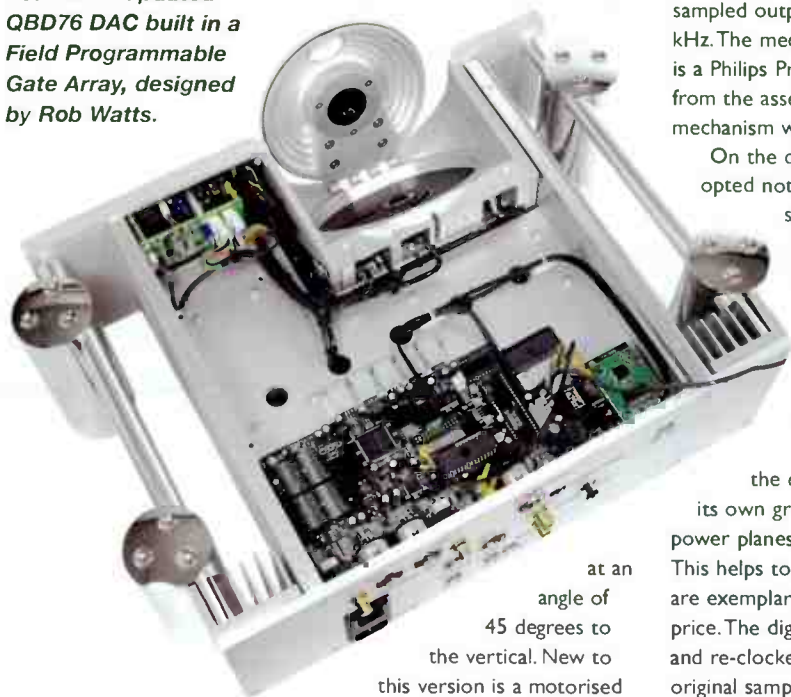
In addition to the USB input, there are Optical, Coaxial and AES/EBU digital inputs, all S/PDIF standard, plus a word clock input for synchronisation to an external digital source, so music stays synchronised with video Chord explained to us. The inputs are selected by a front panel button, being switched through the DAC to provide an analogue output to the hi-fi.

There are two digital AES/EBU S/PDIF outputs and both optical and electrical outputs from the transport, for an external DAC.

Analogue outputs take the form of unbalanced phono sockets and balanced XLR outputs.

A substantial metal-clad remote control, with accompanying booklet, is programmable to include the

Red Reference III houses an updated QBD76 DAC built in a Field Programmable Gate Array, designed by Rob Watts.



at an angle of 45 degrees to the vertical. New to this version is a motorised door, which has mounted in it



"a true reference CD player that looks right into a performance, without romanticising it. A lot of unique technology and facilities too"

services of other remotes. This is a well thought out and appreciated touch, and helps alleviate the problem of multiple remote confusion.

SOUND QUALITY

I did most of my listening up-sampling to 176kHz: there appeared to be a minor glitch in the software when the up-sampling feature ceased to work after using the USB input. A

brief phone call to Chord Electronics and going back to the optical input, altering the frequency of up-sampling soon fixed the problem.

Listening to one of my trusted recordings of Solti conducting Ravel's "Tombeau de Couperin" on Decca, the first quality that comes across in spades is the sheer smoothness of the player. The strings have a sonorous, mellow quality to them

without any hint of treble harshness or glare. The sound is both woody and silky at the same time. There seems to be, rather like the question "where were you when Kennedy was assassinated?" a parallel hi-fi defining moment question – "where were you when you heard your first Chord Dac 64?" I have heard several people relate to me this moment in audio. It's characteristics were a rolled-off top, with a sweet and powerful engaging sound. The Red Reference has the same DNA. And in this particular piece, which contains a 'Sicilian' rhythm, I'm aware of other decks being more lilted with the timing of this figure – the Red Reference seems a bit buttoned-up and missing some of the bounce and spring I've heard from lesser decks. It isn't a DAC64 our measurements



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8200CD - Dec 2010



8200CD - Dec 2010
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8200 SERIES

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revealed, but it retains strong elements of its sound.

This player scores well on orchestral weight, it does the textures of instruments beautifully, the flute is breathy and highly realistic, you can see the forces of the pizzicato strings in action. Sometimes players with less grasp of detail lose the scale of the forces involved in this recording – not so here.

Moving to Renée Fleming and the “Song to the Moon”, from Dvorak’s Rusulka, Fleming’s voice is particularly solid and powerful without being edgy, there is great clarity in the accompanying instruments sitting behind the singer, the player manages to separate the textures brilliantly tonally. Spatially, however, I have on occasions heard better using the Weiss DAC202. The player is “presenting” the performance to me, it’s not interpreting it or ramming down my throat. Perhaps this is some indication of the player’s studio-natured personality?

The DG Bernstein Mahler 5th Symphony is one of the most persuasive accounts of this symphony: a dying conductor, on his last legs in one of the most emotionally troubled of symphonies. Right from the very start, the trumpet fanfare and the orchestral answer to it, the huge orchestral forces are kept in rock solid order by this player. It really is a test of the unit’s resolution, whether it can keep a 100- piece orchestra from imploding, and the Chord Red Reference III rules the orchestra’s players with an iron rod. When I hear grip and control coming from a Red Book CD, I sometimes wonder why we need high resolution!

Moving to one of my own recordings of the Allegri Quartet made live from the Holywell Music Room in Oxford of Beethoven’s Quartet

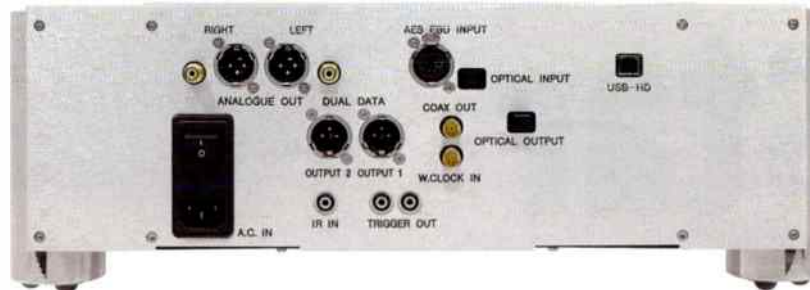
Op 18 number 6, using a couple of Neumann microphones, with absolutely no digital processing, no normalising, things started slotting into place for me. I can hear more into the details of this recording than nearly any other CD player I’ve encountered. The layers of details tonally are staggering. The energy of the first movement of this quartet, which is Beethoven’s only real attempt to produce a comic opera, without voices is like the opening of a bottle of champagne. The player is not varnishing the sound in any way that I could detect, it’s providing a stark no holds-barred version of the recording. This may not be to everyone’s taste, there are those who will enjoy more affected renditions, albeit less truthful!

Playing the same recording through my computer (Toshiba plus

point of being stark. It doesn’t really join in the party, but presents things as they are.

Its most appreciative home is likely to be a recording studio, as its point of view is highly analytical and unvarnished. It has been designed from the ground upwards in a wheel-reinventing way. There will always be those people who appreciate a more “referential” type of sound, and I think for those people, this player will find a happy home.

REFERENCE SYSTEM
 VAC Auricle Musicblocs
 B&W 802ds
 Chord Speaker Signature Speaker Cable
 Music First Audio Copper Classic V2 Preamp
 Bel Canto CD2
 Weiss DAC202



VERDICT ●●●●●
 Ability to separate textures
 Excellent USB DAC facility

CHORD ELECTRONICS RED REFERENCE III £15000
 Chord Electronics Ltd
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- FOR**
- superb solidity
 - intense detail
 - spcially revealing
- AGAINST**
- highly analytical



Windows 7 running Fubar at 24 bit/96k) and using USB into the Red Reference III, adds a real sense of where we were sitting for the recording, the sense of the hall’s intrinsic acoustic and a significant slice of extra realism. The DAC part of this player and the USB to S/PDIF conversion seems to be really superb, thoroughly well thought out and shows what high-res. is capable of.

It took a while for the penny to drop, and for me to ‘get’ where this player is coming from. It is extremely accomplished, it adds very little to the mix, almost to the

MEASURED PERFORMANCE

| | | |
|--|-------------------|--------|
| Frequency response was flat to 20kHz our analysis shows and this player uses the QBD76 DAC apparently, which gives identical results. A modification to pulse performance gives a pronounced roll off at high frequencies, measuring -0.6dB at 10kHz at -2.6dB at 20kHz when testing with a raised cosine pulse, identical to Chord’s now discontinued DAC64, a convertor that is highly regarded for its almost analogue sound. So the Red Reference III player combines elements of both it appears. | -60dB | 0.18 |
| | -80dB | 4.3 |
| Distortion levels were low throughout the player’s entire dynamic range, measuring 0.0005% at 0dB through to 0.18% at -60dB. There was obviously little noise in the -60dB signal and as a result of this and low distortion EIAJ Dynamic Range measured a very high 101dB. Output was high at 3V. | Separation (1kHz) | 145dB |
| | Noise (IEC A) | -117dB |
| | Dynamic range | 101dB |
| | Output | 3V |

FREQUENCY RESPONSE

DISTORTION

Frequency response (-1dB)
 CD 2Hz - 20kHz

Distortion
 0dB 0.0005
 -6dB 0.004

The measured performance of the Red Reference is exemplary, in keeping with earlier Chord digital products. NK



Star Yamaha

Yamaha fight for a stellar position in the AV receiver market with the complex RX-A3010. Is it a star, asks Noel Keywood?

Home Cinema or AV is morphing into a world where the centre piece of the system, the receiver, acts as a do-it-all device able to work with any source on the market, past and present. In this receiver, the massive RX-A3010, Yamaha have gone all out to ensure it has no limitations in this respect: heavens, as well as reproducing no fewer than nine channels of surround-sound from Blu-ray it even plays LP. For this review I took a close look at all its audio capabilities.

Weighing 20kgs (44lbs) the RX-A3010 is sizeable and stays where it is put. It even has a centre foot – making five in all – to help support its massive internal mains transformer.

The reason it is so big is to allow this receiver to drive no fewer than nine loudspeakers. Yamaha claim each of its nine amplifiers produce 150 Watts into 8 Ohm loudspeakers, or 230 Watts into 4 Ohm loudspeakers. Under measurement each channel driven alone produced 200 Watts and 324 Watts respectively into these loads so Yamaha's figures are conservative and would be easily met even if all nine amplifiers were working flat out. However, as the receiver would be producing no less than 2500 Watts into nine 4 Ohm loudspeakers under these circumstances there is no need to worry about whether it will go loud enough. It will cope with a dedicated home cinema room for those that have such a thing, but is purposed to alternatively drive one

room in normal 5.1 surround-sound and two others in stereo, distributing all this power a little more serenely around the home.

Nine channel surround-sound? Yes, it is possible, but what comes on Blu-ray is five channels plus subwoofer, with some exceptions (War Horse is 7.1). The other four channels are synthesised within the receiver from a 5.1 source, as usual. In the RX-A3010 two Back loudspeakers are synthesised from the rear Surround signals and two front Presence loudspeakers, mounted high up, are fed height information derived from the Digital Signal Processor (DSP). This is again synthesised information but not using the Dolby Ilz algorithm, as no mention of this appears anywhere



in the Owners Manual (available on their website). Yamaha use their own processing logic to derive the front Presence signal and the rear Presence signal too.

If the Rear Presence are used then Back loudspeakers are not driven simultaneously, so you cannot drive eleven pairs of loudspeakers from nine amplifiers. Or can you? Yamaha have this possibility covered too: you can run eleven channels if you use an extra stereo power amplifier. It is even possible to bi-amp the fronts as well with two extra stereo power amps! This is some sort of domestic nightmare it seems to me but it isn't really intended for the average habitable lounge, so much as an advanced Home Cinema setup in a dedicated room where eleven loudspeakers, including four attached to the walls, are acceptable.

What is rarely said, though, is that all AV receivers can be configured downward, as it were, to intrude less using fewer loudspeakers, whilst still offering full functionality. I prefer to use just four channels and sometimes six, never using a Centre loudspeaker, because it doesn't suit music reproduction, in terms of size/quality, as well as position. Switching off the Centre channel directs the signal into Left and Right equally within the receiver, to give ordinary stereo (virtual stereo); the Centre information isn't just lost.

Doing this stops singers coming from beneath the TV screen, somewhere close to the floor. It also improves centre image quality as it derives central images from high quality full range hi-fi loudspeakers.

I also use full range Surrounds, usually large stand mounters. A rear wall shelf carries full range Backs but these are subjectively very optional in a surround-sound system. Reined back like this the big Yamaha RX-A3010 still retains a host of strength, over and above nine power amplifiers. It accepts the digital output from an iPhone or iPod, connects to the internet to get internet radio and other services such as Napster, has a VHF/FM tuner and even has a phono stage that allows a record deck to be used. But let's not get too far ahead here!

The primary source for any AV receiver is a Blu-ray player, to spin silver discs. If you get either a Cambridge Audio or Oppo Blu-ray player this means all discs, including obsolete DVD-As (DVD Audio) for those who may have a collection, and SACDs which are still being issued. Otherwise, all Blu-ray players will spin DVD Video and Blu-ray discs of all types, as well as CDs and the Yamaha can decode all sound track formats including Dolby TrueHD

and DTS HD Master Audio. For a complete list see the Owners Manual – run a search for RX-A3010 that will take you to the Yamaha UK site and go to Support.

A curiosity is that neither the Website or Owners Manual mention the fact that this receiver decodes DSD from SACD discs – and our measurements show it makes a very good job of it. As if this total silence about SACD wasn't weird enough, even more weird is that distortion from DSD was very low, lower than PCM, suggesting Yamaha have actually used dedicated internal DSD digital-to-analogue converters, rather than transcoding to PCM before



conversion through the 24/192 Burr Brown converters used on each channel. So here we have a receiver that has been designed to give the very best from SACD, yet no mention is made of the fact! Is corporate amnesia the explanation?

A situation I have encountered before is that a receiver's designers did not know such functionality was embedded in the chips they were using and had not thought to run tests to check for DSD decoding. AV receivers are assembled from a wide variety of specialised chips, often by subcontractors in Korea and China, although Yamaha tend not to use subcontractors. But this could explain how SACD has been mysteriously overlooked. Connect up a Blu-ray player like the Cambridge Audio 650BD I use, able to play SACD and send DSD code via the HDMI output, and you get glorious SACD surround-sound through this receiver. The front panel display doesn't light up with an SACD logo or any other such indication, but select 'Information' from an On Screen menu list and it is clearly stated DSD is being received, in surround-sound format (as opposed to stereo). Better still, it was quite obvious that sound quality was superb, rich in an analogue way and lacking the sterile feel of PCM. I was quite taken aback to hear such good SACD reproduction, just as measurement



to reduce room boom. It does auto-tune loudspeakers well, but Yamaha fit their own tuning scheme to the RX-A3010 – but I always manually tune.

Within the loudspeaker set up section there is a parametric equaliser that works in approximately 10Hz steps upward from 31Hz, (for rooms 20ft long or less) with adjustable gain and Q at each step, and this will alleviate room modes

"a sophisticated delivery that teases out the firm dynamics and sense of air and space"

and improve bass quality by lessening room boom. It is potentially a very useful feature and unique to this receiver I believe; other receivers have graphic equalisers but they are too coarse to tune out room modal resonances.

There are various Hall Modes, Club, Game and what have you (please see the Owners Manual!) but the most important on any receiver for high quality audio is the Pure Direct button. Stab this on the remote control and all displays switch off, and audio gets routed around the DSP, meaning it isn't processed. Yamaha provide a selectable option of turning off the video output when Pure Direct is selected. This is fine

digital and back again. Also, analogue inputs commonly overload at 2V or more and this little problem is avoided too. Having said all that, measurement showed that Yamaha fit a high quality input ADC to this receiver, one with 96kHz sample rate that gave an analogue bandwidth to 48kHz. Distortion was low too, but noise was produced as always and this fell by no less than 20dB when

Pure Direct was selected, showing how much influence of the input ADC is removed. What you hear is a subtle reduction of haziness and improvement in clarity by listening in Pure Direct.

The only disappointment here is that only Yamaha's large, full fat remote has Pure Direct on it; a diddy, basic function remote did not, making it useless to me as I never use the processing schemes that adorn AV receivers. And the main remote is poor for legibility, using black lettering on grey buttons. There is a light, activated by a side button but it did not help much.

The VHF/FM and Medium Wave radio sections worked nicely. As always I had to manually enter station frequencies to avoid distant, noisy repeat transmitters being stored, but that is because I use a multi-element roof aerial in Central London aimed south toward Wrotham and Crystal Palace transmitters in order to get more than 1mV from them for full quieting, and this picks up a multitude of unwanted distant stations. Once tuned into my locals, there was no hiss and the tuner sounded tonally very smooth. The operating logic behind selecting presets and memorising to them I found awkward, especially the on-screen display of nine pre-set memories when 40 are available, overcome with a paging function.

Coming in through an ethernet connection via the usual RJ45 socket was internet radio courtesy of vTuner, offering the usual 10,000 or so stations from around the world, and some of the higher data rate stations like Radio 3 are sounding very good these days. Internet radio sounds dimensionally flat against the VHF/FM equivalent, especially when live speech such as a discussion is being broadcast; from VHF you can hear into the studio; from internet



had suggested, when Yamaha would seem unbothered about it.

What always gets a lot of coverage with surround-sound receivers is their digital processing schemes, one of the most common being loudspeaker automatic set-up and tuning by Audyssey, but this the Yamaha does not have. No problem though, in my view. Audyssey changes the sound balance but does not improve it I have found from measurement, much in the way tone controls do this. Audyssey does not suppress low frequency room modes

when you understand the feature and know to look for the blue warning light that tells you the entire system has not suddenly gone dead!

Pure Direct without video is no good for watching movies of course, which is why video display switch off is optional.

You also get a Straight function where all digital processing is bypassed, but the input ADCs are not. Note that with all AV receivers you must select Pure Direct when using any analogue input, especially Phono, to avoid conversion to



radio at 128kbps you cannot. But it is getting better, now that higher data rates are being used and the RX-A3010 offered a clean, solid sound from this source.

Also available through the home network connection was my Mac running an EyeConnect UPnP server. The Yamaha saw EyeConnect without problem and EyeConnect identified the receiver as 'RX-A3010' and connected immediately. However, the receiver's IP address and Mac address are not declared on its net menu, which makes identification on a busy router network client list difficult. The Yamaha played 24/96 WAV and AIFF files and a press of the button could turn them into surround-sound through Dolby ProLogic IIx if desired. Playing back high definition music files from the computer showed just how good a surround-system can now sound, the RX-A3010 sounding big and bold here, yet smooth across its treble regions. Yamaha go for a more svelte presentation than that I am used to from my Marantz SR8002 receiver, but it is a sophisticated delivery that teases out the firm dynamics and sense of air and space that is to be found in high definition recordings.

Talking about high data rates brings me onto Blu-ray and HD video. With a 24/192 2L test Blu-ray PCM, Dolby TrueHD and DTS HD Master Audio were all played properly, but it was frustrating not to see these formats identified on the receiver's display panel, as on Onkyo, Denon and Marantz receivers. Instead, an on-screen menu must be selected, meaning the TV must be switched on. There was a lot of general awkwardness about this receiver's operational logic I found. It works quite differently from others and little of it was overly obvious from inspection; I spent a lot of time puzzling over curious procedures in the instruction manual.

High resolution audio files are read from a USB memory in WAV, FLAC, MP3, AAC and AIFF I found, up to 24/96. It would not see Ogg Vorbis files nor my 24/192 WAVs

and AIFFs. The handbook explains this. Nevertheless, 24/96 files can give great sound quality and the RX-A3010 did a great job here, putting plenty of muscle into the bass line behind Misery, from Dave's True Story, a well recorded Chesky 24/96. It was with high resolution files playing from fast memory, a Whiskey from LaCie, that the big Yamaha showed how smooth and civil it is, yet it also has solid dynamics and was able to paint up some convincing depth perspectives. The RX-A3010 doesn't sound turgid and unremarkable, like so many AV receivers, nor does it have one shred of hardness; in fact it is quite 'untransistorist', which is why I said earlier it offers a very svelte view of music. This had violins sounding full bodied and rich in a Mozart Violin Concerto from 2L, with no hint of hardness or screech. I know Yamaha are proud of their reputation with musical instruments and in the RX-A3010 they have a receiver that reflects this sensitivity. It was a lovely listen, in an easy and relaxing manner. Pushing the power amps hard with John Meyer playing 'Good love is On the Way' from Where the Light Is, a 24/96 music concert Blu-ray, showed the RX-A3010 has plenty of bass drive but has less grip on timing than some, and spinning The Who 'Live at Kilburn' showed the same property; this

receiver is easy going and full bodied, as smooth as silk but a tad soft at the bottom end by hi-fi amplifier standards, if not by AV receiver standards.

CONCLUSION

As the silver disc slowly goes out of fashion today's AV receivers have taken on new roles and the big Yamaha is a great example. It is complex and a head scratcher to use at times, even for an AV veteran like me, but you get it all from this receiver. It is a network player, a memory player and so much else. If you are looking for a receiver that is thoroughly well engineered in every area, has few limitations and offers lovely sound quality, then Yamaha's RX-A3010 is a real star.

VERDICT

A big AV receiver that can do it all, playing LP and SACD as well as Blu-ray. It is graced with a big smooth sound. Top notch engineering.

YAMAHA RX-A3010 £2000
 Yamaha
 +44 (0)844 811 1116
<http://uk.yamaha.com>

FOR

- powerful, smooth sound
- massive ability
- works well in all areas

AGAINST

- complicated
- awkward setup
- mediocre remotes

MEASURED PERFORMANCE

The amplifier produced 200 Watts into 8 Ohms and 324 Watts into 4 Ohms under measurement (set to 8 Ohms). In Pure Direct mode bandwidth measured 1.5Hz up to 60kHz (-1dB) so the Yamaha has massive power over wide bandwidth. In 'Direct' mode analogue inputs are sent through an input ADC and this limits bandwidth to 48kHz, suggesting a high 96kHz sample rate (most are 48kHz). Distortion was low at all frequencies and powers, just 0.02% at 10kHz.

The DACs offer 24/192 resolution and our analysis shows a response flat to 60kHz, with a slow roll down to -8dB at 96kHz, so the DACs fully exploit high resolution sound tracks and music in bandwidth terms. Distortion at -60dB with a 24bit test signal was a little higher than expected at 0.12%, where 0.04% is possible. Peculiarly, SACD at -60dB measured 0.05%, suggesting the receiver has dedicated DSD convertors and does not convert DSD to PCM before conversion. USB handled 24/96 WAV and gave full bandwidth to 48kHz, but at -60dB distortion measured a high 0.8%, albeit second harmonic only. Bandwidth with SACD was limited to 42kHz by steep filtering.

The VHF/FM tuner measured flat to 13kHz before a roll off caused by the 19kHz pilot tone filter. Hiss was very low at -70dB, achieved with an aerial signal of just 380µV or more – a very low value. Mono and Stereo sensitivity figures (-50dB hiss) were also very good, meaning the tuner is unusually sensitive and hiss will be low. Distortion was also low at 0.05% at 50% modulation, and 0.25% at full modulation. This is a very high quality tuner section.

Phono stage equalisation was accurate and noise low, with sensitivity normal for MM cartridges at 5mV, and overload fine at 54mV.

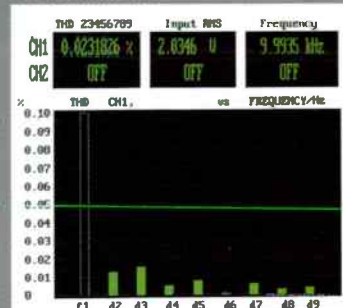
In every area the Yamaha RX-A3010 receiver measures well. It is a complex but high quality product measurement shows. NK

| | |
|-------------------------|-------------|
| AMPLIFIER | |
| Power | 200watts |
| Frequency response | 1.5Hz-60kHz |
| Separation | 82dB |
| Noise | -87/-102dB |
| Distortion | 0.02% |
| Sensitivity | 300mV |
| VHF/FM | |
| Frequency response | 26Hz-13kHz |
| Stereo separation | 45dB |
| Distortion (50% mod.) | 0.05% |
| Hiss (CCIR) | -70dB |
| Signal for minimum hiss | 0.38mV |
| Sensitivity | |
| mono | 32µV |
| stereo | 6µV |
| DISC | |
| Frequency response | 12Hz-60kHz |
| Separation | 89dB |
| Noise | -82dB |
| Distortion | 0.08% |
| Sensitivity | 5mV |
| Overload | 54mV |

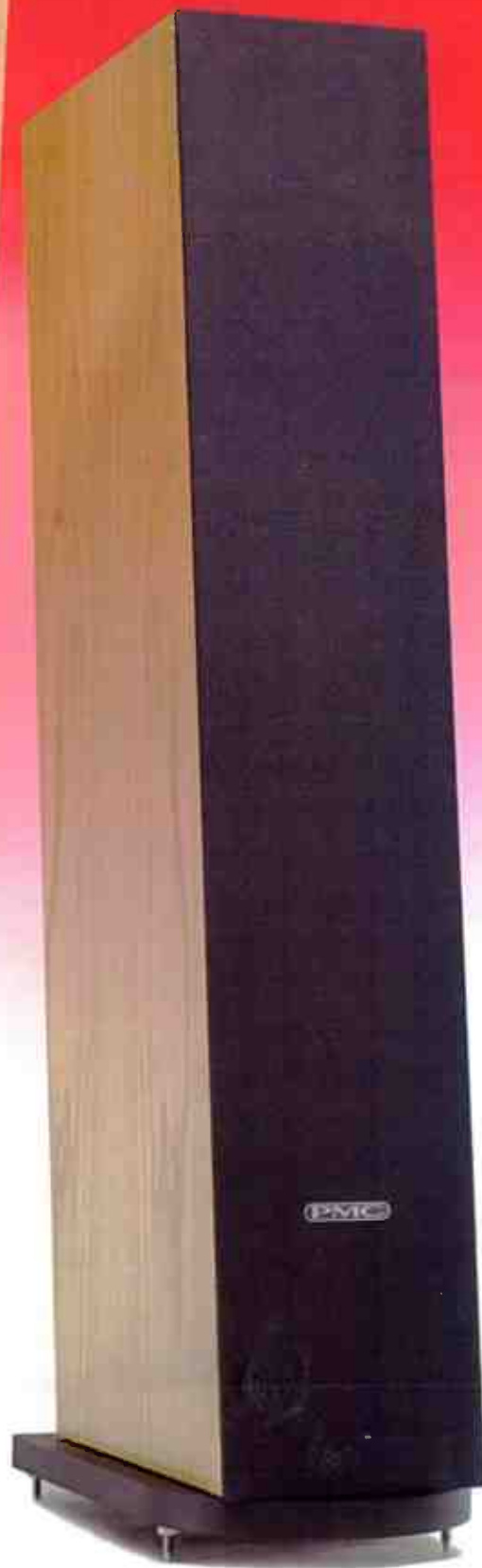
FREQUENCY RESPONSE



DISTORTION



Top Twenty



Adam Smith takes a listen to PMC's new top-of-the-range Twenty-24 floorstanders.

The early 1990s was an interesting time to be setting up a new hi-fi company. Following the demise of many manufacturers during the darker days of the 1970s and the move to the brand new CD format in the 1980s, the British hi-fi industry was not in the best of shape, with the buying public bidding a fond farewell to many companies that had been virtually household names as far back as the 1950s. However, into this uncertain time stepped Adrian Loader and Peter Thomas and the result was the Professional Monitor Company, now PMC loudspeakers.

Peter's background was in Engineering and he went to work for the BBC in the 1970s, culminating in a role as manager for outside studios, including Maida Vale. He soon realised that there was a need for a new loudspeaker that could handle high sound pressure levels but still offer monitor standard quality and, finding nothing available that could do the job, he set about designing his own, in conjunction with friend Adrian Loader. The result was the BB5 ('Big Box!') and the two set up PMC in order not to conflict with their interests at the BBC.

In the past 20 years, PMC have risen to become one of the most successful professional monitoring loudspeaker companies out there, but they have also succeeded in breaking into the hi-fi market, with a wide range of models that incorporate their signature transmission line configuration. After the activity of the company's 20th birthday last year subsided, it was time to unveil the latest project – the Twenty Series.

Although PMCs previous domestic loudspeakers have shown a clear lineage to the professional models, they broke the mould somewhat with the launch of the very striking Fact series a couple of years ago, and I personally think the Fact 3, with its matching stand, is one of the most attractive designs on the market today. However, things have moved a step further with the new Twenty series, their novel 'swept-back' stature making them instantly recognisable.

The range consists of four models – the standmounting Twenty.21 and Twenty.22, plus the floorstanding Twenty.23 and Twenty.24, the largest of which is under consideration here. There is also a matching centre channel unit, the Twenty.C, which was launched this year at the Bristol Sound and Vision show.

In the case of the Twenty.24s, drive unit lineup consists of a 170mm bass/midrange driver, which fires at the rear into a transmission line of 3m effective length, venting at the bottom front of the cabinet. This is a completely new driver design for the Twenty series, as is the 27mm Solonex tweeter, which PMC say allows a lower crossover point of 1.8kHz between the two units.

The crossover itself is also new and once more borrows design cues from the Fact range. What this

by a decent amount, so allowance should be made for room behind them. A weight of 21kg each is more than enough to ensure that they stay stable but also means that they are not unduly difficult to move around. Finish options are Oak, Walnut and Amarone real wood veneers, plus the rather lovely Diamond Black gloss. Finally, the grill is a properly thought-out item that covers the full front of the speaker and attaches firmly using magnets. Too often I find that grilles can be an afterthought and look

"the PMCs captured everything perfectly and had me on the edge of my seat with excitement"

means is a fibreglass PCB board with thick copper tracks to minimise inter-component resistances and allow higher power handling. Add in a sprinkling of Solen capacitors and hand-wound inductors and you have a recipe for a crossover circuit that should offer minimal interruption to the signal passing through it.

Dimensionally, the Twenty.24s tip the ruler at 1028mm high, 184mm wide and 419mm deep, so they are tall and slim but I found that they benefit from being out in open space

rather ungainly but as someone who much prefers to listen with grilles in place, I offer firm thumbs aloft to PMC.

SOUND QUALITY

With a good long warm-up under the belt of the PMCs I sat down to listen and found myself enjoying a loudspeaker that I feel sure will appeal to many. I have gathered the opinion in the past that many feel PMC loudspeakers have a particular kind of sound which can tend to polarise opinion for many; like Marmite, many either love them or hate them, it seems! Personally, I've generally always been a fan but I can also appreciate why their monitor-like qualities do not appeal to everyone. However, the Twenty.24s continue a precedent started by the Fact series that I am sure will make them appeal to a wider audience, without alienating long-standing fans. In short, they are a very likeable design.

Working on the theory that "if you can't dive straight in with a bass test track when the speakers in question have a transmission line, when can you?" I cued up a recent acquisition in the form of 'The Vision' by Joker, which has some mean bass lines on it! I was delighted to hear that the PMCs absolutely lapped it up, offering a superbly punchy rendition of the tracks. The album is a modern dance type offering and so the bass sequences are synthesiser-based but the fast, tight nature of the notes came through extremely well. I felt on occasion as I pushed the volume level higher that I could detect the faintest hint of box overhang but the nature of the music meant that the next note was well underway a short time later



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and the Twenty.24s never felt uncomfortable, wallowy or boomy, as long as they were not placed too close to rear walls – I found around 50-70cm was best and then they came together beautifully. Even with less thunderous source material, the Twenty.24s left me incredibly impressed by the way in which they were never too straight-laced and always revealing of the information on the record. They have a glorious sense of authority and control that they impart in a subtle but very effective manner across all styles of music.

As noted by Noel in his measurements (see Measured Performance) the Twenty.24s do have a rise in output towards the upper registers. However, this is actually placed quite well within the frequency range – much lower and instruments start to sound a little overblown and, the higher the peak moves, the more the treble can become uncomfortably sharp and even slightly 'hissy' at times. In fact, the Twenty.24s again have a very well judged balance, offering plenty of crispness, detail and insight to the treble but without any of those unwanted side-effects. Consequently, violins were superbly outlined yet sweet, and cymbal strikes were deliciously snappy and vivid.

So, highs and lows were good. What about the middle? When considering a loudspeaker that has a rise at either end of the frequency spectrum, the midband can often be somewhat left floundering in the middle. Fortunately, the Twenty.24s suffered no such issues and turned in a beautifully balanced performance. With my ultra-critical hat on I would say that perhaps they do not project vocals three-dimensionally out into the room as well as one or two other designs at the price, but they certainly never sounded constrained or shut-in. Their overall nature is well balanced and acoustic instruments were well rendered. The slight treble rise actually combined beautifully with the Antonio Forcione's acoustic guitars to add a real sense of precise impact to every string pluck. Furthermore, the sense of anticipation was palpable as Ravel's 'Bolero' built up to its crashing crescendo; from the whisper quiet action right at the



of age. They take the best of the technologies that the company has spent 20 years developing and update it into a sonically effective, visually striking and aesthetically pleasing package. The result is a loudspeaker that has the deep bass of a transmission line and inside which beats the heart of a well-honed monitor, but yet the whole package just seems more approachable and a bit 'nicer' for want of a better word! The result is a loudspeaker that most certainly tells you the truth but doesn't quite ram it down your throat in the way that some older models used to.

The Twenty.24s are likely to win over a whole new generation of loudspeaker buyers I believe, whilst at the same time keeping those of us who always liked the PMC sound happy. As you may have gathered, I liked them!

beginning right up to the climax, the PMCs captured everything perfectly and had me on the edge of my seat with excitement – always a good sign!

CONCLUSION

The PMC Twenty.24s are a fine way for PMC to celebrate their coming

REFERENCE SYSTEM BOX
 Garrard 301 turntable
 SME 309 tonearm
 Ortofon Kontrapunkt b cartridge
 Anatek MC1 phono stage
 Naim Supernait amplifier

MEASURED PERFORMANCE

The PMC Twenty.24 is a little different in having a long internal acoustic line to lose rear energy and return some in-phase with the bass unit. This is a form of transmission line, a difficult principle to make work correctly, especially in short lines like this one. Port output peaks around 200Hz and there is a pronounced overhang our decay analysis shows, suggesting a bit of boxy or chesty coloration. Otherwise, the decay analysis is relatively clean, meaning this is otherwise a low coloration design. A smooth frequency response characteristic reinforces this feature.

However, measured on-axis treble (green trace) from the tweeter rises strongly to +6dB at 12kHz, sufficient to be audible brightness. Off-axis (grey trace) this falls to a more amenable +3dB at 10kHz, so the speakers are best pointed straight down a room, and listened to off-axis by twenty degrees or so.

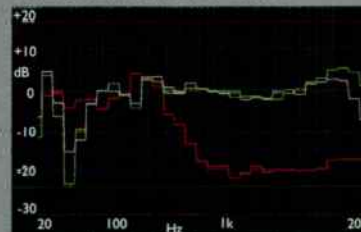
Bass extends down to 55Hz, but the lower port extends down further. However, port output is not strong so bass is unlikely to sound heavy. The bass unit is well damped by the line though the impedance curve shows, so bass quality should be good.

Sensitivity was high at 88dB Sound Pressure Level from one nominal watt input (2.8V) so 40 Watts or so will give

plenty of volume. High power amplifiers are not needed and since impedance measures a high 8.4 Ohms overall the Twenty.24 is easy to drive.

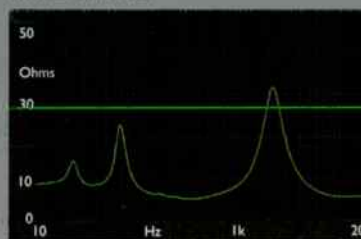
The Twenty.24 will have a bright balance but this apart it will sound quite smooth and even. Bass quality should be good, but some box coloration or chestiness on male vocals may be apparent. NK

FREQUENCY RESPONSE



Green - driver output, on axis
 Grey - off axis
 Red - port output

IMPEDANCE



VERDICT ●●●●●
 Stylish, detailed, punchy and thoroughly enjoyable, the PMC Twenty.24s are a very welcome addition to the loudspeaker market.

PMC TWENTY-24 £3,100
PMC Loudspeakers
 ☎ +44(0) 870 444 1044
 www.pmc-speakers.com

FOR
 - styling
 - superb authority
 - crisp, clean treble

AGAINST
 - slightly recessed midrange

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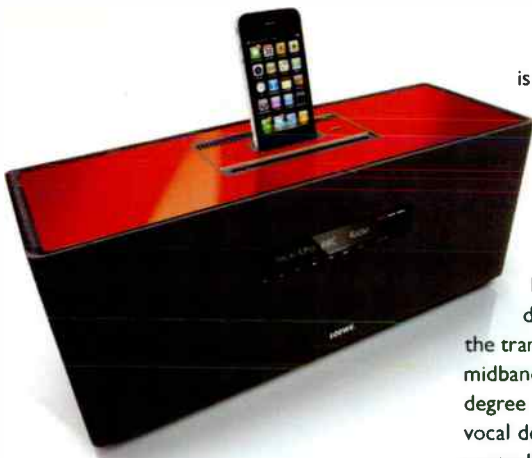
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LOEWE SOUNDBOX £449

The Soundbox combines an iPod dock, a slot-loading CD player and a FM radio in a brick-shaped chassis that is rather larger than the same, spanning 450x145x170mm. Weighing in at a relatively meaty 5.1kg and featuring a pair of 102mm speakers and a pair of amplifiers, the Soundbox also includes a Line In socket plus a USB port and headphones socket. With the ability to connect a Spotify or Airplay-equipped device, the Soundbox sports a multi-product remote control.

I began with the Sugababes' Stronger track on CD. The Soundbox

is nothing if not transparent.

The compressed nature of this track is rather distasteful to the unit and it shows, exposing the CD master for what it is – thoroughly nasty with bright upper mids and a no dimensional treble. Despite the transparent presentation, the midband is slightly veiled, losing a degree of detail, especially within the vocal delivery yet bass is admirably controlled for the price. The lack of deep bass doesn't hide the fact that what bass there is, is comparatively focused and tight.

Moving to the improved Linn Records, Carol Kidd master via the album, 'Dreamsville', the Soundbox replicated its rather coloured upper midrange which masked the presentation of both the piano and the guitar solo. Bass performed relatively well, though, providing some character and a fairly solid presentation.

Switching to my iPod Classic 80GB output and the same two tracks but this time played via an EAC-ripped WAV, the sound quality was improved. The Soundbox still

saw the Sugababes' track as bright with harsh upper mids but playback was rather more amenable and slightly more balanced with more integration within the mix, allowing all frequencies to blend in a rather more civilised fashion.

While the upper mids were not exactly of audiophile quality, there was far less colouration in this area when switching over to the Kidd, jazz vocal, track, providing a more enjoyable performance and allowing both piano and guitar to better express themselves. Even the cymbals provided some measure of treble fragility.

The Loewe Soundbox struggles a little as a CD player as distortion hampers playback, resulting in an unbalanced presentation. As an iPod dock, it's principle task I would assume, it is more successful, providing an enjoyable and even delivery that was both open and more approachable. Couple that with an admirable FM radio output that supported a broad soundstage and the Loewe Soundbox is a useful home entertainment centre. **PR**

[Contact: www.loewe-uk.com]

soundbites

ORITON BLACK BULLET £55 (FOR A PAIR)

Designed to tackle vibrational distortion, the Bullets look like two bulky phono plugs. The idea is that you plug the Bullets into your CD player, phono amp or whatever and then you plug your interconnect into the Bullet. So what's happening here? How does it remove the distortion? According to Oriton boss, Mike Stone, "I can't tell you." But generally? "The vibration arrives from a multitude of directions: from every piece of equipment that we buy. We have a CD player that spins at thousands of revs per minute, transformers, components that pick up the vibration that transfers it to another and so on."

So how does the Bullet perform? Placing the highly compressed Stronger from the Sugababes on my Icon CD-X1 CD player, the change was quite remarkable. This CD displays quite an aggressive degree of distortion which threatens to actually hurt your ears. With the Bullets

fitted, all of the hard, distortive edges that made this track such a difficult listen were gone. Events such as vocal climaxes and intense instrumental upper midrange sequences were now effectively tamed. When faced with this reaction, the first concern the Bullets may trigger is a suspected diminution in dynamics. Far from it, the removal of the distortion actually allowed dynamics to flow. The character can still be heard but now more of the track can be experienced. Distortion was no longer able to close sonic doors.

The vinyl test was just as interesting – mainly because I tested the Bullets with a pair of very expensive Black Rhodium Cantata interconnects (£3,800/metre) so didn't expect much of an improvement. That couldn't be further from the truth. Vocally, June Christy (via 'The Cool School' LP) was now raised higher up the soundstage, her delivery now sounded more feminine while her vocal performance was both

smoother but also exhibited greater nuance with a wider array of subtle modulations.

Raising Christy, vocally, effectively revealed the instruments behind her. Both piano and drums now had more room to manoeuvre while distortive noise was removed, improving clarity which, again, sourced further detail.

The Oriton Bullets take all of five seconds to fit and produce a superb return of sound quality. To me, buying a set of Oriton Bullets for your hi-fi chain is a complete no brainer. **PR**

[Contact: +44 (0)1633 549 530
www.oriton.co.uk]





"A" Power

Tellurium Q has released a specialised Class A Single-Ended transistor power amplifier. Paul Rigby reviews their new Iridium.

Tellurium Q's Colin Wonfor doesn't just know power supplies, he understands them. There is a difference. To illustrate, he produced power supplies for NASA's ISS (International Space Station) to convert fuel cell voltage from 120 volts DC and then 120 volts DC to 28 volts DC. It was the most efficient power supply of its type in the world at that time. This is a very serious power supply designer.

As such, he decided to tackle one of the toughest amplifier designs around, the Single Ended (SE) Class A. While standard push-pull Class A amps can provide very high power ratings, semiconductor SEs tend to be lower rated, around 5-10W is not unusual, requiring efficient speakers to perform properly. By their very nature SEs have no crossover distortion.

But there are many hurdles to cross when designing a transistor SE, as Wonfor himself stated: "SEs are susceptible to power supply ripple, hence you have to have very large reservoir capacitors to prevent that. Otherwise, any ripple comes straight out of the speakers. The Iridium has a

large capacitor, but it uses a regulated power supply so that ripple noise is even less of an issue. More than that, the regulated power supply actually tracks the amplifier, giving it what it requires at any one time, following spiky dynamics."

SEs are inefficient beasts, requiring lots of power to work correctly. In fact, the Iridium needs 140W per channel just to run! But it's this quirk that keeps the distortion low.

So why don't more designers produce transistor SEs? "All SEs have DC-offset unless they are capacitor coupled, in which case you get poor bass reproduction and control," explained Wonfor. "Prior to the Tellurium Q design, nearly all SEs were, in fact, capacitor coupled. This power amp has a very low DC-offset and is DC coupled to the speaker, enhancing its bass control.

Then you get phase angle changes at all frequencies, with muddy bass and no control. You're relying on the impedance of the capacitor which is changing all of the time.

That was the original situation. What we do is to remove that DC-blocking capacitor, replacing it with a

special servo system to control the DC-offset on the output. That helps solve the phase change problem too."

Inside, the Iridium power amp uses two toroidal power supplies that are mounted vertically and at ninety degrees to the circuit board so that any magnetic field produced by them does not affect the circuitry. The toroidal transformer also has twenty percent more copper than normal to reduce noise and is random wound to prevent magnetic fields squirting out of the areas with less or no wiring.

There's lots more to say about this design. Its dynamic power handling allows peaks way beyond what would be expected from a power amp of this type; low open loop gain reduces negative feedback and further helps lower phase shift and it uses two 55A MOSFETs. The company could have used a single 12A MOSFET but using more and of such a high current rating allows them to be driven more effectively within their linear range which, again, gives rise to less distortion.

Measuring 430x290x220mm and weighing in at a hernia straining 21kg, the Iridium power amp provides

REFERENCE SYSTEM

Icon Audio CD-X1 CD Player
Avid Acutus/SME IV/
Benz Glider
Icon PS3 phono amp
Aesthetix Calypso Preamp
Icon MB845 Monoblocks
Quad ESL-57 Speakers (One
Thing Modified)
Tellurium Q Graphite
speaker cables



20W into 8 ohms while peaking just over 40W they claim. So what does it sound like?

SOUND QUALITY

First impression with the Iridium power amplifier was that the distortion of the valve set-up had been removed, resulting in an extraordinary quiet base to any music pumped through the Iridium. This distortion-free sound lends itself well to detail retrieval.

With distortion lowered the Sugababe's track, 'Stronger', never sounded more interesting. This track is actually built upon distortion, it's entire raison d'être is focused on compression and peak limiting and the Iridium calmed this track like no other amp I have ever heard, releasing new detail to enter from the quietude. Upper mids showed a welcome clarity while lower mids experienced an easy smoothness. The only thing that the Iridium lacked was my Icon's air and a sense of space. The Icon added a lightness of touch that the Iridium couldn't quite approach as well as a breezy nature to the upper mids that produced an extra fragility to the treble.

That said, for a solid state design, the Iridium was open, approachable and lacking in any sort of hardness or harshness, but it still had bite. That said, the Iridium is not a 'sweet' amplifier. It can provide a mid-upper edge, one that is kept under control by the low distortion design.

And the bass? It's big, but this isn't just heavy bass. This is bass with confident force.

Moving to the HDCD version of Lou Donaldson's 'LD+3' and, intriguingly, compared to my reference Icon the album sounded very smooth, if a little dry in the midrange area. Distortion was very low but this jazz piece, which relies on light, lively, airy detail had some of the life drained away. Yet, the Iridium was still very focused, precise with plenty of detail on offer.

With a slight frown, I replaced that disc with Carol Kidd's jazz-infused 'Dreamsville' (Linn) and was somewhat bemused to be rewarded with swathes of warmth and life. The same facets

that were largely absent from the Donaldson CD. What was going on?

The Iridium's pin sharp focus produced, for example, piano notes that had snooker ball roundness, with a hardness and shine, while treble-based cymbals shone with delicacy. The bass was both tight, characterful and deep with a power that provided a subtle yet significant foundation.

After extended listening I realised that the Iridium's 'dry' performance was nothing more than transparency, digging deep into the master to produce a revealing description. It was the Donaldson CD that was revealing its character, not the amp imposing it, in effect.

Moving to vinyl and Pure Pleasure's June Christy 'The Cool School', the source's higher resolution produced a detailed, dynamic playback that was multi-dimensional in its performance, tracking the rather husky Christie vocal in all its textural magnificence, with a finely crafted, yet understated, backing.

That was confirmed when playing Music On Vinyl's 'John Coltrane And Johnny Hartman'. Again, the Icon displayed more air and lightness of approach while the Iridium's extra focus gave the music greater stability, planting the music firmly on stage. The Icon took a rather more flighty approach to the music which could, at times, be almost diffuse.

Finally, I ran an original Throwing Muses indie rock LP, 'House Tornado' through the Iridium but connected one of Tellurium Q's highly rated Black power cables (£798) to the end – recommended by the company for use with this particular power amp. The results produced an almost

sublime sound, opening more doors towards blue lagoon clarity. More of the mix was available while the simple strumming of an acoustic guitar provided volumes of information compared to the restricted, one dimensional, performance of the default cable. Frankly, the Black cable gives the Iridium new bass crispness, a new tightness but also a new lightness within the upper midrange.

CONCLUSION

Used in conjunction with a top quality power conditioner such as Isotek's Aquarius and/or Super Titan along with Tellurium Q's own Black cables, you have a mighty power amplifier that possesses immense clarity and detail, strongly projected. If you want the truth from your music, then the Iridium will deliver. It is a quite remarkable piece of power amplifier technology, but then Single Ended transistor power amplifiers are rare and their sound understandably unique.

(see also Noel Keywood's column on p87 for his impressions of the Iridium)

VERDICT ●●●●●

It's big, it's meaty and it sounds like an ideal blend of solid state and valve technology. Buy it and then upgrade with a Black cable, toute suite.

TELLURIUM Q IRIDIUM £4,800
 ☎ +44 (0)1458 251997
 www.telluriumq.com

FOR

- build quality
- transparency
- detail
- clarity

AGAINST

- size
- weight
- runs hot

MEASURED PERFORMANCE

There are very few single-ended (SE) transistor amplifiers around as they are difficult to design and make work properly. The Iridium's measured performance reflects this. It produced just 18 Watts into an 8 Ohm load, but this fell to 9 Watts into a 4 Ohm load due to asymmetric output clipping, suggesting the low load, under direct couple conditions, was affecting the internal working point. This is why an output coupling capacitor is commonly used.

As most loudspeakers are 4 Ohms nowadays (they nearly all use 4 Ohm bass units) that makes the Iridium a 9 Watt amplifier, but this is much like valve SEs that use a single output device. Because an SE dissipates full power except when producing music the Iridium runs very hot at idle.

Lack of an output capacitor brings benefits though, including a frequency response down to d.c. and lowered phase shift allowing more feedback to be applied. Output impedance of the Iridium was very low as a result, damping factor measuring an unusually high 93. This suggests very good control over bass cones and subjectively tight bass. D.C. output offset was a steady, high, but acceptable 60mV (6mV is common) on both channels, into 4 and 8 Ohm loads.

Distortion was low at all frequencies and outputs, our analysis showing odd order harmonics, that were produced by peak distortion

a time domain analysis showed, rather than crossover distortion. The spectrum remained fairly stable with level, a good sign, so subjectively it is unlikely the effect will be aurally obvious.

The Iridium measured satisfactorily, but it must be used with sensitive loudspeakers requiring very little power; overload will be obvious, as clipping was hard.

This is a very specialised amplifier with no obvious measurable benefits, but SE Class As have an ardent following based entirely upon their sound quality, which is how the Iridium is best judged. NK

| | |
|--------------------|-------------|
| Power | 18watts |
| Frequency response | 1.5Hz-60kHz |
| Separation | 102dB |
| Noise | -90dB |
| Distortion | 0.03% |
| Sensitivity | 1V |

DISTORTION



mail



Visit our website at www.hi-fiworld.co.uk or send your emails to letters@hi-fiworld.co.uk. Letter of the month wins a pair of KEF Q100 loudspeakers.

LETTER OF THE MONTH PRIZE



KEF Q100 LOUDSPEAKERS

A pair of KEF Q100 loudspeakers are on their way to JOHN MYLES, Letter of the Month winner in our May 2012 issue.

Editor's note – we've had some illuminating letters about Networks and digital cables, but they are long and a bit technical. To avoid brainache for readers underwhelmed by the complexities of digital, you will find them together at the end of Letters.

Letter of the Month



SINGING PROFESSIONAL

My system has grown somewhat haphazardly in recent years but I'm now homing in on a definitive set up - or trying to. There is one cast in stone element, which I'm loath to change. At the end of the signal path, and occupying two corners of my living room is a pair of IMF Reference Standard Professional Monitor Mk IVs. These transmission line monsters are even bigger than the IMF TL80s by some margin, and something of a family heirloom, being my dad's before I got my hands on them. They were

purchased as liquidated stock from the Hi-Fi Surplus Store in the early 80s, when IMF sadly went out of business. So big were they, that we had to put one speaker in the back of my dad's Capri with the seats down and tailgate open, and one on the roof rack!

Fortunately I have no near neighbours so they can be used loud, which is a good thing because they need to be moving a lot of air before they really get going. Feeding these hungry beasts I have a pair of Conrad Johnson Premiere 12s.

So far so good. I love the IMFs, but I'm aware that they are a bit on the slow side, but really nothing quite gets those low furniture vibrating bass notes quite like these do. I like all sorts of music, but have a fondness for Prog for which the IMFs excel, particularly if there's a bit of Moog or Mellotron action.

Moving forward and this is where it all starts to get a bit messy. I'm currently between pre amps, having jettisoned an Audio Research SP – I can't remember what one (it was the valve hybrid one)! It never really sounded convincing to my ears. In temporary residence is a Hitachi HCA 8500 Mk2, which is actually pretty good, but not exactly in league with the CJs. It has a surprisingly good phono stage with a good choice of gain settings for various cartridges, but that said I'm using a World Designs phono stage and power supply.

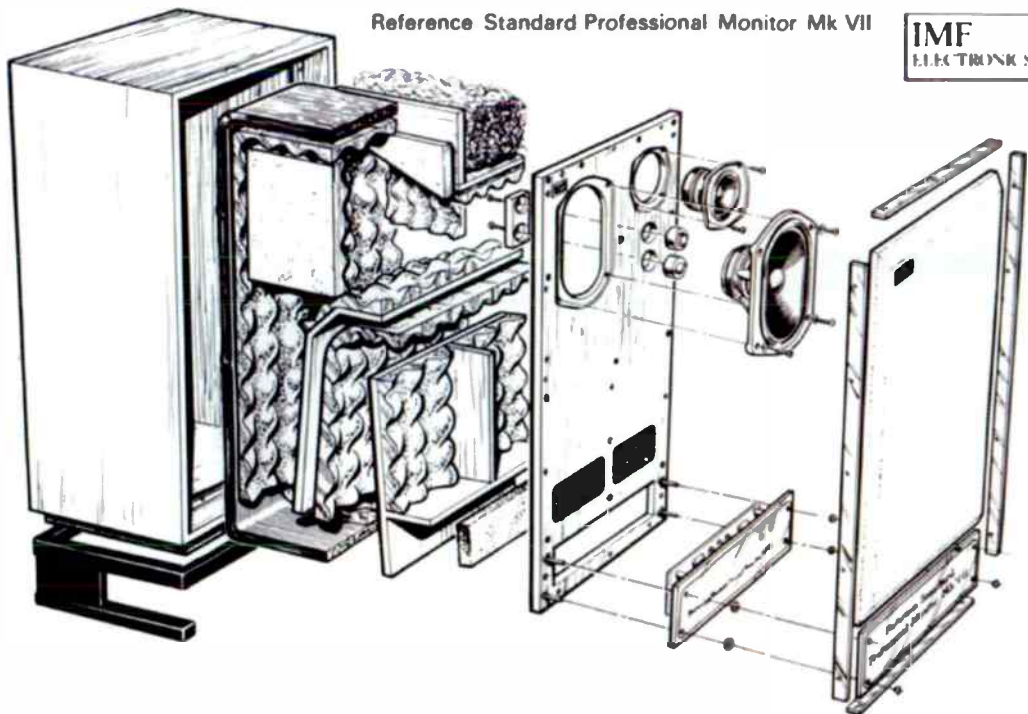
Finally there is the Technics SL-120

Mk2. It's a lovely thing in excellent condition and was fitted from new with an SME Series III S arm, which I realise is a limiting factor. I've fitted my trusty Dynavector Karat 17D3 and have so far modded the Technics with upgraded feet and mat from Sound Hi-Fi. At the moment the deck has the pace that I was expecting, but is a bit bass light, which I put down to the arm. Certainly CDs currently have more oomph, but I'm fairly clear on the upgrade path, which will involve retaining the Dynavector and fitting a more up to date SME and probably remote PSU and upgraded main bearing.

I'm quite keen on having a punchy, metronomic and up-front turntable set up, because frankly I think the IMFs need to have something to think about, or they'll just wallow. Equally, I do wonder whether the CJ 12s really have the grunt required. Would the IMFs benefit from some serious horsepower to get the best out of them? I'm thinking of the big engine analogy here. I'm not wedded to valves and my inclination is towards a big sound, which the IMFs deliver, but with some wallop and control too, which currently they don't quite manage.

And of course in the middle of all this is the pre amp. Which way to go? If I'm sticking with valves, then the only pre that has really caught my attention is the Icon Audio LA-4 and frankly with the way high-end audio is going these days price wise, £1000 is about the maximum I'm willing to spend. Of

For more advice see Letters from earlier issues at www.hi-fiworld.co.uk/letters



Inside the IMF Reference Standard Professional Monitor IV. A KEF B139 bass unit was acoustically loaded by a long, damped transmission line, ported at the front of the cabinet. This gave big bass that ran deep, a feature of IMFs, but they need high damping factor amplifiers for control.

course there is always the second hand route.

So any advice gratefully received. I suppose it all comes down to the speakers. If you guys had a pair of these monsters in residence, how would you get them to perform at their optimum?

**Steve Bennett,
Hoxne,
Suffolk**

loudspeakers that need the grip and current delivery of solid-state, this is the one! You would be best off siting a monoblock power amp near each one, but suitable models like the Electrocompaniet Nemo don't come cheap. NAD will be updating their M2 Class D technology power amplifier soon, so an old M2 might become available at low cost and Nu Force make technologically advanced Class D power amps with a tight,

none too detailed or delicate. Hypex modules are an exception with a clean sound and can be found in Channel Islands amplifiers.

Roksan make amplifiers with the right sort of balance for your IMFs, meaning punchy, dry and very controlled. Their M2 power amplifier would be a very good choice. But don't get a Naim, as they have a low damping factor and will not exert enough control.

If you use an integrated amp., site it reasonably close to the loudspeakers and use stout loudspeaker cables.

Try and audition before buying as many won't cut it with those loudspeakers, and don't buy blind from eBay for the same reason.

In front of your solid-state power amplifier use a valve preamplifier, or possibly a passive preamp, or even a Music First Audio transformer preamp., if your budget can stretch that far. The Icon Audio LA-4 may well suit; it's 6SN7 small-signal triodes are the smoothest, most relaxing valve you will ever hear, but it has fulsome bass and I am uncertain how this will suit your big IMFs.

You are spot on with your turntable upgrade suggestions. Get an SME309, a lovely arm by any standards and upgrade the SL-120 with Sound Hi-Fi parts. Consider a Benz Micro Ace (low output) MC cartridge at least if you want to move up from the Dynavector.

NK



Technics SL-120 Direct Drive turntable. It has metronomic timing and suits the IMFs. Fit it with a good, modern arm like an SME309, we suggest.

Hi Steve. Those are great loudspeakers. Your dad was brave to buy them; they are rare birds and produce bass like few others. The KEF B139 bass unit loaded by a long 'Transmission' line is quite a load and demands current. Of all the

clean sound.

I am not saying Class D is better, but generally they sound dry and tight. You just have to be aware that many have rotten transfer functions that modulate distortion terribly and they have nasty treble and are



The popular Logitech Squeezebox can be tweaked to improve its sound, says Stephen Judge.

A TOUCH BETTER

Thanks for your very interesting comparison of digital streamers in your March edition. I've been running one flavour or another of a networked Squeezebox for a few years now and never looked back. It's a boon in convenience and I find the sound quality excellent (digital output from my Touch to Lyngdorf digital amps into Perigee ribbons or Final electrostatics / Lyngdorf corner woofers).

Keeping the music library in order though does take a bit of time and effort and, to be fair, users of Squeezeboxes and the like are usually expected to have a modicum of computer savvy. It's really cute too to be able to access my music from the comfort of my iPad!

Anyway, I came across the suggestions below and applied them a year ago and they did make a very noticeable improvement (I haven't changed the power supply as I had tried that with a previous Squeezebox and, to be honest, heard no difference).

I've recently upgraded to v3.0 of the firmware modifications which has been a real step change improvement. The instructions may look a bit disconcerting at first, especially to a novice, but the whole revision took about an hour. The instructions are actually quite easy to follow and you can ignore various sections depending on what you want to do. Perhaps you might want to try them on your own Touch and re-evaluate. Might move the score up a notch or two!

Stephen Judge

DIY-AUDIO SBT Modification Thread
<http://www.diyaudio.com/forums/pc-based/168871-squeezebox-touch-modifications.htm>

A TURN OFF

I listen mainly to classical music, most of the time late at night, so with reduced volume. And my problem is: for some reason the music is not involving. I know that is a difficult and personal description, but it is the only way to put

it. I am sure that everything measures very fine, but in the end I often switch off the music after an hour or so.

My setup is: KEF 203 Reference loudspeakers, MBL 7008 amplifier, Olive 4 music server (just used as digital output), North Star 192 MK2 DAC. Power and 'speaker cabling from Cassiopeia, XLR interlinks (DAC to amplifier) from John van Gent and Kimber Select KS 2020 digital interlink.

I don't fancy going analogue (LPs) as I have zero LPs and 500+ CDs (real CDs and/or downloaded). Due to physical restrictions, I cannot use a tube amplifier or separate pre/power amp.

Do you have any suggestions what might be wrong with my system? Why does it make me so listening-fatigued? Any suggestion what I could try to change? Or is it just me, between the ears?

Kind regards,
Serge Wallach
Amsterdam
Netherlands

We have all suffered this and I know what you are experiencing. The KEFs are good but can be a bit clattery in their treble and this does not suit the items you are using to drive them. The MBL amplifier is not a good subjective match; it has a rather soul-less and dry delivery, if clean and powerful. I suggest you replace it with a Creek Destiny II integrated amplifier – this will make a big



Creek Destiny 2 amplifier has an easy, enjoyable sound, but is powerful and suits KEF Reference 203 loudspeakers.

difference. As transistor amps go it is smooth as silk, almost warm, but big and muscular in character. **NK**

MISSING MUSIC

I read with interest the letter 'Missing Music' in the March 2012 issue. The fact that Christopher Warrender's copy of Eric Clapton's *Unplugged* album on vinyl had some music missing did not really surprise me. You published a letter by me in late 2010 in which I complained about the poor quality of vinyl pressing produced by the major labels and it seems that things have not improved if Mr Warrender's experience is typical.

I would take issue, however, with his assertion that reissues should be avoided. I buy a lot of reissues on vinyl, mostly from specialist reissue labels such

as Doxy, Sundazed and Music On Vinyl and the quality I find on these LPs is always superb. It would seem that the majors who reissue their own stuff on vinyl just don't care about quality and are just out for the quick buck. That view is counter productive of course, because "once bitten, twice shy" as the saying goes, so you don't buy their reissues a second time.

I have to say that I was surprised that Hi-Fi World did not follow up Mr Warrender's email to Warner as surely you have a better chance of squeezing a reply out of them, being the respected magazine that you are!

Keep up the good work, although I'm not very keen on the increasing emphasis you are giving to digital.

David Jarvis



KEF Reference 203 loudspeakers

The music business is its own world, one having a difficult time as music sales slip downward and once-great studios close. With engineers adding distortion to give music "graunch" and compressing and balancing recordings to sound loud on a small radio or in a car, it can be depressing to even attempt any discussion about quality, and often a waste of time. This is one of those horrible generalisations; for every engineer that has become functionally brain dead after spending years in front of giant studio monitors cranked to max volume, there is one that uses electrostatics. But we visited a West London studio not so long ago where they cut vinyl and upon asking how they replayed the result to check quality they sheepishly admitted they did not bother. We suggested they buy



Re-issue labels such as Doxy, Sundazed and Music On Vinyl are superb, says David Jarvis.

at least a little Rega turntable and an Ortofon 2M Black to hear what they were doing. **NK**

NAPPED

I have a fully Funked Sondek/Ittok 2/Dynavector 10x5, Naim NAC32/ NAP160 and a pair of Harbeth HL monitors Mark2. I am thinking of replacing the preamp with a valve based unit, hoping to smooth off a few rough edges and open up the soundstage. I've read some favourable reviews of the Croft micro basic and the Micro 25 preamps and I'm hoping for some advice as to whether or not they are electronically compatible with my NAP160. If they are, would you advise going for the 25 which has a phono stage or the basic, which is £350 cheaper, and

about these preamps and any other suggestions would be welcome. **Steve Wright**

Hi Steve. You get what you pay for here. The Crofts are fine and inexpensive and we hear they drive a NAP160 successfully, but we have not tried it and cannot be sure. Technically, there is no matching problem but you do have to beware of having enough gain in the system to drive the NAP160 from a turntable. The Icon Audio products have sufficient gain (x3000 MC) and that is partly what you pay for. Don't forget that you can drive a power amplifier direct from an Icon Audio phono stage, because it has a volume control. Whether it will get



Icon Audio phono preamps have a volume control, so can drive a power amplifier like the Naim NAP160, owned by Steve Wright, direct.

use a separate phono stage. A couple of dealers have suggested the Icon Audio LA4 and I remember reading NK's review of this preamp a couple of years ago where he mentioned compatibility with Naim power amps, although in its current form it's about £300 more than it was then and I'll need a phono stage as well.

I haven't heard either but I will before I make a decision. Advice

the NAP160 to full output we do not know but it will almost certainly go very loud at full volume. You could then get an LA4 preamp for extra gain and input switching later. **NK**

KANDY MAN

Perhaps you could offer me some advice on my next upgrade. I currently use a Roksan Kandy K2 amp/CD player with new Monitor Audio RX6 speakers. These

are connected with VDH cables and I listen to LPs using a Project perspex turntable fitted with a Goldring 1042. The sound is very good, but I will soon have in the region of £2k to spend, and am thinking of buying a Creek Destiny 2 amp. Everyone says that this amp has a valve like quality and I am wondering if I would get a better standard of reproduction by changing amps? I would keep the Kandy CD player.

Also, is the MM add-on phono stage for the Creek as good as the inbuilt Kandy stage, or would you suggest a stand alone unit? Would I also gain a lot by changing the Goldring for the Dynavector DV10X5 pick up?

My musical tastes are very wide, from classical to jazz, but no boom boom stuff! Room size is approx 13' x 14'.

Any help would be welcome.

Many thanks,

**Cliff Millward
Tipton
West Midlands**

The Creek Destiny 2 would be an upgrade for your Roksan Kandy, but having said that Roksans are very good. You would be going from good to slightly better, and from a dry, yet solid sound to a big, fulsome delivery. Try and audition first to see if this change of character suits. And yes, the Destiny 2 is as close to a valve amp as you will get from transistors.

To be frank Dynavector cartridges are not my greatest love and the DV10X 5 was surpassed long ago. High output MCs are not a very good idea and few sound special. Stick with MM and upgrade to an Ortofon 2M Black, which will give you a more technically correct if arguably less funky sound than the excellent Goldring 1042, or do it properly and upgrade to MC. You would then need to consider an external phono stage for the Creek, perhaps their own, or a Quad QC-twentyfour P, and at least a budget MC – see our group test in the May 2012 issue.

And a quick word of advice on high output MCs – avoid them! Always go for the low output option. These have the fewest turns of wire, the least wire coloration, the lowest output impedance and the lowest effective tip mass, meaning they track best. To compensate you need a quality preamplifier with low noise and plenty of gain, but you are spoilt for choice nowadays. **NK**

AGING NAIM

After many happy years with my Naim CDI CD player, it has developed a fault where it will not read some discs and has problems skipping forward to other

tracks. I can only imagine the worst, that the laser is going. So if it is not a fixable problem I can only assume it's time to dig deep and find a replacement. My musical tastes are from the dance/electronic spectrum, you maybe familiar with bands like The Prodigy, Shpongle, Infected Mushroom, High Contrast, but I also like hip/hop such as Jurassic 5, Doctor DRE and Fort Minor. I just love the way the Naim musically engages me with this style of music, I think this is partly due to it's rhythm and timing capabilities. If I could find something equally as good or better that would be great. My budget is around £1000, Naim CD5i2? Or maybe Rega Saturn?

I live in a large flat with high ceilings. The rest of my equipment is a Jungson JA88D Class A amplifier and Yamaha NS1000Ms speakers. These speakers sit on Atacama SL300 stands, shot filled. And the equipment rests on Russ Andrews Tortlyte stand, I use Kimber 4TC speaker cables and an interconnect which beat Kimber's pure copper select series (can't remember the name). Both pieces of equipment run from pure silver 14 awg mains cables (these again beat the top copper mains cables from Kimber). Any advice would be greatly received.

Many thanks,
Mark Skinner
Ramsgate
Kent

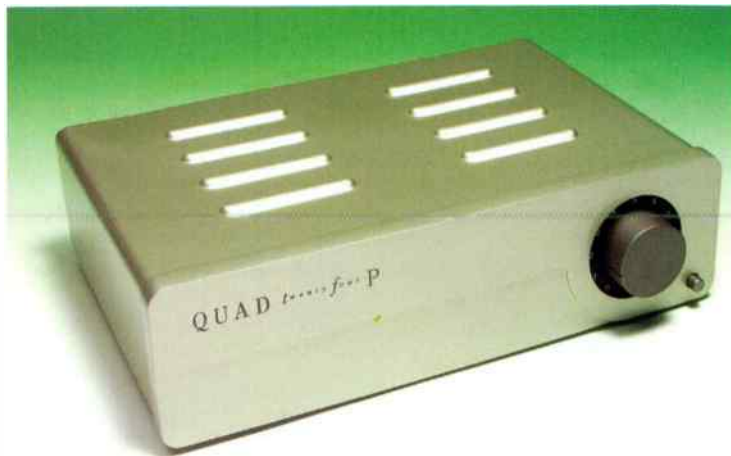


Get the classic Naim sound from a Naim CD5 XS CD player, if your old Naim has died.

I would suggest you either have the CDI serviced or replace it with another Naim, like the CD512 you mention, or a CD5 XS perhaps? You will not easily get a CD player that is clearly better unless you spend big wonga, say for a Canor (with valves) or perhaps a Chord Electronics DAC64 second hand (if there are any!). Then of course you will need a transport, as yours is on its way out. It makes most sense to have it serviced Mark, and then perhaps use it as a transport with an external DAC, or sell it and get a new Naim. **NK**

MEDIA MATTER

I read your article on media players with great interest and agree media players have a lot of potential to create great music and perhaps will become the modern CD players of the future. But for



A Quad QC-twentyfour P phono stage has a lot of gain, so is a good match for an integrated amplifier with limited gain (low input sensitivity), like the Creek Destiny 2.

those of us wanting to get the best out of the humble computer, all is not lost.

There are three ways I can see getting the best of computers for audio purposes.

- 1) Build a dedicated system. You could pay someone to do this for you. It requires a lot of technical knowledge around system building, but will guarantee very good sounds.
- 2) Use a Linux based system. Basically Windows is doing many functions that takes away from the sound quality, using Linux greatly reduces this.
- 3) Use JPlay in full hibernation mode. This will allow Windows users

components that really matters.

I know people will argue "data is data" and yes, I agree, but its having less in the way of getting that data so it is managed without timing issues. The results are clearly evident in the listening. **John Cahill**

Thanks John. I suspect the 'build it yourself' route is still the best, if time consuming. My home built PCs have consistently been more reliable than the commercial PCs (and Macs) we run at Hi-Fi World. I am due to build a new one, but the world is changing and I am unsure building your own PC makes much sense nowadays. My local computer shop will assemble a computer to my spec at no extra charge, saving me the time, and they know what the best bits are as this is their business (they are Epsilon computers in London's Tottenham Court Road, see www.epsilonpc.co.uk).

Computers are general purpose devices running a lot of background services, like anti-virus and content cataloging (e.g. Spotlight on Macs). There is a lot to disable, as a peep inside 'msconfig' on a PC (type this at the command terminal) reveals. Media players avoid all this complexity, as well as the horrors of long Cat 5 cables that really are not a clever idea when it comes to transmitting digital music signals. **NK**

to get their computer sounding like a dedicated high-end Transport system.

Over recent times I have learnt that the more you can get your computer to just function on the sound quality, the better it will perform. It goes back to the old mantra of "source first", and in this case perhaps the DAC is not as critical as we used to think, perhaps it's the quality of the signal going to the

The screenshot shows the JPLAY website interface. At the top, there are navigation links: Download, Buy now, FAQ, Reviews, Testimonials, Forum, Blog, Partners. Below this is a main heading: "JPLAY - instantly transform your PC into high-end digital transport." followed by a sub-heading: "Introducing a number of world's-first features for the ultimate PC-based music playback." A large "PLAY" button with a right-pointing arrow is visible. Below the main heading, three feature boxes are displayed: "Full memory-based playback" (no disk activity during playback), "Maximal Priority Scheduling" (ultra low latency capabilities), and "Hibernation Mode" (multicore audio playback). Each feature box includes a small illustrative image.

Use JPlay to turn your PC into a digital transport, says John Cahill.

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!



You can reply to Letters using the e-mail link at the top of the page -

World Mail June 2011 Issue

Write to us! E-mail → letters@hi-fiworld.co.uk

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Your experts are -
DP David Price, editor; NK Noel Keywood, publisher; PR Paul Rigby, reviewer; TB Tony Bolton, reviewer; RT Rafael Todes, reviewer (Allaghi String Quartet); AS Adam Smith, reviewer; DC Dave Cawley, Sound Hi-Fi, World Design, etc.

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For a budget smoothie, get an NAD 326BEE amplifier.

NEW SMOOTHIE

I would like some advice. I'm thinking of changing my CD and amp. I would like something very smooth sounding for a budget of £600 for the pair. I recently upgraded my speakers so I want something to do them justice.

*Many thanks ,
Chris Close
Lincoln*

The smoothest sound you will get for that price comes from NAD in the form of their 326BEE amplifier. An alternative is an Onkyo like the A9377. Both NAD and Onkyo produce good quality amplifiers having a smooth sound and good bass. I think it best if you then choose a matching CD player. **NK**

DENON DAY

I'm a regular reader from Singapore. I recently bought the Denon PMA 1510 amplifier. The rest of my system consists of the Marantz 5003(CD), Wharfedale Diamond 10.1 loudspeakers, Chord company speaker cable and Van den Hul interconnect. I listen to Vocal, Pop and Music like David Foster, Chris Spheris etc.

I found music details were missing and bass weight is light with the mentioned combination. Could the missing details be caused by the CD player? I've thought of upgrading the CD player to an Audiolab 8200 or Marantz Pearl Lite or any recommendation?

Most importantly can you recommend some floor standing speaker that can sing well with the PMA 1510? I can spare £500 to £1000 pounds for the speaker. Thank you in advance.

*Regards,
Sng Boon Seong
Singapore*

An Audiolab 8200CDQ CD player, available in Singapore, would



An Audiolab 8200CDQ CD player will pick up the sound with great bass and it is available in Singapore.

certainly offer punchier bass and a more open sound. It is an impressive player.

Floorstanding loudspeakers will give the bigger bass you want and I would suggest you listen to Castle Knight 3 or 4 loudspeakers, which are also available in Singapore I believe. Audition Triangle loudspeakers too, available in Singapore, as they are very well engineered and have a great sound – the Altea may well suit you.

NK

TANNOY UPDATE

I read Noel Keywood's review of the Tannoy DC8T with great interest. (page 46. March 2012 issue). The DC8T has been updated. Well I have updated my own Tannoys.

In 1976 approx, the National Hi-Fi Exhibition was conveniently held in Harrogate and within 5 minutes walk of my house!

That was one of the best days of my life leading to the purchase of the Arcam Delta integrated amplifier, tuner and CD player the following week.

Whilst looking and listening to demos all day long I happened to enter the hotel ballroom as Tannoy held a demo and when the Westminster Royals played I felt as well as heard the music. That session impressed me so much that I became the proud owner of a new pair of Tannoy 12" concentrics.

In May 2011 I sent them to Lockwood Audio to be re-coned and now they sound magnificent again!

*Yours sincerely
Paul H Metson
Harrogate
Yorkshire.*

ON STREAM

It was great to see the review of streaming media devices in the March issue. I've long believed SACD/DVDAI

Blu-Ray were the wrong "delivery mechanisms" for hi-resolution content – nobody really wants yet another incompatible silver disk format and it is great to see the hi-fi manufacturers are catching up with the geeks (myself included). I might even pass my Squeezebox Touch and Cambridge DAC combo on to the kids.

With my electronic engineering hat on, can I just clarify the oft-repeated comment that SPDIF cannot carry audio above 96kHz sampling rate? I may be wrong but, as far as I am aware, the SPDIF spec does not limit the sampling rate. My copy of the AES/EBU spec (dated 2004) lists 22.05, 24,32, 44.1, 48, 88.2, 96, 176.4 and 192kHz sampling rates, and all at 16, 20 or 24-bit depth. Admittedly, there have not been many chipsets around to support higher sampling rates; until recently nothing much went above 48kHz – but they are now readily available, just Google "192kHz digital audio receiver". That said, I agree that the practical difference between 96kHz and 192kHz is not exactly night and day...

Might it be worth mentioning that HDTracks accept PayPal outside of the USA? For those with broad musical tastes, the B&W / Real World Society Of Sound is a great source of 24-bit downloads at a little over £1 each album for an annual subscription. I have no vested interest in either, but I recommend both.

*Regards,
Steve Fenton
Cambridge*

Thanks for that Steve. You are right – there is no stated limit, as far as I am aware, only an actual one imposed by hardware. But if we state you can get 192kHz down SPDIF someone will complain bitterly we misled them!

*Try buying from HDTracks and your order will be rejected on the basis of your IP address. This is a Copyright issue and David Chesky confirmed by telephone from N.Y. that they do not sell outside the States. As you are the third person to tell us you can buy using PayPal I suspect something might have changed since you tried it. **NK***

Steve Fenton replies -

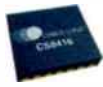
I designed an AES3 receiver / transmitter (mainly implemented in FPGA) about 10 years ago for TV studio use, so it was only ever for 48kHz sampling rate. My 2004 spec lists another eight reserved sampling rates but, given it already covers half, double and quadruple of both 44.1 and 48kHz, it isn't easy to see what they might ever be.

Cirrus and Texas Instruments, for starters, both list 192kHz devices. Doubtless, before long, so will everybody

CS8416



192 kHz Digital Audio Receiver



The CS8416 is a digital audio receiver that supports sample rates up to 192 kHz. It enables consumer and professional audio products to exchange S/PDIF and AES/EBU audio data. An 8:2 input multiplexer allows for up to eight channels of digital audio input data. The second output of the input multiplexer allows for a S/PDIF pass-through function for added system flexibility. It has an extremely low-jitter clock-recovery mechanism that yields a very clean recovered clock from the incoming audio stream. The device also allows for selectable signal routing to three general-purpose output pins.

Google '192kHz digital audio receiver' and you come up with a chip, the Cirrus Logic CS8416, that sends 192kHz via S/PDIF, Steve Fenton says.

else.

I think HDTracks have tightened their restrictions recently. I downloaded Steve Earle and Isaac Hayes in the UK (payment via UK PayPal) but had to get Cat Stevens via my employer's US-based server – I'm lucky that I can get round the IP restriction.

Cheers,
Steve

LASER LIGHT

I read with interest your articles on network streaming and USB to S/PDIF converters and about the weird variations in jitter you saw on your analyser vis. dirt and reversing the connections on the optical lead. I think I can throw some light on these, excuse the pun.

The TOSLINK is basically just a fibre optic cable – but in the fibre optic timeline it's pre-stone age. It consists of a glass or plastic core of approximately 1mm diameter, covered by a cladding of more glass or plastic of a higher refractive index. This protects the core from scratches and contains the light in the core. The refractive indices of the core and cladding are chosen such that total internal reflection occurs over a wide range of angles that the light rays make at the core/cladding boundary. This ensures that the maximum amount of light makes it to the other end. The light source is a red LED, which means that a spread of wavelengths from about 650nm to 850nm are introduced into the core. At the time of TOSLINK's introduction, a LED was the only practical source, its' large emitting area dictated a large core fibre unless costly bulk optics are used.

The problem is, the larger the core of an fibre optic cable, the worse its' performance! Rather like a waveguide, large cores allow large modal spread – from the ray that theoretically travels down the axis of the fibre to the one that bounces off the core cladding interface thousands of times. The response to a step function – the LED turning from off to on for example – will

cause light at thousands of different modes and several different wavelengths to be sent down the fibre, and of course they will arrive at the other end at a range of different times. The effect at the detector will be to turn the step into a slope.

This slope (neglecting electrical effects in the detector) is thus caused by modal spread and varies according to how many bends and coils are in the cable. If you can measure optical power with your analyser you will have noticed how sensitive this is to bends in the cable. This modal effect limits the theoretical bandwidth of TOSLINK cable to about 10Mbps per metre. If four or five turns of cable are wrapped around a, say, 100mm mandrel (piece of plastic pipe?) the high order modes will be dispersed into the cladding and only the low orders will make it to the end. The optical power will be reduced considerably but the recovered signal should be a lot cleaner and – in theory at least – less jittery.

Sorry for the lengthy preamble but the effect that you're seeing is I believe caused by a phenomenon known as return loss. TOSLINK connector ends are flat polished, which means that some of the light gets trapped inside the cable and bounces around with a whole new set of modes. Some of these modes escape at both ends to be reflected by the LED source and the sensor back into the cable again. This effect is strongly dependent on the cleanliness and condition of the connector end faces – the two ends are never going to be exactly the same. Cleaning, polishing and swapping the cable ends over will affect the magnitude of this return loss factor. This adds to the modal chaos in this large fibre and I believe will be measurable as jitter.

Large cores are good for tolerance to dirt and misalignment in connectors, but bad for everything else. The industry standard multimode fibre in general use has a core diameter of 50µm – 20 times smaller than TOSLINK. It's bandwidth is typically 1Gbps per

kilometre (a bit different!) So-called single mode fibres – the kind that our information superhighway is built on and the Government and BT balk at the cost of installing – has a core diameter of 9µm and a bandwidth 50 to 100 times as great as multimode. You get huge bandwidth and huge distance, but the quality of the installation and components has to be high. So-called 'fibre to the home' has floundered on the component cost required to do this reliably. The light sources are lasers though, which have the advantage of being both monochromatic (usually IR, 850nm to 1500nm) and of very small cross sectional area and can thus inject into very small cores. Considerable efforts are made to minimise return loss as well, by using angled, domed ended connectors. A short multimode cable isn't necessarily better than a long one, as the long cable increases the chance of high order modes being dissipated. It may be therefore, all other things being equal, that a 10m cable sounds better than a 1m one.

Apart from DVI/HDMI, I can't think of another digital protocol that is time contiguous – data is always time stamped and packeted these days. And as we don't see in the same way as video is transmitted, I think this makes audio unique – and uniquely vulnerable!

It would be great to make an optical link using single mode fibre, laser source and narrow band detector. The parts aren't hugely expensive, but too expensive for manufacturers, I expect (pounds, not pence!). And TOSLINK isn't going away because the automotive sector have picked up on it – because it's cheap!

The telecoms sector fibre optic market eclipses all else into insignif-



Audioquest Cinnamon optical digital TOSLINK cable uses a high purity polymer fibre with low dispersion to lessen jitter, they say.

icance. As a result it is surprisingly difficult to optimise fibre optic systems that don't fit into its' value set. In general manufacturers are not too interested in making low volume 'specialty' parts at marginal profit when they can make a far bigger one in the telecoms business. I suspect this may be a reason why TOSLINK has had such a long life – it's not economic to replace and in bare

data rate terms, has sufficient capacity.

Hope this makes some sense at least. Please continue with your investigations as I think you're breaking new ground here.

Kind regards,
Keith Stickel

Thanks for that detailed insight Keith. It saves us all from a lot of unknowing speculation on a topic that is obviously well known about outside audio – and its Stone Age cables and connectors!

The irony here is that digital cables do measurably affect audio quality, when it has been firmly believed until now that they cannot do so by the very nature of digital. Since the restricted bandwidth of long electrical cables introduces jitter by lengthening the zero crossing transition it seems we are damned in both camps! The following letter on the problems of Cat5 adds to our woes in this field, but also points again to fibre optics.

I can't help suspect, however, that because the audio market will pay for a good product, better fibre optic cables and terminators will become popular in due course. I know they are appearing now and I expect somewhat more mail about all this very soon! **NK**

NETWORKING DIFFICULTY

I was interested to read Noel Keywood's article 'Media Message' in the May 2012 issue. I was particularly interested in his comments regarding signal degradation due to passage over network cables. As a computer network engineer, I am well aware of signal problems due to the poor shielding qualities of standard (CAT5) network cables. Poor cable installation is a very common cause of poor network performance, and can be hard to diagnose unless you know what to look for and/or have the right test equipment. So if you are using network cabling in your hi-fi system, the cable installation needs to be considered carefully.

CAT5's ability to prevent external noise interfering with the signal, comes from the signal leads being twisted in pairs; each signal lead twisting through 360 degrees continually along its length. This means that if wireless noise hits the cable in one orientation, it will also hit the cable in a 180 degree opposite orientation very nearby. Thereby, any alteration of the signal caused by noise in one orientation, is cancelled out by the same noise passing through the cable in the opposite orientation nearby.

Relying on twisted pair signal leads, to prevent interference, is not a good way of avoiding signal degradation, but for the vast majority of network instal-

lations it is good enough. The leads are cheap and easy to install, which leads to good enough being just that - good enough.

So what do good network cable installers do to avoid signal degradation? The key is maintaining the twists. As the twisting provides the only shielding, if the twists stop, so does the shielding. So what are the common causes of untwisting:

Over-tight cable ties. Cable ties can pinch the cable, causing the twists to straighten out. A good rule of thumb is that you should be able to push the cable back and forth through the tie. If the tie pinches the cable so tight that you cannot move the cable through the tie, then it is also tight enough to straighten out the twists, and you've lost the limited shielding twists provide.

Over-tight bends. Cables need to go round corners in smooth curves. If you see a cable pulled taught around the corner of a wall, or wrapped into tight bunches, then there is a good chance the twists have straightened in the bend.

Too much bare wire at joints. This is common when people make up their own cables. The cables need to be untwisted to enter the joints (end connector, punch boards, and mounting plates). Where the cable is straightened shielding is lost, so it needs to be minimised. For example, the straightened cables need to be totally within the end connectors. If you can see bare signal

wire entering the connector, then the connector has not been made up properly and signal degradation will result.

Another thing to consider is avoiding noise sources. Try to avoid laying CAT5 network cables alongside or past RF noise emitters:

Do not run network cables through the same conduits as mains cables. Mains cable emit electrical noise. Running a main cable alongside a CAT5 network cable is asking for trouble. If the network cable has to cross a mains cable, try to do it at 90 degrees.

Where cable runs pass through ceiling spaces, keep them away from fluorescent lighting units. Avoid passing cables near to electrically noisy devices such as refrigerators.

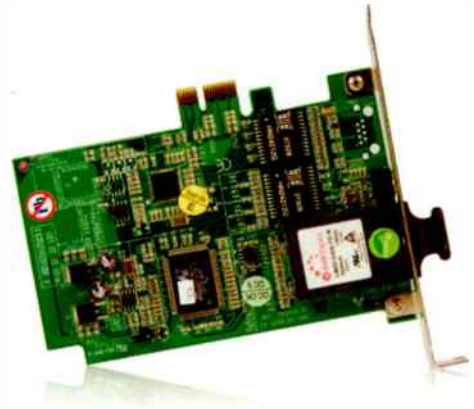
However, there is one simple way of overcoming all these problems: don't use

CAT5. So what are the alternatives: Coax. Twenty years ago network cables consisted of coax cable connected via BNC connectors. It was thick and therefore difficult to install, but it was also much better at shielding noise, as it contained a continuous metal shield around the cables. Unfortunately, this style of cabling was only commonly used on slow ethernet (10Mb/s as compared to modern 1Gb/s - 100 times faster), and finding modern equipment that will use this style of cabling is unlikely.

Part of the reason for there being a lack of modern coax network equipment, is that there is a much better alternative: fibre. Fibre optic cables can support very high transmission speeds and are immune to RF noise interference. However, it is more expensive and harder to install, so tends to be used to connect between networks, or where there is no alternative.

Saying that, fibre optic cable is the best medium for transmitting network signals, and if they could, network engineers would use it everywhere.

Which begs the question: why isn't



A StarTech fibre optic PC card available for £96, allows data to be sent down optical fibre.

hi-fi equipment using fibre optic network connections?

Network switches with fibre optic ports are more expensive than standard switches, but not that much more – an HP E2520-8 8 port switch costs around £260 pounds and has two SFP ports that can take fibre modules (from around £60 each). A fibre network card to fit into a computer can be had for around £70. When you are looking at hi-fi music streamers costing hundreds if not thousands of pounds a go, that's hardly a lot of money.

So how long will it be until server to network player connections follow the same trend that CD transport to DAC connects went through - from copper to fibre? Surely it has to happen. I only wonder why we haven't seen it yet!

**Rob Nichols
Evesham**

Filling The Gap

Situated below the HD800 and above the HD650, Sennheiser has plugged a yawning gap in their headphone product range with the HD700. Paul Rigby finds out if it is worth the effort.

The world of headphones is still settling down after the launch of the magnificent Sennheiser HD800s, whose Ring Radiators were designed to remove a lot of the damaging high frequency oscillations. "It almost appears as a wave effect, a form of distortion that only happens when the unit is moving very fast," explained Sennheiser's Consumer Product Manager, Dominic Feeney. "There are ways to minimise it. Earlier, we patented a system called Duofol which is used in many of the midrange models. This puts a dual material layer over the diaphragm which, doesn't get rid of the oscillations entirely but reduces them quite significantly. For the HD700, given the price point, we couldn't include a Ring Radiator but we've modified the Duofol, featuring a series of perforations around the rear of the housing of the magnet which we've found improves the air flow behind the membrane. Combining the new design with the Duofol system, this new system pushes the damaging, intensified, air out of the back of the housing."

Part of the design specification was to build the HD700s with a lower impedance than the HD800. "Given the price point, we had to make the HD700s easier to drive. Also, the HD800 provides a search for perfection and extreme clarity but that can be fatiguing. With the HD700, we don't want it to be non-reference but, at the same time, we have rolled off the sound a little bit to make it comfortable for more people, hence, it's a bit more forgiving and more relaxed."

The HD700 is built by hand in Ireland and is an open-backed, dynamic, circumaural model with a standard 6.3mm plug on the end of a 3m cable. During the initial tests, I attached my Sennheiser HD650 headphones to a Musical Fidelity X-Can 8VP headphone amplifier for a

reference comparison. The HD650 are positioned just underneath the HD700 in the Sennheiser range and can be picked up for around £300, around half the price of the HD700, so is it worth spending extra for the HD700?

SOUND QUALITY

Running the compressed Sugababes' track, 'Stronger', the HD700 sonic spectrum is more impressive than the HD650, whose bass is bloated when compared to the HD700. The latter breaks bass into its component parts and becomes more transparent, showing the ear that parts of the bass are also compressed – a facet ignored by the HD650. While bass is more focused, I would have liked to have seen more investigation on the bass-like, simulated piano but, hey, that's what the HD800 is for. The HD700 was very forgiving within the midrange and upper frequencies, running smooth with a relatively rich upper midband.

Higher quality jazz vocal output via a selection of Linn Records CDs proved that, if you feed the beast good food, it responds well. Vocals were delivered within an airy and spacious arena complete with an emotive performance, piano was almost playful and guitar solos had both drive and subtlety.

Turning to the Throwing Muses vinyl, 'House Tornado' (4AD), I compared the HD700 to my Stax 007 (£3,200) electrostatics. Yes, the price difference is obscene but the method related to technology differences because the Stax utilises electrostatics. As such, the Stax sounded warmer than the HD700 in the upper midrange with more air and space around each note yet the HD700 was tremendously fast, with

a strong, focused lower frequency range and a firm bass punch. Despite being rather stark, in comparison to the Stax, the HD700's upper mids had a glorious precision while guitars, for example, had a meticulous, metallic signature.

CONCLUSION

The HD700s offer more insight and detail than the HD650s but do not go the extra mile travelled by the HD800s. If the truth is all that matters, go for a HD800 but don't forget the hidden cost of the headphone amp, either. If you don't own a high-end headphone amp then think about the HD700. If you are interested in long term listening then consider the HD700s and if your budget is limited then the HD700s are a great compromise between sound quality and price.



VERDICT

Well positioned, providing a significant, sonic step up from the enthusiast's HD650 while offering value compared to the expensive, hardcore, audiophile HD800.

SENNHEISER HD700 £599

Sennheiser

+44 (0) 1494 551 551

www.sennheiser.co.uk

FOR

- focus
- accuracy
- insight
- forgiving upper frequencies

AGAINST

- nothing at the price



Aune computes

Is this the media player of tomorrow? That's how Chinese manufacturer Aune presents their S1 media player. Noel Keywood is impressed...

I agree with Aune that the future lies somewhere near here – a media player that is simple to use but powerful. The Aune S1 is almost as simple to use as a turntable. OK, it occasionally refused to start, unlike my Garrard 401, and whilst it is conceptually straightforward, it's not without its foibles and difficulties. But the S1 gave lovely sound quality at the push of a button, when playing high resolution digital music files stored on a memory stick. And it costs a very reasonable £500, about

half the price of competitive hi-fi players.

Think of the Chinese Aune S1 as a CD player of the future, which is why I said the future starts somewhere near here. If you don't want to faff around with music libraries and playlists and all that computer related compilation stuff, this is the player for you. Download and store music onto the computer, using it as a music purchase and storage mechanism, then copy those files to a USB memory stick and play them on the S1. What this does is

simplify and clarify track selection. The memory stick stores what you currently want to hear in good depth, as a 32GB stick will hold 150 high resolution tracks (at 200MB/track). You are not faced with a vast music library to sort through; it's like having your recent favourite LPs on hand, in a place where you can find them easily.

Ironic that this access issue hasn't gone away with digital. And the S1 doesn't solve it: it has a tiny display screen that isn't legible unless you are close, a drawback shared with all



"the S1 also possessed no digital glare or sterility, sounding creamy smooth"

network players except the Cyrus Stream series that put the screen into the remote control. Aune don't offer any solution to this difficulty in the S1, but if albums are saved into folders on a memory stick, finding what you want to play isn't too strenuous, as menu tree depth is limited.

Playback from a memory stick also avoids streaming digital through a Cat5 wired home network; a reader explains in Letters this month why this is not the best idea if you value sound quality. All the same, the S1 does play from UPnP servers feeding a home network if you so desire.

Unlike most other players currently available, the Aune S1 places

emphasis on playback from various forms of memory storage. The left side panel carries sockets able to accept two USB memory sticks, an SD card, an e-SATA input for an e-Sata equipped hard drive and a home network connection through the usual RJ45 ethernet socket. That's far more inputs than most network players, most of which cater for USB only, and those sockets will appeal to various interests. SD card is the storage device of choice for hand held digital audio recorders used for live recording, and e-SATA (external serial ATA, a computer internal comms protocol externalised), gives direct connection to e-SATA storage.

The rear panel carries normal analogue audio outputs for

connection to a stereo amplifier, plus optical and electrical S/PDIF digital outputs, like any CD player. The analogue outputs deliver no less than 2.8V, our measurements showed, so the S1 plays 3dB louder than a CD player.

There is also an electrical digital input that enables the player to be used as a DAC, in conjunction perhaps with a CD player acting as a transport.

Headphones can be used in conjunction with an on-board volume control and they connect on the rear panel too, through a 3.5mm jack. Pressing Up or Down volume buttons on the remote control brings up a volume level display.

An USB A 'printer' socket accepts software upgrade from a computer, about which no information was provided, and finally a power input socket from an external power supply sits on the rear panel also, using a 180 degree 5-pin DIN socket.

A sturdy power supply comes with the unit, built into a heavy aluminium case carrying a mains power on/off rocker switch on the IEC input socket. This is left on, the player being switched on and off by remote control. Or that's the idea. Mine hung up using software start and had to be switched off, then on, with the mains switch on the power



Rear of the power unit showing DIN power output and rocker style powerswitch.



The rear panel carries a small 3.5mm headphone jack, analogue audio outputs and digital S/PDIF outputs, optical (TOSLINK) and electrical. There's an electrical input too, so the unit can be used as a DAC. Output level is adjustable by remote control only though the headphone socket; the phono socket output is fixed.



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VIVID REVIEW



PROUD TO BE AWARDED 5 GLOBES

For:

- silky, spacious midband
- superior grip and focus
- enhanced dynamics
- fit and finish

Against:

- nothing

- Full package £799
- Sub chassis with arm board £299
- Acrit mat £25
- Hercules PSU £189
- Plinth: EPOA
- Complete Re-Build & Service £50

QUEST REVIEW



PROUD TO BE AWARDED 5 GLOBES

For:

- excellent midband focus
- super base grip
- fine speed stability
- enhance dynamics
- fit and finish

Against:

- nothing

- 50mm solid birch ply plinth with acrylic and something top £189
- Veneer in Maple, Cherry, Oak or Walnut £89
- Acrit mat £25
- 25mm machined acrylic platter £99
- Pyka record platter weight £49
- Re-Build £40

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supply. Then it booted in 25 seconds. Once on it would switch off from the remote control.

The S1 is shaped like an original Mac Mini and is almost the same size, measuring 16cm x 16cm (the Mac Mini was 17 x 17cm). It is beautifully made from machined alloy. A matching solid, machined alloy remote control measures 5cm x 9cm and is 1cm deep, so it fits easily in the hand and the small buttons have a solid feel. There is no light on the remote, but the few controls were easy enough to identify, even in low lighting. The front display is just 3cms high and 4cms wide. It is bright, clear and legible, but only within a few feet.

Once booted a Play Music screen appears by default, of four screens in total. Pressing an Enter button brings up the usual style of menu tree, showing folders and songs, identified in text by name. Songs in a folder can be played individually or in sequence. Pressing Stop also jumps back in the menu, an unusual action. Pause must be pressed to Stop so that a song can be restarted without re-selection.

Having multiple inputs, songs

stable as players from Cyrus, Naim etc.

Alternative selection screens offer D/A Input and settings, but these were few.

To keep cost down Chinese manufacturers use freeware or low cost software and this player uses Linux in a Texas Instruments ARM based DSP, the 1808 based on their Sitara processor. As this reportedly has stability problems I wonder whether it explains my experiences with it. An AK4390 32-bit DAC is used, but I'm unaware of commercially available music downloads at this resolution, and I would have thought 24bit was enough, but perhaps not!

SOUND QUALITY

The Aune was easy sounding, open and silky smooth. Playing 24/96 files it revealed lovely depth perspectives behind the Minnesota Orchestra playing Rimsky Korsakov's The Snow Maiden, timpani thundering away to give plenty of weight. Cymbal crashes were sudden and powerful, but not hard and lacerative as is so common



being mild mannered up top. From a wide variety of Rock recordings through to Classical, this player gave powerful dynamics from an easy delivery that was almost laconic. I used it with my 300B World Audio Design valve amplifier and the Yamaha RX-A3010 receiver reviewed this month and both happily conveyed the extra shove the S1 brought to music.

CONCLUSION

As you may have gathered the Aune S1 wasn't the most stable and consistent product I have come across, its total refusal to software start from the remote control being the most obvious problem, solved by using the hardware power switch. That and a few other hiccups apart though, it got on with its job and was easy to use, being all but Press and Play if you ignore menu legibility issues.

In the all important sound quality arena though, the S1 offers a gloriously rich and intense experience way ahead of CD, by fully exploiting the benefits of high resolution recordings. It doesn't cover all formats admittedly, but a conversion programme like CKD can fix most issues here. Then, as £500 CD players go, the S1 is streets ahead, only it isn't a CD player of course, it is what comes next.



The left side panel carries an ethernet RJ45 socket, two USB 2 sockets, an SD card socket and an e-SATA input.

and folders stack in the option list; inputs do not have to be selected individually. I played from a fast LaCie Whizkey memory stick, but the S1 saw UPnP servers on both Macs and PCs on my home network and played music from them, including 24/192 WAV and AIFF files, something few media players are currently able to do. Aune list compatible file formats as APE, FLAC, TTA, MP3 and WAV. It played our FLAC, WAV and AIFF 24/192 test files without problem, but refused to see Ogg Vorbis. There were some inconsistencies, such as MP4s playing through the home network, from a UPnP server, but not direct from memory stick, and AIFF files also refusing to play from a slow storage USB (with flashing LED) rather than the fast Whizkey, which has no flashing LED. This is perhaps why Aune do not quote AIFF as a supported format. The S1 crashed and had to be re-booted occasionally, but this didn't happen often enough to be annoying. It isn't, however, as

with CD. Bass sounded large and sturdy, without being bloated. With Benjamin Britten's Boisterous Bourree in 24/192 WAV strings did not have quite the sawing edge to them as they do from the 2L Blu-ray and here lies the main difference between quality downloads and silver discs, from CD through to Blu-ray it appears.

The Aune S1 made clear the improvement 24bit resolution brings over CD's miserable 16bits, a greater depth and intensity to detail banishing the sparse quality of CD. The S1 also possessed no digital glare or sterility, sounding creamy smooth to the point of

VERDICT ●●●●●
An easy to use and inexpensive media player that gives superb sound quality, if with some foibles.

AUNE S1 £500
imported by Item Audio
+44 (0)1782 621225
<http://en.auneaudio.com>

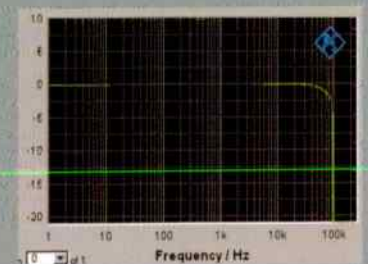
FOR
- smooth detailed sound
- ease of use
- flexibility

AGAINST
- no software power-on
- system hang-ups
- small display screen

MEASURED PERFORMANCE

| | | |
|--|--------------------------------------|--------------------------------|
| Frequency response measured flat to 45kHz and then rolled down smoothly to a 48kHz limit with a 96kHz sample rate signal. With a 192kHz sample rate test signal the S1 was -1dB down at 60kHz and reached right up to 96kHz our analysis shows, so it achieves the full potential of high sample rate PCM. | Frequency response (-1dB) 24/192 PCM | 1Hz - 60kHz |
| Distortion with a 16bit signal was as good as possible and with 24bit distortion at the critical -60dB level measured a low 0.05%, comparable with the best DACs available. EIAJ Dynamic range with 24bit was a high 104dB as a result of low quantisation noise. Output was very high 2.8V at 0dB. | Distortion (24bit) | 0.002 0.004 0.05 0.47 |
| | Separation (1kHz) Noise (IEC A) | 95dB -99dB |
| | Dynamic range (24bit) Output | 104dB 2.8V |

FREQUENCY RESPONSE (192k)



The Aune S1 measures very well in all areas and unlike so many current DACs, offers the full analogue bandwidth theoretically available from 192kHz sample rate PCM digital. Being so thoroughly engineered it is likely to have very good sound quality. NK

Are You Buying Pre-Ruined

The Music Chain

Much is written about music and the musicians who entertain us, and we rightly exalt great musicians. But there is an interlinked chain of participants, two of which I believe are crucial to our music scene in today's world. For centuries the music chain was a very short one – composers or songwriters, musicians and listeners, and the judgement on quality was immediate. Recording technologies have changed all this exponentially.

Today, we listen to most of our music from a recording and this gives recording engineers the opportunity to avoid poor acoustics, duff notes and off days. This, of course, means the chain has grown to include the recording engineers, the music distribution system (retailers or downloads), hi-fi manufacturers, hi-fi sellers and the hi-fi purchasers, the latter being the listeners. I should start by saying that hi-fi has become an adulterated term that no longer has its original meaning because it's applied to much equipment that certainly should not be termed high-fidelity.

It's said that a chain is only as strong as its weakest link. However, I believe there are two particularly strong links that, if removed from the chain, would seriously damage the quality of recorded music. These are the audiophile, or hi-fi connoisseur, and the specialist hi-fi retailer, the latter in nearly all cases also being the former because it's their interest that has driven them into their particular business. These are the people who most appreciate how exciting and involving music can be and how it can deliver an emotional experience.

Hi-Fi Connoisseurs

So why is the hi-fi connoisseur so important to the music industry? By their nature, audiophiles are generally avid music lovers who enhance their enjoyment through listening to music at its very best

quality level, which means playing great recordings through hi-end hi-fi to achieve the most outstanding results. Without the audiophile, the main driver for quality would probably be removed from the chain. Let's be honest, over recent years the majority of music listeners now settle for MP3 convenience and, therefore, mediocre sound quality, that is 'pre-ruined' music. If the pendulum ever swings so far that all but a few listen to highly compressed formats such as MP3, music producers will not waste their resources on producing high quality recordings because it would be commercially unnecessary, even if their recording engineers wanted to achieve the best they could. After all, an MP3 or AAC file, the iTunes default format, downloaded at 128 kbps (the most popular download speed), is about one-eleventh the size of a full resolution CD track, 1411 kbps, so the quality is inevitably far inferior. Information is irretrievably lost and the full dynamic range is lacking. Using an iPod while jogging does not really raise a quality issue but playing low-resolution tracks through an iPod docking station that feeds into a decent hi-fi system, is a disaster area. It's rubbish quality made louder. Fortunately, there is still significant demand from audiophiles committed to sound quality to sustain the production of high quality recordings, but it would be a tragedy if there weren't. For example, most classical recordings downloaded as an MP3 or AAC file are a complete waste of time because there is so much information missing that they are reduced to just the essence of a tune.

Specialist Hi-Fi Retailers

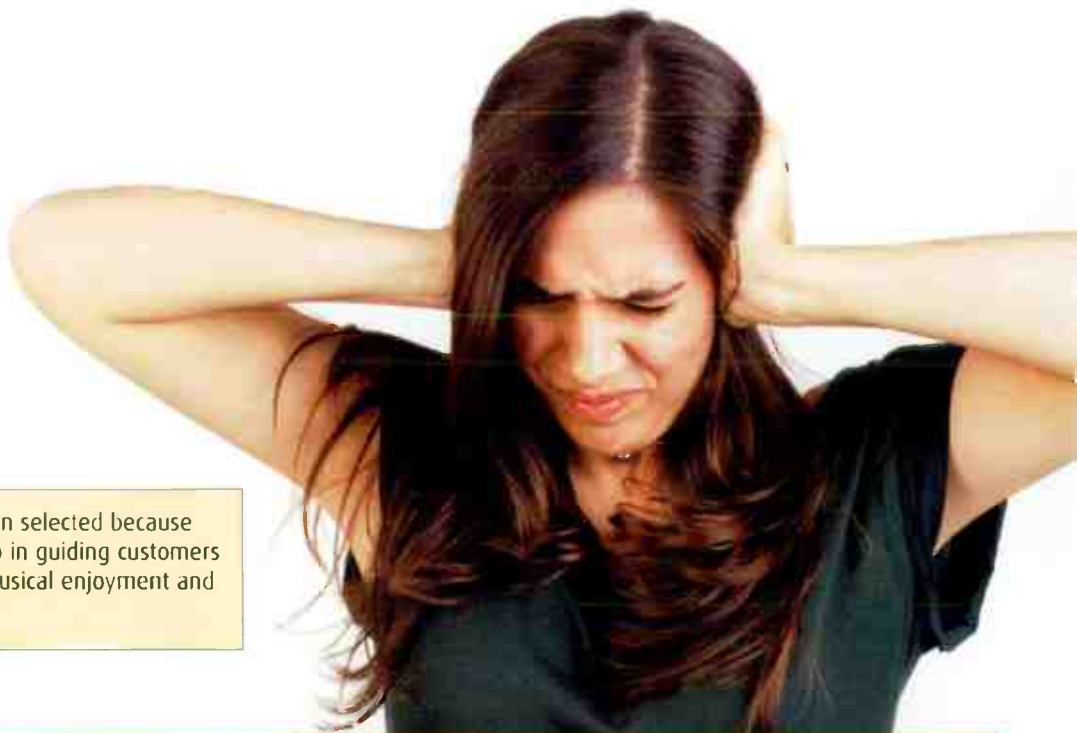
Just as essential a link in the chain as the hi-fi connoisseur is the specialist hi-fi retailer and the two are rightly dependent on each other. Without the specialist retailer the hi-end hi-fi manufacturer would have to rely on the internet and hi-fi magazine reviewers to try and assess the relative merits and performance of their products against that of their competitors –

a notoriously unreliable decision making process. Specialist hi-fi retailers are constantly being offered new products for assessment and potential stocking and, as it is also their hobby as well as their livelihood, they are greatly interested in achieving the best performance and seeking out the most outstanding products and combinations. More than that though is their relationship with audiophiles for, if they are to stay in business, they must satisfy the most discerning customers in the industry. The reality is that audiophiles and specialist hi-fi retailers are essential to each other.

Future of Recorded Music

What are the future prospects of maintaining high quality music recordings? We must hope that audiophiles, or hi-fi connoisseurs, or perhaps most accurately described, music lovers, will continue to drive the demand for quality. But another important reason for hope within the mass-market is that there is no longer any overriding reason for MP3 and AAC to have such a following. These formats were designed to overcome very slow download speeds and expensive memory capacity. These are not significant factors for most people now. Full resolution, CD quality, downloads are already available and should become the norm as long as the general public can be made aware of the tremendous quality benefit. This has happened with HD TV so we know this awareness can grow rapidly. In the meantime, we must highly value hi-fi connoisseurs and specialist hi-fi retailers, of which the ones listed on this page represent the UK's finest. Specialist dealers know how to choose the products that combine as a superb system and how to get the best out of it by expert installation in the home. If there's a price premium over an internet purchase, it's probably a small one, but it's unquestionably worth the difference.

Music?



The specialist dealers below have been selected because they are known to do an excellent job in guiding customers towards hi-fi that will give years of musical enjoyment and total satisfaction.

OUR TOP 20 UK HI-FI DEALERS

SOUTH

Ashford, Kent

SOUNDCRAFT HI-FI
40 High Street.
t: 01233 624441
www.soundcrafthifi.com

Chelmsford

RAYLEIGH HI-FI SOUND & VISION
216 Moulsham Street.
t: 01245 265245
www.rayleighhifi.com

Colchester

NEW TECHNOLOGY UNLIMITED
33 Sir Isaac's Walk.
t: 01206 577682
www.newtechnologyunlimited.com

Kingston-upon-Thames

INFIDELITY
9 High Street,
Hampton Wick.
t: 020 8943 3530
www.infidelity.co.uk

Maidenhead

AUDIO VENUE
36 Queen Street.
t: 01628 633995
www.audiovenue.com

Rayleigh, Essex

RAYLEIGH HI-FI
44a High Street.
t: 01268 779762
www.rayleighhifi.com

Southend-on-Sea

RAYLEIGH HI-FI SOUND & VISION
132/4 London Road.
t: 01702 435255
www.rayleighhifi.com

LONDON

Ealing

AUDIO VENUE
27 Bond Street.
t: 020 8567 8703
www.audiovenue.com

N1

GRAHAMS HI-FI
190a New North Road.
t: 020 7226 5500
www.grahams.co.uk

SW11

ORANGES & LEMONS
61/63 Webbs Road.
t: 020 7924 2043
www.oandlhifi.co.uk

SW20

O'BRIEN HI-FI
60 Durham Road.
t: 020 8946 1528
www.obrienhifi.com

SOUTH WEST

Bath

AUDIENCE
14 Broad Street.
t: 01225 333310
www.audience.org.uk

Exeter

GULLIFORD HI-FI
97 Sidwell Street.
t: 01392 491194
www.gullifordhifi.co.uk

MIDLANDS

Banbury

OVERTURE
3 Church Lane.
t: 01295 272158
www.overture.co.uk

Birmingham

MUSIC MATTERS
363 Hagley Road, Edgbaston.
t: 0121 429 2811
www.musicmatters.co.uk

Coventry

FRANK HARVEY
163 Spon Street.
t: 024 7652 5200
www.frankharvey.co.uk

Leicester

CYMBIOSIS
6 Hotel Street.
t: 0116 262 3754
www.cymbiosis.com

Nottingham

CASTLE SOUND & VISION
48/50 Maid Marian Way.
t: 0115 9584404
www.castlesoundvision.com

NORTH

Cheadle

THE AUDIO WORKS
14 Stockport Road.
t: 0161 428 7887
www.theaudioworks.co.uk

Chester

ACOUSTICA
17 Hoole Road.
t: 01244 344227
www.acoustica.co.uk

Hull

THE AUDIO ROOM
2 George Street, Hedon
t: 01482 891375
www.theaudioroom.co.uk

York

SOUND ORGANISATION
2 Gillygate.
t: 01904 627108
www.soundorg.co.uk

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Sign Of The Times

Cambridge Audio's Azur 651A integrated amplifier and Azur 651C CD player offer plenty of features for not a lot of money, says Paul Rigby.

In the last few years, the budget sector of the hi-fi market has bubbled with the release of relatively high quality products. In terms of value, attention to detail during the build stage, high quality internal components and the broad array of facilities on offer, the entry-level market has never been healthier. Cambridge Audio has been one of the primary reasons for the steady improvement of this sector, partly because of its judicious ability to source quality components while sticking to the strictest of budgets, but also its fleet-of-foot adaptation to the needs of the market has kept the company current and able to fulfil the wishes of its customers. Both the Azur 651A and 651C amplifier and CD player, respectively, continue that trend.

Producing 75W into 8 Ohms, spanning 120x430x350mm and

weighing in at a reasonable 8.4kg, the 651A amplifier, like the 651C CD player is available in both silver and black. It is replete with traditional controls including balance, treble and bass knobs but there are also more contemporary features sprouting from the chassis too, such as an analogue 3.5mm MP3 input socket on the front fascia plus a source selector and indicator for a USB port. Audiophiles will be glad to see that the amp also arrives with a 'direct' button which bypasses all of the controls to provide a purer, direct pathway for audio that will hopefully prevent aural contamination, improving sound quality in the process.

Cambridge use their own specialised tone control circuits that adjust only far spectrum extremes – meaning high treble and deep bass – so hi-fi loudspeakers that

are likely to be relatively accurate in themselves are fine trimmed rather than grossly altered. Using the controls seemed superficially to make little difference at first, but pressing the cancel button showed they were both subtle but useful in their action.

The rear of the chassis shows carries two banks of speaker terminals on offer. I wonder how much money Cambridge would save if it deleted this needless extra speaker terminal bank plus the balance, treble and bass controls? Money it could use to further enhance the audiophile features.

Apart from the standard bank of source connections, including, I am happy to report, tape sockets, on the rear, the 651A can be used as a pre-amp as well, offering a connection to a subwoofer, if required.

You also receive a USB port to play computer-sourced music. This

bypasses the computer's inherently poor internal Digital-to-Analogue convertors (DACs), to give a direct digital connection to the hi-fi from the computer.

The solid, sturdy, weighty remote adds controls over and above those found on the unit itself. For example, front fascia read-out panel brightness and CD-text information. In addition, the remote features substantial Apple compatibility, being able to control iPod, iPad plus Apple TV when a Cambridge dock is introduced to the chain with the possibility of pairing the remote to up to six Apple devices.

Inside the chassis, the 651A features a large toroidal transformer with a meaty extruded heat sink to reduce noise which works in conjunction with a dual mono design for left and right channels, twin rectifiers and separate PSUs for dual mono operation of the left and right power amps. Again, these components have been designed to reduce distortion and cross contamination. The ALPs film type 'black box' volume pot is added to low dissipation capacitors and custom made electrolytic capacitors in critical positions to enhance the sound. An acoustically damped metal chassis with brushed aluminium front panel provides extra solidity for the price.

The 651C CD player, on the face of it, provides a standard set of features with a standard set of front and rear knobs, switches and sockets. Inside, the 651C, which spans 85x430x305mm and weighs just 4.8kg, garners rather more interest because, like its amplifier brother, it retains the large toroidal transformer plus the dual mono construction by providing a single Wolfson WM8742 DAC for the left channel and another DAC for the right channel.

Three filters are also available – DacMagic users will recognise these straight away – including a Steep roll-off filter, a Linear Phase filter and a Minimum phase filter. These are selected by pressing the player's Stop

button for 5 seconds to access a setup menu.

For a CD player of this price, it was a bit of a surprise to find a Cambridge Audio-designed S3 Custom CD Servo, custom designed chipset featuring very short signal paths and powered by a powerful ARM 7 processor which has been integrated to reduce jitter.

Lots of features and lots of attention to detail but what do they sound like?

SOUND QUALITY

One of the 651A's principle selling points is the USB port which was connected to my Samsung PC laptop, holding a selection of WAV files of various genres ripped via Exact Audio Copy. This connection provided a surprisingly impressive performance via a magnificent soundstage that offered a structured, almost architectural, 3D image. The expanse of vinyl was not there but the USB port did provide an intriguingly 'solid' replacement. USB could be a little tense in its delivery and not as free flowing, smooth or natural but I believe that this has more to do with the inherent characteristics of the digital signal against analogue than specific concerns over the USB output quality. That said, the USB port provided excellent upper mid and treble detail. Bass may have been a little shy but it integrated well into the mix.

Moving to the Sugababes', 'Freak Like Me' via CD emphasised the weight and security of the 651A, providing a solid bass that gave the track roots and a firm foundation. This provided a serious approach to the track. The Cambridge's soundstage continued to impress while the instrumental separation allowed a great amount of detail to appear within both instruments and vocals, giving the song an clear structure.

Moving now to the Cambridge 651C CD player which proved to have a large and wide soundstage. In fact, the Cambridge had an almost



Internal 651A amplifier.



Internal 651C CD player.

hanger-like expanse of space to its sound stage. This allowed vocals and instruments on the Sugababes' track room to breathe for the first time. Because of that, the edges of the instrumental delivery could also be heard, enabling a lot of detail to reach the ear. Hence, each new instrument and synth presented a new sense of reality.

Good instrumental separation introduced air into the performance, adding a relaxing atmosphere. Swapping CDs for the Barclay James Harvest track, 'Sideshow', from the 'Victims Of Circumstance' CD, the wholly superior master of this particular album provided sublime digital playback via the 651C. The player's sweeping soundstage allowed the electric guitar, orchestral strings and drums time and space to present themselves in an unhurried yet broad manner. Vocalists, because of this, seemingly performed with a sense of relaxation, opening themselves up to a nuanced delivery with a strong sense of emotion.

Bass was firm and punchy while upper mids proved to be smooth while the accompanying treble was both light and delicate.

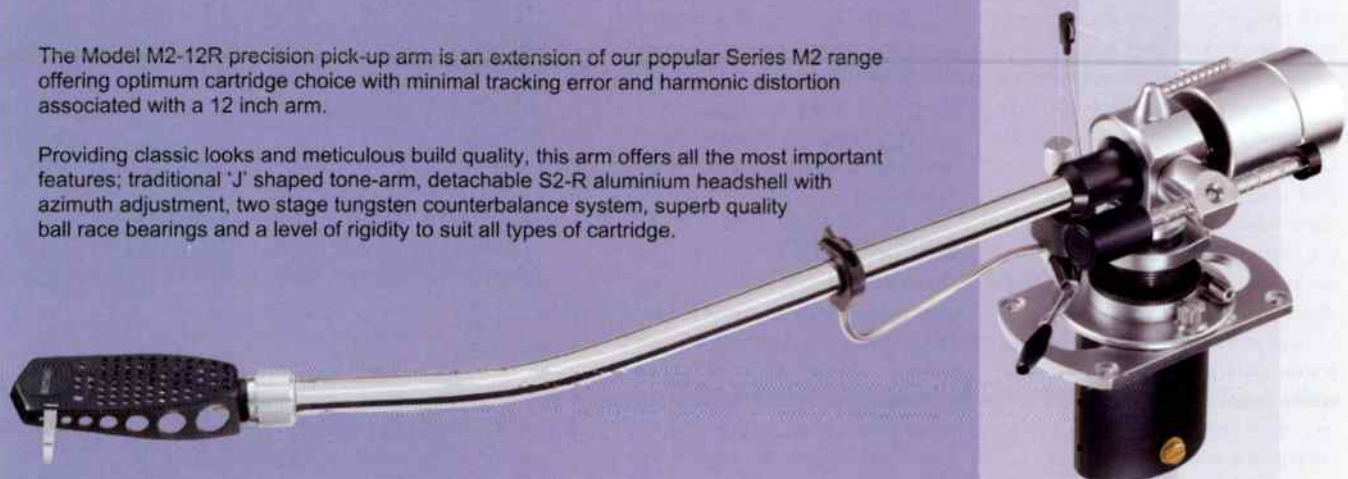
Jazz was then introduced into the listening tests via the Blue Note



SERIES M2-12R

The Model M2-12R precision pick-up arm is an extension of our popular Series M2 range offering optimum cartridge choice with minimal tracking error and harmonic distortion associated with a 12 inch arm.

Providing classic looks and meticulous build quality, this arm offers all the most important features; traditional 'J' shaped tone-arm, detachable S2-R aluminium headshell with azimuth adjustment, two stage tungsten counterbalance system, superb quality ball race bearings and a level of rigidity to suit all types of cartridge.



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LP, Lou Donaldson's 'LD+3' and the hard driving bop track 'Three Little Words'. On this HDCD, it was significant that the soundstage didn't perform in the same way as the other test records. Unlike the other CDs and vinyl here, the soundstage didn't spring to life, switching to widescreen mode with a sweep like some aural variant of a Technicolor western movie. What I heard was more intriguing because, instead, the soundstage became fuller, more ordered and structurally more consistent. Every instrument found a safe and comfortable place to sit. And that was the operative word, comfort. The track produced a sense of calm with the music played at an relaxed pace that provided an ease of rhythm.

Concomitant with the structured soundstage was strong instrumental separation which really came into its own here. In fact, the more I listened to the 651C, the more I realised that the design was not flicking an 'instrumental separation' switch; it had, in fact, removed a whole heap of distortion because of its attention to internal detail and component selection. This allowed

the instruments to sing, as it were, providing the full picture of their presentation. Where budget players provide 80% of the instrumental information to the ear, the 651C supplied full detail and this not only gave a full sonic story, it also provided a complete grammatical array of subtleties too. The sax was allowed to flow like a clear, clean river while piano no longer suffered from a slightly rising upper midrange, the glare heard in other players.

From turntable via a Trichord Dino phono stage I span Prog Rock outfit, Nektar's 'Journey To The Centre Of The Eye' LP via Missing Vinyl and found an amplifier that was very much in control.

The 651A corralled wayward upper mid frequencies, giving vocals both substance and direction. The 651A provided a wide, airy soundstage. Lower midrange and bass provided a sense of maturity and confidence in the 651A.

CONCLUSION

The Cambridge duo provides a fine performance in this price range, giving music played through them a sense of svelte opulence that, at this price

point, was unexpected.

The designers at Cambridge have gambled on the twin mono topology of the amplifier to give it an edge over the competition. With any budget product, harsh resource decisions have to be made and you can hear that this is where the majority of the time and money has been spent on the 651A. This is the area that Cambridge has focused upon during the design and, by golly, it has paid off. The broad, open soundstage and the attendant clarity prompted by the comparable instrumental separation are undoubtedly the stars of the show as a result. These areas are the focus of the design and they work very well indeed. More than that, from these few yet important points, other good qualities flow.

All in all, these careful and considered designs provide a good basis for enjoyable, long term listening which, for any budget system, is worthy praise. If you are looking to step onto the hi-fi audiophile ladder and are looking for an entry point for both amplification and CD, then both of these Cambridge products should be at the top of your audition list I feel.

VERDICT ●●●●●
CAMBRIDGE AZUR 651A £450
 The dual mono construction and meaty toroidal power supply combine to produce a mature, rich sound that produces sonics far beyond the price point.

FOR
 - broad soundstage
 - instrumental separation
 - USB performance

AGAINST
 - slightly soft bass

VERDICT ●●●●●
CAMBRIDGE AZUR 651C £450
 A mature, rich presentation, via the successful reduction in distortion. A cracking audiophile entry point for any digital fan.

FOR
 - broad soundstage
 - instrumental separation
 - low distortion

AGAINST
 - nothing

Cambridge Audio
 ☎ +44(0)845 900 1230
 www.cambridge-audio.com

MEASURED PERFORMANCE

CAMBRIDGE AUDIO AZUR 651A
 Power output measured 78 Watts into 8 Ohms and 121 Watts into 4 Ohms, plenty enough power to go loud in all situations. With a high damping factor of 54 the Cambridge Audio Azur 651A will keep a good grip on loudspeaker bass cones and likely give well controlled bass quality.

This is an ultra low distortion design. Even at 10kHz, 1 Watt where crossover distortion commonly hovers around 0.1% the 651A managed 0.004% into a 4 Ohm load and there was no sign of crossover spikes in a time domain analysis of the distortion residual.

Bandwidth was wide, measuring 6Hz to 160kHz, the upper limit being higher than most designers choose, since it lets interference and noise through, as well as allowing transient intermodulation. Wideband amps like Harman's often have an airy, open quality though.

Via the USB input noise was high at -61dB and bandwidth limited to 20kHz. With volume set just above half, a peak level (0dB) digital signal drove the amplifier to full power, so plenty of gain is available. Distortion at -60dB was not measurable because of noise.

The 651A measures well in most areas. It has no obvious weaknesses, other than a basic USB performance. NK

| | |
|--------------------|------------|
| Power | 78watts |
| CD/tuner/aux. | |
| Frequency response | 6Hz-160kHz |
| Separation | 93dB |
| Noise | -102dB |
| Distortion | 0.004% |
| Sensitivity | 370mV |
| Damping factor | 54 |

| | |
|--------------------|------------|
| USB | |
| Frequency response | 10Hz-20kHz |
| Noise | -61dB |
| Distortion (0dB) | 0.016% |

DISTORTION



CAMBRIDGE AUDIO AZUR 651C CD
 Frequency response was flat to 20kHz with all three filters, linear, minimum and steep. However, Steep, shown in our analysis, offers greater attenuation of unwanted out-of-band information. Very little subjective difference is apparent with DacMagic's similar filters and this will likely be the case with the 651C filters, as basic tonal balance across the audio band is unchanged by them. My preference is Steep, because it is least tinny and bright, and gives slightly more solid feel to high frequencies.

Distortion levels were low through the players dynamic range, measuring 0.21% at -60dB for example, very good if not quite the best possible (0.18%).

There was a little more noise than usual and this resulted in an EIAJ Dynamic Range value of 96dB, where 98dB is common, and a noise figure of -94dB. Output was a normal 2V.

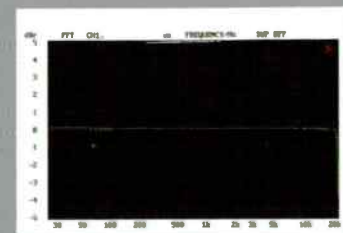
Jitter levels were low all round, with low rate clock drift producing 30pS of drift and a 1kHz, -60dB test tone 30pS also. Random jitter

hovered around 5pS, all good results.

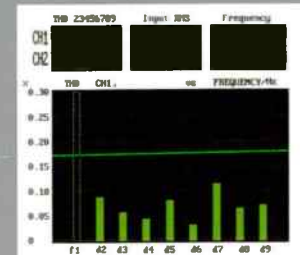
The 651C measures well, although some values are a little off the best. NK

| | |
|---------------------------|-------------|
| Frequency response (-1dB) | 2Hz-21.2kHz |
| CD | |
| Distortion | |
| 0dB | 0.002 |
| -6dB | 0.0006 |
| -60dB | 0.21 |
| -80dB | 1.4 |
| Separation (1kHz) | 108dB |
| Noise (IEC A) | -94dB |
| Dynamic range | 96dB |
| Output | 2.3V |

FREQUENCY RESPONSE



DISTORTION





S3 goes R2

Spendor have upgraded their venerable S3/5R loudspeakers to 5R2 finds Paul Rigby.

Some speaker designs are 'right'. They look right, they sound right and they never stop selling. One of those was the LS3/5A, which Spendor made in some numbers for many years, replaced by the improved, original S3/5, launched in 1997 with the updated S3/5R, which I reviewed in *Hi-Fi World* back in 2007. All of these speakers performed well and were only upgraded when real improvements could be implemented. Based on that philosophy, it was intriguing to hear that a replacement was on the way, the similarly branded S3/5R2.

Despite the name, however, there have been a wealth of improvements to the design, as company boss, Philip Swift, explained, "The main, 140mm, mid/bass drive unit is newly engineered by us. It has a different

motor system, a new cone, phase correction technology and an extended frequency response."

The 5R2 plays louder due to the reduction of thermal compression, one of the contributing factors in giving the speaker a more open and bigger sound than it's ever had before. When the drive unit runs cooler it runs more linearly."

The cone itself is another Spendor innovation, based upon an EP39 polymer. "It's a very stable, rigid material for producing low frequencies," said Swift. "It's also free from break-ups and resonances, one of the things that has allowed us to make the speaker much clearer than it ever was.

The search for a neutral cone material has been extensive. Spendor found that other materials, such as paper and metal, coloured the

sound, "You find that, when these materials break up, they produce sub-harmonics which spoils the sound. I've tried these other materials before, to give them a chance but, ultimately, there is a signature there that will not go away. Our polymers don't add anything to the sound but because they remain rigid, that means that the bass is clean and articulate."

Even the nose cone has been carefully designed to affect the final sonic output, "The nose cone in the speaker provides phase – or timing – correction," explained Swift. "If you have a more conventional dust-cap, it radiates spurious sound which goes off in random directions which sounds like a noisy mess. With phase correction technology, you get a pure, correctly timed, signal arriving at your listening position and off axis which results in more focus and a

cleaner, purer signal".

For the tweeter, which is also new, a 22mm SEAS dome using wide surround technology was utilised. The tweeter exhibits the best of both worlds. That is, the extended frequency response of a small diaphragm combined with the low frequency response of a larger diaphragm to give very stable frequency, low distortion response over a large frequency range, "Instead of the surround part of the dome being an inconvenience you actually design it so that its part of the radiating part of the tweeter which solves problems.

Spanning 305x165x190mm, finished in black ash, cherry, light oak and dark walnut and weighing in at 4.6kg, I was eager to see what this carefully considered design sounded like.

SOUND QUALITY

Comparing the original S3 to the 5R2 was a revelation. The improvements from the new model were many and obvious with any genre and any format. First was the now more balanced presentation of the speaker. The older S3 managed to excel in terms of bass output – a quite remarkable feature for such a small speaker. The new 5R2 retained the bass performance but the midrange and treble are more prominent, taking a more active part in proceedings, addressing all aspects of the mix and imbuing a more relaxed performance. This makes the new 5R2 sound more at ease with itself.

Another improvement with the new model was improved clarity, the driver enhancements have lowered the noise floor to such an extent that instruments and vocals have far more space to perform. The music starts from a much lower dimension, giving bags of room for dynamics to stretch out.

Speaking of stretching out, the soundstage was also expanded, giving a more panoramic view of proceedings. This aided all frequencies, giving the music space

and allowed instruments to freely express themselves without seemingly tripping over each other.

More specifically, playing the Sugababes highly compressed track, 'Blue', the changes also showed that what can be improved at one



end demanded payment at the other because this new transparent, open nature of the 5R2 exposed highly compressed music such as this. The output of the older S3s wrapped the grating frequencies within a comforting bass accompaniment, making the bright upper mids and fizzy treble acceptable to the ear. The newer, more open and honest 5R2 exposed the lifting frequencies, revealing that they really are nasty and harsh.

Moving to a better class of mastering from a jazz vocal CD from Linn Records, the new 5R2 produced a confident, smoother, more relaxed vocal performance from Kidd. Upper mids were clear, open and more informative. The real improvement, between the old and new models via this CD was the bass performance. Backed by my meaty Icon Audio 845 monoblocks and enhanced by the purer, cleaner bass sound via my Isotek Super Titan mains conditioner, the older S3 couldn't take the higher volumes, experiencing quite noticeable breakup of the bass frequencies via that tell-tale bass squelch. The new S3 sailed through the same performance, without a problem, keeping a tight hold on lower frequencies.

Moving to vinyl and June Christy's 'The Cool School' and the ballad, 'The Magic Window', the new S3 speakers were more transparent, to such an extent that I was forced to lower the gain a couple of

notches to compensate. Christy's throaty, smoky, vocal delivery had a more considered delivery while the broad soundstage provided both air and space via the jazz ensemble. Both percussion and piano accompanied this ballad with a real sense of swing, pulling the ear into the mix and making the track a more involving listen.

On the higher tempo track, 'River', by the 4AD indie band, Throwing Muses, the bass performance was more realistic and characterful. The earlier S3 incarnation offered weight and heft to the lower frequencies but it was difficult to find much personality within. With the new 5R2, there was far more information available including how hard the drums were being hit and what type of percussive instrument was being struck in the first place. Compared to the earlier S3, the new 5R2 revealed more about the mix, giving each instrument a new focus.

CONCLUSION

Sometimes a new version of an established and respected product amounts to nothing more than a bit of spit and polish, such is the fear companies have of destroying a winning formula. The new S3/5R2 from Sendor is an all round improvement over the older model, I found. It will provide many a happy hour of listening to the audiophile, no matter what their music taste.

REFERENCE SYSTEM
 Icon Audio CD-X1 CD player
 Avid Acutus/SME IV/Benz Glider turntable
 Icon PS3 phono amp
 Aesthetix Calypso pre-amp
 Icon MB845 monoblocks
 Quad ESL-57 Speakers
 (One Thing Modified)
 Tellurium Q Graphite speaker cables

VERDICT ●●●●●
 Compact but packing a bass punch, the new Sendor S3/5R has a new sense of clarity and upper frequency freedom.

SPENDOR S3/5R2 £850
 Sendor
 +44 (0)1323 843474
 www.sendoraudio.com

- FOR**
- expanded soundstage
 - transparency
 - characterful bass
 - clarity

- AGAINST**
- nothing

MEASURED PERFORMANCE

The small S3/5R2 has an especially flat frequency response on-axis, but slightly off-axis treble falls away slowly so for best accuracy the speaker needs to be pointed straight at listeners, and not down the room. It will sound tonally balanced and smooth, the SEAS 22TF soft dome tweeter in particular looking very resonant free. A decay spectrum over 200ms showed there was little coloration in the midband and at high frequencies, but the small box gets a bit 'hot' at lower frequencies and may sound tubby or chesty or have some sort of slight colour.

The cabinet is sealed; there is no port. This introduces a big single peak in the impedance curve, at 80Hz. Bass output reaches down to 60Hz and rolls away smoothly below this frequency. The 'speaker should have clean bass, as there is no peaking.

Overall impedance was high at 10 Ohms, when measured with pink noise, caused by a 6 Ohm bass unit and the large twin peaks in impedance. As a result, sensitivity was low at just 82.5dB Sound Pressure Level from one nominal watt (2.8V), meaning a 60 Watt

amplifier is needed for good volume and 100 Watts may not go amiss.

The small Sendor should sound smooth, mellow and easy on the ear. It will likely have 'fast' bass too. It does need power though. NK

FREQUENCY RESPONSE



IMPEDANCE





WIN A REGA RP3 WORTH £549 IN THIS MONTH'S GREAT GIVEAWAY!

Here's your chance to win a Rega RP3 turntable. Read what we said in our review in the November 2011 issue and answer the questions, at right on this page.

"The brand new RP3 is a replacement for the highly capable P3-24. A phenolic resin brace is fitted between arm mounting and main bearing housing. Giving the deck the apparent appearance of a suspended subchassis type but without the suspension, Rega claims that it "forms a structurally sound 'stressed beam' assembly specifically where increased rigidity is required". This therefore prevents energy absorption and unwanted resonances from causing distortion in the music. Of course, the company has always followed the

path of low mass in its plinths, which is why the RP3 still had a traditional Rega lightweight plinth with a small brace – the company claim that making the whole plinth skin from the brace's phenolic material would cause counter-productive issues in terms of mass absorption resulting in unwanted energy transmission.

Sitting atop the RP3 is yet another new item in the form of the RB303 tonearm. A further development of the P3-24's RB301 item, which in turn was an evolution of the original, classic RB300, the RB303 advances Rega's tonearm technology further still. New for the latest model are a new arm tube with claimed increased rigidity between it and the bearing housing, plus an alteration to the mass distribution within the arm which Rega claim "ensures the arm will exhibit fewer

points of possible resonance". The counterweight is also now a satin black finished item that matches the armtube – Rega claims no sonic wonders as a result of this but it certainly looks nice!

The RP3 comes in three finishes, namely White, Grey and Titanium which does seem to suggest that you'll have to be content with the older P3-24 if you still want something more vivacious like Red, Blue, Green or Pink. Still at least you can still jazz the deck up with a red, blue, yellow or purple mat should you so desire. Retail price of the RP3 is £475, although it is available as a package with Rega's Elys 2 cartridge for £549. As the motor used in the RP3 is the same as that of the P3-24, the TT-PSU upgrade would also appear to be an option, but the review sample was supplied without."

- end -

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For a chance to win this great prize, just answer the following four easy questions. Send your entries on a postcard only by 31st May 2012 to:

June 2012 Competition, Hi-Fi World magazine, Unit G4, Argo House, Kilburn Park Road, London NW6 5LF

QUESTIONS

[1] What is the brace made of?

- [a] steel
- [b] plastic
- [c] bubble gum
- [d] phenolic

[2] What sits atop the RP3?

- [a] top hat
- [b] top dog
- [c] RB303 arm
- [d] broken stylus

[3] There are fewer points of?

- [a] sonic inversion
- [b] electric instability
- [c] possible resonance
- [d] imbalance

[4] How many finishes are there?

- [a] many
- [b] none
- [c] various
- [d] three

June 2012 Competition
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Argo House
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entries will be accepted on a postcard only

**MARCH 2012 CASTLE KNIGHT 2 LOUDSPEAKER WINNER
Miss Diane Bowron of Bishop Auckland, County Durham**

WORLD STANDARDS

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

TURNTABLES

REGA RP1 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-15S1 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 .5 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 RB251 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 similar 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 MI 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 CD5/i 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-1S 2009 £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 integrateds 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

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

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 integrateds 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 alloyed 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 S3/5E 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**LFT8B 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 1.1 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 £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 AURE5 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...

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 UNITIQUE 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.





Sonic Vector

With a smart looking, unintrusive floorstander from Audiovector, the Ki 3 Super appeal to Noel Keywood?

It isn't ideal, but placing a loudspeaker close to a rear wall gets it out of the way and clears floor area – and for most people that has got to be good. Just slim the front baffle down and you have – well – this loudspeaker, the Audiovector Ki 3 Super. Standing an absolutely standard 1 metre high it compares with many around it height wise but Audiovector have narrowed the front baffle right down to 14 cms wide. Well finished in an attractive cherry veneer our review samples were easy on the eye.

Slim loudspeakers are knocked over easily, the common solution being a plinth to widen the foot print and that too is what the Ki 3 Super uses. Hidden between plinth and the bottom of the loudspeaker is a port, the narrow gap between port and cabinet acting as a resistive vent, an idea that is simple but works well I have found in the past.

Inside a vertical baffle imposes a quarter wave line, one tapering outward toward the cabinet's bottom vent, horn style so the acoustic wave slows and pressure falls. This works quite well as a system our measurements showed, lacking the pipe resonance and associated 'honk' quarter-wave lines commonly suffer.

The Ki 3 Super has been proportioned to work close to a wall Audiovector say, meaning bass output falls slightly in open space. Well, that's the usual way of arranging performance to suit near-wall use. The wall supports output by reflecting sound back to the room without the intervening attenuation caused by air, although in practice I believe the coupling to room modes is more influential, a wall position driving the room most effectively. You can hear this by sitting in the middle of the room for lightest bass, whilst sitting against the far wall gives most bass. Play a piece of music with a consistent bass line in it and then move up and down the room on a small chair to judge this effect – as I do!

Audiovector also specify a 4-6 degree toe in, which is slight. Our measurements suggest the loudspeaker is pointed straight down the room for flattest response and most even tonal balance, but a slight toe in usually does sharpen up and solidify central images usefully.

Two small 4in (10cm) bass units are used, operating in parallel, their cones woven from carbon fibre and glass fibre strands for low coloration. The tweeter is nominally a 1in (25mm)

dome and crossover to it is placed at 3kHz as usual.

Each cabinet was relatively light at 13.5 kgs and sits on adjustable spikes set into the plinth. A front grill is attached by magnets and is easily removed. The rear carries bi-wire terminal panel fitted with bridging links to enable mono wiring. The sturdy, gold plated terminals accept 4mm banana plugs, spades or bare wires.

SOUND QUALITY

After 24 hours run in (our samples had already seen use) with computer generated pink noise then Monitor Audio's De-Tox CD the Ki 3 Supers were hooked up to an Audiolab 8200A amplifier, a Tellurium Q power amplifier and our Icon Audio MB845 MkII power amplifiers. Not unsurprisingly, the latter matched

" I got to hear right into his vigorous bow work and I enjoyed what the Audiovectors managed"

best, putting power into the bass and bringing the usual liquid quality of valves to the rest of proceedings. All the same, even when graced with these properties and a balance that verges on warm in the Icon Audio amplifier, the Ki 3 Supers had an obvious bright balance, with a cool edge to their sound. They came over as razor sharp in timing and this extended down to low frequencies where bass lines were well damped and went low, yet strode along with great pace and fine timing.

Percussion lanced out from Angeliqe Kidjo's 'Tatchedogbe', from her Agolo CD. There was masses of

fine detail, great insight and strong centre-stage imaging too, all arresting properties, but that there was excess high frequency energy was never out of the question. Put simply, the Ki 3 Supers have an obviously bright balance, when pointed straight down the room to minimise treble level at the listening position. And we were using side wall damping to absorb reflections.

At the same time they were quite smooth and even in overall balance, seemingly not lacking in anything across the frequency band. This made vocalists stand out with crisp clarity, and the Audiovectors were impressive enough in this area. Spinning a range of CDs, from Duffy through to Adele, all well balanced modern recordings, the Ki 3 Supers were squeaky clean if cool in temperament.

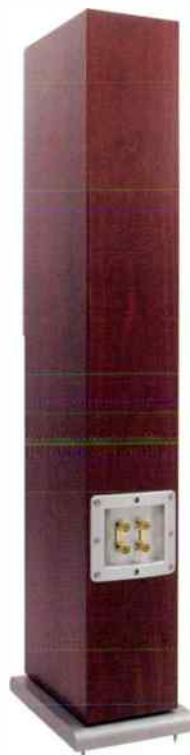
Bass lines were well damped and strode along cleanly and here the Ki 3 Supers will appeal to all those who want well defined bass, I am sure. I was quite taken with the way they managed to project goodly amounts of power, yet sound well damped and temporally defined at the same time. I was aware of some boxiness though and a slightly detached quality to bass lines, as if they were coming from an independent subwoofer. A lack of lower midrange output seemed to be the problem here; there was little warmth or organic body in the sound balance.

Nigel Kennedy's violin I thought would come out none too well, but the loudspeaker's smooth, even nature came to the rescue here. I got to hear right into his vigorous bow work and I enjoyed what the Audiovectors managed here.

CONCLUSION

The Audiovector Ki 3 Supers struck me as a well developed and honest loudspeaker with a lot of strengths,

fast well defined bass being one of them that will appeal to many potential buyers I suspect. However, they don't have enough stand out strengths to fend off strong competition at half the price from the likes of KEF, Monitor Audio and B&W, all of whom have similar products that are every bit as good, and arguably better So Audiovector's Ki 3 Super is a well made loudspeaker, but not an especially distinguished one for its price.



VERDICT ●●●●

A solid basic performance but with a bright nature and little warmth. Fine bass though.

AUDIOVECTOR
KI 3 SUPER £1,525
 Henley Designs
 ☎ +44 (0)1235 511166
 www.henleydesigns.co.uk

- FOR**
- tuneful bass
 - even midband
 - sharp imaging
- AGAINST**
- bright balance
 - cool demeanour
 - boxy bass



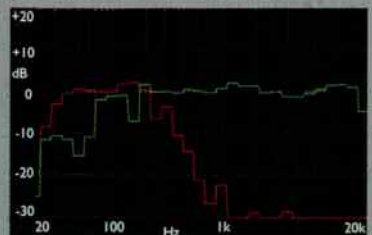
MEASURED PERFORMANCE

Frequency response was reasonably flat off-axis by around 20 degrees. Output from the tweeter was a little higher, but only by +1dB above 9kHz so the Ki 3 Super will sound well balanced tonally. It has a nice, smooth midband, suggesting low coloration and this should give natural vocals. However, there is no lift in the lower midband and bass rolls away below 150Hz so the Ki 3 Super will not sound either fulsome or bass heavy. It is balanced to be placed close to a rear wall.

A downward firing port exhausts through a narrow gap between base and plinth and this provides good acoustic damping. The result is a broad flat output below 200Hz that will support the loudspeaker's forward output. The impedance curve shows that acoustic damping in this case isn't commensurately high though, as shown by the width of the anti-resonant dip at 50Hz. The impedance curve is also placed high due to the use of a 7.2 Ohm bass unit, placing a 7.2 Ohm minimum on the curve below crossover at 2.3kHz. In spite of this though, sensitivity was good, measuring 88dB from one nominal watt of input, so a 60 Watt amplifier will go loud.

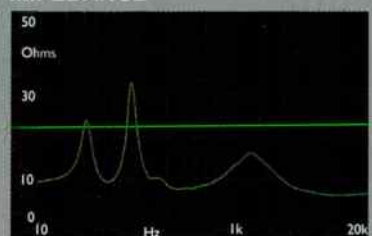
The Audiovector Ki 3 Super is well developed and has no major flaws. It gives an honest basic balance and, apart from a small crossover dip, is flat right across the audio band. It is likely to have clean, well controlled bass too, although it will not be bass heavy. NK

FREQUENCY RESPONSE



Green - Driver output
 Red - port output

IMPEDANCE



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Pro-Ject
AUDIO SYSTEMS

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Brand new phono pre-amp inspired by the world's most popular budget phono stage - the Phono Box. This S version combines great sound and features for MM & MC cartridges at an attractive price.



Lehmann Black Cube Decade

Lehmann Audio equipment is made for music enthusiasts, by music enthusiasts. The Black Cube Decade was designed as a celebration of the cult Black Cube phono stage's enduring success in 2005.



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Hitachi Duo..MKI tuner on top, with MKII underneath.

On The Right Frequency

Japanese giant Hitachi has developed some cutting edge audio technology over the years and are famous for the power MOSFET transistor. Here Haden Boardman looks at their skills in FM synthesised radio, with the FT-5500 tuners.

Hitachi is one of those mega corporations it is difficult to completely understand from a Western point of view. Actually pronounced “sta’chi” in Japanese, the company is simply massive, one of the biggest in Japan. Set up back in 1910, as a coil winder and motor maker, they are more famous outside of audio for Bullet trains, boats, and power stations!

Even today, the company is simply huge. Like Sony, the company’s first foray into audio electronics was a simple six transistor radio back in 1958. But Hitachi became a major player throughout the late nineteen seventies and early nineteen eighties. The company developed a ‘core’ of

large scale integrated circuits (LSI) which became very applicable across the entire audio industry, used by virtually every other Japanese maker, and a many UK companies as well.

Early synthesiser tuners have a very bad reputation for strange ‘whistles’ and back ground noises. But really they should not. FM radio is quite simple: you have an ‘RF’ stage to amplify the small radio frequency signal, an ‘oscillator’ stage, which is the bit usually varied when we tune in an FM radio, this is ‘mixed’ with the incoming ‘RF’ signal. Vary the oscillator, and you vary the ‘mix’ output. This is fed in to an ‘IF’ or ‘intermediate frequency’ stage. The ‘IF’ stage has a very narrow bandwidth, traditionally tuned to 10.7MHz, which filters out

all the rest of the stations outside of its bandwidth, allowing just the frequency ‘tuned in’ to pass through. Say you want to tune in to 107 MHz, setting the oscillator to 10 MHz ($107/10 = 10.7$) would allow that frequency to pass through the ‘IF’ strip.

The final radio stage is the demodulator, where the frequency modulated signal is demodulated and the audio signal appears, in mono plus stereo difference information. The Stereo Decoder finally outputs a stereo audio signal!

On synthesiser tuners the oscillator is rock-like stable (usually Quartz crystal locked); on earlier tuners, the oscillator can (and will) drift causing tuning to fluctuate. Complex circuits control the

synthesiser circuits and they make auto tuning and presets possible. Where a lot of early tuners made a mess was in cramming in the direct read out fluorescent tube displays (FTD), and it is the necessary drive electronics here which caused all the noise, commotion and audio interference.

The two Hitachi FT-5500 VHF/FM tuners covered here represent the main stay of the nineteen eighties Hitachi designs (there was also a later FT-5500MD, part of a 'high end' 360mm wide system with wooden end cheeks – technically this is a shrunk MKII). Both have a strong reputation, but which is the best sounding?

A recent investment in a Blake Eight Element FM antenna has allowed enough signal to be split between two radio sets, making comparisons a mere flick of the input switch! Technically there is not a great deal between these tuners. They both feature Hitachi's 'FCCS'

"The strong reputation these two models have earned does seem justified"

Field Condition Computer System, which automatically sets the RF gain and, if necessary, narrows the IF strip (this is not a great thing for the sound, but handy on weak stations). With the MKI you can do this manually. The MKII does it when you store in the preset memory bank. The MKII boasts a direct decibel readout of RF signal strength and this was pretty accurate, the MKI has a more crude moving coil meter. Other than that the MKII is black anodised, where the MKI is finished in a nice copper bronze, which I quite like.

You are always at the mercy of the broadcasters with radio, but I was lucky to catch a couple of live performances, and was quite pleased with the results... Most listening was conducted with the BBC nationals, with the odd sojourn to Classic FM and Smooth Radio.

Sound wise, there was a certain 'house sound' to both tuners. They are slightly soft in the treble, clean, noise free, but easy on the ear. Bass on both units had a slightly warm edge, a mild 'woolly' quality. Midrange was clean and defined, stereo image slightly restricted compared to references (a surprise seeing one of Hitachi's own chips, the HA1156 is one of the most popular FM decoders ever). RF performance

was similar on both, the MKII seemed to sulk a bit more on strong signals (other people have reported the reverse), the MKI exhibiting no problems. Neither set had any background noises or whistles, even on quite hard-to-reach stations. Hiss was similar on both.

Sound wise, the MKI was much more open and organic sounding than the later tuner. This may seem a bit of a surprise, but is not considering differences between the two units. The MKII was slightly more 'tailored' in its sound than the

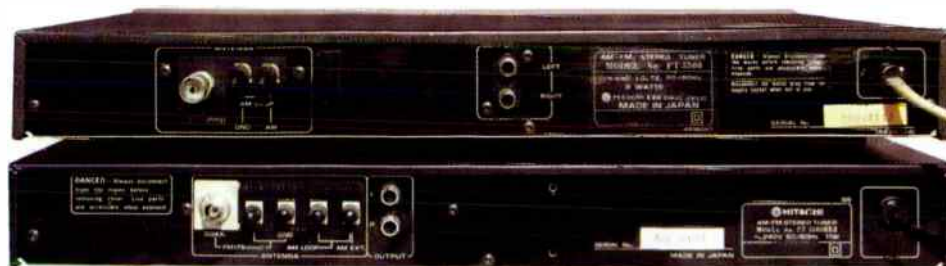
MKI. There are several 'mods' about which would remove and replace the post stereo decoder audio filtering and output stage responsible for this 'house sound'. Frankly, I do not feel it worth the effort or expense.

Lifting the lid, on the inside, the reason for the differences between the two became more obvious. The MKI is based around a cornucopia of Hitachi chips, the MKII shares the same chassis and lid, but the main printed circuit board is populated with devices from another Japanese giant Sanyo... presuming Hitachi had licensed them to make their technology would be speculation on my part, and the board does look like it was engineered by the same designer chaps... but other than the engineered 'house sound' these are two totally different tuners.

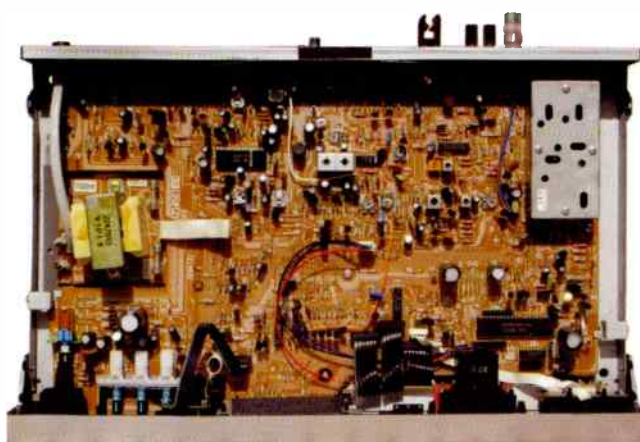
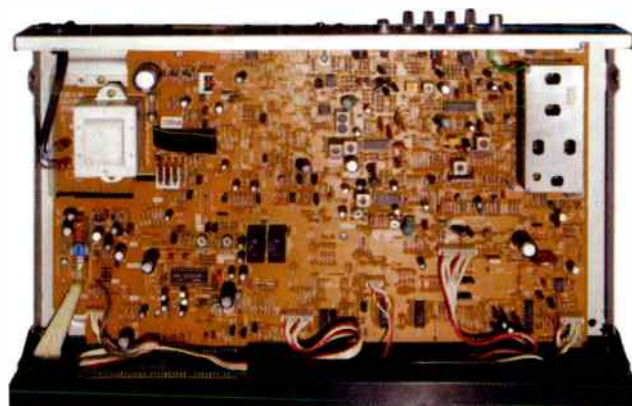
In fairness, both tuners are very good sounding. A comparison to a still in production RDS tuner at the £300 mark saw both units winning by a comfortable amount, it was actually embarrassing. So for those seeking a really inexpensive, modern preset tuner really should consider one of the FT5500 models.

Repair and service wise there is nothing much to worry about. Set up and alignment is pretty bullet proof, I have never seen or heard of

a faulty one. Both use a small 'back up battery' for station memory (just about visible in our pictures - on both of these tuners, the little thing was still working). If you do find a faulty one, it is simply not worth dealing with. Supply of these units is very plentiful, they sold lots, and they sell second-hand anywhere from less than a fiver, to fifty quid tops, more on cosmetic condition than anything else. The strong reputation these two models have earned does seem justified in comparison to the 'new' tuner test. The MKI is the better sounding unit of the two by a length, but it is far from night and day, more down to condition and price... and the best thing about the pair of them is the low price and performance offered for the cost of a gourmet coffee and cake!



Differences in connections suggest these are completely different machines.



Top MKII, similar layout to earlier MKI, but totally different circuit. Both units have back up battery.

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 CD1 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-P1200 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 superdeck 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 £350**

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 80V 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 spry, 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-fit!

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, TL/12 PLUS 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 to 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-555RW 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 KEFT27 / 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 ESLS7 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 HB1 1982 £130

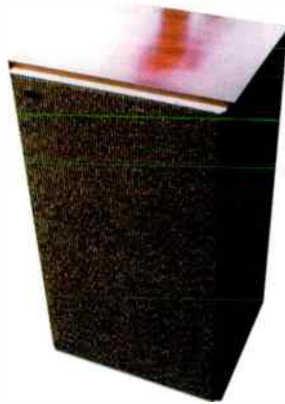
Peter Comeau-designed standmounters with an amazingly lyrical yet decently refined sound. Good enough to partner with very high end ancillaries, yet great with budget kit too. A classic.

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...

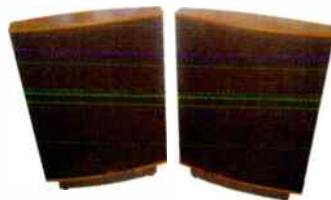
LEAK SANDWICH 1961 £39 EACH

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 'poof' 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

(Cams) 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
Email: info@arklesselectronics.com
www.arklesselectronics.com

CLASSIQUE SOUNDS

(Paul Greenfield, Leicester)
ESL-57s restored, rebuilt, fully renovated or improved. Leak, Quad valves amps etc.
Tel: 0845 123 5137
Mob: 0116 2835821
Email: classique_sounds@yahoo.co.uk
www.flashbacksales.co.uk/classique

WEMBLEY LOUDSPEAKER

(Paul MacCallam, London)
Comprehensive loudspeaker servicing.
Tel: 020 8 743 4567
Email: paul@wembleyloudspeaker.co.uk
www.wembleyloudspeaker.com

CLASSIC NAKAMICHI

(Paul Wilkins, Worthing, West Sussex).
Restore, Repair & Service Nakamichi Cassette Decks.
Tel: 01903 695695
Email: paul@bowersandwilkins.co.uk
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

(Henry Dulat, Surrey)
Repairs, restorations and upgrades to valve and transistor amps and all analogue audio including Revox.
Tel: 01372 456921 Mobile: 07730 134973

Sansui today



Absent from the UK market for many years, Sansui has now returned with a modern, budget digital system for today. Paul Rigby reviews the WMH-700L.

Sansui were a fixture in the hi-fi market back in the seventies. A Japanese manufacturer of cheap but cheerful hi-fi, they were many people's introduction to good sound quality. Like many other venerable companies of the period, they fell into financial difficul-

ties and as a result have been absent from these shores for some time.

Sansui were majority owned by the same conglomerate, based in Hong Kong, which also owned Akai, Nakamichi and the UK start-up, and respected headphone outfit, Ross. Ross was later floated on the stockmarket and Sansui UK pulled

along as a daughter company of Ross. When Ross Group PLC was bought out (by a chap who worked for the company in the seventies, incidentally) that gave some leverage to Sansui UK. That was a year ago. It was at that point that Paul Mitchell, now Sansui UK MD, and his business partner, bought around 90% of Sansui

UK from the Ross Group.

"When we re-set up the brand we wanted to go right back to basics," explained Mitchell. "We had a legacy from the founder of Sansui, Mr Kikucchi, who set up the company in 1947, originally making transformers and power supplies. His background was in component sourcing, so he knew how to buy quality components. He also knew how to make something at a low price, but still make it as good as it could be for the money. That's the legacy we are carrying on. We want to be the 'go to' brand for converging

"an impressive feature list, the Sansui WMH-700L, in terms of value and design implementation"

technologies. We also want to be what Sansui was originally, the source for many people's first ever hi-fi. We see this as good for the industry because, after they buy our system, users can upgrade from there. Then they're hooked. We want to do that for a younger generation but we also want to get the older generation into the likes of streaming."

Sansui has a wide range of products ready to be released so the WMH-700L mini-system is the first of a minor deluge of hi-fi kit of all types and genres. Presented as a two-box system with a separate pair of boxed speakers, the system offers a CD player and an internet receiver, which each span a neat 285x170x70mm in either silver or black, an ideal size for a study, kitchen or bedsit and, with two separate chassis, offering lots of storage options which comparative Japanese systems, present in a single chassis, do not. The CD is unremarkable in terms of controls and sockets but the super slim, 6mm thick CD's drawer is worthy of note.

Within the receiver is a Frontier Silicon chip handling FM, DAB, DAB+, internet radio and streaming. "Ours is the first piece of hi-fi that incorporates every aspect of the functionality of this module," said Mitchell. "That means that our receiver can be controlled by a freely downloadable iPhone app, it supports FLAC, it streams music and more."

The receiver features a USB port for an external hard disk or storage key and there are two auxiliary ports, one of which is a 3.5mm socket to take a MP3 player and a forthcoming iPod dock. The compact, stand-

mounted speakers feature a simple mid/bass driver and a basic tweeter and are connected via bell wire.

IN USE

Set-up shows just how fully featured the Sansui is and how carefully it has been designed. It's UK origins hold it in good stead too. Firstly, the Sansui's network player is based upon a text-based, nested menu system accessible via chassis buttons viewed via a small, frontal LED screen. Normally, I find such designs anathema but the Sansui was saved by three factors. Firstly, the nested menu is not too complicated.

Secondly, the accompanying manual – essential to talk you through network set-up – has been written by the head of Sansui UK. You cannot beat having an English manual written by a fluent English speaker who obviously knows what he's talking about. Compare this manual with a typical Japanese effort which looks like they're thrown a game of Scrabble into the air and transcribed the result. Thirdly, the included, freely downloadable, Libretto iPhone app, if you have an iPhone that is, can fully control the Sansui, offering a professional, easy to use, touch screen interface.

Network set-up is fairly straightforward, "If you own one of the most recent modems," said Mitchell, "then you are more than likely to have WPS, push-button security. It negates the need for you to fiddle around with dials and hexadecimal key passwords. On our screen, it will list it with a 'WPS' suffix. Just press the WPS button on the hub and the WPS button on the Sansui. That's it. It's the most simple system." Having a Linksys 4200 router, I was able to take advantage of WPS but there are other relatively easy methods to

connect to your network, if not.

The Sansui also supports Windows 7's 'Play To' feature. Right click on a music track on your PC and you can instruct the Sansui to play it. Finally, support is given to the free Media Connect app, which sets up your iPhone as a source for 'share' network music. The WMH-700L is certainly full featured.

SOUND QUALITY

Playing a selection of compressed chart music via the CD player, the mids did experience some lifting but nowhere near as severe as some hi-fi components I've heard. Treble lacked life and sounded like the buzz from a squashed bee but bass was surprisingly good for such a unit of this type and price point. Percussion was without any damaging smearing or muddiness, a feature of other mini-systems, while instrumental separation was appealing, giving focus to the presentation. Midrange output was comparatively clear and articulate.

Playing a selection of vocal jazz CDs with a superior master, the Sansui responded with surprising elegance in the midrange, proving lively and detailed. Treble was now listenable, if not sparkling and, while bass may not have shifted any



The loudspeakers have a rear port and single spring clip terminals.

tectonic plates, was quite meaty in the upper bass region.

Other sources were just as pleasing: the iPod lacked the wide frequency range of CD but that actually helped the compressed chart music, taming the wayward mids while the better recorded vocal jazz,

icon Audio



Our Stereo 60 MK III KT120

75+75 Watts pure valve integrated/power amplifier



We have a passion for making well engineered Valve Amplifiers.

Introduced in 1957 the KT88 enabled new standards of amplifier performance to be set. Forty three years later Tung Sol has eclipsed this with their new KT120. A remarkable design with 50% more power. At that time we were updating our successful Stereo 60 MK II with improved power supply, driver circuit and also designing our Low Distortion Tertiary output transformers. So we took the opportunity to design the Stereo 60 III around the new KT120. The finished amplifier has exceeded our expectations and has been one of our most successful models gaining excellent reviews in Hi Fi World, Hi Fi Plus and voted "Outstanding Product" in Hi Fi News group test, beating much more expensive competition. Not only is this amplifier technically excellent in all the usual parameters but sonically praised by leading reviewers. As the loading of the KT120s is relatively low this should give long life and good reliability.

Performance:

The Stereo 60 III is amplifier for those needing high power excellent dynamics and low distortion. It may be used as an integrated or power amplifier with separate pre-amp. Virtually any kind of speaker may be used including electrostatics and "difficult loads" down to 1 ohm are no problem (4-8 Ohm nominal).

The Stereo 60 may also be used in "Triode" mode, at about 50% of normal power. Adequate for less demanding situations the different characteristics of triode operation lend themselves to more relaxed listening, some preferring this mode all the time.

Our new series of "Low Distortion Tertiary" output transformers are the best we have ever made, enabling us to reduce global feedback by about 40%. All of our amplifiers are designed in Leicester; they are commissioned and serviced by the people that designed them so you can be sure of long term performance. We incorporate a "standby" switch in order to protect those precious cathodes from ion bombardment until they have warmed up.

All of our amplifiers are hand made using "point to point" soldering without using printed circuit boards. We are convinced this sounds better. It allows for very easy servicing, upgrades and modifications. Remote controlled volume is useful for fine tuning your listening level to match your taste. High quality components are used throughout including an "ALPS" volume control, silver plated PTFE audio cable SCR capacitors audiophile resistors. Power Amplifier operation is possible by selecting a lower "gain" on the rear of the amplifier (this is not done with attenuation which would lose quality). Loudspeakers of nominal impedance between 3 ohms and 10 ohms may be used with virtually no reduction in power or quality. A choke regulated power supply adds a richness to the sound quality that silicon devices alone are unable to do. Tape and other methods of recording and playback are catered for by the "Tape Monitor". Also useful for Home Cinema applications.

In short we have created an amplifier of excellent flexibility and quality which retains the qualities traditional of traditional design and performance.

From £2,199 (Complete inc VAT) Upgradeable See also our similar MB90 KT120 mono blocks and other award winning amplifiers on our website

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Leicester UK

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despite lacking emotive richness, provided a relaxed and smooth midrange delivery; DAB radio was easy to set-up and, despite the typical thin sounding output, performed well, as did FM radio. Yes, there was hiss on the supplied wire aerial, which improved via the roof mounted aerial, but there was plenty of air and space via BBC Radio 3's classical music output and some measure of gravitas in Radio 4 speech output.

Internet radio offered the best blend of radio sound quality, ease of use and choice. Radio 4 responded well at 128k WMA, without FM's hiss but with more gravitas and a wider frequency response than DAB. My only concern with internet radio was the restricted genre choice. Why was 'hard rock' and 'rock' the only rock choices? Where was metal, prog and the rest?

The best overall sound quality was derived via the computer streaming option. Significantly, it removed a great deal of distortion experienced via CD play but provided a similar resolution providing excellent clarity and superb dynamics for the price. Sound quality as best via wired ethernet connection, producing superb bass personality and a consistent overall sound, but Wi-Fi also performed well, producing a surprisingly detailed delivery.

CONCLUSION

Offering an impressive feature list, the Sansui WMH-700L, in terms of value and design implementation, is quite stunning for the price. It will certainly provide everything a digital-only first time buyer will need and will give the older user an ideal entry point into the streaming community. Sound quality, in this configuration, as you might expect from a mini system is not great but that's purely down to the speakers. After I tested the Sansui with their own loudspeakers I switched to a pair of Mordaunt Short Aviano 1s and found the improvement in sound significant with bass full and meaty, a broader soundstage, more complex midrange and greater musicality.

When reviewing mini-systems such as this, I have to be aware that, oddly enough, sound quality is not the principle selling point: it's all about features. Also, sonically, you really have to divide your £500 budget around at least seven music sources: DAB, FM



At top, CD player with one pair of analogue outputs. Below is the amplifier with a Wi-Fi antenna input, RJ45 ethernet socket, VHF aerial input, optical digital output, analogue inputs and spring clip 'speaker terminals.

and Internet radio, CD, iPod, PC and phone streaming (wired and wireless) and, hence, a final rating should reflect that. Especially when the easy speaker upgrade produces such dramatic sonic results. As such, I was loath to lower the rating, out of the

box.

Change the speakers, replace the bell wire with unterminated, quality cable and you will have a mini-system to be reckoned with. If this is the first shot from Sansui then I am eager to see what will follow.

"excellent clarity and superb dynamics for the price"

MEASURED PERFORMANCE

Power output from this little system is modest, 15 Watts into 8 Ohm and 22 Watts into 4 Ohms. The small loudspeakers gave a low 82dB SPL from one watt under test so 94dB is available, at 1m. At 2m this equates to 90dB on music peaks, which is loud, but not very loud. Although amplifier power was low, quality was high; there was no crossover distortion at all and distortion levels were low at all frequencies, and into 4 Ohm load.

The VHF/FM tuner had a surprisingly flat frequency response that extended to 14kHz, but some hiss may be apparent in Radio 3 silences as noise measured -60dB, with an aerial input of 1mV or more.

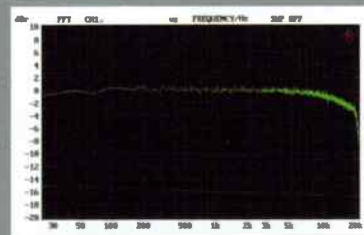
The USB input played 44.1 and 48kHz sample rate WAV test files, but not 96kHz. Frequency response was flat to 10kHz (-1dB), upper treble rolling down gently to -3dB at 20kHz our analysis shows, so the sound will be smooth and easy. There was some noise and distortion at -60dB, together measuring 1%, typical for a budget USB solution.

Although the small SP700 loudspeakers were flat and smooth from 60Hz up to 3kHz under measurement, their tweeter peaked by +10dB on-axis; this fell to +5dB off-axis, producing an excessively bright sound. A pair of sensitive floorstanders would get much more from the system

and better portray its many strengths.

| | |
|------------------------|------------|
| NK | |
| Power (8 Ohms) | 15watts |
| Amp frequency response | 7Hz-19kHz |
| VHF frequency response | 10Hz-14kHz |
| USB frequency response | 7Hz-10kHz |
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FREQUENCY RESPONSE



DISTORTION



VERDICT

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AGAINST

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World Radio History



Another dimension

Blu-ray players like Samsung's recent BD-D8900 are busy going 3D. Have they forgotten audio, Noel Keywood wonders?

Introduced late in 2011, the BD-D8900 is top of Samsung's latest range of Blu-ray players. Although inexpensive, Samsungs have given excellent results with audio in our past reviews, such as our Blu-ray group test in the October 2010 issue. Their internal circuitry is of higher quality than that of most rivals, including their big Japanese competitors. Only dedicated

audio players from manufacturers like Cambridge Audio and Oppo have managed better. So how does a recent player like this BD-D8900 fare from an audio point of view? Does it offer good sound quality from a wide variety of different audio formats or has video performance – 3D in particular – taken over?

The rear panel tells a story here. Gone are the 7.1 surround-sound

analogue audio output sockets found on earlier players, for connection to older analogue only receivers fitted with a 7.1 input set. On this player you get a stereo output pair of phono sockets, into which surround channels are internally down-mixed, for connection to a stereo amplifier, or a receiver's front channels.

There is a digital audio output via an optical S/PDIF interface that



"a great sound from the analogue outputs, and both the optical digital audio output and HDMI worked well too"

streams surround-sound as Dolby or DTS surround-sound in standard definition (i.e. compressed audio) or, if set to PCM, stereo only.

For the 'full monty' audio wise, HDMI must be used. So Samsung have effectively dropped support for older analogue-only receivers. As a modern Onkyo receiver costs just £500 or so, this isn't any great drawback.

Unfortunately, Samsung have not strengthened up the audio I found; in fact the number of file formats this player can handle is disappointingly limited in many areas of its extended functionality. For the BD-D8900 offers more than just Blu-ray playback, but also network connectivity to enable playback of video, audio and pictures stored on a PC running Windows, or Mac with UPnP server, and from a USB Memory stick. It all sounds interesting, if you have video, audio or pictures stored on a computer somewhere in the house, but I was both surprised and disappointed to find that the BD-D8900 would play little on my computers, either via network connection or direct from a high speed USB stick. This player isn't for video buffs nor audio buffs, which

I will elaborate on later, but it has another trick up its sleeve, because it can also record TV programmes and rip CDs to an internal 1TB hard drive. In fact there are two TV tuners on-board, to allow recording one channel whilst watching another – neat huh? Unfortunately, not all was happiness here either!

The BD-D8900 comes with an aerial lead and is connected between aerial and TV, then tuned in to TV stations using the usual auto-tune or manual methods. It has an on-board clock to allow programme scheduling. The TV is then used as a monitor working from the player's TV tuner, via HDMI though the AV receiver. This way the video signal passes straight through to the receiver to the TV, processed or unprocessed, but audio goes through the hi-fi.

There are immediate and obvious benefits from this arrangement, notably high quality sound from TV programmes. Sound quality jumps upward because the TV's internal loudspeakers are replaced by sound coming from the front surround-sound loudspeakers. I noticed immediately some hard stereo effects as I watched a D-Day Heroes programme, machine gun bullets

whizzing from right to left across the room in front of me! Switching in matrix decoding such as Dolby Pro Logic IIx gives surround-sound, shunting out-of-phase information to the rear channels. This is often quite effective and attention grabbing with television sound, so much so I wonder whether matrix encoding is used at times. Whatever, this player brings an immediate and large improvement in TV sound quality, one the family will appreciate I am sure.

The only small potential drawback is that deep bass is absent from TVs but becomes very apparent through a proper hi-fi system, and this goes around the house much more. I was made aware of this from the D-Day re-enactments using modern sound recording; the room fairly rocked as pill boxes blew up and tanks duelled.

The TV tuner is a good one, with plenty of picture detail. However, it gave over-saturated colour as usual, making food look garish in a cookery programme, and blacks were





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grossly over-emphasised to add apparent definition. In Tools there is a well concealed User adjustable picture section, as well as a Natural setting. Whilst the latter was good, blacks were still too dark and lacking detail so I did some tweaking with the User adjustable option for a balanced picture. The final result was very good, with strong detail and noise free colour that looked lustrous, at least when decent material was being broadcast.

Recording a TV programme is easy enough: just press a red Record button on the remote control and off it goes, with an initial warning message and a small red record light, plus elapsed time display. A peculiar gremlin emerged during replay: frame stepping made the picture and sound go out of sync, upon replay at normal rate.

The player handles most silver discs. With SACD only the CD layer is played; it will not read the HD layer so you get stereo only. Those with DVD-As will find the player doesn't reject them but offers access to the compressed audio, Dolby or

although the database did give up with a Rocksteady disc! Switching from analogue to the optical digital audio output (S/PDIF) showed little difference between the two. There is usually obvious improvement when the analogue output stage of a player is bypassed by using its digital output, conversion taking place in the receiver, but whilst digital was a tad more open and smooth from the BD-D8900 its analogue output is good enough to get close. Switching to HDMI offered no improvement over S/PDIF, a not uncommon situation. The BD-D8900 has many niggles though and with CD play I found lack of track number indication on the player inconvenient; the TV must be switched on to see track number; the player shows elapsed track time only.

The player will read audio, video and picture files from a USB key but of all our test files only MP3 was seen. The User Manual (p12) lists just MP3 and WMA as readable; uncompressed WAV isn't read even at 44.1kHz sample rate, a severe limitation. So you cannot play high

I have not covered, including 2D-3D conversion, and ability to read internet music services like YouTube and Napster. You can find the User Manual on their U.K. website in the Support section, for a complete listing.

CONCLUSION

For audio work the BD-D8900 is a bit of a mixed bag. Like earlier players it has a fine basic audio performance and this is a useful strength. Low jitter and high quality on-board DACs help toward a great sound from the analogue outputs, and both the optical digital audio output and HDMI worked well too.

This apart though, seen as a high quality audio and video player the Samsung's inability to play high resolution audio or video files from USB was disappointing. It's video recording ability will appeal to many I suspect and great TV sound through the hi-fi is another plus point that arises from this. So the BD-D8900 does a lot very well, but it has some glaring limitations too by current standards.

VERDICT ●●●●

A versatile Blu-ray player that does a lot, but it has limitations in both audio and video replay.

SAMSUNG BD-D8900 £350

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+44 (0) 330 7267864

www.samsung.com/uk

FOR

- hi-fi sound from TV
- good audio quality
- good picture quality

AGAINST

- low res. USB formats only
- sync problem with TV
- AllShare limitations



DTS, tracks. All Blu-rays are played and DVDs too, the latter being up-sampled to HD resolution. This does in practice improve quality I have found, even though in outline theory it cannot.

Blu-rays load reasonably speedily; it took twenty seconds to load the Java based menu of John Meyer's 'Where The Light Is', which is fast but not exceptional nowadays, 30 seconds being slow but 16 seconds possible. It read test BD-R and BD-RE discs. Insert an audio CD and the player can rip it to the internal hard drive if you wish. Unfortunately, insert any other disc then press the Record button and it will come back with the message Not Available. In other words, it will not record from a video disc. This is not a copyright issue; I inserted one of my own BD-Rs containing HD Video and got the same response – disappointing.

Used as a CD player the Samsung gave very good sound quality from its analogue output sockets. It was smooth and sufficiently dynamic to have some punch to it, delivering a sturdy rendition of Adele's 21 CD for example, and it was on the beat with a recent set of releases from Trojan of Classic Reggae,

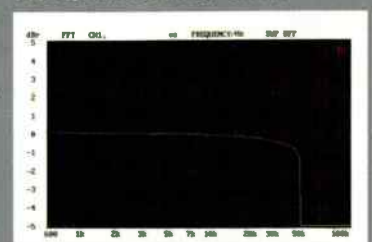
definition music from USB. Similarly, of a range of camcorder video test files including AVI and M2TS the Samsung would play only MP4 video. Listed as playable by Samsung are MKV, MP4, DivX and AVCHD.

The player connected into my home network, saw a PC and a Mac (with EyeConnect) and read files from them, but again WAV was not an option. Samsung's Allshare software would not install in Vista on one PC, but did install in Windows 7 on another. It adds extra functionality to the player's ability to read files, but audio came over at 16bit/44.1kHz sample rate only, from 24/96k music files, and HD video was not played. There are a host of other functions

MEASURED PERFORMANCE

| | | |
|--|-------------------|--------|
| Frequency response through the Samsung BD-D8900 analogue outputs reached 48kHz with a 96kHz sample rate high definition audio signal, and distortion at -60dB was a low 0.09% from 24bit resolution digital high definition test signal. These are good results, showing the internal convertors are of high quality and the player will do HD audio justice if connected through its analogue outputs. Results from CD were good too, much like those of a normal good quality CD player with response flat to 20kHz and distortion at -60dB measuring 0.22% (16bit). | -60dB | 0.09 |
| | -80dB | 0.18 |
| Jitter was very low, as it often is from Samsung players our measurements show. Signal related jitter measured just 20pS, random jitter around 5pS and low rate clock drift 40pS maximum, again all low values. | Separation (1kHz) | 110dB |
| | Noise (IEC A) | -104dB |
| | Dynamic range | 102dB |
| | Jitter | 20pS |
| | Output | 2V |

FREQUENCY RESPONSE



DISTORTION



The analogue output of the BD-D8900 measured well in all respects and offers a good audio performance even from high definition audio on Blu-ray. NK

| | | |
|---------------------------|-------|-------------|
| Frequency response (-1dB) | 24/96 | 2Hz - 48kHz |
| Distortion (24bit) | 0dB | 0.003 |
| | -6dB | 0.003 |

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"it's a tough job because the original production artwork is long gone"



paul rigby

It's easy to get carried away with the recent resurgence of vinyl – I know that I do. Each batch of new vinyl announcements is like Christmas morning. With each new series of vinyl releases, LPs are becoming more ambitious and more complex with many more box sets appearing along with seriously expensive single album vinyl editions. Yet, the reissue market has to be careful not to lose sight of the core market, those music fans who love vinyl but are sometimes in danger of being priced out of the game altogether.

Heavy metal reissue label, Back On Black (www.backonblack.com) has a policy of keeping value high. "And we do this while not pricing the fans out of the market," said label boss, Steve Beatty. "We always try to keep our records at a reasonable price so that people don't say, 'Well, I'd really like that but I'm not paying £40 for it.' It actually stops me buying vinyl when I see those sort of prices for a single LP. It's a bit ridiculous. Especially when you've already got the album on CD. With us, you get a lot for your money. Part of it is to reintroduce vinyl back into the market. I think that we have succeeded in that respect."

You might equate price point manufacturing targets with substandard production but far from it, in Back On Black's case. "We take vinyl seriously," said Beatty. "For example, we're looking to reissue a range of Van Der Graff Generator albums. We had our artist spend a week on a single sleeve of theirs, making sure that the quality was up to scratch. It's a tough job because the original production artwork is long gone so the only source is a well used second hand copy. Obviously, you

don't rescan a worn sleeve for a new reissue, you've got to recolorise it. We rebuild the sleeve, in fact."

Which takes cash and time, of course.

Beatty is also the boss of music distribution outfit, Plastic Head, which is lucky for rock fans because, "If I didn't already own Plastic Head distribution then we wouldn't be doing these heavy metal reissues. If I didn't already have the graphic designers that I was already paying, for example, I wouldn't be able to produce such good sleeves. If I was going to produce 1000 copies of a LP and then had to outsource the artwork to a graphic designer charging £1500 then I just wouldn't do it. It wouldn't be financially viable."

The latest series of reissues surround Saxon. There are seven within the latest release schedule, "We did three albums on picture disc originally, that was one of our first releases. But, you know, I don't really like picture discs. They're OK to look at but they are gimmicks. I buy vinyl for the sleeve and the sound quality.

We did them because we applied to reissue the original vinyl. EMI wouldn't give it to us but they said that they wouldn't be doing the picture discs so would we want to do those? At the time, we agreed. Now, years have passed and the label doesn't want to do the original vinyl either so we have stepped in. Sometimes waiting for clearance is frustrating. For example, it took me five years to release our Hawkwind reissues."

The long wait for the Saxon license has been worth it, though. The finished LP releases are magnificent objects in themselves. Heavyweight vinyl, heavyweight sleeves, well

mastered by Tim Turan at Turan Audio and resplendent with shiny, fully restored, cover art. Most packages arrive with the original album and an additional second disc that features extras.

The release batch includes: 'Strong Arm Of The Law' (1980) complete with two 2009 remixes from Abbey Road an alternative version of 'To Hell And Back Again' plus an early version of 'Six Form Girls' called 'Mandy'; 'Wheels Of Steel' (1980) features five live cuts from Donington music festival; 'Denim and Leather' (1981) includes nine live cuts from the likes of Donington and The Rainbow along with the B-side, '20,000 Feet'.

'Power And The Glory' (1983), is a single disc package and includes an alternative version of 'Suzie Hold On' plus a live B-side version of 'Denim & Leather';

'Crusader' (1984) is another single disc affair with no extras; 'Innocence Is No Excuse' features live cuts, B-sides and the 12" Club Mix of 'Back On The Streets' while 'Rock the Nations' (1986) features two live cuts from a gig in Madrid, plus the 7" versions of 'Waiting For the Night' and 'Northern Lady' plus the B-side, 'Chase The Fade'.

All are great value for money. A lot of the extra tracks have never been seen on vinyl – certainly not the aurally superior 12" vinyl.

It's great to see a British company tackling vinyl reissues in such a sensible, even-handed and sympathetic way. Sympathetic to the medium, the traditions of the original albums and, above all, sympathetic to the fans who are so used to being ripped off by major labels. You see what happens when you take suits out of the equation? ●

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"the sound was very musical and had a snap to the timing"



tony bolton

If you read my column last month you will be au fait with my efforts at converting my workshop from being a household dumping ground back into a usable space where I can have a good fiddle around with the various elderly or infirm bits of audio equipment that seem to mysteriously appear in my life from time to time. In the process of what felt almost like an archeological dig, I exhumed a Garrard 4HF, my Thorens TD124 Mk II and a mid 1940s HMV radiogram, and had reorganised the space so that I could use part of the worktop which runs along one side and get at my tools.

So, after all of this, which item of antique audio did I work on first? Well, the first thing that went in for an overhaul didn't even belong to me. It was a mid 1930s HMV Model 102 portable gramophone. I had been promising for quite a while – OK, some years or so! – to some friends that I would give it some attention. Happily, they're patient. Anyway, this gramophone had come into their possession after a long time in storage and bore a fair amount of dust and grime in its grained black leatherette covering. The motor ran well but the arm bearings were a little stiff so a full strip down was needed. Therefore on the weekend after my workshop sort out, I set to work dismantling the '102.

The first step was to remove the motorboard to leave the case with just the handle, used needle container and the locks attached. My usual method of cleaning leatherette or vinyl is to use a soft bristled nailbrush and a bar of Vanish. The trick is to use enough water to dampen and loosen the dirt, but not to soak the material,

which can cause it to shrink in places. Rinsing is accomplished with a damp micro-fibre cloth. I put the case outside in the garden to dry in the unseasonably warm sun that we've enjoyed recently and had a look at the mechanicals.

The 270D series motor is quite a substantial thing, with beautifully machined gears transmitting the power from 14 foot of mainspring that is coiled up in a three-inch diameter drum. Taking one of these apart is something that I have not been brave enough to do yet, the potential for injury if the spring should fly out of its casing puts me off rather, so the rare motor repairs that I have needed on my own machines have been outsourced to one of the specialists in the field. Luckily in this case, nothing other than a few drops of oil on the bearings were needed and the motor settled down to run with just a very quiet hum coming from the rotating weights on the governor.

The arm runs on a ball bearing race, and the service instructions recommend a few drops of light machine oil on them periodically, but these ones seemed far too tight, so I took the arm base apart, doing it over a large metal tray in case any of the little steel balls tried to escape. The inside was a mess of old dirt and dust that had got trapped by the old lubricant, which had itself congealed into a sticky mess. A thorough spray of WD40 loosened it enough to clean it all off, and I spent the next half an hour cursing and swearing as I tried to get the bearings back into their race, and thence into the groove on the arm base. It is one of those fiddly jobs that either works the first time

or will drive you to near insanity.

Once this was finally back together I turned my attention to the polished oak motorboard. Most of the ingrained dirt was removed with a 50/50 mix of white vinegar and water. The clean surface was then refinished with Antiquax wood polish, and all of the chrome plated fitments and the arm and soundbox casing polished with Autosol.

By this stage the outer case was dry so that was treated to a couple of good coats of black shoe polish and buffed up to a nice shine. After that it was just a case of replacing the motorboard, with the motor and horn, which follows the shape of the case, coiling around the motor, remounted underneath.

Once it was all back together I wound up the motor, made a couple of adjustments to the speed regulator, put a new soft-tone needle in the soundbox and played a record or two. The result was most pleasing – not high fidelity as we think of it, but the sound was very musical and had a snap to the timing that some modern equipment could do with learning to emulate.

Compared to an iPod of course it is nowhere near as convenient or easy to transport, but, with 14 ten-inch 78s loaded into the record carrier that sits on top of the turntable, and armed with a fresh tin of needles (they must be changed after every side to avoid damage to the records) I went over to my friends' house to sit down on their patio and play a few tunes as the sun went down, accompanied by a glass or two of wine. Now I can't think of a better way to celebrate a successful restoration, can you? ●



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"the Iridium mines detail other amplifiers only dream about"



noel keywood

I got a pleasant surprise this month: I heard a good transistor amplifier! Ultimately, I am a valve man; sound quality wise, when it comes to amplifiers: you can't beat 'em. And in the world of valves, 'single-ended' amplifiers, commonly abbreviated to SE, are seen as top of the tree. They are notionally perfect amplifiers.

I find from listening SEs are sonically a nose ahead of all else when done properly, but for most people the drawbacks are not worth the gains: think low power, lots of heat and huge weight for a sound that is free of crossover distortion and, generalising, has a smooth but intense solidity about it that just sounds 'right'.

A practical one I loved was the Japanese Almarro 318B, price £2750. Weighing 20kgs and consuming 260 Watts from the mains, it delivered 18 Watts of audio power but sounded clean, and solidly wrought. Icon Audio make the MB805 that weighs in at 36kgs per monoblock and this is more like the weight of a typical valve SE, because they need special (i.e. heavy) output transformers.

There are virtually no single-ended transistor amplifiers around though, because they are pig difficult to make work properly. Yes, we designed and built one at Hi-Fi World long ago (a World Audio Design prototype) and it reached the loft pretty fast! The output transistors ran scalding hot, heat sinks had to be vast and a coupling capacitor was needed unless some sophisticated d.c. power supply servos were used to keep output offset error under control.

Then there are the protection circuits and these can be more complex than the amp itself.

Getting rid of the output capacitor and all-direct coupling allows the use of high levels of feedback, to reduce distortion,

because although there is no crossover distortion, transistors are not fundamentally linear so feedback remains a necessity. Valves are linear so need no feedback – a big difference.

Don't think that a transistor SE will sound like a valve SE. They don't sound at all alike, because transistors and valves are radically different devices in their transfer function, in current density, in secondary emission (none with transistors), in microphony and what have you. And valve SEs have massive output transformers, gapped to avoid d.c. saturation, that transistor SEs do not have, or have to suffer. So transistor and valve SEs are not at all alike in physical embodiment, nor sonic delivery.

Our single-ended prototype sounded like a fabulous Class A transistor amplifier, a Sugden on steroids let's say! It was bright and clear, intensely detailed and rock solid in its portrayals. It didn't do air and space like a valve amp though, nor did it have their liquidity of presentation.

The Iridium reminded me of our transistor prototype, but it was much better. In fact, this is one of the best transistor amplifiers I recall ever hearing. With Rock like Skunk Anansie's 'Hedonism', Skin sang centre stage with a starkly outlined clarity that was stunning. All stereo images on the sound stage, from drums to guitar, were rock solid and outlined in crystal hard clarity. The bass line had a stabbing dynamic that was eye poppingly tight, yet wonderfully resolved in terms of dynamic expression: as bass notes were plucked a little bit harder or softer, such subtle differences were made easily apparent. Rarely have I heard such solid yet expressive bass lines as those from the Iridium.

With Renee Fleming in front of the microphone singing Puccini's 'O mio babbino caro' the same

properties gave her a force of delivery and breadth of expression quite beyond other transistor amplifiers. Detail was intense but high treble glisteningly apparent and quite strong, illuminating the strings behind her.

The Iridium mines detail other amplifiers only dream about – no they don't even get that far! It has a stark clarity about it that is very 'transistor', but it seemingly lacks noise and mush and softness and vagueness. Every image was wrought in hard crystalline form right across the sound stage. Think cool, think brutally dynamic and deeply expressive. The Iridium is one amazing amplifier.

However! This is an amplifier for aficionados, not for head bangers. I can listen to 9 Watts happily and have the means to do so with a variety of loudspeakers, including my own sensitive, tuned up KLS9s. But loudspeaker matching will be crucial.

And this sort of sound is for those listeners who 'get' it. Many will find the Iridium's absolute power and sheer volume too limited, and others just may not appreciate its strengths. Here it is Quad ESL-57 like: a reference in most ways, but still too limited as far as the man in the street is concerned.

But for those listeners that demand the utter best and can live with the drawbacks I would suggest they get a listen to this virtually unique amplifier. Single-ended transistor amplifiers are as rare as hens teeth and the sound they produce is in the same category. I would say though, that the Iridium is probably one of the best transistor amplifiers I have ever come across, providing you appreciate its deeply honed yet almost brutal 'take no prisoners' delivery that is, to me at least, a fascinating lesson in what is possible from the transistor. What a surprise! ●

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"the Smith turntable collection can be on display"



adam smith

Forgive the direct approach, but I'd be ever so grateful if you'd pause for a moment and offer a short thought of sympathy in my direction, if you'd be so kind. You see, I am currently undergoing the most stressful experience known to the audiophile – yes, even worse than the wife finally seeing all your turntables together in one place and realising you actually own twice as many as she thought you did (although that happened as well...). Yes – we've just moved house.

As I write this, I am sitting in 'the study'. This romantic-sounding epithet might conjure up images of a cosy, book-lined room with a lovely big leather chair by the roaring log fire, with me dictating the column to a loyal butler who is committing it to the computer, but let me burst that bubble straightaway. It's actually an extremely crowded room containing my desk and PC, plus...wait a second, let me check... nine pairs of speakers (three of which are SD Acoustics SD1s, plus Leak 2075s and Leak 3090s, so that's half the room accounted for), a few amplifiers, eight boxes containing all sorts of cables, cleaning widgets and general gadgetry, and two eight month old kittens who aren't sure whether to be excited or completely terrified by the whole thing. In case you're wondering why there are no turntables mentioned – I'm not daft. They all went to my parents' house long before the removal men arrived. I wasn't taking any chances with them!

Of course, moving house is a stressful enough experience at the best of times, even for those of you lucky enough to have only one hi-fi system and our whole process has dragged on for nearly a year as it is. Along the way it has encompassed sellers changing their minds, buyers

changing theirs and even one seller pulling out because "his mate told him the village wasn't very nice"!

Even worse, for me, was viewing the most perfect house that I have ever seen, with my wife virtually having to drag me out by the ears as we both knew we couldn't really afford it. Well, not if we wanted to have luxuries like food, anyway...

However, we persevered. That house ticked all the boxes and when it finally appeared on the scene under budget we became proud owners; we moved in three days ago. Naturally, however, this is only the start and a great deal more hard work has to follow.

At the old house, my 'man cave' was bedroom number two and most of the time it was set up as a listening room, with Ferrograph loudspeakers optimally positioned and futon suitably loaded with comfy cushions and set just in the right place – it was a place where I spent many happy hours. The problem, was, when people came to stay the speakers had to be shoved back into the corners (at 27kg each, on custom spiked stands and with separate crossover boxes, this was less easy than it sounds!). The piles of LPs had to be neatly tidied away and the futon had to be re-oriented and then suitably loaded with bedding. It was all a bit of a faff, really. Add to this the fact that our house was semi-detached and so I felt that listening had to cease by around 7:30 so as not to disturb the neighbours and their two children, and you can see that the situation wasn't 100% ideal.

Still, the new place is very different. It is two old semi-detached houses that have been knocked into one so it is spacious, but there are some oddities in the layout (two staircases anyone?). However, one very happy side-effect of the conversion is a decent sized

bedroom in the centre of the house above the entrance hall, which has two doors and is the main route between the two halves of the house upstairs. This would make it something of an odd bedroom, but I can assure you it makes a perfect listening room! Well, I say that I can 'assure' you, but actually it's more of a 'hope' that it makes a nice listening room, as it is currently piled high with racks, stands, boxes of LPs and all the assorted listening ephemera that one requires as a reviewer and turntable obsessive. And yes, for those of you who have worked it out already, that is two rooms full of my 'junk' as Mrs Smith lovingly puts it – I don't think she's too amused...

So the fun starts now really. As well as the cleaning of the house, which could well take a couple of months judging by the state of the place, we have to organise the effects of our daily lives once we've worked out which particular cardboard box they're in, new furniture is needed as we have more rooms than before and, of course, there's the dread every time we open one of those boxes as we wonder if anything has failed to survive the journey intact (current tally – one broken laundry basket).

As a result, the listening room is a little way down the list but rest assured that it is permanently at the top of my mental list for planning. I'm excited because it will be big enough to cope with a pair of big Leak speakers, it has more room for racking and thus more of the Smith turntable collection can be on display and, best of all, there will be no need for re-organisation every time we have visitors. The final hurdle to cross is that the room sounds decent which, as most people soon discover, is rarely the case, but I will keep you up to date with progress, modifications and the room's evolution! ●

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Adam Smith takes an early peek at a new turntable

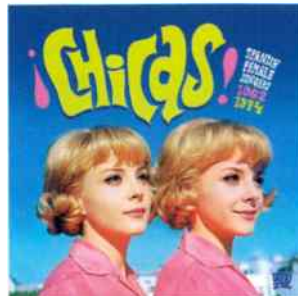
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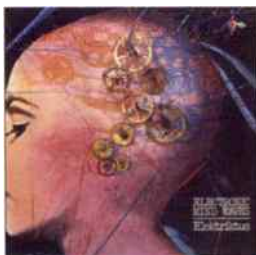


news

VAMP VIBES

All the way from Spain, sister imprints, Vampi Soul (www.vampisoul.com) and Vinilissimo cover a wide array of genres from 'Chicas: Spanish Female Singers 1962-1974', a 2LP package which focuses on the ye-ye, beat, garage, latin and soul vocalists to 'Rangarang: Pre-revolutionary Iranian Pop', a 3LP overview of sixties and seventies music that flourished before the imposition of the later, rather strict, regime which banned the lot.

Also look out for 'Frente Cumbieri Meets Mad Professor', a 2LP collection that merges latin America's cumbia style with dub; La Barra De Chocolate's self-titled LP merges beat, garage, pop and psychedelia from Argentina. This disc merges their only album plus errant singles from 1969 and 1970.



WAH WAH

More Spanish excellence, this time from Wah Wah (www.wah-wahsupersonic.com) and two LPs from Ame Son: 'Catalyse' and 'Primitive Expression'. An early French prog rock outfit, they were heavily influenced by the then future Gong leader Daevid Allen which adds to the Ame Son flavour in addition to early Pink Floyd flavours. Meanwhile, 'Primitive Expression' adds a 7" single featuring the pre-Ame Son outfit, Les Primitiv's.

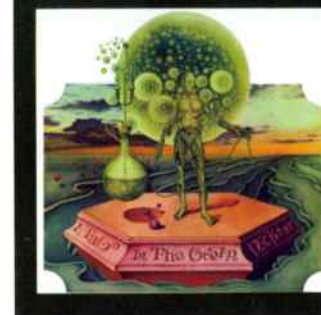
Sticking with prog and ElektriKtus, a 'lost' Italian prog outfit whose 'Electronic Mind Waves' (1976) is infused with jazz sentiments but is effectively one of the first serious electronica LPs in the genre. Fans of Cluster et al take note.

Finally, Robert Cacciapaglia's 'Sonanze' (1974) offers symphonic electronica full of spacey and dreamy soundscapes.



MISSING? NO MORE!

From Spain to Greece and Missing Vinyl's (www.veamusic.com) prog/space rock focus on Nektar, the British band that found fame in Germany with a Pink Floyd-esque approach via the classic 'Remember the Future' (1973), a conceptual piece featuring melodic guitar and keyboards. While 'A Tab In the Ocean' provides hypnotic prog with a powerful, dynamic sound. Fans of Camel should investigate too.





BRITISH JAZZ

...from Gearbox (gearboxrecords.com) includes the previously unreleased Michael Garrick Quartet LP 'Silhouette' (1958). A mono recording, it features Garrick's first band including Josephine Stahl on vocals, Peter Shade on vibes, drummer Brian Barnes and Paul Hemmings on bass.

Jo Harriott fans watch out for 'Jazz For Moderns', the first ever commercial release of the 1962 Maida Vale session EP, pressed on 45rpm disc.

Next is the combination of the Ronnie Scott Quintet and the Phil Seamen Quintet, taken from a live BBC Jazz Club 45 session in 1956. Harriott appears on this disc too.

Finally, watch out for Dick Morrissey, who plays with the Michael Garrick Trio on this 12" 45rpm EP. The first ever commercial release of this 1964 studio session.

RONNIE SCOTT QUINTET



PHIL SEAMEN QUINTET



JAZZ FOR MODERNS - JO HARRIOTT QUINTET



CARGO

And staying in Germany for Cargo Records (www.cargo-records.de) who are handling a wide variety of rock from varying time periods. Take Humble Pie's 'Live In Concert' as one example. Recorded on 6 May 1973 at the Winterland Theater, San Francisco, USA. Fans will recognise this LP as a reissue of the King Biscuit Flower Hour (1996). A ferocious piece with Steve Marriott in full flow – one of the band's best albums.

Also look out for Blackfoot's 'Train Train' which shows this southern rock/hard rock outfit on the live circuit, power metal U.D.O.'s 'Mastercutor Alive' (2008) in which Udo Dirkschneider also touches on his previous job as lead vocalist with metal outfit, Accept. There's also two rock'n'roll LPs: 'Rock And Roll Pills' and 'Rockabilly Tunes', both are Sun record label compilations. The former includes 1956 rarities from the likes of Wade & Dick, Jimmy Williams and Barbara Pittman while the latter includes 1957 cuts from Roy Orbison, Andy Anderson and Jimmy Wages that will be of interest to rock'n'roll collectors and fans.



MEN & WOMEN

Music On Vinyl (www.musiconvinyl.com) has a host of albums from significant figures in music, this month. First up is Bob Dylan and 1975's 'Basement Tapes' featuring The Band who pump out a melange of folk, blues and other Americana with a big dollop of humour.

John Coltrane's 'Live At Birdland' is the jazz sax man's best all round album. Originally released in 1963 on Impulse, it includes 'Afro Blue' and 'The Promise'.

Beth Gibbons & The Rustin Man's 'Out Of Season' sees the Portishead lead vocalist taken out of her trip hop stage and placed in a stranger folk, jazz and r'n'b arena complete with ex-Talk Talk member, Paul Webb. An effective change of musical clothes.

Featuring the hit single, 'No Woman No Cry', 'Natty Dread' was Bob Marley's first album with 'The Wailers' and away from former bandmates Bunny Livingston and Peter Tosh. Released in 1974, it is packed with socio-political comment combined with quasi-religious rhetoric.

Marianne Faithfull's 'Dangerous Acquaintances' (1981) showed her liking for mainstream rock but this 'safe' LP moved away from the critically acclaimed risk taking in her previous album, 'Broken English'.

Finally, Duke Ellington's 'Blues In Orbit' (1960) sounds more like a jam session than a strict studio gig. A late night recording, the improv gets into the soul of the band.





New Faces

Adam Smith takes a first listen to a brand new turntable from a brand new company – Oriton. This is an early look at the product, not a final review.

Many of those attending the Bristol Hi-Fi Show this year will have been drawn, as I was, to a room with some rather colourful items inside. The company in question are Oriton and they are the vision of a gentleman by the name of Mike Stone. Mike has been a long-standing music lover and recalls that many years ago he vowed that one day he would start his own company and introduce a range of hi-fi items that would be made in the way he felt best. As he puts it “two failed marriages later and with the arrival of old age” he decided the time was right, took on a small industrial unit, moved in the machinery and got stuck in.

The first results of this effort were his ‘R33’ support system and these were the colourful items that were on show at Bristol – the colours coming from the interconnections between the actual frames

of the racks and loudspeaker stands, the deliberate design of which gave the whole thing a rather alarming-looking, but very much intended wobble.

For the new turntable, this has been taken a step further as the deck uses the same cone supports as the rack system, and these are sited facing upwards on the chosen support and into round recesses on the underside of the turntable plinth, allowing it to move from side to side, front to back and rotationally, which again feels very odd in use. Under the bearing housing is a grounding pin made from brass, and the idea is this should be in contact with the shelf or equipment support, thus sinking the vibration to it. Naturally, Mike recommends the R33 support for this, although one was not supplied for this review. The turntable is belt driven and powered by a Premotec AC motor with offboard PSU – this was hard-wired on the review sample but Mike states that this will be

disconnectable on future production models.

The arm is another area in which Mike has differed from the norm, basically making it a clean-sheet design in which he states “I could not use standard bearings in the vertical plane as there is no way I could damp and have the movement I required”. As a result, Mike chose jewelled bearings in a split damping cup which “hides the internal damping for both the arm and the counterweight carrier without adding any weight to the arm itself”. The result is an arm with an effective mass of 11.5g and the unusual feature of having the cueing device fitted to an extension which is directly part of the bearing housing, meaning that the lever rotates with the arm.

Mike also states that he has included a conventional thread and weight type anti-skate setup into the design but states that he is unsure as to its relevance as his testing shows that it relates to the compliance



and weight of the cartridge. As there is no manual with this early sample deck, I am presuming that he is referring to the usually quoted method of setting anti-skate to a nominal pre-marked value to correspond with the tracking weight applied to the cartridge and I would tend to agree with his reluctance concerning this. In my experience this is usually too much and, for example, on many of my own turntables the anti-skate is set at somewhere between half to three-quarters of the notionally recommended value following suitable measurement. I'm still not so sure the whole thing can be dismissed completely, however...

For auditioning, I set the deck up with my Ortofon 2M Black cartridge and sat on top of my usual Atacama Equinox Celebration LE rack, little knowing that the deck would not be staying on it for long...

SOUND QUALITY

Initial thoughts following a good run-in period of the deck were somewhat mixed. On the one hand, the unit certainly had a pleasingly taut sense of timing and pace, and I was impressed by its firm, well extended and very tuneful bass. Clearly, the drive system has been well engineered and carefully manufactured, resulting in a good set of measurements (see MEASURED PERFORMANCE) and translating into a very pleasing low end.

Further up the frequency range, however, things were most definitely not happy. The midrange was over-blown and the treble somewhat jangly and rather messy. Pausing briefly to check that I really had installed my Ortofon 2M Black and not an old Stanton 500, which indeed I had, I realised something was definitely not right. The cables

were the same Chord Company items I always use, so they could be safely discounted and as I sat and pondered, my eyes alighted on the brass grounding pin protruding from beneath the bearing housing. Could this be the issue, I wondered, as the sound I was hearing was most certainly reminiscent of chap and nasty glass racks I have heard in the past, but a long way from the Atacama, with its three layer damped glass shelves.

The first step then, was to sit the deck on a Sound Organisation



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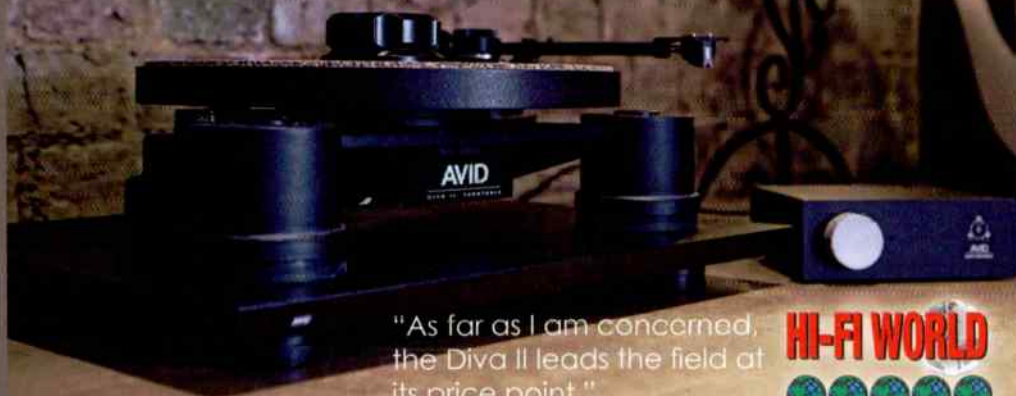
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way in which it is very clean and detailed, with an impressively low noise floor once configured properly. The previously experienced bass stayed taut and detailed, but now everything above it seemed in much better proportion and, in frequency terms at least, the deck seemed

turntable table – this was better, with the treble coming into line somewhat but it still sounded very unlike the Ortofon I know and love. Next up was a piece of slate which sounded dull and lifeless, before my eyes alighted on the item that has been the saviour of the audiophile on more than one occasion – the Ikea 'Lack' coffee table! With the Oriton sat on this, I finally gained a sense that I was supposed to be hearing the deck as was intended as suddenly the midrange calmed down, the treble snapped into focus

well balanced and tuneful from the lowest bass to the highest treble. I highlight the 'frequency terms;' aspect, though, as I found the sound to be noticeably lacking in terms of spatiality and imaging; everything was locked in a very narrow confine between the loudspeakers. It was as if the aspects of the design seemed to coalesce to eliminate the unwanted vibration, but took some of the very

the unit unfeasibly sensitive to the surface on which it was sat.

Equally, the arm automatically wins a certain level of praise from me for not being another Rega clone but, at the same time, I feel it needs more work. The inclusion of the cueing device on the actual bearing housing itself is self-defeating in terms of both the vibrational behaviour of the whole structure, plus it means that the whole point of a cueing device, namely a safe way of handling the arm for those of us with less than steady hands, is immediately nulled by the direct connection of the lift lever to moving part of the arm, an aspect which is made worse by the deliberately less than stable nature of the whole deck.

In summary, the deck is very interesting

REFERENCE SYSTEM BOX
 Ortofon 2M Black cartridge
 Sondex DE-1 Phonostage
 Naim Supernait amplifier
 Modified Ferrograph S1 loudspeakers



"I personally would file the Oriton turntable under 'one to watch'."



much wanted spatial information with them. I appreciate Mike's design ethos behind the arm but, the more I listened, the more it sounded to me like an arm that was not quite happy – the noticeable bearing play in both the fore-aft and port-starboard planes giving this impression further impetus.

but the sample sent to me was a very early one and I am going to reserve judgement for now. To Mike, I can only request that he take my criticisms in the constructive manner in which they are meant and assure him that I would be very keen to re-evaluate another unit in due course. For now, though, I personally would file the Oriton turntable under 'one to watch'.

ORITON TT-319 £950.40
ORITON TA-244 £858.20
Oriton
 ☎ +44 (0)1633 549530
www.oriton.co.uk

CONCLUSION

The Oriton turntable is an interesting concept and it is hard not to be impressed by the amount of thought and diversity of design that has gone into it. I feel that by using it on a support other than that intended by the designer I may not have heard it at its best, as it seemed to me that the grounding pin merely served to make

and the whole thing became far more pleasant to listen to. I can't help feeling that, if it was designed with the matching Oriton support in mind then this is highly likely to be the best way of hearing it and this is something I would be keen to pursue in the future, but for now listening could finally commence in earnest. With a few favourite test tracks underway, the Oriton started to work a little magic on me. The vibration-control aspect of the design can certainly be felt in the



MEASURED PERFORMANCE

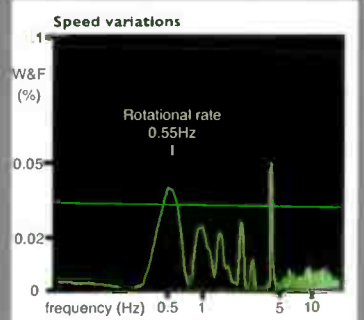
The Oriton ran -0.5% slow, outside a typical accuracy figure of 0.2% or so, but still not so far off correct speed as to be in obvious pitch error. Basic speed stability was very good, total wow and flutter measuring just 0.15% (unweighted), below a common figure of 0.2%-0.3% for belt drive. Our analysis clearly shows that there was little variation of basic rotational frequency (0.55Hz / 33rpm) and this usually translates to stable pitch and lack of a slightly mellifluous quality of notes from belt drives. Some minor flutter components are visible but their level is very low. The Oriton motor platter system measures very well.

The arm was difficult to use due to the arm lift attached to the lateral bearing assembly. Using the lift caused the cartridge to skate left or right. This was a design error, Mike felt in retrospect he said in a phone call, and would likely be changed in future. The arm could not be measured in its current form but the construction

method of straight carbon fibre tube with vestigial headshell usually measures well. We can hopefully measure a future final sample. NK

| | |
|------------------------------|-------|
| Speed accuracy | -0.5% |
| Wow | 0.13% |
| Flutter | 0.06% |
| Wow & Flutter | 0.15% |
| Wow & Flutter (DIN weighted) | 0.12% |

SPEED STABILITY





Into the blue

Will Tony Bolton, our vinyl expert, get into the blue – the new Blue Horizon Profono preamplifier, that is?

Over the last few years Blue Horizon have built a reputation for making good quality and well thought out products ranging from spike shoes through to a cable burn-in accelerator. The Profono phono stage is their first design for audio electronics and, as the name suggests is a phono stage suitable for both moving coil and moving magnet cartridges.

As with all Blue Horizon products there is obvious thought and a great deal of consideration gone into the design, its casework being an obvious example. Most designs at this price point use an off-the-peg alloy case, but Blue Horizon have gone to the trouble of designing their own. This is 1kg of aluminium measuring 170 x 70 x 105mm (w x h x d) which is heavy enough to avoid the unit being pulled off the shelf under the weight of the interconnect

cables, as can happen with some other designs. The front contains the company logo and a blue LED to signify power is present. If you place your thumb over this, and reach your hand over the unit, the power switch comes conveniently to hand – doing the same thing with your thumb on the U in the logo puts your fingers in contact with the switch that alters the gain between MM and two MC settings.

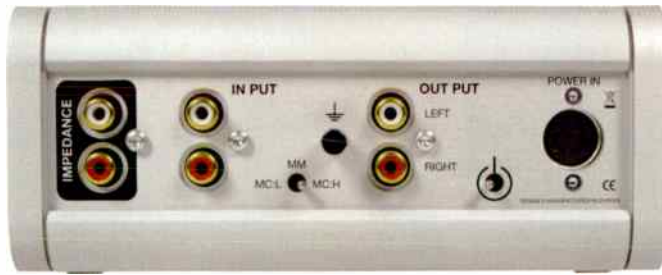
"very precise and defined in its sound"

Impedance is a standard 47k Ohms for MM, and adjusted for MCs via the simple expedient of using high quality phono plugs with the appropriate resistors fitted inside. These plug into sockets at the back of the unit and this avoids the

noise problems associated with dip switches.

Amplification is provided by Op Amps, the bass and midrange being covered by an active circuit, and the treble, from about 2kHz upwards being controlled by a passive one. This is claimed to help reduce surface noise. Gain and buffer sections complete the circuit, resulting in a very low impedance (22 ohms) output, which, with the fairly

high current supply, will allow the usage of long interconnects between this unit and the pre-amp. Mains power comes from a 'wall-wart' but I am informed that an upgraded external power supply will become an option soon.



SOUND QUALITY

After the usual 48 hours of running in I started my listening with the Fun Lovin' Criminals' first LP, 'Come Find Yourself'. It rapidly became obvious that this phono stage revealed in detail. Hughie's voice was distinct and well shaped, with the strong "Noo Yark" accent adding colour and texture to the sound. The 'Hip-Hop' style of the music bounced along quite pleasantly, although not as boisterously as I have heard it on other occasions, but the in-depth analysis of the instrumentation was excellent. The only drawback that I found seemed to be a little bit of weight missing from the bass area. The notes were there but not as impactful



as I would like.

I moved onto a 1956 Count Basie record, originally recorded in America under the supervision of jazz guru Norman Grantz for his Clef label. Since there was no facility to switch this phono stage to mono I was expecting a certain amount of surface noise to be present, but was very pleasantly surprised to hear lots of high frequency detail and virtually no crackle whatsoever. This record is in good condition but, given the Profono's explicitness I didn't expect this disc to play as well as it did. Again, though, I found myself wishing for a just little more bottom-end welly.

Wondering if this was a cartridge synergy issue I moved the Profono to the downstairs system and tried it with the Benz Micro Wood SL, and got pretty much the same result. However a further change to the recently reviewed Goldring 1022GX moving magnet cartridge helped things along a little (see HFW April 2012, p.95). The deeper, darker nature of this cartridge seemed to suit the Profono better.

I carried on listening, this time with Mussorgsky's 'Pictures At An Exhibition' with an early '70s reissue of the classic 1960

Ansermet recording. Here I found the Profono to be really at home, picking apart the differing strands of the instrumentation and presenting them very precisely for my perusal in an engaging and quite thoughtful manner. The imaging had the same pinpoint accuracy and performers were well placed on a big soundstage.

I felt that this phono stage was more of a cerebral listen than one to get up and dance to. It was

very precise and defined in its sound, doing its best to make sure that I didn't miss any subtleties of instrumental or vocal intonation, but lacked the drive in the lower registers that beat driven music requires to get the audience up and moving.

I also think a little care in cartridge matching is required. The Goldring 1000 series seemed to work well, as did a brief foray with the Goldring Legacy MC from last month's group test. More forward sounding transducers such as Audio Technica's OC9 MLIII provided superb high end resolution but not enough bass to be really satisfying.

A bit of care is needed to match this phono stage with the right system and cartridge, but once done the Profono should give good results. A lot of thought has gone into its design and the build quality is excellent, as I have come to expect from Blue Horizon.

SYSTEM USED:

Linn LP12/ Hadcock 242 Cryo/ Clearaudio Concept MC/ Goldring 1022GX
Bent Audio TAP-X passive pre-amp,
2 x Quad 303 power amps,
Kelly KT3 loudspeakers.

Clearaudio Master Solution/ Magnify/ Benz Micro Wood SL
Leema Acoustics Agena phono stage/ Tucana II amp,
Chario Ursa Major loudspeakers.

VERDICT

Well made and good all round, but expensive and undistinguished. Lacks bass kick too.

BLUE HORIZON PROFONO PHONO STAGE £695.00

Blue Horizon
www.bluehorizonideas.co.uk

FOR

- clean and precise sound.
- good imaging.
- flexible cartridge loading.

AGAINST

- a bit bass light.

MEASURED PERFORMANCE

The Profono's frequency response shows low frequency equalisation is inaccurate, low frequency output falling progressively relative to that required by RIAA correction. Where MM measured -1dB down at 100Hz MC was -2dB down at this frequency - a lot. The Profono will sound bass light as a result. The stage has a warp filter that introduces a massive -45dB attenuation at 10Hz and it may be this that affects performance higher up the band. Whatever, more low frequency gain is needed, or the warp filter made switchable (or just improved).

Gain with MM was a normal x110 (41dB) and with MC x315 (50dB) at Low and x1100 (61dB) at Hi. The latter figure is just enough for most MCs. Noise was low for MM cartridges, measuring 0.2µV, but the same front end and noise figure applies to MCs as well and this is on the high side against competitors that are typically 6dB quieter, with a noise figure of 0.1µV or less.

The stage overloads at 7.3V out, a normal enough value that gives satisfactory input overload figures.

The Profono measures well but it will have a bass light balance and some

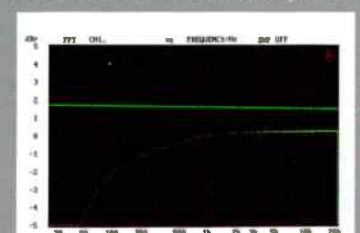
hiss will be audible with low output MC cartridges. NK

| | |
|--------------------|-------------------|
| Frequency response | 100Hz-20kHz |
| Separation | 85dB |
| Noise (e.i.n.) | 0.2µV |
| Distortion | 0.005% |
| Gain | x110, x315, x1100 |
| Overload | 7.3V |

FREQUENCY RESPONSE, MM



FREQUENCY RESPONSE, MC



MUSIC USED:

L'Orchestre de la Suisse Romande. Conducted by Ernst Ansermet Mussorgsky 'Pictures At An Exhibition' Decca Records SPA 229 1972

Count Basie 'Basie' Columbia Records 33CX10065 1956

Fun Lovin' Criminals 'Come Find Yourself' Chrysalis Records 7243 8 37566 1 2 1996

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Take Heed

Benz Micro expert Tony Bolton says we should take heed of the new Zene moving coil cartridge, a Benz Micro variant.

Those readers with memories stretching back thirty or so years may remember the brand name Heed, and the Obelisk amplifiers, designed by Richard Hay, which earned a reputation for producing valve-esque sounds from transistor topology. The brand name lived on in Hungary but has now returned to the UK, with upgraded versions of the amplifiers and other electronics. However, it is a new product, the Zene cartridge (Zene being the Hungarian for music) which is under discussion here.

When I unboxed it I was immediately struck by the family resemblance to the Benz Micro Ace which deservedly won one of our Globe Awards a couple of months ago, so I was unsurprised to discover that the Zene is made for Heed by Benz Micro.

It shares a lot in common with the Ace, using the same acrylic body, but coloured black as opposed to the red of the Ace. It boasts the micro-ridge stylus that is now found on all Benz Micro products, and the boron cantilever. Internally there is a slight change to the design of the back plate and housing. Tracking weight is similar, at a recommended 1.7 grams and this is the downforce that I used throughout the review. As is my usual practice, I gave the Zene about twenty hours running in before settling down for some serious analytical listening.

In deference to its nominal Hungarian identity, I started off with some Bartok, namely the 'Music For Strings, Percussion And Celesta' which was written in 1936 to celebrate the tenth anniversary of the Basel Chamber Orchestra. The

opening slow fugue is played on a few muted strings, which are gradually joined by their colleagues and then the celesta, before the piece climaxes and the themes are revisited as the music gradually reduces in intensity. I found myself totally absorbed by the sound, which was both tonally rich and detailed. I felt able to examine the differing textures of the instruments without effort and was very aware of the unusual layout of the orchestra, with the strings at the extreme left and right of the soundstage, sometimes working with each other, and sometimes seeming to work against the other. This music has no time signature, but it still seemed to flow easily and naturally.

Curious to see how the Zene handled rhythm, I changed tack to a 1957 French pressing of 'Ella and Louis Again'. Their version of 'A Fine Romance' swung along with gusto, the beat proving infectious, and the depth and clarity to the performance causing me to wonder yet again whether stereo was actually an improvement over well recorded mono such as this. I was particularly impressed with the way the very small amount of surface noise on this well preserved disc was disposed of before I had had time to even notice it. In fact it was so well behaved that I didn't even bother switching the Leema Agena over to mono. Ella's smooth voice contrasted nicely with

the gravelly tones of 'Satchmo', each seeming balanced and cohesive, while Oscar Peterson's piano and Buddy Rich's drumming were firmly placed a bit behind the singers, but with plenty of space around them. It sounded pretty natural and real.

Moving back to stereo, I played a 1965 Peter, Paul and Mary LP. Mary, as always, occupied the central space with the two male voices, accompanied by their guitars seemed to stand directly in front of the loudspeakers. Behind them seemed to be a big, dark cavern of blackness which helped to give the impression of the musicians standing up in front of me. I would not describe it as a holographic image, but it certainly seemed to be three dimensional, occupying a space just in front of the speaker cabinets, and, as I have mentioned, with a lot of depth. The last track on side two, 'The Last Thing On My Mind', written by folk singer Tom Paxton is a particular favourite of mine and I thoroughly enjoyed both the naturalness of the voices and guitars, and the unforced but easy flowing gate to the beat.

Coming a bit more up to date I played a 12 inch single from The Blue Aeroplanes. This is a group that I have seen live on many occasions over the last 30 years. Their line up of guitarists varies from gig to gig,



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| Pair Quad ESL57 speakers. Fully reconditioned including 2 new Otec treble panels. Awesome sound & dynamics | £ 1799 | | |
| Quad ESL57 speakers. All fully serviced with full 3 months warranty. Hear what ESL57's should sound like. From | £ 1199 | | |
| Celestion Little one speakers in white. Bowed. £99 | £ 49 | Wilmslow Audio kit built LS3/5A speakers | £ 399 |

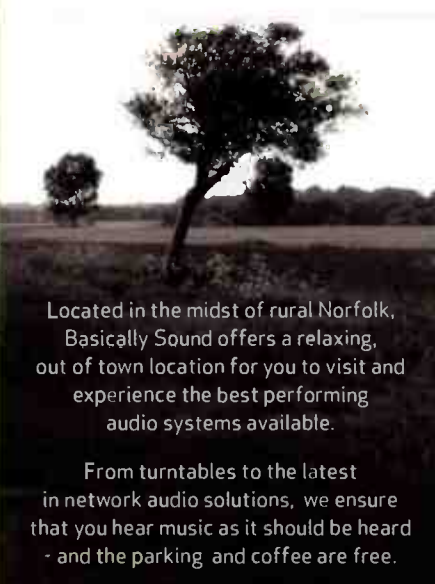
OTHER ITEMS

| | | | |
|---|--------|---|---------|
| Kenwood KX 5010 cassette deck. Bowed | £ 59 | Mullard used tested 12AX7 ECC83 valves. Frach | £ 25 |
| A&R cambridge tuner. Black | £ 25 | Arcam Alpha tuner. AM/FM. Black | £ 29 |
| Yamaha KX-580 SE 2 head cassette deck. Hx pro | £ 39 | Denon DR-M24HX 3 head cassette deck. Superb | £ 59 |
| Creek OBH-15 MM/MC phono pre amp. Bowed. | £ 149 | Quad FM2 valve tuner. Sound amazing. | £ 149 |
| Pioneer CT-S670D cassette deck. 3 hd Digital input | £ 79 | Rotel RB-950BX tuner. Bowed | £ 49 |
| Royal 850 stereo tuner | £ 29 | Marshall ECC83 12AX7 valve. New. Bowed. | £ 995 |
| Quad 66 FM tuner | £ 199 | Nakamichi 600 cassette deck. Very rare. Nice cond | £ 299 |
| Transparent powerlink Schuko plug. 1.9M | £ 149 | 1000PT paper in oil capacitors. Used in Leak amps | £ 399 |
| Hitachi FT-5800 FM tuner. A real classic. | £ 99 | 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. Bowed. Rare cond | £ 125 |
| Mission Cyrus AM/FM tuner. Grey finish. | £ 79 | Meridian remote for 206 series. Rare & good cond | £ 99 |
| HiQ balanced phono pre amplifier. Awesome | £ 249 | Akai AT-K33 L FM-AM stereo tuner. Mint & bowed | £ 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. | £ 99.99 |
| 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 | George stands for H1 S67 speakers | £ 239 |

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on occasion with twelve on stage at once, and has been known to include Michael Stipe from R.E.M. and Michele Shocked. Vocals are provided by founder Gerald Langley and consist of mostly spoken poetry that is emphasised by the heavy usage of guitars. This record, '(The Gangley Bootleg Mix of) And Stones' was recorded in 1990 and shows the band starting to experiment with the then newly emerging electronic dance beats, and meshing them quite successfully with their guitars and vocalisations.

The Zene got into the groove and produced a well balanced

**SYSTEM USED:**

Clearaudio Master Solution/ Magnify/ Benz Micro Ace, Leema Acoustics Agena phono stage/ Tucana II amp. Chario Ursa Major loudspeakers.

more serious in outlook, the Ace a slightly more exuberant personality, then I hope you could picture the differences in their presentation. Both can dance very well, and are very descriptive in the way they communicate sound. I think that I would prefer the Zene if I played mostly classical music, and the Ace if my sounds were more pop and rock orientated, but both can play either of these genres with ease and in a convincing manner. Rhythmically there seemed little to choose between them, although the slightly brighter sound of the Ace seemed more suited to electronica, projecting it out into the room a little more.

To be honest, I could quite cheerfully live with either one of them. Both are, in my opinion, excellent at their job and offer superb performance for the money. Which you choose to buy, will, I think, come down to a choice based on musical taste and where you feel your system needs tweaking. The Ace heats it up a little, the Zene provides a cooler take on things. Both play music with panache and assurance, so put them on your auditions list now. Highly recommended.

MUSIC USED:

Bartok 'Music For Strings, Percussion and Celesta'
The Philadelphia Orchestra conducted by Eugene Ormandy
EMI Records ASD 3655 1979

Ella Fitzgerald and Louis Armstrong 'Ella and Louis Again 2'
Barclay Disques 80.084 1957.

Peter, Paul and Mary 'See What Tomorrow Brings'
Warner Brothers Records WS 1615 1965.

The Blue Aeroplanes '(The Gangley Bootleg Mix) And Stones'
Ensign Records Ltd.
ENYXR 632 1990.

The Orb 'U.F. Off. The Best Of The Orb.'
Island Records Ltd. ILPSD 8078/524 565 1 1998.

rendition of the music. On occasion Langley's vocals can seem to be overwhelmed by the guitars (only four in this case), but the Zene managed to keep things in balance, separating the strands of sound and making the hammered dulcimer less of a background instrument and more a part of the overall mix.

The last record I played was the 1998 compilation of 'U. F. Off - The Best of the Orb'. This contains both original tracks from their various albums and some mixes that were only released as singles. 'Blue Room', at 39 minutes and 57 seconds long holds the record for the longest playing single to reach the charts and consists of the band's usual laid back ambient electronica, with samples and dubs accompanying the more ethereal sounds generated by synthesizers. This 7 inch edit was released in '92 and focusses on the essentials of the track, opening with synths and guitars, followed by an air-raid siren before the rhythm and the vocals get going with a mid-paced, quite stompy beat.

The Zene, again, settled into it easily and seemingly happily, produced a deep, solid bass that drove the music along. Sounds entered and left the soundstage, swooping around

then floating off into the ether. It was totally engaging.

After all of this I replaced the Benz Ace on the Magnify arm and had a quick listen to the same tracks again. I was left in no doubt about the family connection between the Zene and the Ace, but there were differences. The Ace was a little lighter in its tonality and projected the sound into the room a little more. The Zene on the other hand, produced a darker, slightly more grounded version of the music. Looking at my notes I see that I have used words such as 'organic' and 'earthy' in certain places, and I feel that the Zene applies these qualities to most music that is played through it.

If I was to describe them as brothers, the Zene would be a few years older and a little

VERDICT

Swiss built cartridge with a musical but cool headed soul.

Heed Zene Cartridge £699.00

Heed Audio

www.heedaudio.co.uk

FOR

- excellent grasp of rhythm.
- very good imaging.
- deep and solid bass sound.

AGAINST

- nothing I can think of

MEASURED PERFORMANCE

Frequency response of the Heed Zene measured flat, like most cartridges from Benz Micro. Our analysis shows no resonant peak at high frequencies, meaning treble will sound smooth and even, whilst detailing will be good as upper midband output does not droop either. Inner groove tracing loss was minimal (red trace) showing the Fritz Gyger S stylus used traces short wavelengths very accurately. This is an excellent result.

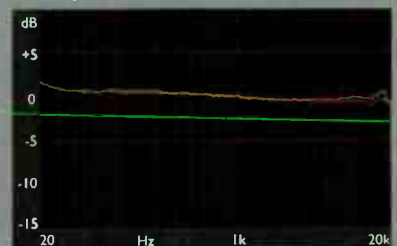
Distortion on lateral modulation was very low, measuring just 0.3% compared to a common value of 1%. As this was predominantly second harmonic any subjective improvement is likely to be small, but at least the Zene offers low distortion. It does so on vertical modulation too, due to an accurate Vertical Tracking Angle figure of 24 degrees our measurements showed.

Output was quite strong at 0.7mV from 5cms/sec rms and channel separation a useful 30dB. Only tracking ability of this cartridge was a little limited against top MCs, even at the 2gm maximum tracking force recommended. However, whilst the Zene did not clear top level torture tracks it did stay in the groove and

overall its performance here was still very good.

The Zene measured well or very well in all areas. It is a finely engineered precision device that is likely to give excellent sound quality, albeit of the unenhanced variety. NK

| | |
|--------------------------|--------------|
| Tracking force | 1.5 - 2gms |
| Weight | 8.8gms |
| Vertical tracking angle | 24degrees |
| Frequency response | 20Hz - 20kHz |
| Channel separation | 31dB |
| Tracking ability (300Hz) | |
| lateral | 63µm |
| vertical | 45µm |
| lateral (1kHz) | 20cms/sec. |
| Distortion (45µm) | |
| lateral | 0.3% |
| vertical | 1.6% |
| Output (5cms/sec rms) | 0.7mV |

FREQUENCY RESPONSE

RETRO REPRODUCTION

QUALITY HIGH FIDELITY & VINTAGE

| AMPLIFIERS | |
|---|-----------|
| Audionote kit1 300b amp massively modified | £995 |
| Audiolab 8080Q british built mint boxed | £395 |
| Anatek monoblocks £2400 new | £995 |
| Arcam A85 integrated amp | £325 |
| Audionet integrated amp superb engineering and german construction | £1595 |
| Bel Canto remote valve pre amp | £695 |
| BKS T140 American power amp great for driving electrostatics | £345 |
| Croft integrated valve amp 4x EL34 with valve phono stage | £495 |
| Croft micro25 new style | £395 |
| EAR 834L | £695 |
| EAR V20 integrated amp | £2495 |
| Exposure 20 integrated amp | £295 |
| Golden Tube Audio superb American made tube pre amp | £475 |
| Krell KSA250 | £2295 |
| Linn Aktive amp module | £45 |
| Lusman L100 integrated amp mint condition rosewood case | £795 |
| Marantz PM6200 integrated amp, £395 new boxed mint | £275 |
| Meridian 100 series three box power amp | £295 |
| Meridian 100 series pre amp | £95 |
| Meridian 518 digital audio processor | £445 |
| Meridian 568 series processor | £395 |
| Mission 776777 pre and power amplifier 100w cast case work a real classic | £795 |
| Naim 552 top of the range pre amp | £7995 |
| Naim 90 power amp boxed | £225 |
| Naim Flatcap mint boxed | £275 |
| Naim 92 pre amp | £195 |
| Naim 42.5 | £225 |
| Naim NAC 145 | £145 |
| Naim 140 olive case work | £345 |
| Naim Nar 5i boxed mint | £595 |
| Naim CD S with power supply | £1395 |
| Naim NACDS power supply new style front panel | £695 |
| Naim Teddy Paro PSU | £575 |
| Naim 52 pre amp | £795 |
| PASS pre amp remote control balanced new £3,000 | £1195 |
| Pioneer A9 heavy weight classic 80's integrated amp superb phono stage with variable cartridge loading | £295 |
| Pioneer stereo master SM-R151 1959 a rarity | EPOA |
| Pnmare A20 integrated amp | £395 |
| Quad 405 MkII & service history boxed | £245 |
| Quad 2 mono blocks with original valves | £795 |
| Quad valve tuners and pre amps various | from £45 |
| Rotel RA 920AX | £195 |
| Shangling MC30 all in one valve system black & silver | £475 |
| Sugden HeadMaster headphone/line level remote control pre amp | £475 |
| Sugden Optima 140 remote integrated amp | £245 |
| Sugden Masterclass power amp | £1995 |
| Sugden Masterclass pre amplifier remote balanced input/output | £795 |
| Unico DM hybrid power amp | £995 |
| Yamaha 2020 receiver top of the range | £245 |
| SPEAKERS | |
| Acoustic Energy AE1 | £495 |
| Aurum Cantus black orchid speakers piano black | £495 |
| ATC Anniversary 50's new £1795 | £6995 |
| Beaumont Virtuoso reference Lowther horn loaded spks | £2495 |
| B&W DM1 | £95 |
| B&W DM3 | £105 |
| Castle Howard 2 Oak finish | £495 |
| Duvel Planet omni directional speakers | £495 |
| Gradient SW63 bass modules for with active crossover for ESL boxed | £695 |
| Final 500 Electrostatics | £795 |
| Goodmans Aeon 201 12" full range 15ohm speaker 1 pair | £295 |
| Goodmans Magnum K's | £275 |
| KEF Reference S1AC active studio speaker very rare | EPOA |
| Linn MKII Kans | £195 |
| Linn Sara active speakers | £145 |
| Leema Xero piano black finish bookshelf speaker 1 mth old | £445 |
| Martin Logan Aeon Electrostatic speakers | £945 |
| Martin Logan Aeon Electrostatic speakers | £1195 |
| Mono Pulse 32A 8 months old ex dem | £495 |
| Mono Pulse 32S ex dem | £645 |
| Monitor Audio Silver 8 cherry finish | £495 |
| Monitor Audio GS10 piano black finish | £495 |
| Musical Stones Italian Solid Marble floorstanding speaker with Dynaudio drive units | £495 |
| Musical Fidelity Reference 2 excellent condition | £195 |
| ProAc Tablett 2 black finish | £245 |
| Quad ESL63 need work | £295 |
| Ruark Equinox walnut finish | £745 |
| Santonian early 60s corner speaker pair | £295 |
| Sara Fuji SP1 open baffle 3 way design more! treble unit, ribbon mid unit with 10" enclosed bass unit, superb big sound | £495 |
| Tannoy 10" HPD lockwood cabinet | EPOA |
| TUNNAY 15" HPD rebuilt by Tannoy mint never used | |
| £995 | |
| VELODYNE SPL 800MKII SUBWOOFER | |
| £395 | |
| VELODYNE SPL 1200 remote control sub | |
| £595 | |
| TURNABLES/TONEARMS | |
| Audio Synthesis moving coil phono stage with 2 box PSU | £245 |
| Clearaudio Victory cartridge £1000 new | £345 |
| Clearaudio Emoton turntable with unipivot tonearm boxed mint | £645 |
| Clearaudio Master Reference with parallel tracking tonearm | EPOA |
| Creek OBH 9 moving coil pre amp | £95 |
| EAR 834P mm/mc with volume | £795 |
| Garrard 301 with custom aluminium & polished granite plinth | £1195 |
| Garrard 401 in birch ply custom plinth with lid | EPOA |
| Garrard 401 | £595 |
| Graham Slee Fanfare Gram amp 3 moving coil phono stage boxed as new 10mths o'd | £195 |
| Graham Slee PSU1 power supply upgrade as new | £130 |
| Graham Slee Era Gold V with PSU1 | £325 |
| Infinity Black Widow tonearm SME mount great with high compliance cartridges | £195 |
| Linn LP12 various | from £445 |
| Linn Basik turntable no arm or lid | £65 |
| Linn Ittok boxed mint | £595 |
| Linn Ittok MKIII | EPOA |
| Leak early 60's tonearm | £95 |
| Micell Hydraulic Transcriber | from £495 |
| Micell Focus 1 | £295 |
| Moon LP3 phono stage | £375 |
| Project Tube Box II | £195 |
| Roksan Xerxes with Rega arm and golding cartridge | £495 |
| Rothwell Rossan phono stage mm | £295 |
| Rotel phono stage RQ970BX | £95 |
| SME 10 with tonearm with V | £3295 |
| SME 3009 tonearm series II | £225 |
| SME series 3 tonearms various | from £175 |
| Synnix LE1 tonearm recently wired with cardas cable fitted and checked by Audio Ongam | £275 |
| Sony PS4740 direct drive turntable with SME arm mount | £225 |
| System Deck II biscuit tin model (SME mount) | £245 |
| Thorens PD125 | £225 |
| Technics SP10 direct drive turntable | EPOA |
| CD PLAYERS, DACs | |
| Arcam CD73 24bit cd player black finish | £225 |
| Cambridge Audio DAC Magic 2 | £165 |
| Cyrus DAC Master | £195 |
| Leema Stream 3 cd player 1mth old | £895 |
| Meridian 506 20 bit CD player | £495 |
| Meridian 508 CD player | £1195 |
| Micromega CD132 | £295 |
| Musical Fidelity A3CD 24bit CD player boxed | £325 |
| Moon Equinox RS new £2295 | £1095 |
| Nakamichi CD player 2 | £175 |
| Nakamichi MB10 5 disc music bank cd player | £175 |
| North Star DAC | £195 |
| Pink Triangle Itraural HDCD superb player | £995 |
| E3000 new serviced | £395 |
| Phillips CD610 16bit cd player | £95 |
| Rotel RA965 BX classic old school cd player boxed mint condition | £195 |
| Sony CDP X-B920E | £125 |
| Sony XE680 SACD player | £195 |
| TEAC UDH01 USB DAC | £275 |
| TUNER | |
| AKAI T40 FM Tuner | £95 |
| Cyrus AM/FM tuner (original version) | £95 |
| Magnum DYNALAB 205 FM signal sluetih boxed mint | £275 |
| Magnum DYNALAB Etude | £475 |
| Naim NAT02 recently serviced | £650 |
| Rotel RT1082 DAB tuner | £225 |
| Sony ST5100 FM/AM classic 70's tuner | £125 |
| Sony 700ES tuner | £75 |
| Sony ST8900 QS DAB Tuner | £145 |
| MISCELLANEOUS | |
| AKAI GX77 open reel with various tapes mint condition | £495 |
| Pioneer MXA3 valve multiplex FM decoder ultra rare superb sound | £295 |
| Audio Technica OC9 original | £225 |
| Chord Anthem 3mtr balanced interconnect | £295 |
| Cardas golden ref. 8.5mtr balanced interconnect | £995 |
| JPS super conductor 2 | £645 |
| Marantz super scope 3 head portable cassette deck just serviced | £295 |
| Nakamichi receiver 2 | £195 |
| Nakamichi LX3 cassette deck | £245 |
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K9 class

Longdog Audio have produced a classy phono hybrid phono stage that uses FETs and valves. Tony Bolton listens in carefully.

Over the years I have come across several companies that started with someone's desire to improve on the performance of one component within the audio chain. The unusually named Longdog Audio is one such example. Nick Gorham worked as a computer software designer, building his own audio equipment as a hobby. As his designs became more refined the hobby has grown into a business, now comprising three amplifiers, a two box pre-amp and two phono stages. One of these is the MCJ2 moving coil model under review here.

Any doubts that I had that the MCJ2 may have had that 'built-in-a-garage' feel or look were dispelled as soon as I opened the box. The bodywork is simple, a 450 x 115 x 320mm (w x h x d) case of aluminium, sporting a 10mm thick fascia. This is ornamented by the model name in the bottom left corner and a large power switch in the middle which is surrounded by a glowing blue light when power is present. At the back are the usual input and output sockets, alongside another pair. These are for adjusting the cartridge loading by inserting phono plugs with suitable loadings

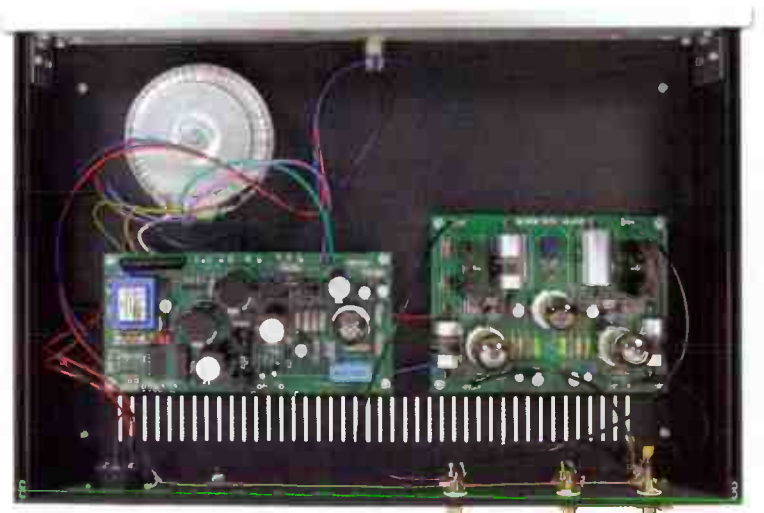
of resistors across the terminals in exactly the same way as those on the Blue Horizon Profono reviewed elsewhere in this issue, and were chosen for the same reasons; namely a dissatisfaction with the sonically detrimental effects of switchgear in the audio signal path.

Here the chosen amplification is by means of using a super low noise Toshiba JFET in combination with an ECC88 triode (also known as a 12AX7); this circuit being known as a cascode. A 5687 twin triode is used as an output buffer, after the signal has passed through ICW Clarity Caps SA coupling and output capacitors, and Takman carbon and metal film resistors. Each channel boasts a choke power supply and shunt regulator. After switching on the unit is muted for a few minutes while everything warms up. Once the blue light stops flashing then

listening can begin.

SOUND QUALITY

The first record on was Elton John's 1975 concept album 'Captain Fantastic and the Brown Dirt Cowboy'. It isn't my usual musical fare but belongs to a friend of mine and had become one of his standard test discs due to its superb sound quality and the range of instrumentation and musical styles it contains.



At left is a complex regulated power supply based around a big toroidal mains transformer. At right is the amplifier board with valves and Clarity Caps on display.

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| Magnum Dynalab FTR remote/Preset Tuner for Etude S/H | 395 | 179 |
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Midland Audio X-change are looking for All high end audio separates best prices paid for good examples.

SYSTEM USED:

Clearaudio Master Solution/ Magnify/ Benz Wood SL.
Leema Acoustics Tucana II amp.
Chario Ursa Major loudspeakers.

Linn LP12/ Hadcock 242 Cryo/ Clearaudio Concept MC.
Bent Audio TAP-X passive pre amp.
2 x Quad 303 power amps.
Kelly KT3 loudspeakers.

I've borrowed it for a while to get to know it better. The MCJ2 certainly helped this cause by providing a very open and detailed sound that delved into the layers of instruments and spread them around in front of me on one of the biggest soundstages that I have heard in this house. The music seemed to be almost propelled out of the speakers, and formed into big cohesive images right in front of me.

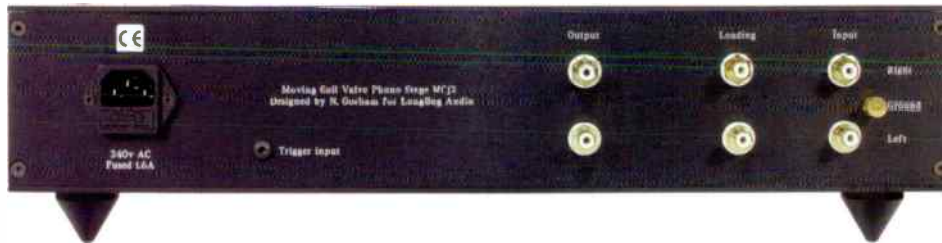
the higher pitched female vocals that caused me to back off the volume a bit. Callas's voice suffered a little from this effect during the 'Habanera' which detracted from an otherwise very good performance. I also noticed this slight hardness on certain horn and trumpet sounds, but not on all recordings.

Apart from this effect, I found the MCJ2 to be a very good performer. It seemed to be better suited to jazz, pop and rock music, where the big production values of this phonostage added a certain zest to the proceedings. I felt it tried to 'big up' classical music a bit too much and



ECC88 low noise triode work with Toshiba JFETs in cascode arrangement. Output buffer/line driver is a 5687 double triode.

is very well designed, well built and well finished, and offers performance commensurate with its price. If you like your sound to be big, bold and with a certain vivid excitement to it then this phonostage could well be your idea of sonic heaven.



This was repeated when playing the mid paced psychedelic trance beats of Human Blue's 'Electric Roundabout'. The first track is quite spacious in its presentation and, given the generous scale of the MCJ2's presentation, I felt almost tempted to get up and walk in between the sounds as they appeared in front of me.

Unfortunately, the level of detail retrieval also included the surface noise on a moderately worn mono copy of Dave Brubeck's 'Time Further Out', and I found myself wishing that I could ameliorate this to some extent by switching the unit to mono. The music itself was well presented, behind the sizzling sound of frying bacon, with the Longdog again applying its big bold signature to the music.

This sense of rather grand scale to things did not always work though. When playing my way through the Maria Callas recording of Bizet's 'Carmen' I felt that the amp was trying to draw my attention to too many things at once, especially when the choruses started singing. It seemed to try to put a spotlight on every singer. It also produced what I can only describe as a bit of glare or hardness around

this was less satisfying when played through it. I would also avoid it if your records are worn, or in mono. There are other phonostages out there that are a little kinder to such discs.

With that caveat in mind I would still recommend the Longdog MCJ2. It

MUSIC USED:

Bizet 'Carmen' Maria Callas, Nicolai Gedda,
Orchestre Du Theatre National De L'opera conduct-
ed by Georges Pretre. EMI Records Angel Series
SAN 140-1-2 1964

Elton John 'Captain Fantastic And the Brown Dirt
Cowboy' MCA Records MCA 2142 1975

Human Blue 'Electric Roundabout' Spiral Trax
Records SPIT LP 010

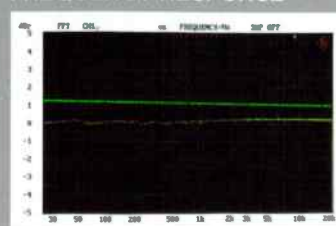
MEASURED PERFORMANCE

The MCJ2 Moving Coil valve phono stage has a gain of x1440, or 63dB, enough to match most MC cartridges, if low against some stages that run up to x3000. With a low output MC giving 0.2mV, the MCJ2 will give 288mV out, so volume will have to be turned up on insensitive amps. With a maximum output swing of 47V, typical of a valve output stage, input overload was a very high 34mV. Equivalent input noise measured just 0.09µV (IEC A weighted), a very low value and close to as good as it gets (0.08µV).

Equalisation was absolutely accurate right across the audio band, lacking the small treble lift of many stages, so in comparison the MCJ2 will sound just perceptibly less bright. Full gain existed down to 1.5Hz; there is no warp filter.

The MCJ2 measured very well in all areas. It has been carefully engineered. NK

| | |
|--------------------|-------------|
| Frequency response | 1.5Hz-73kHz |
| Separation | 96dB |
| Noise (e.i.n.) | 0.09µV |
| Distortion | 0.1% |
| Gain | x1440, 63dB |
| Overload | 47V |

FREQUENCY RESPONSE**VERDICT** ●●●●

Big, bold sound great for Rock if less subtle with Classical. Unique all the same and well worth hearing.

MCJ2 MOVING COIL PHONOSTAGE £1950.00
Longdog Audio
www.mainscablesrus.co.uk

FOR

- strong projection of sound into the room
- very detailed imaging
- excellent with jazz, rock and electronica

AGAINST

- not as good with opera
- no mono/stereo switch.

Music On Vinyl

Music On Vinyl

Celebrating the pressing of its 500th vinyl LP, Paul Rigby talks to Music On Vinyl, in their factory in Holland.



It was a momentous day for this relatively young company, now in its third year, with the pressing of its 500th album. I flew to the Music On Vinyl (www.musiconvinyl.com) factory with the identity of the disc a closely guarded secret but was soon to find out that it was an album by David Bowie, a great, iconic, artist and a fitting subject for such a significant number. And the album name? 'Ziggy Stardust'? 'Low'? 'Hunky Dory'?

No it was 'Excerpts From Outside'.

On the face of it, this LP choice looks tepid, at best, until you dig a little deeper. The music was originally issued as an edited version of the concept piece, 'Outside', released in 1995 on CD. Featuring the character, Nathan Adler, the album saw Bowie's reunion with Brian Eno.

'Excerpts From...' was a vinyl version spin-off but was produced in a limited run of a few hundred copies by RCA. Hence, Bowie collectors

have found original copies hard to source with prices fetching up to £120 at a time. This reissue should be good news for fans, therefore. Especially so as the music has been carefully remastered by Music On Vinyl (MOV) while the release also includes an eight-page booklet filled with notes from Nathan Adler's diary.

This gives you a rough idea of how MOV work: not necessarily by the book or meeting people's expectations. Which makes them interesting.

So where did this company come from? How did it build such an enormous catalogue of vinyl in such a short time? "I've been the owner of this vinyl plant, called The Record Factory, since 1998, when I took it over from Sony Music Entertainment," said Ton Vermeulen who is also the co-owner of MOV. "After running this pressing plant for over ten years, I realised that I needed more output for pressing vinyl. When my then client, Simply Vinyl, hit financial troubles and fell away there was a gap to fill so I tried to obtain license rights to press vinyl again just like Simply Vinyl did. As this



The Music On Vinyl Factory in action.

was the former Sony pressing plant and we still had a lot of record metal parts in stock, I met a person at Sony who told me that he was working with the European music distributor, Bertus, in an effort to release the Sony music catalogue on vinyl. So I contacted Bertus, who I knew around 1995-96, when I ran a record label producing dance music, and we then decided to join forces. Hence, Music On Vinyl is a joint venture. Do not, therefore, infer that MOV is thus a Sony puppet. MOV may have the pick of the Sony archive but it is also working with other labels such as Silvertone and Cooking Vinyl. Significantly, it has also signed a major contract with Universal. The company is not stopping there, either.

Touring the Music On Vinyl factory is a joy, a pure joy. This plant



David Bowie - Excerpts From Outside.

used to be the original CBS factory before it was taken over by Sony and so many of its working parts stem from the fifties while several of its staff have 40-50 years of experience. I stood in awe, looking at the massive steam engine that powered the hydraulics (with another massive engine sitting next to it, acting as a 'spare'), as the antique record presses squeezed out pristine records, and



The machine creates the vinyl sleeve.



One of the steam engines that run the hydraulic presses.

to 7" singles and other strange machines labelled with metal 'Capitol Records' plaques and a massive store-room that was filled with nothing but record labels. The awe was enhanced because, unlike just about every other record plant in the world, Music On Vinyl features almost every process of creating a record under one roof.

"Just before I bought the factory

of the cut, the print and the pressing of the vinyl. I only found out later that there are a lot of small plants out there where you have to order your labels from this factory, your sleeves from another printer, then you have to find a cutting room to have your lacquers cut and then you have to send the whole thing to the pressing plant. Meanwhile some things get lost and other things don't appear in time... I think that our one stop shop approach is why we are where we are at the moment."

This evolution was on-going during my stay because printers were being moved into the building. Two large printers, one for the sleeves, the other for labels, were being installed, giving MOV complete control over the printing process, allowing it to make changes and corrections on the fly.

During the record creation process, MOV uses traditional lacquers (aluminium discs coated with a thin layer of acetate) for dance music. This provides a warm presentation where the volume is loud due to the large groove size but, because you're looking at a short piece of music, can be managed easily. For full albums, MOV uses a DMM (Direct Metal Master) cutter which allows



The 7 inch single vinyl press.

via Heath Robinson contortions and audible jerks and sighs, dropped the records into their sleeves.

I walked past a press devoted

from Sony, as a record label they offered a one-stop shop and I knew of no other way than to send all of my material to them. They took care



Hockey 'Pucks' of vinyl ready to press into records.

The lacquers undergo a silvering process. They spray two-to-three microns of silver over them.



you to cut smaller grooves direct to a blank copper plate but the process retains a full, deep, bass with extended upper frequencies providing a wider dynamic range than a standard cutting process can support and, because the MOV DMM machine is a rare, late generation, model you don't hear the early generation DMM drawbacks of bright upper mids and trashy trebles. MOV even makes its own copper blanks for the DMM cutter, treated to remain soft (for a quieter cut) and produced to a high gloss standard (to prevent air bubbles). Marvellous.

During my tour, I was impressed by the company's practical, down to earth nature, its attention to detail and its love for music. I've hardly had time to mention its quality control. What other pressing plant employs three to four people, eight hours a day, doing nothing else but checking every stage of the vinyl creation process?

Music On Vinyl has fast become the cornerstone of the vinyl reissue business and is going from strength to strength, With production standards high, playback output absolutely top notch, coupled with a fresh and always interesting release selection, MOV's next three years promises to be an exciting time for them and all those who play their records.



A stamper used to press the final vinyl.



The positives, negatives and stampers are all made in the plant.



The DMM cutting machine in the mastering engineer's office.

THE FUTURE

It's only taken three years for MOV to reach its 500th LP release but, although the company itself is proud of its success and the strength of the vinyl market that supports it, the release schedule is largely running to a specific plan, "Because we have relationships with companies that hold a big catalogue, we can get access to the titles," explained MD of MOV UK, Mike Gething. "Having said that, because we have made commitments to labels, the pressure is on for us to fulfil them. We have to show the likes of Sony a decent amount of releases to maintain access to their catalogue. You'll see the same with our recent contract with Universal."

Also, because MOV own and run their own vinyl factory, it has the option to re-press albums at short notice. Hence, the business is rapidly becoming a catalogue selling exercise.

"The bigger the catalogue gets, the easier it is to sell to retail as a stand-alone catalogue. It helps the whole thing flow if you have a large amount of releases to offer. To that extent, during 2012, you will see another 175-200 releases from MOV."



Boxes of vinyl - ready to go.

Is The Vinyl Industry A Con?

Did you know that most vinyl reissues, these days, feature a digital source file?

It's absolutely true. Yet magazines, internet forums, audiophiles and journalists like myself drone on about master tapes this and analogue that. And then we all denigrate CDs with our next breath. Are we all hypocrites and is the vinyl industry a con in which everyone knows what's going on but no-one is telling? Well, it's not quite that simple or as black and white.

Vermeulen accepted the accusing finger, on behalf of the industry and began with, "OK, 95% of all human beings on this earth, who are listening to music, are happy with an MP3. Anything else sounds better to them." And for the audiophiles out there? "There won't be a lot of people who can tell the difference between a complete analogue master cut and a new record cut from one of our recent digital mediums because the difference is so small. You need to have golden ears and then you also need to know how to listen to it."

Shocked? Let me quickly add that there are many audiophile companies out there who use analogue master tapes and employ a completely analogue chain. Music On Vinyl is one of those, actually. There are others including Speakers Corner, Pure Pleasure, Mobile Fidelity, Sundazed and more. Yet, there are a hundred different reasons why original analogue master tapes cannot be used: the original master was thrown in the nearest skip, destroyed in a fire, are present but in too poor quality to be useable or were never available on analogue master tape in the first place (much of the late eighties and nineties output was recorded to DAT).

"If it can be supplied with tapes then we will always use them. As MOV, the labels know that we want the best audio they have. If they send a digital file, if we think that it sounds good then we go for it. If we have doubts then we will request a different master."

But doesn't MOV request master tapes to begin with? Shouldn't MOV be demanding master tapes as a first option? Or do the major labels take the easy way out and supply digital files. Well, searching through tape archives takes time. And time is money, so the suits tell us.

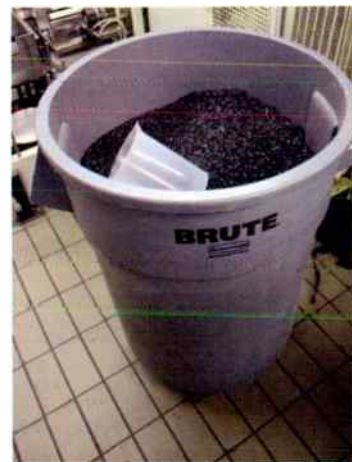
"They know that we want analogue masters," confirmed Vermeulen "and I can't believe that they would hold an analogue master back from us because of laziness. They are in this deal, they want to succeed, everyone wants high sales and the better the quality of the product the better for all. When I took over this plant there was still a lot of old archive. Sony had a good organisation. I really don't know what Sony did with their old masters. I can imagine that they have converted them all to digital files – it's easy for them.

"On a more general point, there are a lot of people after old analogue music and want top quality recordings – the readers of your magazine, for example. Yet, I would say that 99% of people who buy records really don't care. They are just after this nice product, with this nice, big sleeve, a booklet and pictures to fill up their collection. They even look for the odd crackle during playback because, without the odd crackle, 'it can't be a record, it must be a CD', they say. There is a minority who spend a lot of money on expensive hi-fi but I still think that if we did an A-B comparison between one of our digital and analogue recorded vinyl

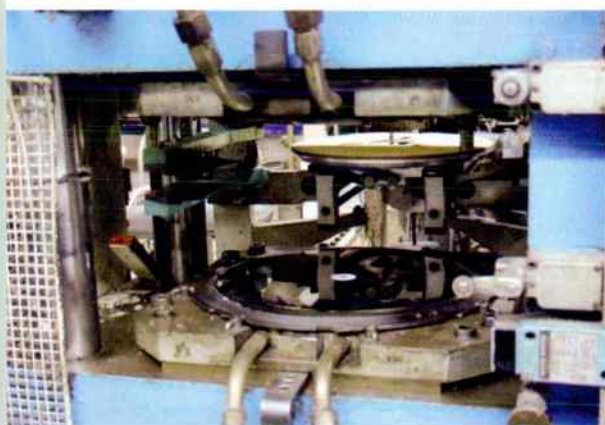
records, not many would be able to hear the difference."

Why is that? It's partly because the company uses high quality digital transfers but Vermeulen is also adamant that, with the standard of the equipment that MOV owns, they can actually improve the sound over and above the original, "We can do things with digital recordings that you could not do with the original analogue. That's also partly to do with a amount of time and application that we can apply to each reissue."

Something that was sometimes lacking in the original recording because, at that time, vinyl was a mass market medium that was subjected to deadlines and time constraints that sometimes resulted in short cuts in terms of quality, "We spend more time to make the actual cut than they did in the past. To give you one simple example, we had metal parts relating to one particular album which I will not name, but was produced in the eighties. Sony had produced thousands and thousands of albums from these parts and we found out, recently, that there was a drop-out in the audio. I don't know what happened but no-one spotted it at that time. So, on that album, our reissue was a definite improvement."



Vinyl in its original pellet form.

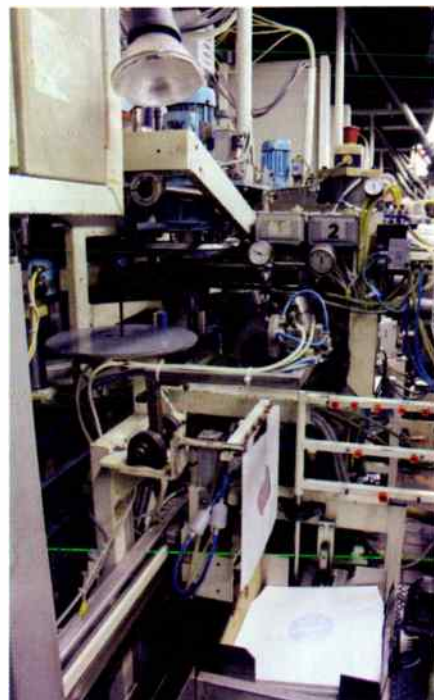


Standard black and multi-coloured vinyl is pressed here.



The vinyl press in action.

After the vinyl is pressed, it is dropped into an inner sleeve.



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| ONE OWNER VERY LIGHT USE | MINT/BOXED | £2495 | | | |
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| PAPWORTH M-100 MONOBLOCKS ONE OWNER FEW MONTHS USE | MINT/BOXED | £2750 | | | |
| AUDIO RESEARCH VS-110 POWER AMP 1 OWNER | MINT/BOXED | £2750 | | | |
| PAPWORTH AUDIO TVA-10 50 WATT REMOTE INTEGRATED (2K7) | BRAND NEW | £1395 | | | |
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| PATHOS INPOWER CLASS A HYBRID MONOBLOCKS (SUPERB 93K7) | EXCLT | £4250 | | | |
| ART AUDIO JOTA VOL POT. SINGLE ENDED 32B FABULOUS 1 OWNER | EXCLT | £3750 | | | |
| MATTSSE REFERENCE 2 BOX PREAMP 64 STEP ATT./MM/MC PHONO 1 OWNER | EXCLT | £3750 | | | |
| CROFT MEGA MICRO 2 BOX PRE-AMP 1 OWNER | EXCLT | £795 | | | |
| CROFT OTL-3 POWER AMP 1 OWNER | EXCLT | £850 | | | |
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| MERIDIAN 501 PRE AMP | MINT/BOXED | £450 | | | |
| JOHN SHEARNE PHASE 2 INTEGRATED & PHASE 2 POWER AMPS | | | | | |
| ONE OWNER FROM NEW | EXCLT | £875 | | | |
| JOHN SHEARNE 2.5 INTEGRATED AMP | EXCLT | £450 | | | |
| JOHN SHEARNE 3.5 POWER AMP | EXCLT | £450 | | | |
| QUAD 909 POWER AMP REMOVED FROM BOX FOR TESTING ONLY | AS NEW/BOXED | £675 | | | |
| MATCHING CDP-2 CD/PRE AMP ALSO AVAILABLE | AS NEW/BOXED | £650 | | | |
| KRELL EVOLUTION 402 STEREO POWER AMP ONE OWNER BOXED | SALE! | £7995 | | | |
| DENON PMA-QS10H 30 KLO INTEGRATED & MATCHING TU-QS10 TUNER | | | | | |
| VERY RARE CHAMPAYNE GOLD FINISH CAN SPLIT | MINT | £1395 | | | |
| JEFF ROWLAND MODEL 5 MONOBLOCKS | SALE! | £1595 | | | |
| PASS LABS ALEPH P PRE AMP | EXCLT | £995 | | | |
| McGORMACK DNA-125 POWER AMP (1 OWNER FEW MONTHS USE (£2200?)) | EXCLT | £1195 | | | |
| PATHOS INPOWER CLASS A HYBRID MONOBLOCKS (SUPERB 93K7) | SALE | £3995 | | | |
| H-CAT 12-B AMERICAN PRE AMP WITH WTC CONTROL (£2800) | SALE! | £1495 | | | |
| H-CAT P-12A AMERICAN PRE AMP (£2500?) | SALE! | £995 | | | |
| ROKSAN S1.5 POWER AMPS 2 OFF EXCLT CONDITION RARE | EACH | £595 | | | |
| MUSICAL FIDELITY TRI-VISTA-300 MONSTER INTEGRATED | EXCLT/BOXED | £2250 | | | |
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| DIGITAL | | | | | |
| LYNGDORF CD-1 CD PLAYER | EXCLT | DUE | | | |
| CEC TL 51X BELT DRIVE TRANSPORT SUPER! | MINT/BOXED | £695 | | | |
| MERIDIAN 500 TRANSPORT | MINT/BOXED | £450 | | | |
| MERIDIAN 563 DAC | MINT/BOXED | £495 | | | |
| SONY XA-1200ES MULTI CHANNEL SACD PLAYER | | | | | |
| CHORD 1500E 192KHZ/DIGITAL PRE AMP 3 SEPARATE DACS AD/AXM/PULSE | | | | | |
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1. Not everyone is honest - Buyer Beware!
2. Don't send cash!
3. Accept no verbal guarantees.
4. Have you heard the item or something similar? If not, why do you want it?
5. Don't pretend to have knowledge - it's your fingers that will get burnt!
6. Is it working? If not, why not? Can it be repaired and if so is it worth it?
7. Has it been modified and, if so, have notes been kept?
8. Was it any good in the first place?
9. Don't send cash!
10. If you are in the slightest doubt, arrange an audition (see point 5) If it's too far, wait for another time.
11. Either buy it or don't: vendors are excusably impatient with 'consultation' exercises.

12. Don't send cash!

FOR THE SELLER

1. Not everyone is honest - Seller Beware!
2. Make no verbal guarantees.
3. Even 'nearly new' is still second-hand. If the manufacturer's guarantee is no longer in force, your price should reflect this.
4. There is very little intrinsic value in second-hand hi-fi; it's only worth what someone will pay for it.
5. The best guide to pricing is last month's Classifieds: that a 'classic' was worth £xxx a year or two ago is no guide. Values fall as well as rise.
6. Amateur second-hand dealing is not a big money game: you win some, you lose some.
7. Be prompt with despatch. If in doubt about buyer's bona-fides, either wash out the deal or send C.O.D.
8. There will always be time-wasters; be tolerant within reason!

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AUDIO TECHNICA ATH-W555 £69

This new set of closed backed, dynamic headphones are marketed as portable units and they are certainly designed that way as the cups swing flat for ease of storage. Arriving in black with a 1.2m extension cord and a 3.5mm plug, the Audio Technicas (AT) weigh in at just 165g. Light they may be but they sit a little

uncomfortably upon the head. It's their sheer rigidity, their lack of 'give' that causes the problem, although minor, manual tweaks in fit may improve that over time.

I tested the phones in conjunction with a Musical Fidelity X-Can V8P valve headphone amplifier. Playing a selection of Prog Rock from the classic seventies incarnation of Yes, over a variety of CDs, I was impressed by the AT's display of weighty, almost leaden, bass that pounded with gusto through the cans. And this through a valve amp! This bass performance doesn't fatten into an uncontrollable lump, mind you, it imbues the lower frequency regions with plenty of character that illuminates often previously unheard of bass textures.

Replacing the Rock with vocal jazz and Carol Kidd's 'A Nightingale Sang In Berkeley Square' via Linn Records, the double bass provided an impressive foundation to the piece and took a fair share of the soundstage, more than I was previously used to but, if anything, this enhanced the notion of the 'ensemble', giving this instrument more emphasis than usual.

Vocals were both confident and nuanced while piano had a tremendous presence in the mix, projecting both drive and a sense of rhythm. Despite the treble lacking a little air and space, the ATs provided a tremendous musicality that grabbed the attention.

Moving to June Christy's 'The Cool School' on vinyl, this high resolution format did expose the ATH-W555's sonic limitation as the presentation lacked that rich detail retrieval and textural interpretation so notable of the analogue source. That's not to denigrate the ATs in any way but, in fact, to emphasise its 'horses for courses' design and to cement its position in the portable arena.

For a set of headphones at this price point and considering that they are directed towards the portable market, the ATH-W555 offered a sparkling performance, full of energy, vigour and life that will reward anyone looking for a pair of portable cans. Definitely a big sound from such a small pair of headphones. **PR**

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soundbites

STK SMC150 MEDIA CENTRE £44.57/STK SMC1000 £84.99

Here are two sonic solutions for those packing an iPod or music-infused iPhone.

The SMC150 is a portable speaker that folds away flat for easy carriage. Its iPod connector folds into the chassis for protection and the rear stand swings upwards, turning into a carry handle – ingenious!

Powered by the mains or four AAA batteries this dinky dock provides only 3W of power. Packing a Line In socket, finished in black, spanning 202x21x184mm and weighing a flyweight 240g, the SMC150 sounded surprisingly approachable. As you may expect for something so light and small, there are plenty of sonic limitations: no bass, clipping at high volumes, the usual thing for this class of dock, but it did react well to the selection of chart WAVs I played through it, rounding off their nasty upper mids and fizzy treble, producing an acceptable and agreeable sound. While jazz from Linn CDs may have

lacked air, a full soundstage and the maturity supplied by a full hi-fi, the SMC150 did convey a sense of the original's rich, open presentation. Idea for nearfield play, the SMC150 is an ideal 'fold and go' portable sound system.

Rather more substantial but still neatly packaged, the SMC1000 fulfilled three roles: an iPod dock, an FM radio or a digital clock (Douglas Adams would have been elated). Stylistically presented as a miniature, nicely finished brick, the SMC1000 is controlled by a small, usable, plastic remote while the rear offers a power socket, power switch, antenna socket and Line In socket. Also available in black only and weighing 1.6kg, the unit spans 320x100x105mm.

The SMC1000 tackled compressed chart CDs in the same balanced, calm, unhurried manner as the SMC150, lowering the bright upper midband while treble, although unremarkable, was at least listenable. Bass provided more presence than the SMC150 and, hence, was more suited to hard Rock and R&B.



Because the unit is strong in the midrange, classical music proved to be a perfect partner. Its midrange had an edge and bite, but it didn't become offensive, and treble was admirable on well recorded works.

Switch on the included pseudo-surround sound button and the mids become positively jaunty with strings, although lacking clarity, being light and mobile, whilst low mids provided a satisfying foundation and drive to the piece.

This is a useful nearfield system, one that is compact and easy to set-up. **PR**

[Contact: www.santok.com]

NEXT MONTH

As chilly March winds whistle past our office windows, we are busy assembling a great array of great new products for our forthcoming July 2012 issue. Here's what we hope to bring you –

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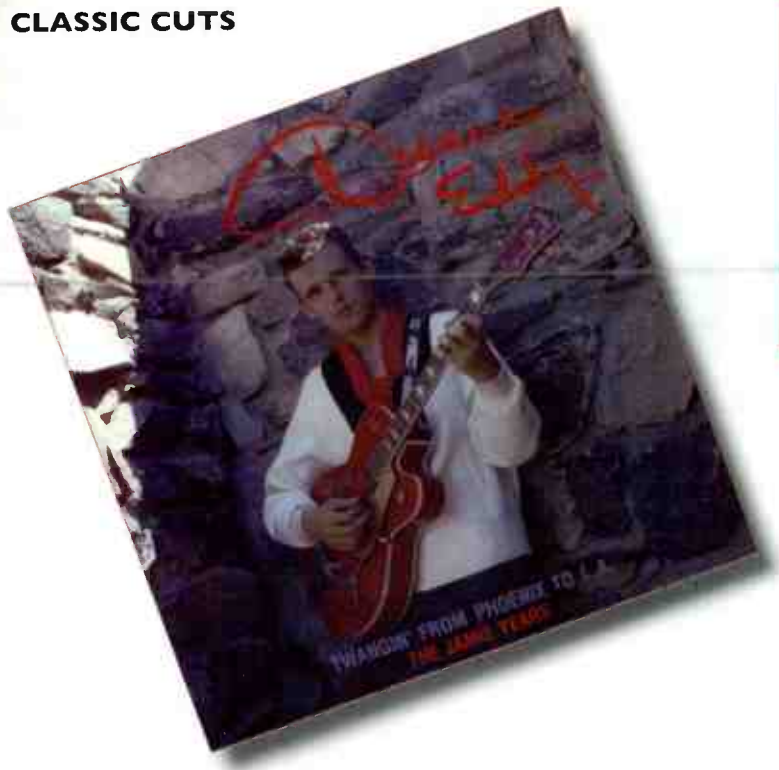
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DUANE EDDY TWANGIN' FROM PHOENIX TO L.A.: THE JAMIE YEARS 2011

Duane Eddy was immensely influential as a musician. His electric guitar instrumentals forged an entire rock guitar culture. As an artist in his

own right, he was immensely successful totalling fifteen hits in five years from 1958 to 1963 while his Peter Gunn single continues to express an iconic sound that was much covered by many of the early beat groups in the early sixties, as well as more contemporary outfits such as The Art Of Noise (with Eddy guesting on guitar, no-less) and Emerson Lake and Palmer.

Eddy – obviously a frustrated audiophile – talked about the origination of that 'twang', "When I first went into the studio in the fifties, I learned that the bass strings recorded better than the high strings. They were more powerful and more gutsy. So that's how I came up with the sound. I had to be careful not to overplay. [If you do] It runs together and takes away a lot of the feeling and direction. I had this amp that was more powerful than any on the market at the time. It didn't actually make it louder but it made the sounds clearer."

This new release from German-based Bear Family (www.bear-family.de) includes all of the tracks recorded for the Jamie label, by Eddy, including Peter Gunn, but also others such as Rebel Rouser, Cannonball and Yep.

The box set itself is a typical Bear Family production. That is, it's a work of art and a digital audiophile's dream. Present in a sturdy pizza-style box is a total of five, individually packaged CDs, all in jewel cases with

"the great thing about this suite of CDs is that they will move with your system"

their own individual cover art and a track listing totalling 148 songs. Look out for disc five which provides a 'Session In Progress' featuring session takes, overdubs, and edits to give a real 'in the studio' feel.

Arguably, the jewel in the crown is not the CDs or even the music but the magnificent hardback book that accompanies the set. This 12" square production packs in eighty-four pages including rare colour and B&W photographs of Eddy: studio-based and more natural. There's flyers, posters and even handwritten letters in there including images of Eddy and his backing band live on stage in full colour – a magnificent addition. Other notable additions include interviews with Eddy's producer, Lee Hazlewood, other colleagues that helped and aided Eddy during his career, plus words from the man himself and additional primary source material from the time.

For the dedicated fan the discography of the period covered in the box set will delight, as will the scans of the original vinyl 7" singles and LPs, including covers and chart appearance details.

Sometimes, just because a CD or vinyl issue says that it has been derived from the original master tapes, one has to enquire about the quality of the master itself. In terms of that essential sound quality, Bear Family has avoided the typical sonic trap, within the Eddy reissue fraternity, of relying on master copies

which have always been rather patchy in terms of sound quality. For true audiophiles, you will be pleased to hear that the company has managed to acquire the rights to the original catalogue which means that it has been able to examine and utilise the first generation masters in the vault. This means that Bear Family has been able to examine mono masters that were notable for their degree of clarity. In addition, however, the company has also been able to access and utilise very rare stereo mixes.

The great thing about this suite of CDs is that they will move with your system, rewarding those who have better hi-fi chains, whilst providing excellent sound quality on the most basic of set-ups. For those lucky enough to have a top quality digital system, the music provides an epic soundstage with a sweeping sound that is notable for its sense of clarity and instrumental separation while each instrument is easily discerned and sonically described.

If you are a Duane Eddy fan then you need this box set in the same way that your body needs air. If you are a fan of rock guitar then see this box set as the source. His direct influence can be heard within the material of the Shadows and George Harrison but he also spawned the likes of Hendrix, Clapton and Page. This is who those rock heroes were listening to, this is their hero. Check out this box set and he will probably become your hero too. **PR**

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