THE ESSENTIAL HI-FI GUIDE

PASSION FOR SOUND MARCH 2008 £3.99 WWW.HIFICHOICE.CO.UK

EAR Compact Disc Player Scute

Tubes DA converter 24bits / 384KHz

06 00348





MARANTZ High-end for less





TAY STOP MADE TO BE MITRACK

CLEARAUDIO Rescuing old vinyl

010

SPEAKERS

B&W 683 • **Heco** Celan 500 • **Kudos** C1 • **MonoPulse** 62S • **PMC** Wafer 1 • **Triangle** Antal Ex

BUYER'S BIBLE

The ultimate hi-fi buyer's guide: all of our favourite gear in one great directory









Mission 7 series loudspeakers have always been afforded the highest respect, both in critical listening tests and for their iconic style.

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Welcome to the issue.

HI-FICHOICE MARCH 2008 ISSUE 304

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One of the most common questions we receive here at *Hi-Fi Choice* goes something like this: "Will a new CD player significantly outperform my old (but expensive) model?" It seems having forked out a large wad a few years back, many of you are — understandably — somewhat hesitant to buy a 'modern'

replacement, without being able to conduct a proper A/B test. Fortunately, the answer to this common question might not lie in replacing the old player, but in 'assisting' it.

After a spell in the audio wilderness, the standalone Digital to Analogue Convertor (DAC) is proving itself once more. And this month, we've put the latest CD players and DACs on the market under close scrutiny. Our CD player line-up includes a few 'specials', too: including on p42, the new valve-based EAR Acute — the tube specialist's first-ever player in CD's 25-year history — plus on p38, the new Marantz SA-11 S2, a cut-price, cut-down version of one our top-five favourite disc players ever, the SA-7S1. Our DAC reviews range from £550 right up to £5,000 and in a fascinating technical feature (on p32), Richard Black explains just what these cutting-edge add-ons can do for your system.

Best of all, in these eco-friendly times, it's pleasing to know that a good aftermarket DAC could prolong the useful life of thousands of CD players and digital transports across the world. If you'll pardon the pun, the DAC's timing is spot-on.



Dan George Editor

WHY WE'RE NO.1 FOR HI-FL.

- Since 1975, Hi-Fi Choice has delivered the world's most thorough, no-nonsense guide to buying high-performance hi-fi.
- We now publish 13 issues a year including a special edition, The Hi-Fi Awards – the most important annual awards in the hi-fi calendar. We also produce The Collection, a separate stand-alone special edition for the newsstand, dedicated to the finest hi-fi on the planet.
- Every issue contains a potent mix of the latest hi-fi news, views, music, interviews and in-depth tests, brought to you by a prestigious team of expert writers from the UK and around the world.
- We only review the most interesting and worthy new hi-fi components – high-performance audio products across a wide range of price points. We obtain more genuine hi-fi exclusives than any other magazine – if it's worthy of your attention, you'll read about it first in *Hi-Fi Choice*.
- Our tests are the most rigorous in the business, conducted by the UK's most experienced team of hi-fi reviewers.
- Alongside in-depth component reviews and accessory round-ups, every regular issue of Hi-Fi Choice features an Ultimate Group Test on a core hi-fi product category – from source components to amps and speakers.
- Each Ultimate Group Test is conducted using a uniquely thorough three-step test regime. This consists of carefully controlled 'blind' and sighted listening sessions, a full set of laboratory tests and extended 'hands on' testing by the primary reviewer. No other magazine goes to such lengths to ensure accurate comparative reviews.
- Components that best meet our exacting standards are listed in the Buyer's Bible section – the world's most reliable reference guide for the hi-fi buyer.
- That's why *Hi-Fi Choice* is...
 The Essential Guide To Audio Excellence In The Home

Beautiful in-house photography, so you see the product in all its glory

Cherry-picked kit – only the most worthy components make it into Hi-Fi Choice

Comprehensive in-depth reviews – we give you the full story





Annotated shots show you what's really going on inside

Interviews with designers give you extra background information

Carefully considered verdict scores, so you really know what we think of a product—





THIS ISSUE'S EXPERT WRITERS AND REVIEWERS INCLUDE



A former HFC editor, Paul has been writing about his beloved hi-fi hobby for nearly 30 years. In that time he has become one of the world's most respected scribes and probably the UK's foremost loudspeaker reviewer.



With more than 40 years as an enthusiast under his belt, Jimmy is one of the country's best known hi-fi experts. His knowledge of system matching, hi-fi tweaking and record collecting is unmatched in the individual of the control o



Richard is a professional musician, recording engineer and a highly knowledgeable hi-fi analyst to boot. He has a knack for writing about complicated subjects in a readable way – and he only writer for HECC



Former editor of Hi-Fi Review magazine, Malcolm was one of the best known and most outspoken reviewers of the 1980s and 1990s. He currently edits hi-Fi industry bible The British Audio Journal.



AVIN COLD

Alvin has been writing about his obsession for more than 20 years. In that time he has contributed his encyclopaedic knowledge to almost every hi-fi periodical you can think of (and several more hesides).



ALAN SIRCOM
Alan began his
journalistic career in the
early 1990s Now a
successful freelancer,
you too can benefit
from his extensive hi-fi
knowledge, from purist
two-channel stereo to
the latest multichannel



JASON KENNEDY
Jason previously edited
HFC, but can now be
found in the wilds of
Sussex indulging
himself with the very
best hi-fi money can
buy. His own system is
simply sensational and
his love of music knows



A highly experienced journalist, Dominic's sharp ears and retail experience are a valuable mix for HFC. Each month, Dom dispenses priceless second-hand buying advice that always





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- Advance Acoustic MCD 403 CD transport and MDA 503 DAC
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- PS Audio DLIII DAC
- Clearaudio Double Smart Matrix

ROUND-UP

DIGITAL INTERCONNECTS £25-100

- Bandridge Profigold PGD4000
- Supra Anco

- True Colours Industries Adder SÉ
- Wireworld Ultraviolet 5

ULTIMATE GROUP TEST

LOUDSPEAKERS £900-£1,500

- B&W 683
- Heco Celan 500
- Kudos Cardea C1

- Monopulse 62S
- PMC Wafer 1 70
- Triangle Antal Ex

BUYER'S BIBLE

Ultimate guide to high-performance hi-fi and AV equipment, gathering together all our favourite products for you Your shortlist starts here...

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exposure



New 3010S series:

Tighter bottom-end, livelier sound, more drive...same price

CD player £1200

- Brand-new "CD solution" custommade transport mechanism, servo units and control mechanisms
- Twin Burr-Brown PCM 1704 mono DACs and a discrete output stage
- Low jitter clock and a large toroidal transformer with separate windings for the transport mechanism and audio stages.

Integrated Amplifier £1000

- Larger power supply
- 110 watts RMS (as compared to 100W for the previous model)
- 6 line inputs, bi-wiring and biamping compatible
- Option to fit a MC or MM phono cartridge
- · Remote control

Power Amplifier £800

- Larger power supply
- 110 watts RMS (as compared to 100W for the previous model)
- Capable of driving sophisticated speaker systems, in bi-amping mode or monoblock mode
- Clean and extended low frequency response



NEW PRODUCT SPOTLIGHT



The Professional Monitor Company's DB1 loudspeaker is a mainstay of both home and pro audio. The mini-monitor with a big heart and even bigger bass has been through several changes in its time, but the latest DB1 i is the most significant to date

Both drive units offer new levels of performance and have been extensively modified. The tweeter is a wholly new Solonex design and the bass driver has been significantly remodelled. The crossover has also been changed to compliment the drivers.

The veneer now extends everywhere and is richer than before. PMC has also made i-changes to a number of its other models.

To find out more, see our exclusive in-depth review in the next issue of Hi-Fi Choice

PRODUCT PMC DB1i

TYPE Standmount loudspeaker

PRICE £770

KEY FEATURES Two-way transmission line design

27mm soft dome tweeter in custom dispersion
plate
140mm custom doped-paper bass driver
Sensitivity: 87dB | Impedance: eight ohms



A new star is born





Each year the European Imaging & Sound Association (EISA) assembles a panel of expert judges from some of the continent's leading hi-fi press to investigate the world's finest technology.

After rigorous evaluation they return to vote on one product in each category that they believe offers not only exceptional levels of performance but also provides incredible value. This year they chose the Cambridge Audio Azur 840A Class XD integrated amplifier.

"...a genuinely novel approach... a highly sophisticated, efficient and attractive-sounding amplifier" EISA citation







To find your nearest approved Cambridge Audio specialist, read extensive reviews and more, visit: www.cambridge-audio.com

KRELL/MARTINLOGAN ELECTROKID DOCKING SYSTEM/LOUDSPEAKER

It's little wonder many audiophiles turn up their noses at the iPod; most docks are awful little plastic affairs with cheap, tinny little speakers. Meet the £1,450 ultimate exception.

Carefully selecting two products from Absolute Sounds' extensive portfolio of high-end luxury - the Krell KID iPod controller and the MartinLogan Purity active loudspeakers - the £3,540 ElectroKID system takes the output of the iPod and really shows what it's capable of, when played through dual differential Class A

electrostatic loudspeakers. Krell's CEO, Dan D'Agostino, is a long-standing fan of the iPod, and who better to make the apple sweet?

To find out more, see our exclusive in-depth review in the next issue of Hi-Fi Choice

PRODUCT Krell/MartinLogan ElectroKID

TYPE iPod docking system and floorstanding speaker PRICE £1,450 (Krell KID); £2,090 (ML Purity)

KEY FEATURES Fully compatible iPod dock

○ Balanced Class A circuitry ○ XLR, phono and S-Video output • Hybrid electrostatic loudspeaker

panel > 200-watt active drive CONTACT 2 020 8971 3909

www.absolutesounds.com



NEW PRODUCT HIGHLIGHTS

ATC EL150

ATC's limited edition ATCS illilited cannot flagship loudspeaker is the mother of all three-way passive designs. Standing more than 1.3m tall, the 65cm wide speaker weighs a floor-crushing 82kg and sports tri-wired speaker terminals for connections to each of the three drive units in each cabinet. The 25mm soft dome tweeter is coupled with ATC's highlyrespected SM150 75mm soft dome midrange and an ATC designed 375mm SL15 'superlinear' bass driver. Hand finished in any veneer you care to imagine, the speaker is carefully pair matched to within +/- 2dB between the speakers. They are also said to be highly sensitive (at a claimed 91dB) and yet can work with any amplifier from 100 watts right up to 1.5kW. Price £24,479 per pair

Due now

2 01285 760561

⇔ www.atc.gb.net



NAIMNET NSO1

Launched at this year's Consumer Electronics Show (CES), the NaimNet NSO1 is a music server aimed ideally at the custom install market. Featuring a pair of 400GB hard-drives in a mirrored RAID configuration (so that one drive acts as back-up for the other), the NSO1 is claimed to be able to store up to 600 discs and stream up to six outputs, all at CD quality.

In addition to its scalable IP-addressable Ethernet connectivity (for distributed audio systems), the NSO1 also sports either DIN or phono outputs for connection to a more traditional hi-fi system. It requires permanent connection to a PC, both to drive the NSO1 and to access the AMG music database. There is also a TV interface and custom installers will happily program suitable remotes to drive the system seamlessly.

The NSO1 will be followed by a more consumer-chummy server - the NSO3 - hopefully in April this year.



n C355

NAD's latest midrange stereo integrated follows on from the award-winning C352 amplifier. Conservatively rated at 80 watts per channel, the C355 features cleverly designed tone controls that only work at the frequency extremes, thereby minimising the negative effects of tone adjustment on midband signals. The seven line input amp features the regular slew of NAD innovations, including its Power Drive system that automatically compensates for loudspeaker impedance and switchable Soft Clipping, to reduce the risk of speaker damage. It also features the Distortion Canceling Circuit and BEE Clamp, hitherto found in Masters Series designs. The C352 is available in a graphite or titanium finish and comes supplied with a system-controlling remote.

Price £400 Due now ☎ 01279 501111 www.nadelectronics.com



JAMO R 907

Fuelled by the success of the radical R 909 dipole flagship loudspeaker, Jamo is to release an affordable version – dubbed the R 907 – in the spring. The shiny red or black R 907 employs two 300mm cones – as opposed to the 380mm drivers in the R 909 - and is approximately 20 per cent shorter and 15 per cent slimmer than its predecessor overall. Its dipole operation is identical in principle, however, and follows the theory that the ideal speaker shouldn't

have a cabinet: thus avoiding cabinetinduced resonance.

The R 907 maintains the same midrange drive unit as the original R 909, but in place of the R 909's Scanspeak Revelator tweeter unit. the company is implementing a variant of its Decoupled Tweeter Technology (DTT). This 25mm silk-dome tweeter is fully suspended from the rest of the speaker, which Jamo suggests, reduces vibration by 20dB and results in 'uncommonly detailed' high frequencies.

Price £7,500 per pair **Due** April **2** 01923 205605



ARCAM SOLO MINI

The Arcam Solo has been one of the most successful hi-fi products of recent years and has recently spawned two Movie versions – a 5.1 and 2.1 channel edition. Now, the original has a MiniMe... the Solo Mini. Built on a smaller chassis than any of the previous Solo models, this half-sized unit still sports an integrated

CD player (said to be based on the CD73), a tuner and amplifier, with five additional line inputs. This time, though, the drawer has been replaced by a slot-loading CD transport, the power rating is now 25 watts per channel and the Solo Mini has a front-mounted USB socket for connection to digital devices. iPod users can take advantage of the optional Arcam rLead or rDock, too for easy integration.

Price £650 Due 'Early 2008' **№** 01223 203200 **⊕** www.arcam.co.uk



HECO STATEMENT

German loudspeaker manufacturer Heco has developed a top-of-the-range three-way floorstanding loudspeaker it calls The Statement. The 1.23m tall speaker weighs in at a healthy 43kg and sports a subtle blend of next generation technology and tried and tested materials. It features a single 25mm soft dome tweeter, loaded with carbon Nano particles (that's not ground-up iPods). This is partnered to a 'Kraft' paper cone 165mm midrange unit (with an Alnico magnet) in an open-backed housing. Finally, a pair of 200mm paper cone bass units bring up the rear. This gives The Statement a claimed frequency response

between 18Hz and 50kHz, all with a very high 93dB efficiency, whether in its gloss black or gloss silver finish.

Price £3,000 per pair **Due** now **☎** 01822 6124491 # www.heco-audio.de

PSB ALPHA B1

Canadian manufacturer PSB Speakers has introduced the Alpha B1 standmount loudspeaker.. at last. The product has been available in Canadian and US markets since mid-2006 - where it has but has only just arrived on UK shores.

high-quality MDF cabinet, said to improve dispersion characteristics and diminish unwanted sonic defractions. The Alpha B1s come with a specially selected 19mm aluminium dome tweeter with improved frequency response.

The redesigned 135mm polypropylene bass driver is claimed to improve bass performance, too. This is due to a deeper basket structure and a rigid composite chassis that improves magnet efficiency, resulting in a deeper

The Alpha B1s are available in two wood-grain finishes: Maple with light grey grilles and Black Ash with black grilles



Price £100 Due now ☎ 01279 501111 www.psbspeakers.com

PMC 'I' SERIES

In one sweeping move, PMC has replaced the legendary DB1+, TB2+, GB1, FB1+ and OB1 models and their centre channel derivatives. The replacements are the DB1i, TB2i, GB1i, FB1i and OB1i.

The changes that denote the 'i' status are formed by three major technical upgrades to the models. They all sport a new precision-built 'Solonex' soft dome tweeter, with custom dispersion developed in collaboration with SEAS. This meant the mid/bass units needed to be improved too, and new PMC-designed drivers have

been used, which are claimed to deliver higher power handling and a flatter, lower distortion midrange. In addition, the crossovers networks have been optimised for the introduction and integration of the new i-series drive units.

The internal modifications have been matched by a tidying up of the exterior lines, with the cabinets now veneered on all surfaces and a deeper and finer sheen level applied to the timber portion as well as the plinth. Last, and probably least, the badges are now hand-polished metal designs.

Price from £770 per pair Due now

2 0870 444 1044 ⊕ www.pmc-speakers.com



KEF's KHT1005.2 multichannel speaker system is designed to build upon the massive success of the KEF 'egg' KHT systems. Aside from a new gloss black or matt silver finish, the KHT1005.2 sports the smallest ever Uni-Q drive unit - just 75mm - in each of the five satellite speakers and a new Kube-1 subwoofer that uses a powered 150watt 200mm bass unit and another

200mm unit as a passive radiator, all for £400.

№ 01622 672261

BOSTON ACOUSTICS is best known for its loudspeakers, but since joining the D&M Holdings group, the company has started to diversify. Its latest venture is the Solo XT, a £150 DAB radio (Boston's first) with dual alarms and a snazzy three-knob interface. Common to many Boston speakers, the Solo

XT's colour scheme can be changed whenever you like, thanks to eight interchangeable speaker grilles. **2** 01753 287947



RUSS ANDREWS' new PowerMax Plus mains cable is claimed to offer significant improvements over the original entry-level PowerMax mains lead. The cable features a new design of plug and IEC connector, from an industrial cable manufacturer. This has meant Russ Andrews has used a new manufacturing technique to connect these wholly nickelplated plugs and sockets to the large gauge Kimber Kable conductors. Best of all, though, the £30 price tag remains unchanged. **2** 0845 345 1550

ROBERTS RADIO'S new

£140 Sound 41 is the company's first DAB radio to feature an Electronic Programme Guide (EPG). Downloaded from the station itself (all BBC and many independent stations support EPGs), this allows you to program the Sound 41 to record shows up to a week in

advance, and then store them on a SD card. You can even playback your own MP3 or WMA files on the same card. **☎** 01709 571722



OOPS! In the last issue tiny product-number-changing sprites sneakily changed the name of the NAD C515BEE CD player. Fortunately, they left the £165 price tag and the other details untouched. Our apologies to NAD, Armour Home and to anyone else inconvenienced by this error. The sprites have been sacked, and now work as baggage handlers. 2 01279 501111

audiofile

HAPPENINGS

(S) The Insider

JOHN JEFFRIES Job Title: Proprieter **Company: Metropolis Music**



What is the future of hi-fi in

The same as it always has been or, indeed, getting more popular for people who want music at its best. There are many music enthusiasts who are going the route of AV, multi-room or iPod, but the true die-hard listener is still only interested in two-channel listening

Are audio servers the future?

Although many CD users will continue to use this medium for many years to come, the audio server has a definite place in the future Especially products like the new Boulder 1021 CD player which records from a computer reader and then plays the programme a moment later.

Do valve amps have a future? Until solid-state manages to topple valves, they will continue to rule. A really well-designed valve amp tends to give harmonic structure, timbre and believability that surpasses that of solid-state.

What is your all-time favourite hi-fi

The Sequerra FM tuner. A well-recorded or live performance produced from this device beats all other mediums.

CD or vinyl, and why?

Although vinyl still rules the day, a CD's performance - when at it's best - can sometimes be almost indistinguishable

Hi-Fi Diary

FEBRUARY

Audiojumble 2008 Angel Leisure Centre, Tonbridge, Kent www.audiojumble co.uk One of the UK's largest vintage hi-fi fairs

22-24 Sound & Vision - The Bristol Show Manott City Centre Hotel, Bristol www.bristolshow.co.uk The UK's premier hi-fi show

29-30 High End Prague Connthia Towers, Prague www.high-end-praha.cz Leading Czech hi-fi show

Transistor turns 60

60 years ago, the first working transistor was created by John Bardeen and Walter Brattain for Bell Labs. They came up with the name transistor by abbreviating transconductance and varistor. William

Shockley proposed the first FET design prior to this, but was not able to produce a working prototype before Bardeen and Brattain built a simpler point contact design, a replica of which was built ten years ago. Shockley's bipolar junction transistor quickly replaced the point contact because of its ease of manufacture and compact size. It formed the foundation of all transistor design up until the late sixties, when the metal oxide semiconductor (MOS) was discovered.

Originally created as amplification devices, the switching potential of transistors wasn't discovered until 1958 when the foundations of the integrated circuit, or chip were laid by Jack Kilby and Robert Noyce.



USB cassette

It looks like the humble cassette retains a place, even in the hearts of the MP3 generation. Firebox certainly hope so, having just launched their USB mix tape for £19.99. This is a case containing a 64MB USB flash drive modelled on a cassette shell of yore. It includes an

inlay card for you to list the music on the stick and even

has "old school" labelling, as well as being "suitably tired-looking". The idea is to relive the days when we painstakingly made up compilations for friends, days that the latest generation of music downloaders will not recall because they can share their music with so many more people and with so little effort. It certainly gives a new slant to 'Home taping is killing music'

Full-range newcomer

Norwegian loudspeaker drive unit specialist SEAS has entered the world of the full-range driver with it's X1-04 Exotic F8. This eight-inch chassis unit has a paper cone that's embedded with papyrus fibers and a central whizzer cone that's claimed to extend the treble response "beyond 10kHz". Weight is minimised by using a foam surround, which helps keep sensitivity and damping high. Another significant factor is the new spider suspension design, which is said to offer lower friction and reduced noise. The Exotic F8 joins the ranks of Lowther and Jordan

designs, which can be used without a crossover and are very popular with the glass audio fraternity



The death of DRM

Warner Music Group has put its entire catalogue on Amazon.com without DRM (digital rights management) content protection, a move designed to give one of the world's largest record companies a stick to fend off the iTunes monopoly. This is the first time that the entire WMG catalogue

has been available online at all, let alone in DRM-free form. This includes, for the first time ever, legal downloading for artists such as the Eagles and Led Zeppelin.

The company's CEO, Edgar Bronfman, is famous for stating "We will not abandon DRM, or services that are successfully implementing DRM for both content and consumers." But it would seem that the only way to compete with both iTunes and its proprietary DRM and the world of P2P networks is to offer material that is not restricted in its use.

The move has prompted Sony BMG to offer its back catalogue in DRM-free form as well, albeit only in North America.



Fruitful sound

Fostex, one of Japan's most respected loudspeaker driver makers, has produced a bass drive unit that is made of banana plant fibre. W400AHR is a 15-inch (370mm) bass unit with what the company describes as "whizzy hybrid materials" and high-rigidity thanks to a

distinctively shaped cone which combines pulp and hanana fibre. It is housed in a die-cast zinc frame and has a 3.1kg Alnico magnet surrounding a 100mm voice coil, which results in a 94dB sensitivity. We've heard of companies

using organic materials in cones before, but this is just bananas!



HANDY HINTS FROM JIMMY HUGHES - HI-FI'S SUPER TWEAKER



Loudspeaker tune-up

Here's a quick way of making a pair of speakers sound as good as new. Unfortunately, if you aren't careful, it can also make a pair of speakers deader than Elvis. You see, the constant pistonic (forward-backward) movement of a dynamic loudspeaker drive unit slowly, but surely loosens every screw and

connection on the whole speaker. It's worth taking a screwdriver to any visible screws and tightening them now and again. You'll be surprised how this little adjustment can transform the sound of older speakers.

So, why the warning? It's easy to overtighten screws and either thread the screws or damage the cabinetwork, thereby defeating the object. Also, the magnetic field of the drive unit can pull a loosely held screwdriver right through the speaker itself. Ouch - wrecked speaker!

- 1. Oscar Peterson Trio We Get Requests
- 2. Cannonball Adderly Somethin' Else
- 3. Keith Jarrett The Köln Concert
- 4. Miles Davis Kind of Blue
- 5. Michael Hedges Aerial Boundaries
- **6.** McCoy Tyner The Real McCoy
- 7. Holly Cole Trio Don't Smoke in Bed
- 8. Sonny Rollins Saxophone Colossus
- 9. Martin Taylor Artistry
- 10. Joao Gilberto & Stan Getz Getz/Gilberto



IN THE STUDIO

ARTISTS RECENTLY ABSENT FROM THE CUT AND THRUST OF SHOWBIZ HYPE DUE TO FINISHING THEIR LATEST ALBUMS



FRANZ FERDINAND

Title: tbc

Due: summer

The third album from the Glaswegian artrockers will be both more pop and more punk, according to front man Alex Kapranos. The pop influence comes from working with Girls Aloud producer Brian Higgins, "but the idea is to dirty it up and take it in the direction of punk," Kapranos says. Songs include several they've already performed in concert, including Turn It On, Ulysses and A New Thrill.

MADNESS

Title: The Liberty Of Norton Folgate Due: summer

In which the former 'Nutty Boys' get all serious for once with a concept album influenced by Peter Ackroyd's book, London The Biography

"The title track is 15 minutes long and is about the history of Shoreditch, from the Huguenots to the Bangladeshis," according to Suggs. "But we've got lots of great pop songs on the album as well."

ALEX TURNER & MILES KANE Title: tbc

Due: MayThe prolific Arctic Monkeys front man has been hanging out and recording in France with Miles Kane of indie newcomers The Rascals. Helmed by Klaxons' producer James Ford, the songs reportedly sound nothing like the Arctic Monkeys. "Big and epic," Kane says. "We wanted to do something like Scott Walker," adds Turner.

EMMYLOU HARRIS

Title: All I Intended To Be

After two fabulous albums of self-written material (Red Dirt Girl and Stumble Into Grace), Harris's first new album in years is a mix of original material and covers. "It's like a little travelogue covering the past few



decades," the alt-country queen says. Among the guests are Kate and Anna McGarrigle and the covers include songs by Billie Joe Shaver and Tracy Chapman

THE VERVE

Title: tbc Due: May

"We know it has to be great," says Richard Ashcroft of the hugely anticipated first album from The Verve since 1997's epochal Urban Hymns. The news that the album is "iam based" doesn't hode too well but the band are confident. "I think of our other records as test beds for this one," guitarist Nick McCabe says. "They sound like experiments, whereas this is more realised."

ALSO COMING SOON... JAZZ/ CLASSICAL

Kenny G Rhythm And Romance (Mar), Beady Belle Belvedere (Mar), Eliette Von Karajan My Life at His Side (Mein Leben An Seiner Seite) (Mar), David Garrett (Virtuoso!)

SACD/ DVD-A

Fiona Mackenzie Elevate (SACD, Feb), **BBC** Nat Orch Wales Elgar Symphony No.3/Pomp And Circumstance (SACD, Feb), Marienkantorei Lemgo Fischer. Orchestral And Choral Works (SACD, Feb), **Georg Gulyas** plays Bach, (Proprius, SACD, Feb), Mozart Symphonies No.39-41 (SACD, Feb)

audiofile

DISPATCHES





Off the Strip

ike Las Vegas itself, the annual Consumer Electronics Show (CES) held each January is a glitzy, massive affair that gets more glitzy and more massive every year. Close to 150,000 visitors from around the planet converge on Sin City to gawp at 1.5million square feet of the latest gadgets, gizmos, tellies and toys. There's always a strong – make that massive – high-end hi-fi presence (called 'Specialty Audio' in CES-speak) at the show. However, unless it's your specific goal to seek out high-end audio you won't get the chance to hear it.

Which is why, if you are sitting back in Blighty, nursing a norovirus and checking out all the latest information from sites like CNET, Wired or even our very own www.T3.com, you might think new audio was limited to wi-fi iPod docks. In fact, there were hundreds and hundreds of new innovations in hi-fi; yes, the nearest most would get to this was the announcement that Warner had given up on HD DVD in favour of Blu-ray.

"Close on 150,000 visitors from around the planet converge on Sin City to gawp at 1.5 million square feet of the latest gadgets, gizmos, tellies and toys."

Trend spotting used to be the order of the day at a CES, but the sheer brain-mashing scale of the thing makes that impossible now. Formulate a trend and within 20 seconds you'll find a dozen counter examples. Nevertheless, 2008 may be remembered as the year computer audio met the high-end, with new servers from Hovland, Naim and Sooloos, music streaming from Lyngdorf and PC-ready DACs from anyone who still makes a DAC. It was also the year that you would be likely to find the demonstrator using a MacBook instead of a CD player as a source.

This was because it seems the bulk of new audio product this year is in speakers. If 2007 was International Year of the Valve, 2008 must be the Year of the Transducer. New speakers – often wi-fi floorstanders – abound with new products from a plethora of companies.

This is also a year where companies refine their positions in an increasingly diverse market. Arcam, for example, built upon its Solo success with a new smaller, cheaper Solo Mini, while Krell recognised the significance of its Evolution products and this year appears to be concentrating its focus there.

It's a shame that these innovative products disappear amid a sea of roboinsects and Panasonic 150" plasma screens. Off-piste expos like T.H.E. Show (situated a couple of miles away at the San Tropez and Alexis Park

hotels) may have had big hi-fi names like Chord, darTZeel, Halcro and Jadis on site, but the crowds in the main were elsewhere. It wouldn't be wise to split the show up, though... but the days of one person covering one show are long gone.

the early 1990s. He has since become one of the hi-fi and AV industry's most respected scribes



CD's 25th birthday

Why we still derive enjoyment from CD

t's been 25 years since the audio world was transformed by the arrival of the digital compact disc. The format is still stuck with bit and oversampling rates from 1982, but players and recording techniques have changed to the point where the once hard,

thin sound of CD competes in naturalness with vinyl, the audiophile's favourite format.

It has now become clear that despite the early hype, CD is far from the 'perfect sound' and bits aren't simply bits, otherwise you wouldn't hear the significant differences between players that you do today. The differences aren't as big as they can be with analogue formats, but to a discerning listener with a resolute sound system they are big enough to warrant splurging big bucks on one of the many high end players out there, several of which feature in this issue of *Hi-Fi Choice*.

Despite the digital nature of the format, there are also quite a lot of flavours to choose from when it comes to players. We had a very up front and lively player from Cairn recently and we have a machine this month with an extremely analogue sound in the EAR/Yoshino. Further down the price spectrum there are some extremely smooth operators coming from Japanese brands like Denon and Pioneer.

When reviewing the EAR/Yoshino, I had to listen to a very decent, but far cheaper Denon player and had some difficulty re-adjusting my expectations of the medium in a musical sense.

This is despite the fact that, for designers, the options on sonic tailoring are quite limited, a situation caused by the small number of makers for transports, servo software, filtering and DACs. Cyrus has solved one part of the puzzle by going to great lengths in developing its owns servo software. It's amazing to think that the logic that controls the way the laser reads the disc would have that big an influence on the sound but, according to Cyrus, it does. Its reasoning being that servo software is usually built for computers where speed of data access is critical, whereas with music a more accurate reading process that does not involve multiple readings results in less error correction and thus a cleaner signal and an electronically quieter environment for the player to operate in.

Being a vinyl nut, my own experience with CDs started pretty late in the day. For me, the format held little appeal until the early nineties when some chaps in Wales came up with a clock upgrade that they fitted as an aftermarket modification. The Trichord clock transformed the sound of CD into something that timed well and offered a previously unheard degree of musicality. Since that time, I have purchased nearly as many silver discs as black ones and have to admit that it has become the format of choice for reviews.

Justice Memory began working on Hi-Fi Choice over 15 years ago, eventually rising to the position of Editor. He's currently indulging in his passion as a freelance hi-fi writer □



HI-FI REVISITED

KEF 105 LOUDSPEAKER

KEF wasn't the last manufacturer with a flagship speaker to hang their reputation on. For some years B&W has been doing much the same thing with its 800 series. But B&W didn't invent this kind of inner synergy. KEF probably didn't either, but there was a time when they were certainly the consummate masters of the art.

The model concerned was the 105 and it would be wrong for me to claim specialist knowledge of the 105, or rather 'range', as it went through four major changes during its lifetime. In fact, I never had a chance to review the speaker and only know of it from what others had told me, either via demos at KEF's HQ or by others (usually studios) who used the speaker for other purposes including the monitoring of commercial recordings. This was the model that bought a certain maturity and prestige to the KEF line and one which (for some) encapsulated everything that was excellent about British loudspeakers. Treat this short paean to this seminal model as a general introduction; at an appropriate point in the future I will return with a more definitive assessment, perhaps alongside the 107 and the ill-conceived Maidstone.

The model was not without its critics, but it has a certain something that marked it out from the crowd. Most of all, it looked the part, with its box upon box construction, which meant that intermodulation among the three drivers was not encouraged. Of course, the way it looked also meant it had a unique and powerful identity; you didn't need to check the nameplate to know what you were dealing with - something it shared with the Quad Electrostatic. But this was no Quad. The 105 was big and had a full bass, a massive image scale and three drivers in their own enclosures which meant that the designer had unusual control over dispersion throughout the frequency range. Rounded edges ensured that the sound suffered a minimum of diffraction and a progressively varying polar response.

The main beneficiary is the midband with the compact 110mm unit housed in a an appropriately compact enclosure, an idea that



"It was designed as a bottomless pit, a speaker that could be played at realistic sound levels."

is well established with tweeters (not least with various KEF designs), but less often with the midrange, which in general terms is particularly badly served by being screwed to a massive flat baffle. At the same time there is no need to compromise on the LF drive, which is served here by a full-bore 12 inch driver of extravagant construction. In addition, the stepped front edges of three sub baffles effectively cope with group delay problems, helping correct differential phase inconsistencies from the three drivers.

There was much more to the 105 than this. It was designed as a kind of bottomless pit, a speaker that could be played at realistic sound pressure levels. This made it a favorite with recording studios, especially those where large orchestras were recorded. The criticisms at first were muted, and limited mainly to those (like myself) who couldn't afford them. but in due course the feeling from many observers was that although the system was low in colouration and exquisitely specified, it was also lacking in speed and articulation. Indeed as well as being a model of prestige and technical prowess, the 105 also ironically marked the beginning of the end of the British loudspeaker hegemony. In due course the KEF group (which by this stage included Celestion) fell into Far Eastern ownership. HFC

Alvin Gold







Audiocide
Unwanted Christmas aifs

he strained grunting of some fat bloke in red clothes trying to squeeze down your chimney may now be a fading memory, but for many, his larger-than-life appearance resulted in happy additions to the hi-fi. After dropping lots of hints, girlfriends and wives across the land bought the 'audiophiles' in their lives a mixture of cables, mains cleaners and spike kits. Those in a particularly secure relationship will probably have received some new separates or better still, a pair of fridge-sized speakers.

Of course, some of the readers of this august publication found under the tree what can only be described as 'sub-optimal gifts'. To those of you in this unfortunate position, we send our condolences. If your happy home has been cursed with the arrival of an overpriced

"Beat it to death with a large spanner and tell your partner that it was badly damaged in the struggle as you fought off five burglars..."

DAB portable or, horror of horrors, a mini system then fear not – there is still light at the end of the tunnel.

Children are, of course, one of the most infamous hazards the devout stereo owner will ever encounter - they seem to have a genetic predisposition to re-wire your setup in such a way that it's quaranteed to short out the amp. If they can't mangle the cabling, they'll go for the speaker drivers instead. If your bright, shiny Kak-O-Matic with 5-disc CD carousel, 97-band graphic EQ and animated display is left unsupervised for any length of time, there's a good chance it'll soon be sitting at the bottom of the bin. But the desperate audio guerrilla can turn adversity to his or her advantage if the hi-fi in question derserves a fate worse than death. And if the kids can't be coerced into sabotage, then you can, do it yourself. Be warned though, some of these things have scrawny little chip amplifiers which can be surprisingly hard to kill. Here, then, are some safe ways to finish off the intruder:

- Coat the playing side of that CD you've always hated with honey or jam – guaranteed to kill any midi system's CD player stone dead.
- Remove the fuse from the plug. Can mean the end of a relationship if you're discovered.
- **3.** Unscrew the drivers from the cabinets and get stuck in with a pair of wire cutters.
- **4.** Stack books on either side of the system to cut off cooling airflow. It's slow, but will definitely nail the bugger in the end.
- 5. Beat it to death with a large adjustable spanner and tell your partner that it was badly damaged in the struggle as you single-handedly fought off five burglars, who had (for some strange reason) only decided to nick your midi-system.

There are probably many more ways to rid your home of unwanted hi-fi. Suggestions on a postcard please.

Jon Marks has been happily addicted to hi-fi for 20 years, especially since becoming a member of the hi-fi press in the mid-1990s



Back to the future

What does tomorrow hold for the AV industry?

ark clouds hang over the UK economy. Having just heard that oil prices are at a record high, utility bills are set to rise by as much as 25% and turbulence continues in the Middle East, things don't look good. Combine this with the credit squeeze, stagnant house prices and a general feeling of uncertainty and it does appear that we could be heading for a recession or stagflation — where the economy remains stagnant, but inflation roars away. I sometimes think that we talk our way into recessions, but the hi-fi industry still needs to be prepared.

I remember the last recession in the early nineties, as it coincided with my first writing assignment for the hi-fi press. In addition to feeling incredibly privileged in securing a job, there was a definite feeling within the industry that the good times were firmly behind us. In those days, thousands would attend hi-fi shows and most hi-fi shops had city centre locations. Of course, hi-fi as a category has been sliding down the scale of consumer spending priorities since the seventies, but the harsh economic realities of 1989-1993 meant that many didn't survive. The survivors were the companies who'd already developed a solid reputation and could skilfully manage the tough economic conditions by either seeking new markets abroad or diversifying. Perhaps, the most famous example of the latter was the decision by Linn to make a CD player. This was, remember, just a few short years after they'd denounced the format as a "lemon". Still, along with the likes of Arcam, Naim, Quad, SME and Musical Fidelity, to name but five, they not only survived but also prospered. Others weren't so lucky. Cambridge Audio, Gale, Ariston and Audiolab were all to come unstuck - despite now enjoying a resurgence thanks to the names being bought by larger audio conglomerates. Others such as Tannoy faced turbulent times as ownership changed hands, whilst some left the arena of hi-fi separates altogether. Then, of course there were the wise sages who could see that was coming and quickly diversified. Alphason is a good example of one of these companies who went from making fine (but not always class-leading)



CLASSIC ALBUMS

IT'S TOO LATE TO STOP NOW VAN MORRISON

Never one to enjoy a harmonious relationship with the music press, Van Morisson has been very much a maverick figure during his near fifty-year career, his creative output swinging bizarrely from the inspired to the banal and back again. To this day, attendance at a Van Morrison gig is an endeavour fraught with risk – on a bad night (and there have been many) he can be distressingly disengaged, but on a good night, watch out!

Infamously idiosyncratic, Van the Man has sometimes played an entire concert with his back to his audience. Or he's ripped through a perfunctory list of hits, seemingly all too eager to get off stage. He's also been seen, on at least one occasion, boarding a Belfast bus and apologising personally to audience members at his earlier show because he didn't feel his performance was up to scratch.

But if you want to get a feel for just how good he could be as a live performer, while pretty much at the height of his critical and popular acclaim, It's Too Late To Stop Now is the album that marks the moment. Recorded in concerts at the Troubadour, Los Angeles, the Santa Monica Civic Auditorium and at The Rainbow in London in 1973, this double disc set showcases pretty much all of his work up to that time, including his stint with Them.

It's the sound of a man losing himself in the moment, working with and off his 14-piece band, the Caledonia Soul Orchestra, leading them as he twists and turns his voice around the songs, stretching them, teasing them and working them to his ever changing muse. All of which is enthused with a warmth and sense of purpose – nothing seems to matter to Van or his men except this performance and isn't that what a great gig should be?

There's little of the star-eyed Celtic mystic here. This is Van in full-on showman form, indulging his soul, blues and jazz leanings to the full and taking no rock prisoners. In an act of typically Van irascibility, he refused to allow any overdubs which lead to the exclusion of the song *Moondance*, (victim, allegedly, of a single bum guitar note) and as well as his own



"Infamously idiosyncratic, Van has sometimes played an entire concert with his back to the audience."

hits, he makes time to cover a range of standards and with his own choice of covers. These include Ray Charles's I Believe To My Soul, Sam Cooke's Bring It On Home To Me, Sonny Boy Williamson's Help Me and Muddy Waters, and I Just Want To Make Love To You, the result of which he clearly sees himself much more as a blues and soul man than a rocker.

Not all of Van's performance is an unqualified success; heartfelt it may have been, but his ventures into scat singing haven't weathered well and perhaps some of the arrangements are just a smidgeon too close to showband for comfort. But these are small caveats, when all concerned are so obviously into the music and loving every minute of it.

The recent remastered reissue adds but one extra track, a sprightly version of *Brown Eyed Girl*, which comes as something of a let-down after the 20-minute-plus glory of *Caravan* and *Cypress Avenue*, from his two greatest albums, *Moondance* and *Astral Weeks* respectively.

It's been some time since Van the grumpy old man really seemed to engage with his music and, if he has, he certainly hasn't been conveying it to anyone listening. Remember him this way.

Dave Oliver



turntables and tonearms, to being front runners in equipment supports,

These days the hi-fi industry is far leaner than twenty years ago and I suspect that, while we may see a few casualties, losses will be far lower than last time – that is if the economic crunch does become a reality. While the future doesn't look easy for those in manufacturing, distribution or retail of hi-fi, some comfort may be taken from the adage that what doesn't kill you will only make you stronger. The UK's still enviable hi-fi industry is proof of that.

reviewer and columnist since 1993



Sound sense

Hooking up the right cables

t's been more than thirty years since I first met Franco-Japanese hi-fi journalist Jean Hiraga at a Tokyo hi-fi show. He introduced me to some of the things that were happening on the Japanese audiophile scene, which included the idea that cables could influence the sound of a hi-fi system.

In the mid-1970s, such a concept was regarded as pure heresy by the British hi-fi scene, who still treated the idea of improved amplifier sound quality with considerable scepticism. Translating Hiraga's research on the subject set things rolling, however, and it wasn't long before Britain woke up to the significance of cable performance.

Once the floodgates opened, manufacturers, who were only interested in providing cables to improve the sound of their customers' hi-fi systems, combined sensible engineering with sensible prices. Unfortunately, there were also plenty of carpetbaggers and snake-oil salesmen eager to add hype and inflated prices to a misunderstood technology.

We still have much to learn, but we have, at least, isolated some factors affecting cable sound; such as conductor purity, the properties of insulation materials, and the geometries of construction. Most hi-fi speaker and interconnect cables use recipes based on permutations of these three factors, and while one occasionally encounters original thinking, this is the exception rather than the rule, even with very expensive examples.



"Unfortunately, there were also plenty of carpetbaggers and snake-oil salesmen eager to add hype and inflated prices..."

Amongst a plethora of multi-stranded clones, British hi-fi designer Denis Morecroft broke the mould in 1984 by introducing his single-strand OFC 'Solid Core' DNM cable, which offered an interestingly different and sonically distinctive alternative at a relatively affordable price.

That original mono (twin conductor) cable is still available at £7.50/metre, but is now joined by a more advanced bi-wire (four conductor) cable at £18/metre, with improved asymmetric insulation and superior magnetic field properties. Formally known as Stereo Solid Core Precision, it may either be used in four-conductor form to bi-wire each speaker, or easily split to run two conductors to each speaker of a stereo pair.

Using a single conductor strand inevitably leads to a higher resistance than multi-strand cables and this will have certain implications, such as reducing the damping factor and bass impact, but Morecroft claims it also improves amplifier stability.

The result is a cable that combines a slightly (though by no means excessively) dry bass with an exceptionally clean, sweet and well-focused midrange and top end. The level of general background 'hash' throughout the audio range is notably low, so the dynamic range is wide and low level detail comes through sounding impressively clean and clear. DNM's Stereo Solid Core Precision is an excellent cable at a very realistic price.

It should work well in any system, particularly those with valve amplification.

Choice and has been writing about his favourite hobby for nearly 30 years



Hissed off!The secret of sounds

uman hearing is a funny thing. A few years ago, I was copying some cassettes onto CD for someone. It was nothing I was remotely interested in hearing myself, so after setting everything up, I turned off the amplifier and began playing the piano (which is situated in the same room as the hi-fi. As I sat playing, I became acutely aware of a hissing noise from the direction of the cassette deck. I stopped playing and listened carefully: the hiss was barely perceptible, but while I

played the piano, making quite a lot of noise, the hiss seemed considerably louder.

There's a well-known phenomenon, amply supported by commonsense, called 'masking', in which a loud sound masks a quieter one. Pretty obvious, really, as anyone will know who has tried to use a mobile phone next to a busy road. According to simple masking theory, hiss should be largely masked by loud music. Since the music has a relatively limited frequency range, most of the time, it might not mask broadband hiss very effectively, but anyway the last thing we would expect it to do is to make it louder.

Anyway, simple masking theory doesn't explain how we are able to hear chords, in which some notes may be much quieter than others. Nor indeed, how we can detect so quickly a 'sour' note from one instrument in a group that's slightly out of tune.

The ear is, at one and the same time, amazingly acute and incredibly forgiving. We can, for instance, recognise friends over a low-bandwith, high-distortion phone line. I also have a friend who can listen to opera singers and tell them, almost immediately, if they are suffering from certain fairly common singing technique faults. The symptoms of which, are really very subtle (until the singer's voice starts to fall apart because of them). Many petrol-heads can identify, by ear alone, classic cars from the 1960s and '70s as they pass by on a busy street. And so on.

In this issue of *HFC*, we are making a point of examining shining examples of CD replay, by far the dominant format despite SACD and DVD. If the high-res formats are intrinsically better, it may well have as much to do with their lower noise floor as with their greater bandwidth. CD's noise floor of -90-odd dB (the exact figure depending on how you define it) is certainly pretty good, but not necessarily completely inaudible and, if my experience with cassette deck and piano is anything to go by, that's a very dodgy approximation to 'good enough'.

On the other hand, LPs, and CDs sourced from hissy analogue tapes, can sound extremely impressive and one isn't usually conscious of noise except, perhaps, for the opening few bars. There is one important difference from my cassette deck experience, in that the hiss is coming from the same place (the speakers!) as the music. Maybe hiss sources in another place are more obvious? That would certainly explain why I (and others) find the mechanical noise of some CD players so exasperating.

Richard Block is a professional musician, recording engineer and a highly knowledgeable hi-fi analyst to boot. He writes about hi-fi exclusively for HFC



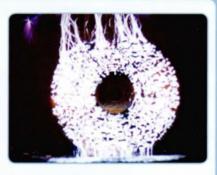
THE LINK: CDS & DACS

In an issue specialising in CD players and DACs, it seems appropriate to have a squint at the link between digital components, most commonly the famous 'S/PDIF or Sony/Philips Digital Interface Format. Operating at the physical level via coaxial cable or fibre optic lead, this is the standard digital interface for stereo at up to 96kHz sampling rate.

It's a simple enough system, switching a signal between ground and about 0.5V to denote the usual binary state of 0 and 1. As in all practical digital transmission systems, however, a little housekeeping is needed in order for the receiver to know what the voltages mean. S/PDIF is designed to handle wordlengths of up to 24 bits, so two samples (one each left and right) involve 48 voltage levels. These are effectively parcelled up along with such exciting things as preambles. metadata and subcodes, plus start bits which are encoded in such a way that the receiver can quite simply work out where the start of a word is and what the following bits represent. So far, so good.

Digital audio is intrinsically a real-time system, where the data is sent at a given rate and converted to audio almost immediately on reception. This means that transmitter and receiver must operate in synchronism: but the only link between them is the S/PDIF cable and so the data must be used to keep the two components in sync. There are various ways this could have been done, but the one chosen was to encode the data using 'biphase mark coding' which ensures that no one voltage state remains stable for long, even if all 24 bits in a sample are identical.

The net result of that is to minimise low-frequency content in the digital signal and that effectively makes it much easier to detect what the clock rate must be from the voltage fluctuations that define the data. The system obviously works pretty well because digital components (transports and DACs or digital recorders) do sync up in practice, usually very quickly and reliably. A component in the receiver called a 'phase-locked loop' recovers a



"...there is much to be said for taking any steps to minimise interface jitter."

stable clock from the data and that's used to control the operation of the DAC or recorder.

But even assuming the data is generated under the control of a stable clock, there's a fly in the ointment as far as the interface is concerned. The data may appear digital but that's always only a special case of analogue and the transmitter. Cable and receiver make up between them an analogue circuit. Imperfections in this circuit can minutely affect the time at which data is received and, if extraordinary pains are not taken to prevent this happening, upset (jitter) the receiver clock. If the bandwidth of the interface is not wide enough, the signal as received will transit rather slowly from 0 to 0.5V and back. Any hysteresis (memory effect) in the interface will have a similar effect and various kinds of electrical noise pickup, from hum loops to RF, will also play 'games' with the all-important timing.

One of the benefits for upsampling is that this is generally done by 'asynchronous sample-rate converters', devices which do not rely on synchronisation of transmitter and receiver and which, in addition, are carefully designed to minimise the effects of slight jitter. All the same, there is much to be said for taking any steps possible to minimise interface jitter, including good quality cables of minimum length. HFC

Richard Black

The world according to...

Bowers and Wilkins

In the last instalment of our Industry Profille features, Hi-Fi Choice meets **Chris Hugill** and **Andy Napthine** of Bowers and Wilkins. Interview: Malcolm Steward

e met with Bowers & Wilkins'
Director of UK Sales, Chris Hugill and
UK Marketing Manager, Andy
Napthine, at the company's hugely impressive
manufacturing and head office facility in
Worthing, West Sussex.

Before the interview we were treated to a tour of the B&W factory where virtually every part of every loudspeaker is built, including the drive units and crossovers, and where all but the 600 Series is manufactured. These – the most junior models in the portfolio – are built in Bowers & Wilkins' own factory in China.

It all started in the 1960s, when John Bowers began hand-assembling speaker systems for local clients in the back of an electrical store he ran with his friend Roy Wilkins. Bowers founded B&W Electronics Ltd, following a bequest from an elderly lady – Valerie Knight – who was so impressed with his knowledge of classical music and so pleased with the speakers he made for her, that she left him £10,000 in her will so that he could develop a manufacturing business. In 1966, Bowers & Wilkins built its first commercial loudspeaker and called it the P1.

Some 41 years later, the company remains as only one of a handful of British brands that is still not under Chinese ownership. A hugely successful and profitable business, B&W is flourishing, while many of its competitors are feeling the pinch.

HFC: Why has Bowers & Wilkins bucked the trend that has befallen much of the UK U.B industry in terms of falling by the wayside or

being taken over by the Chinese?

Chris Hugill: What has probably helped has been our dedication to the engineering aspect of our products and only having about 10 per cent of our sales in the home market. I think that dealing with 50 or more markets around the world offers a company fair protection against what happens in any one of them, such as the UK, which was a major market for many of the companies that ran into trouble. When you're very strong in Russia, Japan and Germany and you have control over your distribution, that helps, but ultimately, it's still your product. Mind you, other manufacturers have had good product and still failed.

HFC: Is the UK no longer a particularly strong market for you?

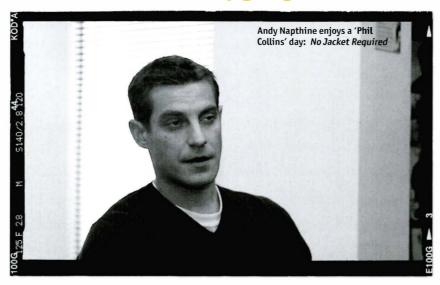
CH: On the contrary. If you look at the industry figures, we are the number one brand – especially in the above £500 sector. We're strong below that point, too, although there's a lot of cheap product with which we have to compete. Key to that is our dealer base, which we've whittled down to those people who truly understand what we're about. We started by eliminating all the fair-weather friends: those people who only want products when they win a five-star review. For example, out of over 150 outlets only 27 are 800 Series dealers.

HFC: You have a very different approach to marketing and shows from most companies?

CH: We don't want to put a system in a hotel bedroom and host demonstrations that customers could hear by simply going to a retailer. We don't take issue with, say, a company like Absolute Sounds doing that, because it might be harder to arrange a dealer demonstration, but for a company of our size it makes absolutely no sense.

If you go back in history to early hi-fi shows such as the Russell Hotel in London where people queued around the block to hear the then new Quad electrostatic, that was something else. That was breaking new ground and it was something really special. We've

"We don't want to put a sy em in a hotel bedroom and ho t demonstrations that customers could hear by going to a retailer."



moved on a lot since those days, but there's still a lot of people in our industry who think that having a queue of people waiting outside is the mark of a good show.

HFC: The Los programmes on Channel 4 that you sponsored were ery impressive and, we'd imagine, great from a marketing point of view. Were they a success or is it has been so tell?

Andy Napthine: It's probably too early to judge but the viewing figures were very good and we saw a massive increase in traffic on our website.

CH: And we've had an association with Abbey Road since the 1970s, supplying their monitors. And that's a proper business arrangement: the studio has paid for each of the 40 plus pairs of speakers it has. The many studios around the world that use 800s – which are designed as domestic loudspeakers rather then studio monitors – rather validate John Bowers' notion that if you build a good enough loudspeaker it will work equally well in a domestic and in a studio environment. It's rewarding, too, that they've gained that position on merit, because the engineers appreciate the 800s' sound, construction and consistency.

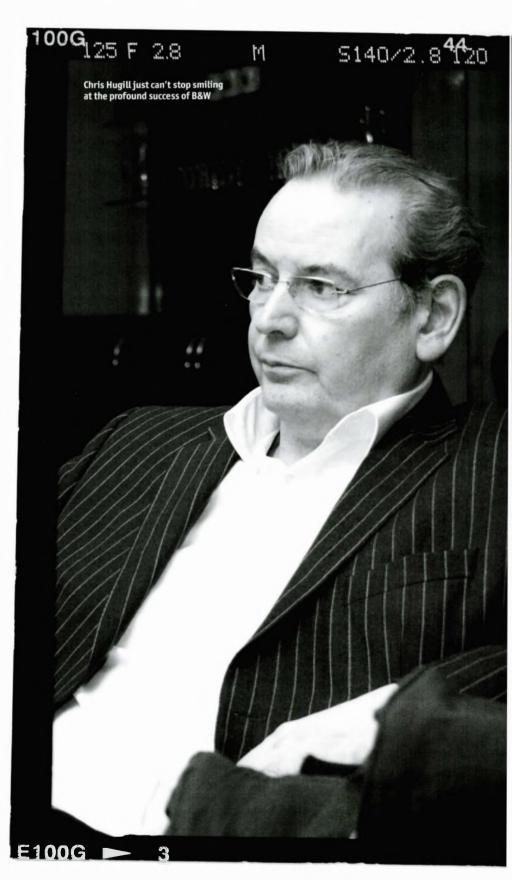
HFC: During the fectory four we were shown the rounded backs on the 800 Series cabinets that are made from 19 laminated sheets in your factory in Denmark. We were told the story of one German customer, who no iced that one of his speakers had slipped through the quality control net with only 17 laminations. One can only imagine been accomplished by scrupplous his examination must have been

CH: The 800 Series speakers are not inexpensive and customers have every right to expect perfection in those products. It's an investment for the customer and it's a massive investment for our company – the machinery to build and handle those cabinets alone represents an absolutely enormous cost.

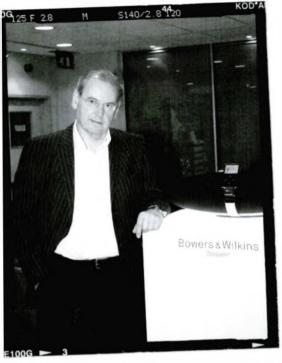
And those speakers are very much a package. Buyers aren't just paying for the sound or the technology or the appearance: they want and are paying for the complete deal. So everything about an 800 Series loudspeaker has to be 100 per cent before it gets to wear the badge.

HFC: The degree of vertical integration in this factory is very impressive if not, package, the most cost effective way of doing things?

AN: Even the units we don't make ourselves — those in the less expensive models — are still manufactured to our designs and under our supervision, right down to having our own people in the factories making them. In all our 'standard' ranges we manufacture all



audiofile INDUSTRY PROFILE



Wilkins. We've never been after making that quick buck. It's about retaining our intellectual property, our 'secrets' if you wish to call them that. Take Kevlar, for instance, which is no longer protected and people are using it for everything. We still use it for cones: we're known for it and it's the skill with which you use it – how you dope the cone and suchlike – that gets the results. It's taken us years to discover how to use it to its best advantage and we're not going to give away that knowledge of the processes involved in making it into a drive unit.

HFC: You've just raised the price on the Nautilus and sales have rocketed?

CH: The price of the Nautilus hadn't changed since we launched it 15 years ago. We don't normally put our prices up, but when you have a model with such longevity there comes a time when you're forced to. Sales have increased over the past three to four years and there's now a 12-month waiting list for them. We recently sold two

into it if we'd tried. Apart from the sound it produces, it also enables people to operate their iPod the way they would if it weren't in a dock, unlike most which force the user to produced and dab at it

In the past year, as well as coming up with the Zeppelin, we've re-launched the 600 series, launched the Signature Diamond, and we've been working with Jaguar. We've addressed the whole range of audio disciplines and covered loudspeakers from automotive to entry-level to limited-edition flagships. It's been a fascinating twelve months.

HFC: Am speakers such as the Signatum Diamond a solid sales proposition or something you build essentially to show off your capationizes?

CH: We don't build products just to wave a flag. every product we manufacture is designed to sell. The Kenneth Grange designed Signature Diamonds were supposed to celebrate our 40th anniversary, but they were late arriving. The intention was to make the best two-way loudspeaker we could and to make it look unique. It is a limited-edition model, which is a first for the company. I would have preferred it not to have been a limited run, because I think it had great potential and is a truly stunning product. Perhaps in the future we might produce a down-scaled version of it.

HFC: What new product can we expect next from Bowers & Wilkins?

AN: We don't like to talk about new products until they're available, but let's just say that the Zeppelin probably won't be the only product in that category that we manufacture and, of course, we'll be continuing the development of our core products – wooden-cabinet loudspeakers. In-wall and in-ceiling models will continue to develop as will home cinema systems such as our CTM range, which is designed so that the user can construct the listening space around the speakers, which are incorporated into the fabric of the room.

CH: The biggest thing will likely be wi-fi. We've

CH: The biggest thing will likely be wi-fi. We've been looking at it for some time while waiting for this eight-channel chip, which is pretty secure. We have that now and we're just getting the final product to work perfectly. It's been in development for a year and a half because although it's an easy thing to do on paper, it's a different matter in practice.

AN: Basically, we're looking at any area where people might want to use a loudspeaker and doing it the Bowers & Wilkins way, which means properly.

Andy and Chris suddenly realise just how pompous that last statement sounded and collapse in fits of laughter, effectively bringing to a close what has been a fascinating and enlightening conversation.

"In the past year, as well as coming up with the Zeppelin, we've relaunched the 600 series, and we've been working with Jaguar."

the drive units and all the cabinets, which is unusual: most brands would make the drivers and import the cabinets or do the reverse. Doing both enables us to use simpler crossovers and makes the tuning of the driver and cabinet a much more precise and consistent process.

We also make certain 'high-volume' products abroad (such as the 600 Series) which used to be made in Bradford, but is now made at our Chinese factory and not by some third-party operation. And we shipped out to China, not only loads of machinery, but also people - all the line managers, for instance, who are all experienced and steeped in the Bowers & Wilkins culture. The 600 Series coming out of China is, in fact, probably better than the earlier British built models. We over engineer it so that nobody can say "Oh, production's been shipped to China and isn't it obvious." We made the move to China not to make the products more cheaply, but so that we could put more quality into them. The products are a little more expensive, but I think you'll find they're also significantly better.

HFC: Considering your wealth of resources, it's surprising that you don't do OEM work.

CH: Everything we do is exclusively for our use. We often get requests from people saying "Can we buy this?" and the answer is always the same: we only make drivers for ourselves. And that goes right back to day one at Bowers &

pairs to an Irish customer who wanted them finished in pink. Because every Nautilus is built individually from scratch, that wasn't a problem. We don't really advertise the fact, but we can finish them in any colour the customer wants, which is only fair when they're spending £44,000 a pair!

HFC: The 6399 Zeppelin iPod docking system

AN: The brand has grown so much over the past 40 years and, if we're to continue, we have to embrace new technologies. Of course, the iPod has come along and is probably the biggest single thing that's ever to happened to music. You ignore it at your peril, because no matter how long or short-lived it proves to be, it is certainly going to be around for the foreseeable future.

We wanted to come up with something for iPod users and there's already a wealth of docks available. But we felt that most manufacturers had missed the point about what the iPod is: it's a smart device that looks good and is easy to operate and it sounds very good to people who are probably getting into music for the first time. So sound quality came first for us when we developed Zeppelin and it had to follow the rules we apply to all our other products. There's a huge amount of technology in it: Nautilus tube tweeters, carbon fibre cones... we couldn't have packed more





MEGALINE
EUPHONIA
- HELICON 400 MK2
MENTOR
IKON
CONCEPT

0

THE NEW DALI HELICON 400 MK2

Hybrid tweeter module \mid 2 x 6.5" driver Bi-wiring terminal \mid 42-30,000 Hz H1026 x W267 x D501 mm \mid 32.0 kg

FEATURES

- 2,5-way floor-stander with optional spikes included
- New terminals
- Matched real wood veneer in high-gloss Rosewood or Cherry finish
- Available as 7.1 system

"While this speaker's alluring good looks might make even a super model green with envy, its sound is better still."

The Absolute Sound

DALI.

audiofile .::

⊘ COMPETITION

A Pure Sound A30 valve amplifier worth £1,100!



The perfect combination of UK design skills and Chinese production values, the Pure Sound A30 integrated valve amplifier brings high-end valve amplification at a real-world price. The three-input amplifier delivers pure Class A sound throughout and features two pairs of Electro Harmonix 6550 output valves to deliver 30 watts of sumptuous power. Uniquely for an amplifier in this price range, the A30 uses valves in the rectifier stage and sports a large choke... essentially the old fashioned – and thoroughly right – way of doing things. When we tested the Pure Sound A30 in *HFC* 298, we thought it had a "sensational sound quality, the like of which you'll struggle to find at anything like this price elsewhere." Used with speakers of 88dB efficiency or more, it delivers a sound that is extremely accurate and not as 'valve-like' as many modern valve designs. In short, it's the amp to go for and can be yours for the cost of a phone call.

For your chance to win, either: (a) call **0906** 5852156 and follow the instructions, leaving your selected answer (A, B or C) and your details where prompted or (b) send the letter of your selected answer (A, B or C) by email, including your name, address and a daytime telephone contact number to: hificomp@futurenet.co.uk

QUESTION:

The 6550 output valves in the Pure Sound A30 are made by...

A: Astro Dynamix B: Steve Austin Bionix C: Electro Harmonix

TERMS AND CONDITIONS

Answers must be received between 7 February and 5 March 2008. The winner will be selected at random from all correct entities received between the relevant dates and will receive a Pure Sound A30 integrated amplifier free of charge. Each winner will be notified within 28 days of the dosing date and will be required to give details of a delivery address in the UK to which the headphones should be sent. Telephone calls will be charged at 60p per minute.

By taking part in a Competition, you agree to be bound by the Competition falles, which are summarised below but can be viewed in full at www.futurent.com./ futurenolline/competitioninules.asp: tate or incomplete entries will be disqualified. Anot of posting (if relevant) shall not be deemed prior of delivery. Entries must be submitted by an individual first via any agency or similar and, unless otherwise stated, are limited to one per household. The Company reserves the right in its sole discretion to substitute any prize with cash or a prize of comparable value. Unless otherwise stated, the Competition in or other households by entering a Competition and for promotional purpose. All entries will become the property of the Company upon receipt and will not be returned. You warrent that the Competition and for promotional purpose, all entries will become the property of the Company upon receipt and will not be returned. You warrent that the Competition and receipt you of any prize is conditional upon you complying with (amongst other things) the Competition Rules. You as knowledge and agree that neither the Company nor any associated third parties shall have any liability to you in connection with your use and/or possession of your prize.

CHOICECUTS

This month's varied musical morsels

Reviews by Alvin Gold, Jason Kennedy, Dave Oliver, Mark Prendergast, Phil Strongman and Nigel Williamson

AUDIOPHILE VINYL



BILL WITHERS

Just As I Am

Sussex Records/Speakers Corner 180g vinyl Music: Withers is one of those artists that sounds good on his *Greatest Hits*, but comes into a league of his own on a gorgeous vinyl pressing like this. His 1971 debut contains one mega-hit in *Ain't No Sunshine* and several minor ones, but there isn't a bad track among 'em and some of the lesser known ones are real gems. Withers was such a natural songwriter that this material seems as relevant today as ever.

Sound: A superb pressing with all the warmth and soul that was laid down in

Music Sound

the studio. JK





CHARLES MINGUS AND HIS JAZZ GROUPS

Mingus Dynasty

Columbia/Purepleasure 180g vinyl
Music: By 1959 Mingus was at the
top of his game and this raucous,
wild and energetic album reveals
both great confidence and remarkable
compositional skills. Arguably the Duke
Ellington of small band jazz, he could
get his musicians to play in a chaotic
but cohesive fashion that produced an
end result totally his own.
Sound: PP has spread this over four
sides thus giving it room to breath and
reveal outstanding dynamics and plenty
of tape hiss, but it's a whole lot more
fun than the CD. JK

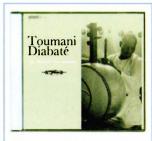




These LPs were supplied by Pure Pleasure and Sundazed.

www.purepleasurerecords.com

COMPACT DISC & VINYL



TOUMANI DIABATE

The Mande Variations Time Radio

Hour World Circuit

Music: After his Grammy-winning triumph with the late Ali Farka Toure, comes a different kind of album from the Malian kora maestro. In fact, Mande Variations is probably quite unlike any African album you've ever heard. You certainly can't dance to it and if the title was chosen to echo Bach's Goldberg Variations, then the reference is entirely fitting for the eight long instrumental tracks have a supremely classical feel

Sound: Serene, meditative and courtly, Diabate's kora is heard without any other accompaniment and out-classes Sting's lute album by a classical mile. *NW*

Music Sound





VAUGHAN WILLIAMS

Symphony No 2 'London', The Wasps overture

Bournemouth SO, Kees Bakels (cond) Naxos 8.550734

Music: This is quintessentially
English music, played here in a
thoroughly idiomatic way. Kees
Bakel delivers a recording that is
powerful yet disciplined, with some
beautiful phrasing in moments
of exuberant orchestration
interspersed with moments of
near stasis.

Sound: The BSO's customary base (the Poole Arts Centre) turns out to have a rather good acoustic. The well defined internal mood marks this performance out from some lesser examples, but then the BSO has long been world-class band. AG

Music Sound





THE BONGOLIAN

Outer Bongolia Blow Up Music: The Bongolian is actually Nasser Bouzida, and this, his second solo stab, is subtitled 'a psychedelic trip'. And that's a far enough appraisal for an album that could almost have been cut between 1966 and 1970 - we said 'almost' because there's a nice streak of 21st Century originality coursing through this beguiling blend of post-mod beats, proto-synth riffs, uplifting tunes and wah-wah rhythms. Atmospheric and also, for those bored with the simplicities of house, a great party album. A trip well worth taking.

Sound. Superbly produced by Nass himself with a great final mix from Studio B's Nick Terry. *PS*

Music Sound





U2

The Joshua Tree Island/Universal Music: The album that brought U2 megastardom was recorded in and around Dublin in 1986, with the administrations of Brian Eno and Daniel Lanois Their 1987 album is still impressive, even if the Boxed Set spreads the idea to thinly.

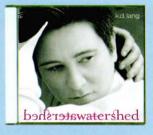
Sound: Supposedly remastered by the band themselves, the sound here differs little from the original. We can at last hear the bonus material like Deep In The Heart and

Music

subtle detail. MP



Beautiful Ghost in all their original



KD LANG

watershed Nonesuch

Mosic If you've found lang's music to be all surface and no depth, Watershed may well be the album to change your mind. Her first set of new songs in seven years boasts much of the familiar swooning sumptuousness of old. Yet, *Shadow And The Frame* and *Upstream* have a poetic ripeness we've not heard before. She's not the first artist to find her true voice in early middle-age, but Marianne Faithfull and Emmylou Harris are very good company to be in.

Sound Self-produced for the first time, the sparse rhythms, moody keyboards and subtle strings create a beguiling setting for the sweet caress of her luxuriant voice. NW

Music Sound





STEELY DAN

THIS MONTH'S CLASSIC HI-FI TEST DISC "..musical diamonds of incredible clarity and brilliance"

DEIGHNETTE

High-quality CD EC.M

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STEELY DAN Countdown To Ecstasy ABC

Music: 1973 was the year that Steely Dan really began to show the world what they could do and Countdown was the last Dan album that was largely played by the band. There are a few session players like Victor Feldman helping out but most of the music came from Fagan, Becker, Diaz, Baxter

and Hodder and all of it is supreme. Inevitably some tunes are even better, specifically Show Biz Kids and Your Gold Teeth, which reveal what incredibly gifted composers Becker and Fagan were. They combined syncopated jazz with the raw sound of rock and come up with musical diamonds of incredible

HIGH-QUALITY AUDIO

clarity and brilliance. Sound: This is a lovely warm and revealing analogue recording which warrants vinyl replay if you can manage it and vinyl reissue more than most. JK





of the fire that the band can deliver live, but it's an album well worth checking out nonetheless.

The overall sound is disappointingly thin though the mix is satisfyingly clear, if perhaps a touch bright. DO

*** ****



IMFLDA MAY

Love Tattoo Ambassador

This Irish-born, London-based rockabilly-esque singer has been around for a while, but her first album has been worth the wait. She's augmented her sound with some jazz flourishes, most noticeable in Dave Priseman's trumpet and Danny McCormack's smouldering piano arpeggios. Her voice is a fluid and feral thing, soft and sweet one minute, morphing into a banshee hellcat the next as she plays up to her leopard print bad girl persona The arrangements and playing are

perhaps a tad on the polite side, and might have benefited from a bit more



BEETHOVEN

Colin Davis (cond), London SO & Chorus

SACD (stereo/multichannel SACD plus stereo CD disc) Lso Live 0593

unlikely, but the applause certainly takes a while to find

its voice between the 13 jazz classics, including Honeysuckle Rose and a

Sound: Being a live recording you don't get the inky silences and carefully

created reverb of ECM fable, but you do get energy, dynamics and presence of a very high standard indeed. This high-quality disc is well worth a try. JK

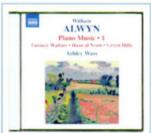
Music: Beethoven's only opera, this recording of Fidelio is light and airy, full of humour, more Mozartian (even, perhaps, more Italian than German) than the lugubrious performances that have been all too common in the past. The story is pretty overblown, with smatterings of the usual cross dressing, but this is a lithely performed Fidelio that comes up smelling of roses.

main hall, you're thankfully spared the tramping of performers rushing around the stage, and this perhaps helps account for the unusually squeaky clean sound in which even the smallest instrumental and vocal detail is cleanly articulated. The best Fidelio of the century so far, by a clear margin. AG



Sound: Based on a stage performance in the Barbican





WILLIAM ALWYN

Piano music 1

Ashley Wass (piano) Naxos 8.570415 Music: Here is an eclectic selection of William Alyn's oeuvre, which covers a broad range of moods and degrees of technical difficulty. The music comes from the world of Debussy, Rayel and Chopin, but although some of the individual pieces are rather bland, the overall musical quality is good. Sound: Antony Wass is an excellent pianist, who gives the impression of making light of even the most challenging passages and who is clearly technically accurate. The piano sound is warm, though the acoustic is on the mushy side, by the standards of other recordings made in the same venue. AG





KYLIE

X Parlophone

Music: While she's been on extended sick leave everyone from Goldfrapp to Roisir, Murphy has been borrowing her gladrags and glitterball and now, after four years, Kylie wants them back. This time around she's gone for the full widescreen glitterball treatment, with the regal glam stomper of 2 Hearts, eclipsed by the icily euphoric dancefloor whirl of All I See, plus the fizz and sparkle of Cathy Dennis's Wow. Plenty of reasons to welcome Kylie back. Sound: The beats and electro disco rhythms have been buffed up to a glittering sheen, though there's something of a cold electronic chill on too many tracks. DO



BRITANNIA

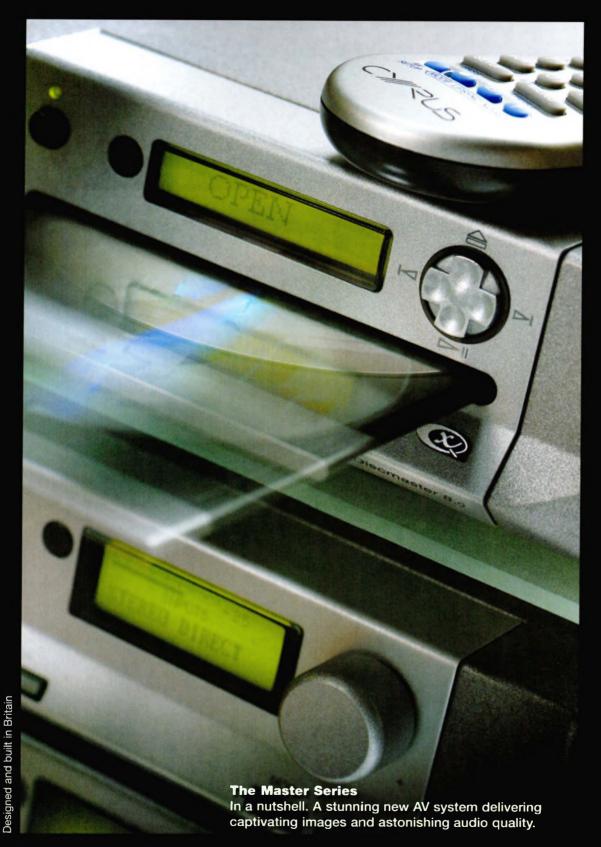
David Runnicles (cond), Atlanta SO

SACD (stereo/multichannel SACD plus stereo CD disc)

Music: Britain's rich tapestry is reflected to some extent in this eclectic mix led by Scots-born, US-based conductor Runnicles. Topped and tailed by sense of the traditional with a pair of Elgar's Pomp And Circumstance marches, there is also the Highland lyricism of Sir Peter Maxwell Davies' An Orkney Wedding, and Benjamin Britten's Sinfonia Da Requiem triptych. With James MacMillan's Britannia, an orchestral fantasy based on "patriotic

themes", this is an idiosyncratic, yet oddly compelling collection Sound: Beautifully paced throughout, this jumble of music is only really related by geography, yet it offers a thrilling taste of the variety of classical music which has emanated from these shores. DO





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SMALL IS BEAUTIFUL

Why is most high-end hi-fi so big? Technology is getting smaller and smaller, while hi-fi is getting bigger. With digital amps like the Flying Mole, it's now possible to squeeze a powerful amp into a very small box, but many companies still rely on big, old technology to make big, old amplifiers. Little wonder that Apple does so well with the iPod; it's small and cute. When you think that there are more

than 100 million iPods sold and how many people own big expensive hi-fi these days, the phrase 'bigger is better' just doesn't hold water anymore.

Don Chisholm via email

HFC It's a fair point that digital amplifiers have helped shrink the size of the chassis, but there are many that still find the sound of big, discrete Class A amplifiers

Above: The Audio Research LS26 and REF 110. One of the biggest – and finest – amps around

"Little wonder that Apple do so well with the iPod, it's small and cute."

better than Class D designs. And Class A – with all its attendant heatsinking – all takes up space.

Similarly, large full-range floorstanding loudspeakers are required if you want to hear music with a near natural sense of scale, volume and dynamic range. It's possible to get surprisingly close with smaller speaker systems, but something suffers... and usually that's accuracy. All of which means we reckon that big-fi is here to stay!

ANTIQUES ROADSHOW

Recently at a Carboot sale, I stumbled across a Quad QCI Control Unit/QUAD FMI and a Quad II monoblock, all in mint condition and full working order for an unbelievable £5 total!!!

I was wondering which modern loudspeaker design would do justice to this Mono FM Radio find.

Vaughan Warren via email

LETTER OF THE MONTH



THE END OF HD DVD!

For a brief period (until about 2004), I got all my music, my video and my software on CD and DVD. Email was for sending text files and the only things the internet was good for was porn and ordering books on Amazon. That's all changed... I recently upgraded my copy of Adobe Photoshop with an online download, and I noticed Linn's top of the range music player is designed to deal with digital music from a variety of sources, not simply disc-based music.

In the light of that, I don't think we will see a next generation of discs being developed

after HD DVD and Blu-ray. This is a shame, because I'd love to keep collecting good quality music and video on disc.

Jim Baxter via email

HFC You may well be right, Jim. However, this doesn't mean you need to stop buying discs. This magazine is printed on paper, a data carrier format that first appeared in 105AD. Despite its age and the fact that digital technologies have supposedly made it obsolete, people still buy books, magazines and newspapers. So, keep collecting those discs.



WIN CRYSTAL CABLE PICCOLO INTERCONNECTS!

2 020 8971 3909 ⊕ WWW.CRYSTALCABLE.COM

The author of our letter of the month receives a one-metre pair of Crystal Cable Connect Piccolo interconnects worth £260, featuring a silver/gold conductor with Kapton insulation, plus a transparent Teflon jacket. So get writing! (150 words max please...)

■ HFC Good bargain hunting, Vaughan. The 15W Quad II amplifier is remarkably good, even by today's standards (it's back in production, after a long absence). It's not that hard to partner up with today's speakers, although it can sound woolly with some bass drive units. You are best with efficient loudspeakers, as the amp was originally designed to work with efficient corner horns. However Heco and Triangle speakers (see this month's Ultimate Group Test) have both the efficiency and characteristics to be an ideal partner for the Quad amp.

A more worrying concern surrounds the life expectancy of the mains transformer in the Quad II. As you probably know, it drives the other units in the chain with the preamp and tuner working it particularly hard. Fortunately, we are talking about Quad and that means repairs are not beyond the bounds of possibility.

HYDRO-ELECTRICITY

In your article Understanding Power (HFC 301) you used plumbing as an excellent physical analogy.

I wonder if bi-amping has any effect on power? Using two water supplies on two different pipes would definitely give better output. Or does it affect speaker sensitivity?

Paul Van Wezemael via email

HFC Ask any professional argumentalist (such as a lawyer, a philosopher or that quy down the pub that seems to know everything about everything) and they'll happily tell you that an analogy is inherently weaker than the argument itself. This is because analogies break down when compared too closely to the original idea.

Bi-amping (using two identical amplifiers, one to drive the treble, one to drive the bass of a loudspeaker) delivers no more power output to the speaker terminals, nor does it have any influence over the sensitivity of

the loudspeakers. What it does is help prevent the bass signals from soaking up the lion's share of the energy and undermining the treble and midrange in the process. There are elegant arguments about back-EMF

"When the DVD action starts to flag and it's back to the music, the sound suffers greatly."

to the argument, but irrespective of these, anecdotally bi-amping does seem to improve the clarity of the midrange and treble and helps make the bass appear less ill-controlled and 'fat'.

FLOOD-FI

I regularly read your excellent magazine and would like to ask your advice on replacing my hi-fi, which I lost in the floods of June 2007.

I have a budget of about £2,500 and am looking to buy a stereo amp, CD player, turntable (I don't play a lot of vinyl though), DAB tuner, and stand-mounted speakers.

My thoughts would be a mix and match of something like this; a Pro-ject Genie Turntable, a Roksan Kandy L111 or Advance Acoustic MAP305DA11 Amplifier, either the Rega Apollo or Roksan Kandy MK 111 CD player. Denon TU-1800DAB Tuner, either B&W 685 or Epos M12.2 Speakers, Atacama Equinox audio stand, Partington Trophy or Custom Design SQ40Z speaker stands, all joined with QED Silver Anniversary XT cable.

I usually run my television through my hi-fi speakers, so I don't know if that makes any difference? Your advice or comments on some other mix would be very much appreciated. I will of course take some of my music with me to do the listening tests.

Malcolm Stephenson via email

HFC Your system sounds like it would be a good 'un. We'd suggest going for the Roksan Kandy amp and the Rega CD player, but we'd be hard-pressed to think of a better tuner for the money and the speakers are both exceptionally good designs. As to the turntable, we have yet to test this model, but Pro-ject models generally perform very well. We'd usually recommend a more up-market turntable to match your system, but as you don't listen to many records, this is a fine compromise.

DOESN'T SOUND PROPER?

No one seems to ask why the two-channel revival has happened. Here's my take on it people don't like the sound of digital signal processing, like Dolby Digital. I've heard many of these home cinema systems trying to make music and they all make a complete mess of it, whether two channels or more. When the DVD action starts to flag and it's back to the music, the sound suffers greatly. On the other hand, DVDs played through good stereo systems sound excellent. I run my DVD and TV through the stereo now. who needs DSP?

Stephan Crossman via email

HFC Well, there's DSP, and DSP. There seems to be a world of difference between the basic iteration used in cheaper home cinema receivers and the sort of systems used by the likes of Meridian and its peers. We also suspect the increase in interest in two-channel stems as much from those who cannot stomach putting five or seven speakers and a subwoofer in the room, as it is from those who genuinely prefer the sound of two-channel. Nevertheless, it's a good point and certainly one that the ultra-minimalist amplifier designers in hi-fi would agree with.

Below: Denon's AVC-A11XVA 7.1-channel amp





Understanding: DACS

Digital-to-Analogue Converters are making a comeback. Which is good news for the CD enthusiast.

t all began when Philips and Sony invented the Compact Disc and, coincidentally, made the first ever CD players. Other large-scale manufacturers soon got in on the act, with the know-how to countenance the very substantial learning curve in dealing with optical disc readout and the equally substantial licensing costs.

But because Philips and Sony had also built digital output into many of the early CD players, another possibility presented itself: the external Digital-to-Analogue Converter, or DAC. This still presented some interesting challenges to old-school audio electronics designers, but it did make digital products possible for small specialists of the audiophile persuasion. All of a sudden. the DAC was a popular upgrade for digital systems aspiring to sonic greatness. We've fond memories of DACs from company's such as Audio Alchemy, Musical Fidelity, DPA and PS Audio, (see review on page 56) one of the first manufacturers to introduce the market to an add-on DAC

For a while, a digital source was nothing if it didn't feature two boxes, transport and DAC separately. Then two things happened: designers and reviewers gradually realised that the digital interface in common use was inclined to introduce jitter and the process of developing a new one-box CD player became a lot more straightforward. This was also due to a higher level of integration in sub assemblies and a greater familiarity with the whole system. Apart from a few really high-end specialists like dCS, most manufacturers quietly dropped DACs from their line-up.

But, now they're back. It's not exactly a deluge, but there are a few models floating around above the £300 mark Circumstances have changed and many systems now feature more than one source.

as well as CD there's DVD (-V or -A), DAB and the ever-present home computer. Even though the CD player may well have a perfectly decent DAC built-in, DVD players are a notoriously variable breed when it comes to audio quality, computers more so and if the whole lot can be plumbed through one DAC (which will obviously need a few inputs, something they don't all have) it can end up simplifying a system as well as improving it.

WHAT'S IN A DAC?

A DAC receives a stream of digital data which normally represents both channels of a stereo system and turns it into two audio outputs. The most important part of the circuit is that which does the actual conversion from digital

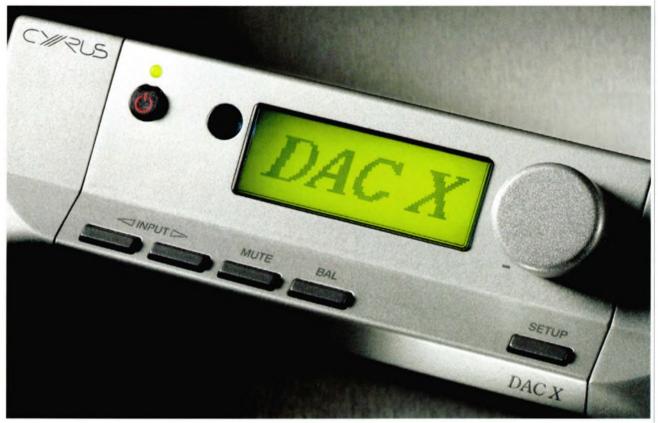
to analogue. That is often a purpose-made integrated circuit (also called a DAC) but can also be a general-purpose 'gate array' chip of some sort with suitable software, or an array of discrete transistors. The last approach is the one made famous by dCS with its 'Ring DAC', while Chord is one of the best known proponents of the second way. Purpose-made chips from familiar names such as Crystal, AKM, Wolfson and Analog Devices are pretty good these days and some of the specifications we've seen are extremely impressive.

But the 'actual' DAC is nothing without the other necessary bits of the circuit. The other critical part is the receiver – which sounds as if it does nothing but take the data in and perhaps, buffer it – usually looks after 'clock

"Apart from a few really high-end specialists like dCS, most manufacturers quietly dropped DACS from their line-up."



Understanding DACS [Feature]



Above: Cyrus' DAC -X-02

recovery'. It is of the utmost importance that the data is converted to an analogue signal at the right instant or jitter distortion will result (a regular 'clock' is needed to regulate this). If that clock is not locked to the incoming data stream, we're either going to run out of data or build up more than we can deal with, so in practice, its rate is derived from the data, but that's a tricky process fraught with pitfalls.

Actually, it is possible to use a free-running clock and a big enough buffer to allow for clock mismatch between source and DAC, on the assumption that both meet the normal accuracy specification of 0.01 per cent. Chord and, long ago, Technics have both done this and it works fine, as long as you don't mind a



Above: Chips with that? Cirrus Logic CS4344

two-second pause between pressing a button on the transport and the sound responding.

There's one other part of a DAC which is often, but not necessarily, part of the DAC chip: the digital filter. There will always be an analogue filter at the output as well, but all bar a tiny handful of DACs use digital

filtering of some form to reduce the amount of ultrasonic garbage coming out along with the analogue audio and this is basically oversampling or upsampling. At the same time, the number of bits used may be either decreased (which at higher sampling rates is possible without losing information) or increased.

Many modern DACs, for instance, upsample to 96kHz and at that stage feature a word-length of 24 bits to make doubly sure that no excess noise or distortion is introduced. On the other hand, the filter preceding the dCS Ring DAC oversamples by a factor of about 64, but reduces the number of bits to about five. Indeed, it's common for a DAC to include upsampling and oversampling.

Pros and cons? This is a lot like the argument over FETs versus bipolar transistors in arms.



[Feature] Understanding DACS

☼ The filter is certainly critical, but there is no reason why the purchaser of a DAC needs to know how it's done. There are, after all, many different ways of getting it right and likewise plenty of ways of getting it – or something else in the circuit – wrong.

Of course, every DAC also includes a power supply and audio output stages. Both important in determining overall sound, while many offer digital or analogue volume control and occasionally, additional features such as absolute phase reversal. The success of the overall product, as always, depends on how good each of these internal parts is and on how well they are integrated together.

THE ULTIMATE UPGRADE?

Is a DAC the perfect upgrade for a CD player of indifferent performance? Not necessarily. Bear in mind that the most likely component of the ensemble to fail is the laser in the player, so having added a DAC you may be looking for a new transport sooner than you'd like. But in terms of performance, a really good DAC can indeed lift the capabilities of almost any player or old transport. One of the ironies of DACs is that the top models have the best immunity to incoming jitter and, therefore, the greatest tolerance of relatively poor transports. We've had extensive experience of dCS's £9,500



hand, the MPEG2 data reduction process renders the advantages of a slightly better DAC considerably less obvious. That's equally true of MP3 sources, but most of those (particularly computers – few other MP3 players have a digital output, after all) feature a relatively poor internal DAC, so improvements can be well worth making.

As for DVD and SACD, DACs are not always applicable. You won't be able to get a full-spec data stream off most high-resolution discs, but if you do the results (with a good DAC) can be impressive. You can also play games by converting PCM to DSD or the reverse, but don't ever be misled into thinking that this kind of thing increases the resolution of the

which make the most of digital signal processing for crossover and driver compensation.

Active loudspeakers have never entirely caught on, but we're enthusiastic about the idea, having heard some quite stunning results from recent Meridians. There's clearly a future for that and indeed for the multi-input DAC as a key component in future digital systems. It may have had some dark days, but the DAC currently seems to be a component with plenty to look forward to!

Richard Black

"In terms of performance, a really good DAC can indeed lift the capabilities of almost any CD player or old transport."

Elgar DAC, and it really doesn't care whether it's fed from a similarly-priced transport or a £150 CD player of 1990s vintage.

That kind of set-up is not common in practice and most folks will be spending hundreds rather than thousands on a DAC, in which case the chances are that the transport will have more effect. Even so, the sound may be noticeably altered, probably for the better

MP3, DAB AND HIGH-RESOLUTION

We've had very limited success upgrading DAB tuners with an external DAC. Most hi-fi DAB tuners include a good-quality DAC chip, while on the other recording, any more than upampling does with CDs. At best, it's just a slightly better approximation to ideal D-A conversion.

TO STAND ALONE, OR NOT?

On the whole, most of the DACs we see are standalone items which connect on the output side to an amplifier. But why not put a DAC in an amplifier? Heck, why not put both DAC and amplifier in a loudspeaker? Both have been done and while the former tends to be the preserve of home cinema amps/receivers, the latter category includes some very high-end models from Meridian. For instance, full-on

DACS ENTERTAINMENT

RECOMMENDED FOR ALL BUDGETS:

Chord Electronics' DAC 64 £2,335 (HFC 237)

Legendary build quality and high levels of engineering wizardry combine.

dCS Scarlatti (DAC)

£12,000 (The Collection 2007)

Ring-DAC-equipped high-end device to compliment the Scarlatti system.

Russ Andrews DAC-1 USB £600 (HFC 289)

Compact DAC that's something of a bargain with superb results for the cash.

Accustic Arts TUBE-DAC II £5,000 (*HFC* 304)

One of the newest DACs to hit the streets, the TUBE-DAC II is worth every penny. See our full review on p48.





Sprezzatura

Famous for his 'Il Libro Del Cortegiano' (The Book of the Courtier, 1528), Renaissance humanist Baldesar Castiglione coined the word 'sprezzatura' to describe the ideal for courtly behaviour. He insisted that in order to be worthy, exceptional virtuosity should be conveyed with an unaffected, effortless dignity. In essence, sprezzatura is the art of making something difficult look easy.

Created from the finest materials and complex technologies, our superlative Platinum loudspeakers are a sophisticated blend of craftsmanship and science, making music so gracefully that it sounds naturally effortless.



No compromise Desktop Audio

"It was the full-bodied character of the sound that impressed... gives a highly plausible, almost tangible, impression of live performers in real space."



Hi Fi Choice magazine, February 2008



Solid build quality, premium audio components and featuring a Russ Andrews designed power supply, the Russ Andrews HP-1 is a highly effective neadphone amp which doubles as a simple, two input preamp. The Russ Andrews PA-1 is a matching 50 watt power amp, again featuring a Russ Andrews designed power supply. Small and compact, coupled with a PC or Mac they make a stunning desktop audio system. And

thanks to their award-winning sound quality, they form the heart of a highly-capable main system in their own right.

Audition the HP-1 and PA-1 in the comfort of your own home with our 14 day equipment Home Trial, or see and hear them at the Russ Andrews workshops at Sound and Vision: The Bristol Show.

For more information go to www.russandrews.com/equipment



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To request your copy of our FREE catalogue which is packed with tips, advice and unique products designed to get the very best from your Hi-Fi or Home Cinema, and a free copy of our customer magazine Connected to Music and Movies, go to www.russandrews.com/catalogue or call us on 0845 345 1550







REVIEWS

Welcome to the HFC hardware reviews section – the only place for definitive tests of the latest hi-fi components. Our unique combination of extensive listening, unsighted comparisons and scientific lab reports, conducted by the UK's most experienced set of reviewers, ensures you're holding the most comprehensive and reliable guide to high-performance hi-fi in the world.



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OUR RATINGS EXPLAINED

Star ratings for various different criteria, like sound quality and value for money

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bare uns wur waranz's 1800 playe; the 17 Mkil M, which has excellent build and e a very good impression in HFC 243. At same price there's also the Cyrus 7. a ng all-rounder in a compact case. 'er trying the Heart with the standard s we switched over to the Siemens yr de, a comp inso somewhat muddied by ef fact that it was a cold for hot swap — the fact that it was a cold for hot swap — the

ne fact that it was a cold for hot swap – the

w tubes shone
"frough. The Siemens-equipped pl yer has ar
in snappier sound with better timing that
es with dense material with remarkable
fidence and ease. It even seems to be

You can find more civilised pl yers for the money. But few combine dynamics with fine timing skills as effectively as this. **HFC**

SOUND

Good build and open, lively sound from a valve DAC with sound from money.

COM

BUILD

MAC doesn't engage as well the transport with loss of weight and power the ugo by the valve DAC with sound from the valve DAC with s

NONCLUSION

NOVAICE ACOUSTIC is being very ambitious producing a two-box player of this build quality and price. Something just his give and it is the DAC, which can't do justice to the transport's efforts.

VERALL SCORE

The things we like most about the product

The things we think could be better

The product's final score. All criteria are taken into account but the emphasis is on performance. Components scoring more than four stars may qualify for an HFC Award Badge

OUR AWARD BADGES EXPLAINED





Buy Editor's Choi

HI-FI

A component receiving the coveted *Hi-Fi Choice* Best Buy Badge has been judged to deliver excellent performance at its price point, thereby offering outstanding value for money.

This Badge is awarded only to those components that are judged to deliver reference-standard performance, regardless of cost. These products may be considered among the very best of their kind.

Turn the page for the most rigorous tests of serious hi-fi in the business...



Premium product

Marantz's new Premium series components are the stuff of Legend

PRODUCT Marantz Premium SA-11S2; SC-11S1; SM-11S1

TYPE CD/SACD player; preamplifier; power amplifier

PRICE £2 500 (each)

KEY FEATURES (SA-11S2) Size (WxHxD): 44x12x 41cm Weight: 16.5kg Stereo-only player compatible with CD, SACD, CD-R/RW Can use external third-party clocks 1x, 2x and 4x (ie up to 176kHz)

- Separate switchable output filters for CD and SACD
- (SC-11S1) Size (WxHxD): 44x12x41cm Weight: 16.0kg
 Extensive internal shielding and anti-vibration measures Inputs two balanced, three single-ended inputs MM/MC input
- Rear panel link to SC-11S1 for simultaneous power up/shutdown (SM-11S1) Size (WxHxD): 44x16x43cm Weight: 26.6kg Rated power 220 watts into 8 ohms, 420 watts (mono in BTL mode)

Inputs: balanced and single-ended

CONTACT ☎ 01753 680868 @ www.marantz.com

he SA-11 series was first launched in S1 guise as the ultimate expression of Marantz's art and craft, but since then has been superseded in this role by the 'Legendary' (sic) series that has already been explored in our pages (HFC 297). But there is more than a coincidental degree of commonality in the two ranges. Clearly they look similar – indeed the two disc spinners are hard to distinguish at first glance. To put some flesh on the bones, the SA-11S2 is basically an updated SA-11S1 or, a simplified version of the SA-7S1 (the £5,000 flagship CD/SACD player which is one of our all-time favourites). The pre and power amplifiers in this month's review plug the yawning chasm between the Marantz £15k Legendary SC-7S2 preamp and MA-95 monoblocks, and the £2k PM-11S1 integrated amplifier. Despite the visual similarity, there are considerable differences as the pricing disparity implies.

The Premium series components are intended to embody as much of the Legendary series engineering as possible, within much tighter price constraints. But there are fundamental differences; while the Legendary series amplifier is fully balanced internally, the Reference series amp is not. The preamp (or control amp in Marantz-speak) does have balanced in and outputs and the power amp also has balanced inputs as well as the usual single ended connections. But inside each component, the audio streams are converted to single-ended and processed in this form. The benefits of balanced mode operation common mode noise rejection - remain available in the circuits outside the amplifier, Internally, however, the audio must

circumnavigate the extra circuitry balanced to unbalanced (and complementary unbalanced to balanced) converters.

The SA-11S2 is a direct replacement for the SA-11S1 and uses as much of the technology from the SA-7S1 as cost constraints allow.

It is a two channel only player which uses the new tray module (SACDM-1) developed originally for the SA-751, though for cost

control amp and the power amp) draw inspiration and some technology from their counterparts in the Legendary series, but that both are totally new designs.

The SC-11S1 and SM-11S1 can also be operated in unison, effectively as a single component, using a remote trigger signal to link the two. The SC-11S1 includes a new HDAM (Hyper Dynamic Output Module)

"...the control amp and the power amp, draw inspiration and some technology from their counterparts in the Legendary series."

reasons, the digital isolators from that model are not carried over. In this single component the circuitry is fully balanced internally and includes Marantz proprietary phase error compensation and two four-channel Seiko hybrid DSD/PCM SM5866AS D/A converters. There is also an input for an external digital clock, an unusual refinement and one we weren't able to try (as it is for third-party clocks). The three output filters from the

SA-7S1 are available, as well as the same measures to suppress group delay and out of band noise. The analogue audio circuits are the same as their counterparts in the SA-7S1. The manufacturer is at pains to point out that the SC-11S1 and the SM-11S1 (respectively the

discrete operational amplifier. Known as the HDAM SA3, it's a complementary cascode push-pull circuit, which uses high-precision surface mount metal film resistors to minimise the signal path lengths, as well as offering improved bandwidth (speed) and relative insensitivity to operating temperature changes. The design also includes a new internal phono module in which novel measures have been introduced to eliminate the differences in sound between the LF and the HF legs of the circuit, which are normally introduced by the asymmetric nature of the NFB equalisation networks. Volume control is handled by a Wolfson WM8816 variable gain amp, which features unusually low noise and distortion.



Q&A

We discussed some of the salient design points with Ken Ishiwata, Marantz's Brand Ambassador, who is also credited with fine-tuning the Premium products.



HFC What is the ethos

what we wanted.

behind the new additions to the Premium series? KI We wanted to produce a system for those who wanted something clearly better than the relatively affordable PM-11 integrated amplifier and SA-11S1 player, without costing anything like as much as the Legendary series models. This for us, is still a high-end package, but clearly cost constrained,

How do these components relate to the Legendary series technically?

which meant we had to work hard to achieve

The general answer is that we used as much of the Legendary series technology as we could, consistent with price. Highlights include using the same high-performance mechanism we developed for the SA-7S1. But some elements have been improved further: the new wider bandwidth series three version of the discrete HDAM op-amp, for example

Can you explain the differences here, and the benefits of the new HDAM?

HDAM S3 was designed for a higher operating frequency range to improve performance on SACD, in particular and the SD3 is used extensively in these new components. HDAM S3 operates at above 100MHz, S2 was limited to about 80MHz, though it is the quality of the components, combined with shorter signal paths, that are mostly responsible for the better performance. A lot of effort has also gone into such important details as the windings of the power transformers and as noted above, in minimising signal path lengths, with a negligible impact on noise performance.

We have also included a really nice MM/MC-compatible phono stage, in which we have taken special care to make sure performance

doesn't vary significantly with frequency, due to the RIAA correction circuit and the reduced dependence on negative feedback to define performance levels. Our current amplifier configuration has allowed us to provide a very simple, elegant way of bridging the output, which wasn't possible with the 7 series, and the new opamps are designed to have the speed to cope

What compromises are involved to keep prices in check?

The most obvious one is that, although we are still offering balanced mode interfaces, the internal circuitry is single ended.



■ A resolution of 0.5dB or better from 0 to -100dB, has click-free operation and an acceleration detection which allows rapid level changes when called for. The headphone amp is balanced and includes a dedicated power amp. A special bi-amp mode is available to drive the preamp as a mono unit, which allows use of additional power amplifiers for biamplified operation, or to help build 5.1 or 7.1 channel amplifiers using additional channels of power amplification. The power supply is a typically high-end design, featuring Schottkey barrier rectifier diodes and custom capacitors, as well as an aluminium encapsulated torroidal transformer.

The SM-11S12 power amplifier embodies many of the same points as the preamp, including the HDAM SA3 discrete Hyper Dynamic Output Module, which Marantz claims is its best yet, and a two-stage amplifier circuit that minimises the effect of back EMF from the speakers – a consistent theme of the design. The current feedback voltage amp, which is the first stage of the amp, is the same

as in the Legendary MA-9S2, with the HDAM mods providing balanced to unbalanced conversion. All three units make extensive use of high-quality, customised components, new 5mm thick aluminium top covers and extensive screening and mechanical damping. Power output is 110 watts into 8 Ohms, doubling into 4 Ohms, or 420 watts into 8 Ohms (mono, in BTL mode). That's 420 watts a side, with the amplifier complement doubled-up.

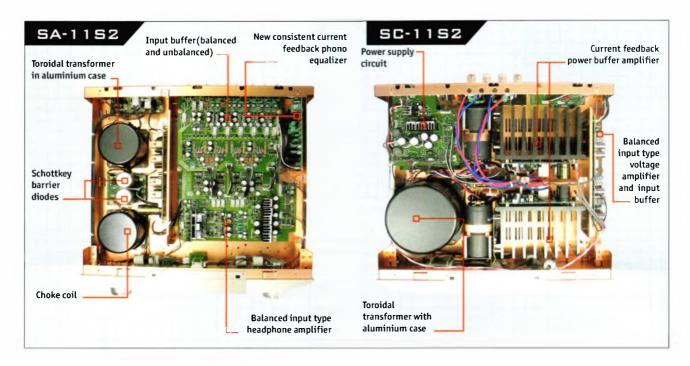
SOUND QUALITY

If we are safe in assuming that what goes into a product has a lot to say about what comes out, this threesome is an absolute winner. There is no gainsaying that the Marantz combination is a joy to use, with few of the usual restrictions. For example, the disc player's display can be safely left switched on with no worries about it polluting the sound. The balanced option makes very little, if any discernable difference to the sound. The only differences we could detect might be attributable to cable differences, though

Marantz would probably admit that it's a case of levelling down rather than up. The design of the amplifier is, after all, fundamentally single-ended on both operating modes. But Marantz has done well to conceal the fact with excellent internal engineering, specifically the newly improved HDAM modules which power the single ended/balanced conversion and vice versa.

In short, if the Marantz was a car, it would be somewhere on the Lexus/Bentley axis and not – due to the amplifier lacking the necessary reflexes and power – in Porsche or Ferrari territory. There are occasions, however, when you'll be surprised at its turn of speed or, in the audio equivalent, the resolving power and authority it can muster. Nothing ugly ever





seems to emanate from the speakers, unless the recording is truly awful. There is a hint of something special about the sound, giving an effect of polish and grace and of excellent analysis and instrumental separation too. But at 'loud levels' the sound does collapse, like an amplifier whose innards are fit to bust because the volume has been set far too high

It's also not that easy to distinguish the three components from each other. If forced to make a decision, we would describe the disc player as particularly impressive, partly because it doesn't contradict what we recall of the Marantz SA-7S1 flagship (HFC 297). There is the same slightly relaxed gracefulness and the reassuring feeling that CD sound quality is almost on a par with that of SACD. It always manages to sound supremely poised and performs the difficult trick of coping with musical gear changes seamlessly. Perhaps this is the true benefit of being a two-channel-only player? Had it been multichannel for the same money, some greater compromises would surely have been inevitable. The CD/SACD player is a remarkably well balanced component. You have some ability to alter the sound using the various filter settings, but we generally preferred the first setting for CD and SACD alike, which we believe gives a more consistent and seamless result, but, of course, the character of your system could influence the results you get

But it's not easy to criticise the amplifier, either. Really good power amplifiers, of at least moderate loudness capability, are not exactly unknown at prices similar to the SM-1S1. It goes moderately loud before it begins to loose its grip and balance and you should find it copes happily in quite large rooms at realistic (ie, lifelike) volume levels with speakers of 86dB/watt sensitivity or better.

"...if the Marantz was a car, it would be somewhere on the Lexus/Bentley axis and not in Porsche or Ferrari territory."



There was certainly no lack of bottle driving this reviewer's reference Mordaunt-Short Performance 6 loudspeakers.

Even more impressive, however, is the SC-11S1 pre, sorry, control amp. A further correction: it was the combination of SC-1151 and the SA-11S2 that I found utterly bequiling There is something very special about these two line-level components. In fact the SC-11S1 is no mean phono step-up either. It does just what it says on the box: it's quiet and has the refinement and slightly understated passion that the Marantz brings to all its best components

The ne plus ultra combination we tried of the Marantz player and preamp driving a Denon AVC-A1XV integrated amp (though lower in power output) - acted as an effective proving ground. HFC

Alvin Gold







Acute as a button

After a quarter of a century as an analogue specialist, EAR/Yoshino goes digital

PRODUCT EAR/Yoshino Acute

TYPE CD player

PRICE £2,700

KEY FEATURES Size (WxHxD): 43 5x10x29cm

○ Weight: 10kg

○ Analogue outputs: XLR balanced, RCA phono

○ Analogue volume control

○ Valve output stage

CONTACT № 01223 208877 # www.ear-yoshino.com

t has been 25 years since the introduction of CD, but Tim de Paravicini, who runs EAR/Yoshino, has waited until now to make a CD player (even though demand from his distributor had risen to a fever pitch).

Tim's background is in analogue studios and he is clearly a man for whom only the best will do. He actually restores professional tape recorders, as well as making microphone amplifiers for the more discerning studios. He knows how good recorded sound can get and he also appreciates what can be done with viny, as the mighty EAR Disk Master turntable revealed to us (*HFC* 282).

And yet, being aware of the limitations of digital audio technology hasn't not stopped him from building the Acute – a really good CD player that's equipped with a very useful

onboard volume control via an Alps motorised potentiometer which, if turned up full, delivers a peak output of five volts. Apparently this massive voltage is available because it aligns with studio equipment where four volts is considered to be the norm. Fortunately, for those of us with more than one source to accommodate, setting the control at the one o'clock position delivers a peak output of two volts as per most fixed output players.

The Acute is based on an Arcam chipset which looks after the servo control and remote interface, the dull bits that you have to have





"Valves typically have quite high output impedances which makes them bad at driving long cables unaided."

and which, on this occasion, include track titling. Things get a bit more interesting after the Wolfson DAC, where Tim has introduced his own filtering with a discrete network. This avoids the traditional chip-based solutions usually found at this stage. The final output stage is valve powered, which is not surprising given EAR/Yoshino's predeliction for glass audio. In this case, there is a pair of PCC88s selected for their sound quality and longevity. Tim reckons this particular model should last a good three or four years.

After the valves, there are output transformers, unnecessary in a line-level product as there isn't the need to drive tough impedances as there is with valve power amplifiers, but they do provide a fully balanced output that will drive long cables. Given that the player has a volume control, it is also useful that it can be used with long interconnects as is the case where monoblock

power amps are placed next to speakers or active speakers are used. Valves typically have quite high output impedances which makes them bad at driving long cables unaided.

The only drawback with this arrangement is that the volume control cannot be bypassed, so in systems with more than one source the signal ends up going through two volume pots which is not ideal

Unlike most volume controllable CD players, this one gives no read-out of the level it's set at, rather there is a notch on the knob to give you some idea of likely level. This is OK unless you're a few metres away at the time. The remote handset has two foibles, you can't access tracks with double digits directly and there are system remote style input buttons that are not related to EAR/Yoshino components. It does, however, have a useful open/close button and the ability to defeat the gold-tinted display.

SOUND QUALITY

For a valve-powered device, the Acute has a richness and expansiveness that makes for gloriously realistic sounding instruments and voices. This is excellent news as some glass powered components sound big and lively, but have no power or gravitas.

As a past master at making low colouration valve amplifiers, Tim has managed to accentuate the good qualities of valves and keep the sound pretty neutral. One classic example is high sensitivity to micro dynamics the small changes in volume level that you get with all manner of instruments and voices, but are often hard to hear. The Acute's ability to track these variations contributes significantly to the sense of life in the audio. Acoustic sound sources seem to benefit the most. perhaps because there is more subtlety to their sound in the first place. Drums, therefore, have more depth, but things like reverb are well served on electric guitars. All of which makes Frank Zappa's Filthy Habits, a highly entertaining and engrossing experience, despite the music leaning towards shades of atonality in places.

Next to another valve-powered player at the lower price of £2,050 (the Ayon CD1), the

Q&A

We talked to EAR/ Yoshino founder and MD Tim de Paravicini about his Acute CD player.

HFC Why wait until now to produce a CD player?

JN The main reason

was due to people begging me to produce a machine which I thought that I could do slightly better than most. But I needed a kernel of a machine that could do the job well in the first place, such as the Arcam. I know that they can be relied on for continuity of supply



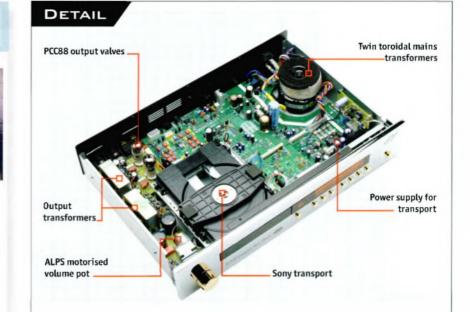
It has the Wolfson DAC which I think is the best in the business. My simple test was to use one of my old undithered test CDs and look at the quality of its output at very low levels and it beat the pants off everything I know. It was getting toward analogue quality, not quite but almost.

How did you make this an EAR/Yoshino product? I used my electronics with no other op-amps and secondly I used my own pure analogue high frequency filters rather than digital filters. These discrete filters have a pass band of 40kHz. What I wanted was to be able to measure a genuine 90dB plus signal to noise without any weighting because I have no high frequency crud in the output. It's manifestly obvious that high frequency crud does stress amplifiers and tweeters. I also wanted to have a proper balanced output configuration to studio standards, i.e. with transformers.

Why the high five volt output?

The reason for the 5V output is that I wanted to be able to drive directly any known power amp in the business. There are some power amps that need three or four volts to get them clipping. But when the volume control is at one o'clock the output is a standard 2V CD level.

How did you give it such an analogue sound? I wanted an accurate 20kHz bandwidth. I didn't want any artificial softening of the top to make it sound soft. It has to sound sweet by inherently producing as analogue a property as possible. There are some companies out there that tweak their responses to flavour them and that's cheating.



■ EAR delivers greater low-level resolution in the context of a more even midband, the latter serving to play down tape hiss and produce a result that could be enjoyed at higher levels without discomfort.

It also proves rather more effective at producing a convincing stereo image, placing Rickie Lee Jones clearly between the speakers and keeping the accompanying instruments in their own defined spaces.

The more expensive *HFC* Bronze Award winner Resolution Audio Opus 21 (£3,000) is a solid-state player that also excels in the dynamic domain and produces a more lively and slightly better defined result that is tighter in the bass. Playing a bit of the excellent Yo Miles disc *Upriver*, through both players and an accompanying power amplifier makes it clear that the Resolution is ahead in the all-important engagement stakes. By contrast the Acute majors on timbre and those who enjoy the woody sonority of a double bass or piano will thrill to the full rich sound it can extract from such instruments.

Taking the preamp out of our system certainly proved worthwhile in sonic terms. Few, if any preamps are totally transparent, but they usually help to produce a more powerful and dynamic sound because of limitations with volume controllable sources. The EAR doesn't have that sort of limitation, thanks to the transformer-backed balanced output, and

therefore, delivers a high-energy signal. This helps to give it excellent bass and to reproduce voices with considerable ease and realism. Pianos also seem to fare well, but you get the impression that the bass could be a little bit more extended, if not more fulsome. There is also a slight fragility to high notes which is hard to explain unless one of the valves has a fault

The Acute is quite modestly priced in the context of EAR/Yoshino's range, but it is a fine player in most respects. It is also one of the best glass-powered varieties we've had the pleasure of testing. It certainly revels in all those valve qualities that reach the parts that transistors cannot reach and those who appreciate tone colour and dynamics will find an awful lot to enjoy, we certainly did. **HFC**

Jason Kennedy





DEFINITIVE AUDIO



Main image: KSL Kondo Gakuon valve amplifiers.



L to R: 1. Kuzma Stabi XL 2. Art Audio Concerto Stereo Amplifier (GE) 3. Living Voice IBX R2 (Burr Oak) 4. SME 10 / SME V
5. Living Voice OBX RW (Santos) 6. KSL Kondo Ongaku Integrated Amplifier 7. Magnum Dynalab 106T Valve Tuner
8. KSL Kondo Gakuoh Mono Amplifiers 9. Resolution Audio Opus 21 CD Player 10. KSL Kondo V-z (1m) Interconnect



Pioneer's new SACD player irons out the wrinkles and cranks up the audio quality

PRODUCT Pioneer PD-D9

TYPE CD/SACD player

PRICE £600

KEY FEATURES Size (WxHxD): 42x11 3x34cm (inc lid).

O Weight: 10 5kg O Wolfson 24-bit/192kHz DAC.

O Format compatibility: CD, SACD, CD-R/RW, MP3, WMA O Digital outputs: coaxial, optical

CONTACT 20 01753 789789 # www.pioneer.co.uk

ioneer used to be a major player in the budget and mid-market with some scorching amplifiers, like the A400, and some equally impressive disc spinners with distinctive stable platter transports. Somewhere in the late nineties, however, the company was diverted by home cinema (not surprising given its early start in the plasma market) and it appeared to lose interest in two-channel audio. Last year it changed all that with an SACD player and two nicely built amplifiers. One of which, the A-A9, turned out to be quite a sonic star as well.

And now Pioneer introduce the similarly priced PD-D9, by far the industry giant's best ever audio player with high attention to detail

and quality of build. Rather than placing an attractive-looking facia in front of a pressed steel case, Pioneer has created a triple layer chassis for the D9 with top and side panels in aluminium and 'rigid underbase construction'. The front panel has the same two-piece styling (as the A-A9) and a badge to indicate that its sound has been tuned at the famous AIR studios. Pioneer UK product managers used to lend their ears for this purpose, but following a tie up with George Martin's converted church, the job is now handled by people who really know what they are listening for.

Inside the PD-D9 you will find twin Wolfson DACs: the same digital-to-analogue converter that EAR/Yoshino uses in its £2,700 Acute CD player (see review on p42). As the Pioneer is both a CD and SACD player, it has a version of this chip that avoids turning the DSD bitstream into CD-style PCM before conversion. The majority of affordable SACD players (and even some luxury models) compromise results with the high resolution format by converting it digitally prior to DA conversion. Essentially, what Pioneer has done is kept the signal path for SACD as straightforward as it is for CD.

The Wolfson converter upsamples CD's 16/44.1 data rate to 24/192 and you have the option of applying Pioneer's Legato Link processing to the signal. For maximum sonic bliss, one is encouraged to press the 'pure audio' mode button, this actually shuts down the digital output and defeats the backlit LCD, while illuminating a red LED on the front panel.

The quality of build is also apparent on the rear panel, where machined RCA phono sockets deliver digital and analogue signals. This is another distinctly high-end touch that you won't find with the competition. Whether it can actually improve sound quality is another question, but it certainly suggests that the machine should last. An area in which Pioneer already has a good track record. As well playing audiophile and regular formats, the PD-D9 can also deal with WMA and MP3 audio

SOUND QUALITY

Even in the context of a pretty revealing system the Pioneer is a very refined operator for its price. It has fine dynamics and good



"The quality of build is also apparent on the rear panel, where RCA phono sockets deliver digital and analogue signals."

detail resolution, but its presentation is remarkably effortless. One of our current favourite and similarly priced players is the Cambridge Azur 740C. It produces a dynamic and resolute sound that grips you from the off. However, when pitted against the Pioneer it sounds relatively crude because of its forward balance and the relative sophistication of the PD-D9. With some quieter material, the extra leading edge definition of the Cambridge helps to enliven things, but if the music has an energy of its own then the calming hand of the Pioneer wins the day. And that's not to say that it smoothes things out, it just doesn't add any extra zing of its own, but reproduces much of the life in the music itself.

Playing Robert Clasper's *In My Element* CD, the Pioneer delivers good scale, vitality and drive from the reasonably dense mix of piano, drums and bass. The image being placed a little in front of the speakers seems, perhaps, a shade foreshortened, but the sound has sufficient body and vitality to keep the listener engaged Switching to 'Pure Audio' mode removes a thin veil from the sound, revealing a little more sparkle in the higher notes and a shade more subtlety across the board.

The Legato switch has a similar effect but in reverse – the sound seeming to improve with it off. This may not be true for all music types. However, Pioneer

tells us that it can be particularly beneficial with poor recordings, so it will be well worth experimenting with it.

The purity of Rickie Lee Jones' vocals on the album *Spring Can Really Hang You Up The Most*, is quite startling. She may not have the greatest range, but more than makes up for this with sheer charm, all qualities that are clearly evident from the Pioneer. Again it reaches down into the mix and relays the fine details that give the voice and accompanying instruments their shape and full character.

Moving over to SACD with Helge Sunde's *Denado*, reveals a fulsome bottom end that has real weight to it. Something that the older Sony XA333ES completely failed to match and which made us wonder whether the Pioneer has a little bit of extra emphasis added to the bass to complement the type of system that it's likely to be partnered with. It could, of course, be that the far newer player, with its state-of-the-art DAC, is just able to extract more low end power, but there is something to be said for a little boost in the bass even if it's not the last word in accuracy.

Now for a more up-to-date and comparatively priced SACD player, namely the Denon DCD-1500AE (£500). Both have similar balances, great dynamics, remarkable tone quality and great timing in the context of limited image depth. If anything, the Denon has a slightly

less rich sound, there isn't quite as much shape to notes, but without an A/B comparison it would be very difficult to separate them. Which means that you are paying £100 for more solid build and slightly nicer styling on the Pioneer.

Another interesting result was heard when we hooked the Pioneer to a Townshend VSS. The sound really opens up, delivering more energy and low frequency welly. Denada was now sounding much closer to the result we'd get with significantly dearer players, which suggests that it takes more than a honeycomb based chassis to keep the ill effects of resonance at bay.

The PD-D9 is clearly a worthy partner for the excellent A-A9 and a contender for the crown in the sub-£1,000 disc player stakes, but this is a highly competitive sector and it's a long time until the next Hi-Fi Choice Awards. **HFC**

Jason Kennedy







DAC to the future

Accustic Arts' latest high-end DAC has a performance to match its credentials.

PRODUCT Accustic Arts TUBE-DAC II

TYPE Digital-to-analogue converter

PRICE £4,995

KEY FEATURES Size (WxHxD): 48x10x37.5cm ■ Weight: 12kg ■ Inputs: S/PDIF (BNC and phono), AES/EBU (XLR) Outputs: Balanced (XLR) and unbalanced (phono) audio, S/PDIF (phono) and AES/ EBU (XLR) digital • Input compatibility: 32, 44.1, 48kHz, up to 24-bit

CONTACT ☎ 01252 702705 ⊜ www.accusticarts.de

K, so the Accustic Arts' TUBE-DAC II is not the most expensive DAC in the world, but this little baby is hardly cheap. It only handles sampling rates, for example, up to 48kHz, so to most intents and purposes it is half of an exceptionally upmarket CD player, in partnership with the matching Drive I transport (£2,995).

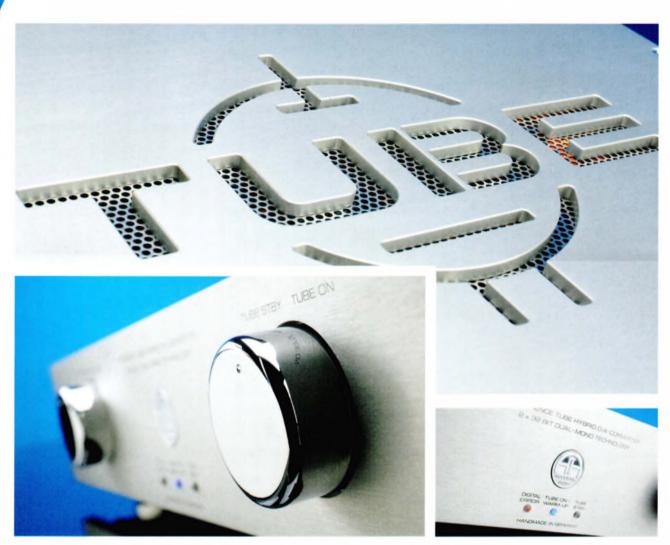
The company behind this assault on the highest peaks of CD replay is Schunk Audio Engineering, a German outfit offering amplifiers, loudspeakers and cables, alongside a top digital source like the TUBE-DAC, and a handful of very slightly less esoteric digital models.

Features in the TUBE-DAC include that well-known 21st-century amplifying device, the thermionic valve, in this case a pair of ECC83 triodes, which is a common enough sight in audio. Used here in a hybrid configuration (which as our own measurements were able to confirm) it differs in some ways from your average valve circuit.

But valves aren't that expensive and don't account for the price. A cost that's explained largely by three things, two of which we could see and one we could only read about. The case, made largely of thick aluminium panels is superb and there's a generous sprinkling of ultra-high-performance op-amps, to be precise ten type OPA627. The latter is one of those near-mythical audio components that outperforms standard parts in almost every way. And the part we read about? Accustic's own digital filter, with a 32-bit microprocessor for which great things are claimed.

The 32 bits sound good and so do many of the claims made for this bit of electronic trickery. Accustic doesn't call it a 'filter', just 'digital signal processing', and claims that it's





"We give Accustic Arts high marks in the elimination of jitter, with the audio output showing no trace of distortion."

considerably more elaborate than normal upsampling. That may be so, but as far as we can see it's doing a standard upsampling job, with just the same sort of response as most conventional up- or over-sampling players. Accustic makes much of the additional noise created by regular upsampling, but we've yet to see evidence of that. The firm also seems to imply that normal DACs share digital processing for both channels and so create a slight time delay between them. But we feel that problem (to the extent that it ever really was one) was laid to rest 20 years ago!

So in fact what we have here is a perfectly standard digital filter, one with a slightly sub-optimal performance that does not attenuate rapidly enough as frequency increases above 20kHz. This results in a small degree of aliasing in the output of the TUBE-DAC. Where we will give Accustic high marks is in the elimination of jitter, with the audio output showing no trace of distortion.

As one would certainly hope, everything about the construction of this unit is deluxe, from the very positive control switches to the uniformly high quality of components inside and their immaculate assembly to the circuit board. All the usual high-end touches are there: twin mains transformers, multiple regulated power supplies, nice connectors, even a 'Generalised Impedance Converter' a nifty circuit configuration for the final analogue filter. You get both unbalanced and balanced audio outputs and all three flavours of electrical digital input. It's also AES/EBU balanced, which is the preferred mode of connection to the Drive I. Digital outputs are a nice touch, too, facilitating connection of a recorder or remote DAC slaved to the TUBE-DAC's selected input

SOUND QUALITY

We expected some decent sounds from all this high-tech and weren't disappointed. It has all

the hallmarks of classic high-end kit, with excellent neutrality, effortless detail and almost tangible grip, authority and control. It is, of course, impeccably well-mannered and locks on very quickly to the incoming digital signal - whereas some high-end DACs can be confusingly slow.

One of the consistent features we've found across a range of upmarket CD players (and since we spent most of our time with the TUBE-DAC partnered to a Drive I, a CD player is effectively what we were testing) is the high degree of polish they bring to the sound, making cheaper players sound rough by comparison. This one is no exception, joining such company as Meridian and dCS in offering sounds that appear to belie their origin.

During the time that high-sampling-rate, high-bit audio has been slowly penetrating the market, CD recording and replay standards have risen making one question what all the high-res fuss is about. In the practical sense of the terms, this is high resolution. And, thanks to an otherwise uneventful Xmas, we had plenty of opportunity to listen at leisure to Accustic Arts' statement on digital replay and our respect remained high across a wide range of music and recordings.

Q&A

We recently spoke with Accustic Arts' CEO for Engineering, Research and Development; Martin Schunk, who revealed some of the secrets behind the TUBE-DAC II's success.



HFC What does the 32-bit digital filter achieve that conventional ones don't?

MS It is not only a digital filter but also a data collector. It collects digital data via the parallel multiplier network, achieving a high degree of accuracy. It also recognises CDs which have been recorded with emphasis, which is then digitally processed and embedded in the frequency correction, and it also emits the left and right channel simultaneously via two separate lines.

What are the advantages of using a GIC?

The intention is to suppress the high frequencies before any aliasing occurs. With 44.1 kHz sampling frequency not more than 22kHz can be transmitted. Higher frequencies evolve as aliasing. These frequencies are suppressed partly by the digital filter and the rest by the analogue filter. Due to this system configuration, which is not doing any over- or upsampling, less high frequency noise is generated. Upsampling can create noise at high frequencies.

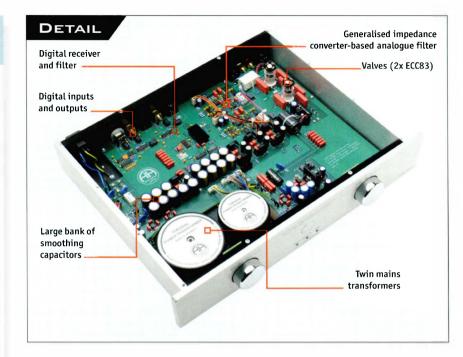
The GIC operates precisely in terms of frequency response – optimised in terms of phase and group delay – and keeps the internal resistance of the circuit constant at all frequencies. Therefore, the operational amplifiers are always working in their perfect operating range.

What precisely do the valves offer that transistors couldn't?

The characteristics of a tube are such that the resulting distortion is more harmonic. At the position of the filter where we use the tube it is superior to semiconductors as it has an extremely high input resistance and it is very fast.

Why was the decision made not to support 96kHz digital sources?

Only DVDs are 96kHz. The digital input receiver is located before the digital filter. It's a unique component and extremely good at its task. Other available digital input receivers on the market include additional functions, but also have significantly worse data and characteristics. It can process 28-52 kHz, therefore the sampling frequencies 32, 44.1 and 48kHz are supported.



▲ Among the many discs that we were able to audition on the TUBE-DAC was a newly made CD of operatic voice and piano, recorded so recently that the original sound was still fresh in our ears. The recording itself was excellent, that much was obvious from the most casual listen, but the real extent to which the tenor's high notes rang true was much more apparent via the TUBE-DAC than via

our resident (modest but capable) CD player. The human voice is such a familiar sound that any interference with its complex harmonic structure has a disproportionately large subjective effect, making it a good test of audio equipment. In this case, it was clear that both the recording and replay equipment had admirably discharged their function and the sound was less 'digital' than we were used to.

It's worth mentioning that, we tried playing the same recording from the hard disc of a computer, rather than from the CD in the Drive I. Computers are renowned for being a jittery source, but there was really very little difference between the two. Accustic Arts may not thank us for saying this, but the TUBE-DAC has very good rejection of incoming jitter and is therefore quite unfussy about the source.

Moving a world away to highly processed contemporary pop, the TUBE-DAC is similarly assured, unfazed by the multi-layered nature of studio productions. Rapid, funky synthesiser can prove a tough test for digital sources,

but again the result is confident, detailed, almost calm. Which can come as a bit of a shock if you're used to more coloured audio kit.

If there is anything to criticise, it's a very slight degree of hardness in the highest registers when reproducing instruments with an extended harmonic structure – a violin being perhaps the most critical. In such cases, the 'air' around the instrument is not quite so pure, the decay at the end of notes a touch less well-defined.

Overall, though, this is clearly a very capable DAC indeed, with plenty going for it sonically. and, in terms of ownership, it practically exudes class. This experience has certainly made us keen to visit other Accustic Arts products. And who knows what further treats lie in store? **HFC**

Richard Black







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Can Advance Acoustic inspire a two-box CD player revival?

PRODUCT Advance Acoustic MCD 403/MDA 503

TYPE CD transport and DAC

PRICE (MCD 403) £500; (MDA 503) £550

KEY FEATURES (CD transport) Size (WxHxD):
44x11x43cm ◆ Weight: 8kg ◆ (DAC) Size (WxHxD):
44x11x35cm ◆ Weight: 9.1 kg ◆ Digital outputs:
coaxial, optical, AES/EBU ◆ Digital inputs: 3x coaxial,
2x optical, plus AES/EBU ◆ Analogue outputs: balanced
XLR, RCA phono

dvance Acoustic (AA) is clearly committed to driving down the price of heavyweight hi-fi. With its first transport and DAC combo it has delivered a near-20kg CD player for little over a grand. If sound were measured by mass, this would represent a milestone. As things stand, though, weight does at least infer solidity of construction and that's something that these two boxes are clearly strong on.

At the dawn of high-end CD players, every company who wanted to be seen as a major contributor had a two-box transport and DAC (digital to analogue converter) at the top of its range. The theory being based on that which

encourages bigger amplifiers to be split into preamp and power amp cases. Separating out the noise producing disc reading part of the equation from the subtle conversion process, should enable the latter in particular to do a better job. You also end up with separate power supplies for each, which is a good thing, and you get to sell a bigger and thus more impressive looking player overall.

This approach went out of fashion, however, when it was discovered that 'jitter' (the arch enemy of good digital audio) usually increased when the signal had to travel from one box to another. A problem in the mid-nineties when hip brands started to make high-end single-box players. Of late, however, the standalone DAC, or amplifier with on-board DAC has seen a revival, and now one or two companies are putting a toe in the 'separate transport' water. This approach makes a great deal of sense, because it's now possible to re-clock the signal when it comes into the DAC. This means that jitter problems introduced by the division can be eliminated and the advantages of the approach more readily appreciated.

Advance Acoustic is a Franco-Chinese operation, which makes very substantial electronics for the asking price, and this new pairing is no different. Both of these components come in full-size casework supported by large aluminium spike feet. The display on the DAC appears to have been inspired by the Disney film Tron and is a shade extrovert, but it does, at least, tell you which input is selected. There are a few to choose from including two optical, three coax and one AES/EBU on an XLR connector. It should, therefore, be possible to run all your digital sources including DAB tuners and digiboxes through the DAC. Inside the casework there are two 24-bit/384kHz converter chips which can produce a balanced or single ended output from a valve powered output stage as is Advance Acoustic's style.

The MCD 403 transport is inevitably more straightforward with outputs that include AES/EBU. It has the ability to drive long (100m) interconnects, if used with an appropriate 1100hm twisted pair, shielded cable. A reflection of the build quality is the way that the drawer opens and closes in



"It should, therefore, be possible to run all your digital sources including DAB tuners and digiboxes through the DAC."

smooth fashion - we've seen players at twice the price that can't do this.

Probably due to the limited lifespan of the valves both units automatically power down over a period of time and the power lights turn from blue to red. They can be easily re-awakened by the remote handset, which covers all the usual functions.

As mentioned earlier, both units have large pointed feet, the sort that will mark a wooden surface, so AA has had the foresight to provide little metal and rubber receptors to cushion them. As we've found with previous AA components, these receptors also improve the sound when the unit is placed on a glass shelf, so don't leave them in the box.

SOUND QUALITY

The listening was done with a length of Trichord coaxial interconnect between transport and DAC (this an additional expense as AA don't actually supply any cables). We started out using the single ended outputs and found much to enjoy in the result, the pairing has one distinctly valve style quality in its tremendous sense of openness. Pretty well everything you play seems more spacious and offers up excellent details

of instrument timbre, including the way in which a drum is struck or a quitar plucked. The other side of this sonic coin is

that the bass is not quite as weighty or substantial as it is with solid state output stages, there's plenty of

kick in the bass, but it is easier to hear the reverberant character of the venue or studio than it is to feel it in your stomach

We wanted to see how the pairing compared with a standalone player of similar price but, in the absence of an exact price match, resorted to the Cambridge's Azur 840C, the top ranking £500 to £1,000 player from our 2007 Awards. There was no doubt that the 403 delivers more sparkle and life especially through the midrange. It also very accomplished with the tonal character of voices and instruments.

An older machine from Sony, the XA-333ES (£1,200), put forward a stronger case for the single-box cause. It has a calmer and smoother sound with a more precise sense of timing and more subtle dynamics.

You can't hear what the cymbals are doing quite as readily as the AA reveals, but it's a balance that will go louder with greater ease. Going over to the AA it becomes apparent that there is a subtle enlivening effect going on that emphasises any sense of spaciousness

in a recording and makes things

seem a bit more lively than is strictly the case. While there is little, if anything, in the way of

competition for the MCD 403 transport there are a few DACs on the market and one of the best is the little DAC-1 from Russ Andrews. £50 dearer than the MDA 503, it delivers more weight and power through the bass but hasn't the midrange vivacity.

The transport would, therefore, appear to be the best performer in this pairing, although the MDA 503 is a lively and revealing DAC in tonal terms it does not get to the heart of the music as well as one might hope. At this price level, it's debateable whether two boxes are going to be able to compete against single chassis designs. But the transport, however, is excellent value. HFC

Jason Kennedy





Totem Arro

It's our slimmest floor standing speaker, with a 4.5" sandwich cone woofer with dual magnet, and a soft dome tweeter tuned for low resonant frequency. Although this design is very slim, it produces an amazing - never expected - deep bass. The Arro can perform comfortably even near walls. As with other Totem models, the Arro's small lateral dimensions are a virtue, not a compromise. Its very smallness allows it to project a completely believable stereo image most large speakers are unable to replicate.

The Arro brings Totem quality to smaller rooms and smaller budgets. Yet it performs like a champion, as its narrow cabinet has the rigidity of an expensive stand. It has the firm monocoque chassis you expect from Totem, with interlocked mitred joints, and unique borosilicate damping. It also has a hard-wired crossover network with bypassed oil capacitors, and it can be bi-wired.



Five different finishes are available-four types of veneer: cherry, mahogany, maple and black ash and the fifth being a sublime white satin lacquer.

The standard added plinth with four spikes can be mounted by our specialists, although optional, using the unique Totem "Claw" with ball bearing to floor system will give even better results.

The name is evocative of the arrow, which echoes the tribal theme suggested by our name, Totem.

The shape of this stand also mirrors an arrow, long and slim. Like a fine quality arrow, it is, at once, noticeably light and extremely rigid. And it reaches its target...the heart of the music. Listen to it, and you'll conclude that Totem has hit another bullseye with the Arro.

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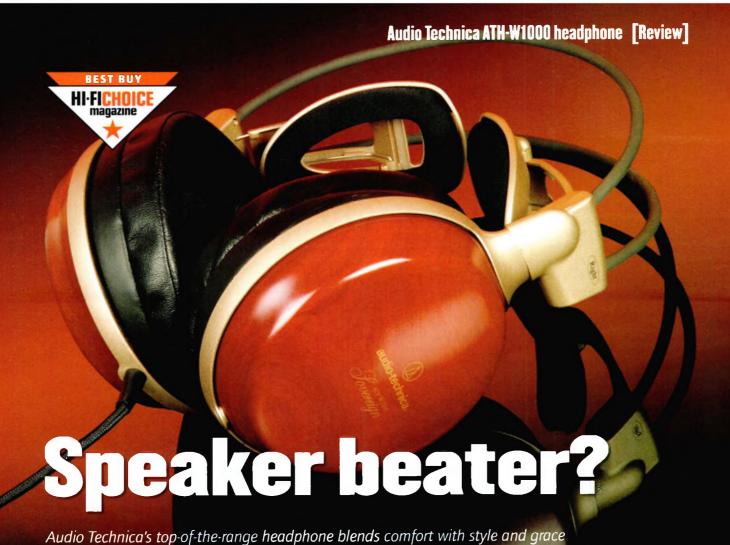
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PRODUCT Audio Technica ATH-W1000

TYPE Headphone

PRICE £400

CONTACT ☎ 0113 277 1441 # www.audio-technica.com

ttractively presented and beautifully finished, with real cherry-wood coloured earcups, the ATH-W1000 headphone features so many technical innovations that we hardly know where to start.

The most important part of any headphone, is the drive unit, so let's start there. 53mm in size, motive force comes from a voice coil wound with high-purity copper wire, moving in the gap of a neodymium magnet. It's unusual these days for a high-end headphone to have a closed back, but that's what surrounds the drivers in this model. The disadvantage of a closed back is that it creates a resonant chamber, which can seriously interfere with bass purity. But AT has invented something called a 'Double Air Damping System' which, it's claimed, can deal with the problem.

This is also one of the most comfortable headphones we've ever tested. The earpieces are incredibly soft and the self-adjusting wing support rests gently on the head. AT has been quite generous with the addition of a three-metre cable (attached to the left earpiece) but,

it's the type of cable that transmits 'tin-canand-string telephone style' vibration to the earpiece. So the slightest movement as you listen, translates into an annoying rubbing in the left ear.

SOUND QUALITY

Performance meets expectations with a wide and neutral bandwidth, plenty of detail and fine imaging, plus excellent dynamics and a chameleon-like character that seems to suit each disc perfectly.

Such reservations as we have are minor, but worth passing on. We don't regard this as quite the most neutral headphone we've ever heard, though if pushed we'd say it might just be the most neutral closed-back model we can recall. In the upper speech register there's a slightly sibilant effect, a rather noticeable place for even a mild hump in the response: one gets used to that quite quickly, but on occasion it can still jump out and cause surprise.

Similarly, detail is not quite the best there is, though – as with most good £200-plus headphones – it's outstanding alongside almost all loudspeakers. All the same, the £995 Grado GS1000 (HFC 288) has shown what's possible and this model slightly lags behind it. The fairer comparison would be with top Sennheisers and Beyers and, while none is

perfect, we'd suggest this model is superior in the lowest octaves, with some beautifully precise bass, but slightly inferior in the treble and upper midrange: the sound seeming a shade harder and less clearly etched.

Nevertheless, there is no denying that this is a very fine transducer. It definitely repays attention to the amp driving it: we'd suggest a dedicated headphone amp for best results (such as Creek's OBH11). Highly recommended for the serious headphone enthusiast. **HFC**

Richard Black





PRODUCT PS Audio DLIII Digital Link DAC

TYPE Digital-to-analogue converter

PRICE £799

KEY FEATURES Size (WxHxD): 22x7x36cm

○ Weight: 3kg ○ Digital inputs: coaxial, TOSLINK optical, USB ○ Analogue outputs: balanced (XLR) and unbalanced ○ 96kHz or 192kHz upsampling

CONTACT 2 020 8480 3333 www.psaudio.com

S Audio's excellent webpage neatly illustrates the point that the company has been making DACs for a long time, 21 years in fact. Although the brand's distribution has been sporadic in the UK, you may remember the debut of its 'Digital Link' – one of the first DACs to hit the market.

Back then, DACs were just about the only way a small manufacturer could make his mark in the digital world. Nowadays, the main attraction with a DAC is the possibility of upgrading more than one digital source. Take computers, for instance. They're becoming more prevalent in the domestic audio market but need some attention to achieve the best results. Something that the most recent

successor to the first Digital Link; the DLIII, can accomplish thanks to the addition of a USB input, alongside the familiar electrical and optical S/PDIF connectors.

Some computers do, of course, have a digital output but its data are often impure, having been through sample-rate conversion using devices not exactly of audiophile standard. Professional digital output cards aren't particularly expensive but it's all extra hassle, and practically everything sold in the last four or five years features USB. We've had limited experience of audio via USB, but the DLIII did the usual USB thing of installing itself on first connection, with USB appearing as an option in the relevant bits of Windows applications, and everything worked as one would wish.

On the audio quality side, PS Audio makes much of the DLIII's ability to upsample to either 96kHz or 192kHz, selected by the user at the front panel. The whole business of upsampling and oversampling is a complicated and often misleading one, but at the very least the ability to compare different upsampling rates like this is going to be interesting and, possibly, very useful. Upsampling is performed

by a popular high performance asynchronous chip; the SRC4192, which also makes the DAC tolerant of poor-accuracy digital sources - including all too many computers.

Other internal parts include a recent DAC chip with excellent specifications, as well as input receivers for S/PDIF and USB. The power supply is generous, with a large toroidal transformer (modestly rated at 32VA), fast rectifier diodes and more smoothing capacitors than you'll find in most medium-power amplifiers. Most components are surfacemounted which makes the circuit hard to examine, but PS tells us that the important current-to-voltage stage that follows the DAC chip uses a transistor rather than an op-amp. The use of the latter has been associated with distortion caused by the exceptionally fastmoving signals that have to be handled at this point in the circuit and, while there are ways of mitigating that, PS Audio's approach has plenty going for it.

SOUND QUALITY

On the basis that most DLIIIs will probably spend the majority of their time converting



"...this DAC seems very confident with music that exists mostly in the midband: simple voice and one or two instruments."

data from CDs (a more critical application than being connected to computers and other sources) we did most of our listening under those circumstances, partnering it with a number of more or less fancy transports. As one would hope, the transport proved to make quite a small difference and so the comments that follow should be generally applicable.

The strongest suit this DAC has to offer is its bass. Here, extension, precision and tunefulness combine to make for a vigorous and thoroughly lifelike lower register in any style of music. This provides a great grounding for the rest of the sonic image to grow from and is equally welcome in rock, jazz and classical recordings.

There's nothing like a good solid, clean bass register to encourage loud listening and, on the whole, that's a gratifying experience with this component in the system. All the same, we did feel that, once or twice, it's a little inclined to shout in the upper midrange.

In fact, that is just one symptom of the DLIII's weakness, something which on balance we found only a mild drawback, but certainly worth reporting. It tends to suffer from some slight confusion and congestion in the midband, a lack of precision and grip, which is an unfortunate blot on an otherwise very clean slate. High treble is very clear and beautifully

extended, with plenty of sparkle and a natural acoustic decay and the lower parts of

the midrange are also good - frequencies up to the higher end of the female singing register. Above that, things become just a little less well defined and, if anything, the DLIII's very success at the frequency extremes throws this into sharper contrast

Perhaps, surprisingly, this DAC seems very confident with music that exists mostly in the midband: simple voice and one or two instruments, for instance. If one is to be really fussy, there's the tiniest hint of congestion, but in isolation it's not something one would be

It's in rock and other lively, upbeat music that the midrange congestion becomes most marked, with a lessening of the involvement that a well-produced recording can bring to a listening session. One might think that such music, with its notorious reliance on overdriven guitars and other such 'distorted' sounds, would be most forgiving but it's not always so!

If that's all rather picky, we've little cause to criticise the DLIII when it's part of a computerbased system. Of course, it is being compared with what is typically a hamstrung bit of audio electronics at best. Even MP3 files and internet radio stations (the better ones) benefit quite markedly and losslessly stored files improve even more

Where we don't find the improvements outstanding is with DAB

> digital radio. Most hi-fi DAB tuners have a good internal DAC

already and it's in the nature of data-reduced formats that they make the differences between basically decent DACs and audio stages less obvious. Still, you could use something like a PURE DAB table radio (they mostly have a digital output) to the latter's advantage

The measured showing of the DLIII is fine apart from a little jitter (apparently internal as it varies little with source performance). which may well account for the slight congestion. There's practically no difference between its 96kHz and 192kHz performance, which probably explains why we couldn't reliably hear any. Overall, it is a handy product of good but, perhaps, not outstanding performance. HFC

Richard Black





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Used Listing

Our list changes daily, so please visit web site for latest up-to-date list.

McIntosh MCD201, CD/SACD (£3400) Musical Fidelity KW 2505 (£4999) Musical Fidelity DMZ5 DAC and Transport (£4000) Shanling CDT300 Omega Drive CD player (£4000) Stello CDA 220 dac + CDT 200 cd transport

£2695 £3795 £2295

AMPLIFIERS

Accuphase E408 Integrated (£5000) Anatek CM 0.5 pre amp (£1400) £3995 Anatek CM 0.5 pre amp (£1400)
ATC SCA2 Professional pre amp (£4000+)
Audio Zone AMP 1 dual mono integrated (£1595)
Audionet SAM V2 Integrated (£2400)
AVI Lab Series integrated (£1599)
Bel Canto S300i Integrated (£1799)
Bel Canto Evo2i integrated amplifier (£2995)
Cairn 4810 Integrated (£2700)
Copland CTA 520 stereo power amp (£1900)
DK Design V5-1 Reference (£2500)
Eastern Electric Minimax Power Amp (£995)
Flying Mole PA-S1 Digital Pre (£999)
McIntosh C2200 pre (£4850) £1395 £1295 £1295 £995 £1495 £1195 £1995 £649 £795 Flying Mole PA-S1 Digital Pre (£999)
Muclinosh C2200 pre (£4850)
Musical Fidelity A5 Pre (£1499)
Musical Fidelity KW550 Integrated (£5000)
Musical Fidelity KW500 Integrated (£4000)
Musical Fidelity S50K Supercharger (£2998)
Musical Fidelity Trivista 300 Int amplifier (£4000)
Qinpu A1.0X Integrated (£300)
Qinpu A2.0X Integrated (£300)
TacT SDAI 2175 (£1245) £995 £2995 £2495 £2395 £1795 £230 £795 £749

LOUDSPEAKERS

Acoustic Energy AE1 Classic (£845) ART Emotion Monitor (£4000) ART Loudspeakers Expression V6 (£3500) £3250 £1995 ATC SCM20SL (£2400) £1395 £2250 Dali Helicon 400 (£2995) JAS Audio - Plato Reference (£13995) JAS Audio - Orior (£2300) JAS Audio - Orsa (£1399) £9995 £1495 JAS Audio - Supertweeters (£649) Leema Acoustics Xone (£2245) £449 £1695 Monitor Audio GR20 (£1500) Monitor Audio GS60 (£2000) £795 £1395 PMC FB1+ (£1695) Soundlab Millennium M3 Electrostatics (£8995) £1095 £2795

ANALOGUE

Pro-Ject Experience "X-Pack" (£750) SME 20/2A (£6300)

MISC

Hovland Reference Speaker Cable (£1200) Isotek Nova (£1750) Isotek GII Minisub (£545) £1295 £399 Nordost Blue Heaven Speaker Cable (£695)



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Clean up your treasured vinyl collection with the Double Smart Matrix!

PRODUCT Clearaudio Double Smart Matrix

TYPE Record cleaning machine

PRICE £1,000

CONTACT № 01483 301412 @ www.clearaudio.de

learaudio is known for its strikingly individual turntables, tonearms and cartridges. It's hardly surprising, then, to discover that the company also makes record cleaning machines (RCMs). There's quite a range of them, of which the Double Smart Matrix is the latest addition. It's not cheap and at first glance it looks much like any other record cleaner you've ever seen, but unlike most of them it has the killer feature: it cleans both sides of the disc at once.

Anyone who has ever cleaned a substantial quantity of LPs will know that sinking feeling that descends as the 'in' pile shrinks at pitiful speed, while one's arms tire of the routine of pushing this, pulling that, turning the disc over and doing it all again... so anything that makes it less of a grind is to be welcomed. And it's pretty obvious that double-side cleaning is a major contribution in that direction.

The basic principle of most RCMs is the same. Spread some cleaning fluid on the disc, then vacuum it off together with any dust, fingerprint grease and other contaminants.

The Double Smart Matrix achieves this with two electric motors, one for spinning the disc and the other acting as a vacuum pump. The record sits on a miniature platter the size of the label, and is securely held in place by a quick-action clamp. Clearaudio has thoughtfully provided a liquid seal on each side to prevent the label getting wet.

At this point in a normal review we would usually discuss the 'sound quality'. Well, the DSM does actually 'make' a sound, which is a lot like a vacuum cleaner. Before switching the vacuum part on, though, it's necessary to apply fluid to the disc. This is achieved by a pair of combined wetting/vacuuming arms, the lower one is fixed, while the upper is pivoted so that a record can be fitted to the platter. Swing the upper arm back into position, give the bottle of fluid a little squeeze and liquid starts seeping out on to the upper and lower faces of the disc. Once the microfibre pads which contact the disc are properly wet, one can start the motor which spins the disc. It rotates slowly, at about 16RPM, and Clearaudio recommends three to five rotations in each direction (using the three-way switch, clockwise/off/ anticlockwise) to spread the disc fluid evenly.

Then, and this is the clever part, simply stop squeezing the bottle and switch the vacuum motor on. After a few more revolutions the disc

is dry and can be put into a nice new inner sleeve. Even with all this user convenience, the process is far from instantaneous: we reckon on about two-and-a-half minutes per disc.

The supplied fluid does a good job and visibly removes all the usual contaminants, as well as reducing both background noise and mistracking due to a build-up of dirt. It's a bit of a Rolls-Royce approach to record cleaning, but if you feel you owe yourself, and your LPs, a bit of luxury we can highly recommend it. **HFC**

Richard Black

VERDICT

SOUND (N/A)

FEATURES



VALUE

PRO

A well-engineered, efficient and relatively effortless way to remove the dust of ages from treasured LPs.

☑ CON

Doesn't always vacuum up near the label as effectively as further out. Applicator/vacuum arms don't 'float' as easily as they might and could stress warped discs.

CONCLUSION

Not the ultimate, but certainly one of the easier-to-use disc cleaners, this well designed and sturdily built product does what's required with minimal fuss at a price that serious collectors can probably still justify. Recommended.





Bandridge Profigold PGD4000

TYPE Digital interconnect

PRICE £27 (0.75m)

CONTACT 2 01923 205605 @ www.profigold.com

andridge is a large company making telephone numbers of products and selling them through outlets seldom frequented by 'serious' audiophiles. Accordingly, prices are lower than we're used to and the Profigold PGD4000, is the company's fanciest digital interconnect. All the same, it seems to offer plenty of technology, including high-purity copper conductors, cellular polythene insulation, triple screening, Teflon-insulated phono plugs and a natty braided nylon jacket which takes the overall diameter up to a bulky 10mm. The standard length is 0.75m, which is all very well, but the plugs have a long piece of heatshrink fitted to keep the cable secure and that makes for a rather inflexible, and hence effectively shorter, interconnect.

A 1.5m version (PGD4015) is also available. The material specification may be similar to many pricier cables, but does the sound stack up? In many ways, yes. We tried this cable (like

PROFIGOLD the others in the group) with various digital sources and DACs and it managed a perfectly respectable performance with good tonality across the range and some very good detail. Differences in digital cables are typically not vast, but we do feel this one has just slightly less depth to the stereo image than some, while the noise floor seems a touch more obvious. The overall character is lively and well attuned to high-energy music: very detailed classical tracks were a little less well served. Still, at this price one can hardly complain, so buy a couple as spares! HFC





Supra AnCo

TYPE Digital interconnect

PRICE £80 (1 m)

CONTACT ☎ 01223 441299 @ www.jenving.se

upra's large and varied range of cables includes various digital and video cables: this one seems to be listed only as the latter, but the company supplied it in response to a request for a digital interconnect and indeed the technical requirements are identical. Like practically all digital/video cables, this is a simple coaxial design, in this case with a solid centre core, solid polythene insulation and a braided screen. That description could also suit generic, £30p/m, industrial cable, but AnCo uses silver-plated copper and going by Supra's own figures, has unusually low attenuation of high frequencies for a cable of its size. It's fitted with Supra's own phono plugs, ergonomically shaped and exerting good contact force on the socket. The cable is flexible and is marked for signal direction, though it's mechanically identical end-for-end.

Although it's not the most expensive cable in the group, we feel this one has probably the best all-round performance. Like the others, it



is basically without tonal flaws, but its detail seems a lot better than the competition. It's not by any means a night-and-day difference, but protracted listening suggests that a little more dirt is being removed from the window and hence a little more detail is detectable, those telltale signs that distinguish one make of piano or guitar from another. At the same

time, images click into a slightly clearer focus. Subtle stuff, but appealing once heard. **HFC**



True Colours Adder SE

TYPE Digital interconnect

PRICE £100 (1 m)

CONTACT 2 028 9267 3024 # www.tcicables.com

Cl's basic Adder cable (£70) features the same actual wire but different plugs. How much difference can a plug make? Quite a lot, sometimes, and the WBT NextGen phonos fitted to this version are quite distinct in design from typical plugs. Somewhat like the Eichmann plugs, they dispense with the usual annular earth connector in favour of a small sector off to one side, but they add a screw clamping arrangement which certainly makes for secure mating with the socket. The only disadvantage could, in principle, be compromised interference rejection: in practice that's highly unlikely to be an issue. The cable has the usual coaxial construction with solid polythene insulation

Whether due to the plugs or not, this turned out to be the joker in the pack. Not that its performance is in any way bad, it's just different. Detail is good, though not quite on a par with the Supra, while tonality seems outwardly just so. But there's an almost instantly recognisable character to the sound,



Wireworld Ultraviolet 5

TYPE Digital interconnect

PRICE £40 (Tm)

CONTACT ☎ 020 8991 9200 ₩ www.wireworldcable.co.uk

f any one feature of this cable seems to stand out, then it's the diameter which, at approximately 4mm, is well below average. There's no reason why it should matter, unless you want to run digital audio over hundreds of metres. Wireworld's use of good-quality materials, in the shape of solid copper centre conductor, foamed polythene insulation and braided screen, should ensure that loss over typical runs is minimal. The plugs are again unusual, in this case using a tubular centre conductor and a six-leaf ground that gives very good contact with the socket.

This cable also has a character of its own, but it's less pronounced than that of the TCI and of a completely different nature – there's a certain 'dark' quality to the sound, almost as if the music is emerging from a darkened room. It's common to talk about blacker backgrounds when noise floors are lowered and that may be part of what's going on here, but it's hard to say that noise is actually lower than with other cables. Perhaps it's more accurate to say that

there's a subtle change in the tonality of the noise. The music itself seems tonally unchanged from other cables, apart from a tiny lift in the upper bass, so small we only spotted it after listening to several tracks. Detail is good, but not outstanding and imaging is a little perverse, with very good depth but seemingly slightly less good lateral definition than some. But note that we're using

quite high-end terminology here over a budget cable – so this is good value! **HFC**

Richard Black

VERDICT

CONCLUSION

One or two subtle deviations from perfection in this cable, but it does the basics right in both style and performance.



GROUP TEST & LAB REPORTS: PAUL MESSENGER

LOUDSPEAKERS

Unique mid-price speakers with competitive performance levels

his month's group test looks at the mid-price sector of the speaker market, covering six models with an average retail price of £1,128 per pair. There are four floorstanders, just one conventional standmount – ironically the most costly in the group – plus a special super-slim design expressly intended to look exceptionally discreet when mounted on a wall.

Three are (effectively) two-ways – still a persuasive configuration at any price, as the fundamental simplicity has its own inherent benefits. However, the two three-ways, from B&W and Triangle, both justify their extra complexity by featuring unusual proprietary midrange drivers. The sixth model is a two-and-a-half-way, which arguably combines the best (and/or worst!) of both worlds.

The spread of global manufacturing makes it virtually impossible to ascribe a specific country of origin to a particular loudspeaker. 'Product of more than one country' is likely to be the rule rather than the exception these days. Design is

still usually carried out in the brand's country of origin, but drive unit manufacture, enclosure building and final assembly are often carried out on one or more sites elsewhere. Take a company like Tannoy, for instance. It's Mercury models had been designed in Britain, while the drivers were made by a Japanese company operating in Thailand, with the final speakers assembled in Taiwan!

On this occasion, the brands of four of our review models are British in origin, one is German, and one French. And it's pretty clear that each reflects the values and culture of the company and country of brand origin, irrespective of where they're actually made.

Don't automatically assume that the bigger speaker with the most drive units must necessarily be better. The larger speaker will usually produce more bass, but it will also tend to introduce rather more bass coloration, and bass quality has much to do with the characteristics of the listening room. Despite the best intentions of any review programme,

in the final analysis there's no substitute for trying out loudspeakers in the room in which they are to be used. **HFC**

EOUIPMENT USED

- Burmester 001 CD player
- ► Linn Sondek LP12/Rega RB1000
- Magnum Dynalab MD 106T tuner
- Naim CDS 3/555 PS CD player
- Naim NAC552 pre-amp
- Naim NAP500 power amp
- Rega Apheta cartridge
- Ochord Company and DNM cables

MUSIC USED

- Be Good Tanyas Hello Love
- Laurie Anderson Life on a String/ Strange Angels
- Deli Ceorge Thanks, I'll Eat it Here
- Nitin Sawhney Beyond Skin
- ❤ Wagner / BPO Herbert Von Karajan Tannhauser Overture
- ▶ BBC Radios 3 & 4 were also used extensively in the tests

ON TEST



B&W 683 £890



Heco Celan 500 £1,000



Kudos C1 £1,450



MonoPulse 62S £1.195



PMC Wafer 1



Triangle Antal Ex



LISTENING TESTS

Loudspeaker listening poses an altogether more complex set of problems from those involved in assessing components further up the hi-fi chain. Loudspeakers vary dramatically in size, type and tonal balance, and also interact strongly and often unpredictably with the room, according to where they're placed. The fatal difficulty facing sequential unsighted loudspeaker presentations is the strong tendency to judge each example according to how its balance differs from the model that preceded it. Accordingly, extended hands-on listening sessions were adopted, giving proper scope to adjust to the inevitable changes in balance and also to experiment with the positioning of different models.

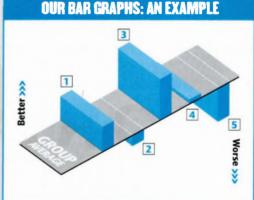
LAB TESTS

The speakers were tested under in-room conditions, in order to be as representative as possible of real world operating conditions. The test equipment used was a Neutrik Audiograph analogue signal generator with synchronised pen recorder, and this was used to plot the far-field in-room averaged response traces, as well as the impedance plots, which provide the core of the measurement work. Pairmatching was also checked at 1 metre.

No other magazine offers an equivalent test and listening programme for comparative tests.

LAB REPORTS: THE BAR GRAPH

- 1] Sensitivity: Sensitivity is a measure of how loud a speaker will go for a given voltage from the amplifier. It's scaled to 2.83V at 1m (corresponding to one watt of power for an eight ohm load.
- **2] Bass extension:** The bass behaviour of loudspeakers is heavily modified by the room in which they are used. To replicate 'real world' conditions, our figure represents the averaged bass rolloff frequency at –6dB ref the broad midband, measured across the far field for a stereo pair in a 4.3x2.6x5.5m room
- **3] Ease of drive:** The lower the impedance of a speaker, the more current it will extract from the driving amplifier for a given voltage (volume) setting. Lower impedance designs are therefore theoretically harder to drive, but they also tend to be more sensitive.
- **4] Overall frequency balance:** The overall broad frequency response trends do much to define the character of a speaker, although true neutrality is the obvious goal
- **5] Response smoothness:** Beyond the overall tonal balance of the speaker, small scale smoothness has much to do with sound and harmonic shading.





£899 per pair № 01903 221500 # www.bowers-wilkins.com

B&W 683

Purposeful floorstander features B&W's hi-tech drive unit technology

ow under Canadian ownership, Bowers & Wilkins (as it now likes to be known) is essentially a British company, with its headquarters and major manufacturing operation in Worthing, plus research and development labs a few miles inland at Steyning. The combination has been conspicuously successful, in creating and sustaining a dominant market position in hi-fi speakers worldwide, aided by numerous ranges of models that fill every possible niche.

Since the dawn of time, various guises of the 600-series have been the most cost-effective conventional speakers in the Bowers & Wilkins line-up, thanks in part to the use of vinyl woodprint surfaces and, in these latest incarnations, Chinese manufacturing.

This £899 per pair floorstanding 683 is the largest and most costly of four stereo pairs. It's a full three-way design, which allows each

drive unit to be optimised to its particular role.

Crucially, the midrange driver is a version of the 'surroundless' FST (Fixed Suspension Transducer) unit that was pioneered in the more upmarket models. Whereas the midrange driver of most three-ways is the same as the bass driver, a midonly unit doesn't undergo significant cone excursion. This means that the surround is not actually fixed to the 143mm diameter Kevlar cone, but is expressly optimised to absorb edgeof-cone vibrations

The twin bass drivers have larger frames, but smaller (120mm) aluminium/paper/Kevlar diaphragms than the midrange unit. Oversize central domes stiffen the cones to create a more pistonic action and a front port provides reflex loading; hollow foam bungs are a useful addition that allow the ports to be re-tuned and damped. The tweeter has a rather exposed and vulnerable-looking 25mm aluminium dome diaphragm, loaded at the rear by an internal tapering tube

While the whole thing feels very solid and hefty, we're not sure it's a particularly pretty speaker, especially in the dull brown 'wenge' finish of our review sample. Light oak, black and cherry vinyl woodprints are also available, however. No plinth is supplied or available, but the spike fixing is effective. Though any threeway crossover is necessarily complex, it has fewer components than its predecessors and is fed from twin terminal pairs.

SOUND QUALITY

Positioned well clear of walls and with the ports left completely open, the 683 sounds just a little too bass heavy, suggesting it would be happier in a somewhat larger space than the 4.3x2.6x5.5m room used for our tests. Inserting the hollow bungs proves, "just right", delivering a bass that is both beautifully balanced, yet also deep and purposeful if a shade lacking in crispness.

With bungs, the speaker delivers a thoroughly impressive overall neutrality, leading with its high-quality midband, and bringing nice warmth and 'body' to voice reproduction. It can sound a trifle 'shut-in' if the system is being played very quietly, but by the same token it avoids becoming aggressive when the volume

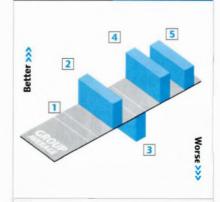
On the whole, this speaker does a fine job that leaves little room for criticism. Its sins are merely that the sound could be more exciting, as could the physical appearance, which would certainly be enhanced if a proper plinth was supplied. But beauty is, of course, in the eye of the beholder HFC



LAB REPORT

Bowers & Wilkins claims a sensitivity of 90dB for this model and while the company's claims are normally very accurate, this one seems a shade optimistic when examined across the whole band. Although it does achieve 90dB below 200Hz, the midband is closer to 88-89dB under far field averaged conditions. Furthermore, the amplifier load is rather demanding, especially around 110Hz, but also across most of the bass and

The frequency response is basically well ordered and quite smooth, if a little heavy in the low bass (25-55Hz), and gently down-tilted above 1kHz. With the ports fully open, the ports were tuned to around 32Hz; inserting the bungs re-tuned this to 23Hz and reduced the bass output (25-55Hz) by 2-3dB, improving the overall balance under our room conditions. At the top end of the band, the treble is smooth and rather restrained



- 1] Sensitivity >> 0%
- 2] Bass extension >> +30%
- 3] Ease of drive >> -30%
- 4] Overall frequency balance >> +30%
- 51 Response smoothness >> +20%

SPECIFICATIONS		
Measurement	Rated	Actual
Sensitivity @ 1 m/2.83V	90dB	B9dB
Impedance (nominal/minimum)	8/3 ohms	6/4 ohms
Estimated bass extension (-6dB)	30Hz	20Hz

VERDICT	
SOUND **** PRACTICALITY *** BUILD ***	Solid build with notably advanced drive unit technology that contributes to a neutral overall balance and fine dynamic range. Bass tuning option is clever, and if the overall sound is cautious, it's very effective
VALUE ★ ★ ★ ★	HI-FICHOICE SCERELL



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£1,000 per pair 201822 612449 www.heco-audio.de

HECO CELAN 500

Heco is making a UK comeback via valve amp specialist Puresound

art of a larger consumer electronics consortium, Heco is one Germany's most established speaker brands and is primarily known for producing good value-formoney products. A significant force in its home market, it has been a number of years since Heco made an appearance on the UK scene and sixteen years since *HFC*'s last review.

The new UK distributor's main stock-in-trade is sourcing and selling good value valve amps from China, which actually seem a good match for the relatively classy Hecos imported by Puresound. The Celan 500 loudspeakers are just one step down from Heco's top Statement models and make up one of four Celan stereo pairs.

The 500 is a substantial floorstander, with a relatively complex hexagonal plan enclosure – the latter to disperse internal reflections and de-focus standing waves. Our samples came in a high-gloss painted silver finish – a popular option in Germany and well matched to the brightwork trim around the drivers and ports. However, the alternative three varieties of real



wood veneer (beech, cherry, rosewood) are likely to have greater UK appeal. The appearance is further enhanced by a chunky black MDF plinth which, for some reason, makes no attempt to increase the stability footprint, though it does hold the rather blunt spikes securely.

This is a two-and-a-half-way design, with a bass/mid driver mounted above and a bass-only driver mounted below the tweeter. Although both drivers share the same 165mm chassis, unlike most two-and-a-half-ways, each diaphragm is optimised to its particular task – a light paper/wool cone for the bass/mid and a hardened paper (reinforced by an oversize carbon-fibre dust cover) for the bass. The 25mm tweeter has a 'nano particle' coating.

Both cone drivers are loaded by separate shiny flared rear ports and five terminals are fitted, accommodating both bi-wiring and optional +2dB treble boost. The importer has supplied wire links in place of brass strips.

SOUND QUALITY

While this good size floorstander is best kept well clear of walls, it still has a tendency to thump rather too heavily in the bass region when playing music with a suitably wide bandwidth. One might well consider experimenting with port-blocking bungs, even though no such suggestion is made in the instruction manual.

Although the overall balance is attractively open, achieving a decent standard of basic neutrality with fine imaging and coherence, there's a good impression of scale and some dynamic integrity. But there's also some midforwardness here and this tends to emphasise a degree of boxy coloration, which is partly down to the speakers.

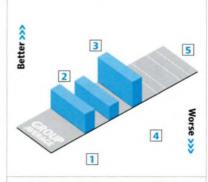
On the end of our solid-state system the Hecos' did sound a little hard and conqested and this tended to be exaggerated by their forwardness. The distributor, being primarily a valve amp specialist, suggested we should try the thermionic alternative. This we did, checking with both my restored Leak Stereo 20 and the recently reviewed Unison P70 (HFC 302). As a consequence, the superior delicacy, sweetness and transparency of the valve amplifiers through the midrange did suit the speakers better. However, for all their midband strengths, valve amplifiers tend to be a little loose at the bass end of things and this reacted less well with the already heavy bass character. HFC



LAB REPORT

A high 91dB sensitivity is claimed for the Celan 500 and, while this is just about achieved at an upper mid peak around 800Hz, 90dB seems closer to reality when assessed under our farfield averaged in-room conditions. That said, such a figure is all the more creditable considering the impedance stays at or above 6 ohms throughout. This is a loudspeaker that will be relatively easy to drive, even when coupled to modestly-powered valve amplifiers. A minor impedance perturbation between 150 and 200Hz is indicative of an enclosure mode, while the port itself is tuned to 41Hz.

Although the frequency response holds within impressively tight limits, above 80Hz under in-room conditions and during our test, there is a modest but significant peak at 700-800Hz. This is bound to be audible and the port output is also clearly too strong, delivering altogether too much output 30-70Hz.



- 1] Sensitivity >> +20%
- 2] Bass extension >> +15%
- 3] Ease of drive >> +30%
- 4] Overall frequency balance >> 0%
- 51 Response smoothness >> 0%

SPECIFICATIONS		
Measurement	Rated	Actual
Sensitivity @ 1m/2 83V	91d B	90dB
Impedance (nominal/minimum)	ns	8/6 ohms
Estimated bass extension (-6dB)	24Hz	25Hz



£1,450 per pair 2 0845 458 6698 # www.kudosaudio.com

KUDOS CARDEA C1

Audio stand manufacturer debuts a new low-cost speaker

udos is best known for making some of the highest quality speaker stands around we've actually been using the company's \$100 in our Ultimate Group Tests for some time now, while the cheaper S50 is another impressive performer. Once owned by Neat Acoustics, the brand is now independent again (headed by ex-Neat designer Derek Gilligan) and has added loudspeakers and equipment stands to a growing product portfolio.

A year ago (HFC 290) we tried the Cardea C10, a fine performer indeed, but a costly one at £2,200 per pair. This time around, we're looking at its C1 brother, a speaker that looks very similar indeed, but costs a lot less at £1,450 per pair. The two share the same enclosure and bass/mid unit, the key differences lying in the tweeter, crossover components and cabling.

Which is not to say that the ingredients used in the C1 aren't high-quality; they're just a little less exotic. £1,450 is still a high price to pay for a compact two-way standmount, but it does reflect the fact that the components (from European sources) are all of the highest quality, with the speaker put together in the UK.

This is a classic design in the true sense of the word, in terms of its size, proportions and presentation. The sharp-edged 12 litre reflexported enclosure is built from 18mm MDF, damped internally and handsomely finished in a selection of very attractive 'book-matched' real wood veneers, in walnut, cherry, sycamore or rosenut. Both drivers are flush-mounted into the front, while the optional 'teardrop' grille uses hidden magnets instead of mounting lugs.

On the drive unit side of things, Kudos works with Norwegian specialist SEAS. The bass driver has a 180mm frame and a 120mm doped paper cone, while the tweeter here is the highly regarded 25mm fabric dome Excel, in place of the very costly Crescendo used in the C10. Twin well-spaced terminal pairs provide a bi-wire or bi-amp option and are mounted on a solid recessed board. Surprisingly, no terminal links are supplied for those who prefer to feed each speaker with just one cable pair: the recommendation is to make up short links from the actual speaker cable being used, which sounds like a rather good idea.

SOUND QUALITY

Best kept well clear of walls, to avoid unwanted emphasis of the mid-bass port output, some limitations in bass weight and ultimate extension were only to be expected. In every other respect the C1 proves a delightful communicator and while it emphasises what a compact stand-mount might lose on the deep bass swings, it makes up for on the lack of box effects.

Box coloration is very low here and one consequence is an airy and spacious stereo image, with a lightness of touch that any design would envy. There is some upper mid empasis here and a lack of warmth and drive through the bass region, but it doesn't spoil the fine voicing and innate sweetness of a very entertaining speaker.

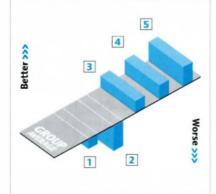
> The inherently low coloration contributes to a dynamically expressive speaker with good pace and timing, fine coherence and a lively 'bouncy' character While performance might lack the ultimate sense of scale, the music always sounds involving and engagingly light on its feet. HFC



LAB REPORT

The C1 is rated at 87dB sensitivity, which is close to the 88dB found on our tests. While this figure is just average, it is achieved in the context of an unusually easy-to-drive impedance characteristic that stays at or above 8 ohms throughout. Pair matching looks good, while the port is tuned to 47Hz.

The frequency response is not particularly flat, though the variations do tend to be relatively smooth and progressive. On the other hand, bass extension is modest, with little output below 40Hz, while the upper bass and lower midband is rather lean. The dominant feature is a slight, but broad prominence 600-800Hz, which will certainly be audible and there's also a crossover dip centred on 2.7kHz. The treble could be smoother and flatter. showing a mild 8kHz dip, but its relative level looks very well-judged.



- 1) Sensitivity >> ·10%
- 2] Bass extension >> -30%
- 31 Fase of drive >> +10%
- 4] Overall frequency balance >> +15%
- 5) Response smoothness >> +20%

SPECIFICATIONS		
Measurement	Rated	Actual
Sensitivity@ 1m/283V	87dB	88dB
Impedance (nominal/minimum)	8 ohms	8/8 ohms
Estimated bass extension (-6dB)		40Hz





£1,195 per pair **№** 07785 558238 **⊕** www.monopulse.co.uk

MONOPULSE 62S

Compact speaker owes much to its larger siblings

espite (or because) it has dared to be different, new kid on the block MonoPulse, has succeeded both in terms of presentation and engineering.

The application of phased array radar principles to loudspeaker design might seem unusual, but it has been the core foundation of the company's approach. No doubt, due to the fact that this was the field in which principal Allan Hendry spent much of his

Applying this to loudspeaker design imposes significant constraints on driver disposition, which in turn is probably responsible for the decision to go for a fabric-covered presentation with metal embellishments, which allows for a wide choice of ten different colours.

MonoPulses come in two distinct ranges, the much admired larger A-series and the more compact S-series (like the 32S we reviewed in HFC 296) as well as this

beefier 625 at

£1,195.

One could call it a two-and-a-half-way design, but in truth it's essentially a two-way, as the 'half' here is just a piezo-electric supertweeter that adds a little extra air at the extreme top end. This is mounted within a metal bracket on the top surface, which also provides a useful

Despite a width of only 170mm, MonoPulse has managed to squeeze a 160mm bass/mid driver with large diameter voice coil into the floorstanding enclosure. Two coach-bolt heads decorate an otherwise featureless front, the bolts themselves acting as braces between front and back close to the drivers.

In the interests of time alignment, the main driver is mounted above the tweeter and is reflex-loaded by a downward-firing port in the base. Metal feet keep the port clear of the floor, with or without the use of the thumbwheel-tightened spikes, but there's no extra plinth, so the stability footprint is modest. Electrical connection is made via twin terminal pairs, set rather high off the ground. The main tweeter has a relatively large 31mm soft dome diaphragm, which is presumably why a supertweeter is used.

SOUND QUALITY

Room measurements indicate - and listening tests confirm - that the 62S is best kept well clear of walls. The good news is that it delivers a fine performance through the bass and broad midrange. It's not the most dynamic 'grab you' sound around, but it is relatively smooth and lucid, slightly lean and forward, but with satisfying weight and drive.

However, while respectable enough, the sound it delivers somehow lacks the rather special character we've encountered with larger MonoPulse models. The stereo imaging is certainly pretty good, but the lack of presence and lower treble output is all too clearly audible and this robs the sound of the sharp, tight precision that has been such a hallmark of the larger MonoPulse designs. The impressive 'spotlighting' effect that had made the 42A so involving in HFC 302 was not present with this model and a degree of 'cupped hands' coloration was also obvious.

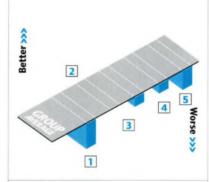
Furthermore, that lack of presence energy leaves the treble sounding rather detached and isolated. It's not particularly smooth either, but its relative level seems very well judged. The bonus of presence restraint is that it does mean the speaker avoids sounding aggressive and likes to be played with a bit of volume HFC



LAB REPORT

In its literature, Monopulse claims a high 91dB sensitivity for the 625, which is puzzling, as it only achieves a much more modest 87dB under our in-room far-field averaged regime. Happily the bass extends usefully down to 30Hz or so, with the port tuned to 45Hz, and the amplifier load looks relatively easy to drive. It only falls below 8 ohms above 3kHz, with a 5 ohm minimum at 10kHz. However, the pair match is not particularly good, showing minor variations at both low and high frequencies, and a rather obvious enclosure resonance is visible at 220Hz.

Though a trifle lean through the upper bass and lower midband, the response is pretty good right up to 3kHz, but output in the 3-6kHz octave is about 5dB too weak. Despite some recovery above 6kHz, the treble as a whole looks decidedly uneven.



- 1] Sensitivity >> -30%
- 2] Bass extension >> 0%
- 3] Ease of drive >> -10%
- 4] Overall frequency balance >> -10%
- 51 Response smoothness >> -20%

SPECIFICATIONS		
Measurement	Rated	Actual
Sensitivity @ 1 m/2.83V	91dB	87dB
Impedance (nominal/minimum)	8/6 ohms	8/6 ohms
Estimated bass extension (-6dB)	25Hz	28Hz

VERDICT	
SOUND ★★★ PRACTICALITY ★★★	This exceptionally elegant floorstander uses a waveguide to reduce the crossover frequency and improve voice integrity. The result is lively, with a sweet
BUILD ★★★★	top end and fine coherence when carefully sited.
VALUE ★★★	HI-FICHENCE SYSTALL

£1,100 per pair № 08704 441044 @ www.pmc-speakers.com

PMC WAFER 1

Can PMC's latest wall-mounted speakers do the business?

ounded as recently as 1990, PMC is one of the few speaker companies to enjoy equal success in both domestic hi-fi and professional audio circles. A core strategy has been devised to ensure that there's plenty of time to develop each model individually, as well as keeping models in the portfolio for many years.

Eighteen months ago in *HFC* 285, we reviewed PMC's Wafer 2, a super slim hang-on-the-wall speaker that's designed to fit very discreetly into any room, taking up no more space than a flat panel TV. Though largely successful in performance and sound quality, it's also a quite an expensive prospect at £1,650 per pair, so we were keen to discover whether the somewhat smaller Wafer 1 could perform a similar trick at £1,100 per pair.

Size of enclosure and main driver apart, the two models look virtually identical – indeed it's difficult to say which is which unless they're placed side by side. Finished in white, grey or black, the Wafer 1 comes with brackets for fixing onto a solid wall, so that it stands proud by a modest 10cms, and an oversize grille helps disguise the box behind. An '-iw' variation is also available, for flush mounting by being recessed into a stud-type wall.

The Wafer 1 still incorporates PMC's trademark transmission-line bass loading (here

in an H-pattern twin-line arrangement) with the port exit naturally on the front. Unusually, it also incorporates two tweeters, switchable either or both, so it can be mounted either horizontally or vertically (The 'both' position 'steers' the treble, so the speakers can be mounted well above or below normal ear-line, eg for centre channel duties.) Three positions of relative treble output (typically + 1.5, 0, -1.5dB) are also available.

The 140mm main driver has a 93mm diameter paper cone, while the tweeters use 27mm fabric dome diaphragms. A specially absorbent 'stealth baffle' front reduces secondary radiation from the surface next to the drivers. Bare wire or spade connection is made via a single terminal pair – there's isn't enough room between the speaker and the wall to accommodate 4mm plugs.

SOUND QUALITY

Naturally the Wafer 1 was mounted on the end wall of the listening room using the supplied brackets – a relatively easy operation in practice, with the assistance of the supplied jigs. And there's no denying the effectiveness of its 'disappearing act' – although not exactly invisible, it's visually very easily overlooked.

On the plus side, the Wafer 1 does sound significantly bigger than one expects, though voices sound quite thick and chesty, even though they're notably coherent and articulate.

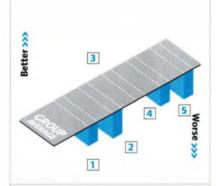
Although essentially free from boxiness, there's an obvious lack of low bass, while the mid-bass has slightly odd tonality. Bass lines are quite clear and explicit, but with a definite thickening of upper bass textures. This emphasis is both unusual and audible, though it's arguably no more 'wrong' than the lack of output, which is prevalent elsewhere.

One interesting consequence of the hang-on-the-wall mounting is that the relative amount of ambient 'in-the-room' reflected sound is to a certain extent reduced. Depth perspectives also seem somewhat reduced, probably because of the close wall proximity. **HFC**



PMC's claim for a sensitivity of 87dB seems realistic enough in practice, though the response unevenness means this can only be an approximate figure. With the line broadly tuned to 50Hz, there's little bass extension below 45Hz here, though the impedance stays around or above 8 ohms so the amplifier load is easy to drive.

The midband unevenness is so dramatic, it seemed essential to check back and compare the findings with the Wafer 2 reviewed eighteen months previously. And there's no avoiding the fact that this smaller Wafer 1 is significantly inferior to its bigger brother. Less bass is only to be expected, and the treble is actually marginally flatter, but the dips recorded with the Wafer 1 at 160Hz, 350-400Hz and 1.4kHz are significantly more severe than those found in the Wafer 2, compromising the midband smoothness as a result.



- 1] Sensitivity >> -20%
- 2) Bass extension >> -30%
- 3) Ease of drive >> -0%
- 4] Overall frequency balance >> -20%
- 5] Response smoothness >> -30%

SPECIFICATIONS		
Measurement	Rated	Actual
Sensitivity @ 1m/2 83V	87dB	87dB
Impedance (nominal/minimum)	8 ohms	8/8 ohms
Estimated bass extension (-6dB)	50Hz	40Hz





VERDICT	1016
SOUND ★★★ PRACTICALITY ★★★★	A wonderfully discreet hang- on-the-wall speaker, but the Wafer 1's performance falls well short of its larger Wafer 2 brother, lacking the latter's
BUILD *	- smoothness and neutrality. It still sounds bigger than you might expect.
VALUE ★★★	HI-FICHOICE SVERALL ★★★★★

£1,125 per pair ☎ 01753 652669 **⊕** www.triangle-fr.com

TRIANGLE ANTAL EX

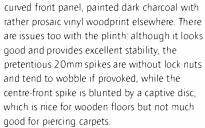
Triangle presents the fifth revision of its Antal speaker

hrough careful study and analysis of what, in its opinion, was missing in existing speaker design, French company Triangle prided itself on creating a brand with its own unique sonic identity.

And top of Triangle's budget Esprit series, the Antal Ex, (£1,125 per pair) bears this out, being the fifth version to come in for HFC scrutiny since the turn of the century. In fact, its predecessors have all received Best Buy ratings (the most recent being the Antal Esw in HFC 288), which bodes well for this latest version. But the price has been steadily creeping up, with a 13 per cent increase in little more than a year. Triangle's brochure justifies this decision with what it describes as a number of engineering improvements.

That said, this is still plenty of speaker for the money, with four drive units in a solidly built enclosure with three internal bracing panels, sitting on a proper damped steel plinth. However, it looks more purposeful than pretty,

seful than pretty, with a slight



A full three-way design, the twin bass drivers, loaded by a large flared front port, have 115mm fibreglass diaphragms reinforced by large dust covers. Much more in the Triangle tradition, the midrange has a smaller flared paper cone with double-S fabric surround, loaded by a small rear port. The tweeter is a new version of Triangle's horn-loaded design and because the horn mouth is larger than a conventional dome tweeter, it's claimed to offer superior crossover integration.



Like its predecessors, the Antal Ex is clearly intended for siting well clear of walls, but unlike those earlier Antal variations, the

sound quality as a whole is rather more of a mixed bag. The bass end does provide a decent degree of propulsion, but there's also some 'woody' coloration and the sound could have been lighter on its feet – one sentence in the listening notes commented that it actually sounded somewhat better in mono (with just one speaker playing) than in stereo.

However, the real difficulty with this speaker lies up in the presence band, which is a little too restrained to make lyrics and speech easily comprehended, and adds a degree of boxy and nasal coloration to the voice band. Furthermore, because the presence is so restrained, the top end is a little too obvious and exposed, even though it's undoubtedly crisp, clean and clear.

Although the Antal Ex raises some issues regarding its tonal balance and smoothness, its performance still retains the fine coherence, dynamic brio and excitement that have long characterised Triangle's speakers.

The main worry about the Antal Ex is that, despite introducing a number

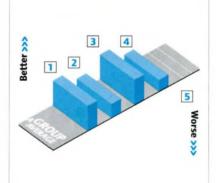
of changes over its Esw predecessor, it is by no means clear that the net result is actually an improvement. Indeed, the measurements suggest otherwise. **HFC**



LAB REPORT

The manufacturer claims a high 91dB sensitivity for the Antal Ex and we can entirely agree with that figure. Furthermore, with an impedance that stays above 5 ohms throughout (rather higher than the spec claims), the load seen by the amplifier will be relatively easy to drive and high sound levels will be easily achieved. The 39Hz port tuning delivers in-room bass down to around 25Hz.

The frequency response, measured under averaged in-room far-field conditions, shows a pretty good overall balance through the bass and midband and again through the slightly strong treble. But it's far less smooth than its Antal Esw predecessor, with greater unevenness through the mid-bass, and rather more worrying effects through the upper mid and presence (700Hz – 2.5kHz), where output is both weak (which is not unusual), yet also decidedly uneven (which is more worrying). Only the treble seems better than before.



- 1] Sensitivity >> +30%
- 2] Bass extension >> +15%
- 3] Ease of drive >> +30%
- 4] Overall frequency balance >> +10%
- 5] Response smoothness >> 0%

SPECIFICATIONS	100	
Measurement	Rated	Actual
Sensitivity @ 1 m/2.83V	91 dB	91 dB
Impedance (nominal/minimum)	8/3.4 ohms	7/5 ohms
Estimated bass extension (-6dB)	40Hz	25Hz





CONCLUSIONS

Summing up the speaker performance definitely holds some surprises

his group of speakers shows just how much variation can exist amongst models in the same general price zone. There's no doubt that the three large floorstanders from B&W. Heco and Triangle clearly have a value for money orientation (though costing around £1,000 per pair still places them well above the bargain basement variety) and each includes its own premium features. In contrast, the other three are, in their different ways, oriented towards delivering high quality from a compact (though not necessarily discreet) enclosure.

Working up the price ladder, it's hard to argue with the £899 B&W 683, which is both the heaviest and the cheapest in our test group. Under the circumstances, which includes a pretty solid all-round performance, one should, perhaps, forgive the fact that it's also, perhaps, the least attractive-looking.

With its elegant hexagonal enclosure and £1,000 pricetag, the Heco Celan 500 looks solid material value, though mid-forward and bass thump tendencies do require sympathetic ancillary components and room conditions

At £1,100, the PMC Wafer 1 is a little expensive for its performance and certainly doesn't match up to the larger and more costly Wafer 2. But its extraordinarily discreet, hangon-the-wall appearance is a substantial achievement in itself, which puts it very high up the invisibility stakes.

The latest Triangle Antal Ex might be rather more costly than its Esw predecessor, but it's still decent enough value at £1,125, especially in view of the extra engineering effort that has gone into the new range

The several MonoPulse speakers that HFC has reviewed hitherto have all delivered rather impressive results, but I guess that had to end some time. The £1,195 625 might be the prettiest and most compact MonoPulse to come our way, but it falls somewhat short of the performance of its larger siblings.

The £1,450 Kudos C1 might, superficially, look the least good value model in our test group, but it fully justifies the price, with a quite delightfully subtle and delicate sonic performance that sets it apart from the larger and less costly models. HFC

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HINTS AND TIPS

- >> Floor-coupling spikes should have tight lock-nuts, but don't over-tighten these or you'll strip the socket threads
- >> Finding the right place to put the loudspeakers acoustically is very important. Remember to take time and trouble experimenting
- >> Moving a speaker from a free space location until it's close to a wall will substantially boost the mid-bass
- >> Expect speakers to improve steadily over the first 100 hours or so
- >> Use decent speaker cable, if you want your system to perform at its best.

LOUDSPEAKERS AT A GLANCE







Kudos



MonoPulse





MAKE MODEL	
PRICE	
SOUND	
PRACTICALITY	
BUILD	
VALUE	
OVERALL	
CONCLUSION	











Pretty compact delightfully subtle and delicate sound quality which sets it apart



Unusually styled compact floorstander has good coherence, but lacks the muscularity of larger MonoPulse models



Cunningly conceived hang-on-the wall design looks wonderfully discreet, but is short of muscle and smoothness



Good basic material money but could do with more smoothness and soul

EY	ee	ATT	110	ec
1.		AΠ	48	63

SIZE (WxHxD)	20x99x34
DRIVER CONFIG	3-way
MAIN DRIVER SIZE(S)	1x150+2x165mm
STAND/ FLOOR?	Floor
CARINET FINISH	Vinyl woodprint

BI-WIRE?

Floor
Vinyl woodprint
Yes

2.5-way	2
2x165mm	1
Floor	S
Gloss paint or veneer	٧
Yes	Y

2-way
1x180mm
Stand
Wood veneer
Yes

20x35x27

17x92x22	23.5x52x11
2.5-way	2-way
1x160mm	1x140mm
Floor	Wall
Fabric	Painted
Yes	No

1214011111	
Wall	
Painted	
No	
87dBP	
40H ⊉	

20x108x35.5	
3 way	
3x160mm	
Floor	
Vinyl woodprint	
Yes	

LAB CONCI

OVERALL FREQ. BA

RESPONSE SMOO

LAB CONCEDITIONS	E - EAUELL
SENSITIVITY	89å6A
EST. BASS EXTENSION	20HzG
IMPEDANCE (NOM/MIN)	6/4 ohms

,	
ALANCE	+30% G
THNESS	+20% G

+20%G

24x100x36.5

88dBA 40H**₫** 8/8 ohms6 -10%

87dBF 28HzA 7/5 mhms4 8/8 nims5 -10%4 -20%₽ 20% -30%

91dBG 25HzA 7/5 ohms4 +10% 0%A



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lewed from the perspective of a laser trying to read the pits and lands of a CD, the surface of a polycarbonate disc is a very mucky place indeed. No matter how clean it appears to the naked eye, the disc surface is always covered in dirt and even after cleaning, one whizz through a CD transport will give it a static charge strong enough to attract any passing dirt, lint or dust. It's little wonder that CD players need error correction, because that laser just can't punch through all that microscopic grime.

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free of pollution-causing materials including active agents and chemical skin irritants, making it extremely safe to use and harmless to most surfaces. Because there are no oily additives it leaves no residual trace and the treated surface is left clean and ready for a life of zero-failure reads



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Michell Techno Weight	£67.95	
Milty Zerostat	£39.50	
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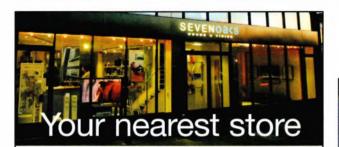
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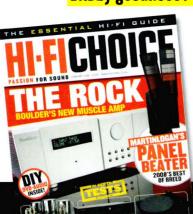
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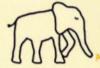
icking the right combination of digital TV, internet provider, phone service and even mobile phone is a bit like going to the market in some far-off country. Everything looks very nice, they all want to be your friend, everyone's offering you the best deal...

...but where's the catch?

Before you know it, you're up to your neck in leaflets and you can't tell whether half price broadband with free TV for three months is better than half price TV with free broadband for six months. We get confused and we spend every day talking digital.

Wouldn't it be great if you could call someone who had details of the most popular digital TV, broadband and phone service in the UK at their fingertips, and knew about everything from PVRs and aerial upgrades to download limits? Someone who isn't tied to any of the service providers, but can get you deals with all of them?





Yeah, it sounds like a good idea.

Simplifydigital has taken up this challenge, and as a reader of **HI-FI CHOICE** you can be one of the first to try them out. It's simple:

- You make a free call and talk to a Simplifydigital expert about your needs. It doesn't matter if you've already got digital TV, broadband or a phone account – they can talk through the options in plain English.
- **2.** They look through more than 500,000 package options including Freeview and track down the best one for you. If you don't like it, you can put the phone down and that's the end of it.
- **3.** If you choose a deal, they'll arrange installation and delivery, and you'll receive an email setting out everything you've paid for.
- **4.** Your new supplier will handle any queries about your installation, but if you're interested, Simplifydigital can keep you up to speed with what's happening in the digital world with their free email newsletter.

Call free on 0800 531 6366

Lines are open: Monday to Friday: 9am to 7pm; Saturday: 9am to 5.30pm; Sunday: 10am to 4pm



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intention to make complete products. Not just products that are sonically superior, but complete like a perfect circle. As you learn about Densen, you'll discover that we go the extra mile in every aspect: design, user-friendliness, quality, warranty, upgradeability, production methods and of course sound quality. But you really won't have a clue about it all until you get to hear and see what we're talking about in real life. Then you will know what

we mean when we say Air-Guitar factor (say what? check our website). There is one Air-Guitar / Air-Baton included with every Densen product

Discover why we say: LIFE IS TOO SHORT FOR BORING HI-FI



Best Integrated Amp Portugal 2006





Authorised dealers:

Acoustic Arts, Bedfordshire, Tel. 01923 245250 - Adventures in Hi-Fi Ltd., Chester, Tel 01942 234202 - The Audio Room, Hedon , Tel. 01482 891375 - Adams & Jarrett, East Sussex, Tel. 01424 437165 - Divine Audio, Leicestershire, Tel. 01858 432999 - Glasgow Audio, Glasgow, Tel. 01413 324707 - Hi-Fi Studios. Doncaster, Tel. 01302 725550 - Holburn Hi-Fi. Aberdeen, Tel 01224 585713 - New Audio Frontiers, Loughborough, Tel. 01509 264002 - Phonography, Ringwood, Tel. 01425 461230 - Practical Hi-Fi, Lancaster, Tel. 01524 39657 - Practical Hi-Fi, Manchester, Tel. 01618 398869 - Practical Hi-Fi, Preston, Tel. 01772 883958 - Practical Hi-Fi, Warrington, Tel. 01925 632179 - R.J.F., Cornwall, Tel. 01209 710777 - Sound Seduction, Sevenoaks, Tel. 01732 456573 - VideoTech, Huddersfield, Tel. 01484 516670



FCHOICE BALANCE

Welcome to the Hi-Fi Choice Buyer's Bible - the ultimate guide to the very best high performance hi-fi and multichannel gear you can buy. Here, you'll find our favourite current products listed under easy to use categories, plus useful information on what to look for and how to get the most from your components.

Reviews you can trust

Our test results are the most reliable in the business. We employ the most experienced reviewers and use the most stringent techniques to ensure our ratings are the ones you can trust. All the equipment we rate most highly is contained within these pages, from CD and vinyl to the latest multichannel disc players. Whether hi-fi stereo or high performance surround and vision, these components will take you a step closer to reality.

How to use this quide

The Hi-Fi Choice Buyer's Bible is the best way to make a shortlist of components for your system. Pick the ones that best suit your taste and budget, then use our Dealer Classified section to find specialist outlets where you can audition these components with your favourite discs.

Products that score more than four stars overall are automatically considered for inclusion in the Hi-Fi Choice Buyer's Bible. Any Best Buy or Editor's Choice Badges awarded are also displayed.

SOURCE COMPONENT

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CD PLAYERS

Audio disc players for music only

Despite the emergence of new formats and the resurgence of an old one (vinyl), CD is still the king of formats if you require breadth of choice. And despite the fact that other sources will play CDs, if you want to hear your discs at their best, there's little substitute for a dedicated CD player.

It's also the most enduring format on the market. Despite high-resolution contenders like SACD and DVD-Audio, nothing has been able to undermine this universally popular format.

CD players work by reading a stream of 1s and 0s off a disc that spins at a constantly changing speed (to counteract the increasing length of 'groove'). This bitstream is then digitally filtered before undergoing digital-to-analogue conversion in the DAC (D-to-A convertor) Thereafter, the signal is filtered



again before being amplified and sent to the output sockets.

The processes of reading the disc and converting the data are sometimes split between a CD transport and separate DAC in so-called two-box players. A popular approach with very high-end kit, this separates the electronically noisy elements from the sensitive analogue stages, but can introduce timing errors known as jitter, therefore one-box players usually offer best results where budget is a consideration.

0.8.0

WHAT'S A DAC?

A DAC or digital-to-analogue convertor is a fundamental part of any CD player and converts the digits read from the disc into an analogue music waveform which is amplified to line level.

WHY HAVE SEPARATE TRANSPORTS & DACS?

Discs are read by a transport or disc drive, which creates radio frequency 'noise'. Separating the DAC means the conversion can be done with less interference

CAN I USE AN OUTBOARD DAC WITH MY INTEGRATED CD PLAYER?

Yes, if it has a digital output - and most do.

DO I NEED DIGITAL CABLES FOR A CD PLAYER?

No. All analogue cables are suitable for connecting a CD player to an amp. Digital specific cables with 75ohms impedance are useful when connecting the player to a digital recorder or DAC.

WHAT IS OVERSAMPLING/UPSAMPLING?

Oversampling involves multiplying the sampling frequency by a whole number, usually between four and 32, but sometimes higher, and is designed let the DAC to work in a more linear fashion. Upsampling is where the data stream is stretched out by interpolation and is typically used to refer to large changes in sampling rate such as from 44.1 kHz to 192kHz.

CAN I PLAY SACDS ON A NORMAL CD PLAYER?

Yes. The vast majority of SACD discs are hybrids, with a CD layer that all CD players can read.

CAN I PLAY DVDS ON A CD PLAYER?

No, the same applies to DVD-As. But you can play CDs and DVD-As on normal DVD players.

SUPER AUDIO CD

SACD or Super Audio CD is a relatively new audio-only format introduced by Sony and Philips. It offers higher resolution than CD in the form of considerably greater bandwidth and improved dynamic range. It also has

the potential for uncompressed surround sound using up to six channels, and most new discs take advantage of this. SACD discs are usually hybrids and will play on normal CD players, but you won't be able to appreciate their highest quality or their multichannel capability without an SACD-compatible player. Some SACD players also play DVD and even DVD-Audio - these are listed in our DVD section.



Rega Apollo £498

Rega's latest entry-level player is a splendidly musical performer, given its modest price. Bass is good, midrange is great and high frequencies are truly exceptional.



Cambridge Audio Azur 840C £750

Sitting at the top of Cambridge Audio's Azur range, the 840C is a technically innovative player with a sound that belies its sub-£1,000 price – open, subtle and refined.

Our favourite BEST BLY CO EDITOR'S CHOICE **CD PLAYERS** VARIABILE OUTPU OPT DIG OUTPU ANALOGUE DU Audio-only CD and SACD players BADGE? PRODUCT UP TO £1.000 Arcam DiVA CD73 301 450 Neatly built and well presented player that's especially good at bass and timing, with detail hardly less assured Audio Analogue Rossin 299 Valve-sporting player delivers a warm, engaging sound, but mediocre remote and no optical out may limit appea Cambridge Audio Azur 640C 285 250 If you value the effortless flow of musical information, you should certainly hear this player 293 Cambridge Audio Azur 740C 500 Very flexible, this innovative upsampling player sounds exceptionally neutral and highly informative Cambridge Audio Azur 840C 750 Purposefully undemonstrative, combining neutrality, detail and timing: enhanced by flexibility as a DAC 291 Creek Evo. 495 A minute treble lift; otherwise this is a very capable player that offers fine value 285 Denon DCD-500AF 295 160 Cheap, well built and good, if slightly soft-edged sound quality Denon DCD-700AE Excellent entry level quality CD player lacks for nothing. Musicians please note: even has variable speed replay 284 Marantz CD6002 280 A hint of treble unevenness is the only specific flaw: performance is class-leading in most areas 301 Naim CD5 291 825 Bass has great extension but lacks control, slightly. Tonal neutrality higher up is excellent, however Quad 99CD-S 650 Revels in big music thanks to fearless presentation: smaller-scale works can lack focus 291 Rega Apollo 498 Unless you can't abide top-loaders, check this out: musically it's a highly praiseworthy performer 285 Sony SCD-XA3000ES 276 800 A good, if not truly great, all-rounder with CD and fine multi-channel SACD performance Vincent CD-S6 Mkill With its tube output stage, a beguiling midrange, sweet highs and attractively figured lows plus fine dynamics 287 ABOVE \$1 000 Bryston BCD-1 2.050. Not as open as some but rather more timely than most it sounds a lot more gripping than it looks 300 Cairn Fog 3 1,995 Ergonomically challenged, high energy player with Gallic charm and digital preamp on board 302 299 Chord Red Reference CD 13,345 The definitive statement in Red Book CD playing, this player's look and sound places it at the top of the tree Classe CDP-102 3,000 Rich, dynamic CD/DVD player with a full bottom end, impressive dynamics and a luxurious yet revealing balanced 286 Classe CDP-202 4,750 CD/DVD-A player with brilliant sound, if sophistication is your bag, includes S-video and composite outputs 284 Copland CDA823 1,750 Don't let the laid-back character fool you - this player has plenty of insight too 280 Ovrus CD8x/PSX-R 1,400 Lightness of touch is the key here, but there is also good bass and some very fine detail on offer too 295 EMM Labs CDSA 6,995 Classy, stripped down to basics SACD/CD player with some excellent engineering below decks 302 Esoteric X-03SE 4,995 Resolution and musicality close to the top of the game. For out and out transparency and build quality it's hard to beat 285 289 Gamut CD3 3.500. Superb resolve of fine detail combined with a perfectly judged balance and an ability to draw you into the music 289 Krell Evolution 505 SACD 8,777 Brilliant replacement for SACD Standard, superb musical discrimination. No high-res digital output 291 Leema Antila 2,495 Musically engaging player that will have you going through your CDs afresh. Balanced connection is best 1,950 Compact and capable of most CD formats, it's musically communicative with fine pace and enthusiasm 283 Linn Maiik Marantz SA-7S 5,000 Something of a bargain even at this price, the SA-7S1 sets the benchmark for CD/SACD players of its like 297 McIntosh MCD201 3,400 Superb CD performance and even better with SACD which has its own output level control 284 Meridian G06 295 1,695 Highly refined player with a combination of analysis and self-effacing response to musical demands Moon Supernova 4,500 Refined, high-performance player offers tremendous transparency and includes coaxial digital input 296 Musical Fidelity X-RAY v8 288 1.098 Accurate, yet musical performer, £799, but requires £299 TRIPLE-X power supply outside of X-T100 system Rega Saturn 1.298. Good detail, lively natural bass, and good integration of musical strands without losing their individual character 295

1,495 Strong timing and rhythm, this player is well equipped for more melodic music, with good detail resolution SPECS KEY SACD COMPATIBLE Plays high-resolution SACD discs in multichannel and/or two-channel mode. ELEC DIGITAL OUTPUT Electrical coaxial output for digital connection to a DAC or digital recorder OPT DIGITAL OUTPUT Optical Toslink output for digital connection to a DAC or digital recorder. CD-RW COMPATIBLE Will play CD-RW (rewritable) discs, most CD players can cope with CD-Rs

CD TEXT Will display album and track titles from inserted disc BAL ANALOGUE OUT Balanced XLR output connections for similarly equipped amplifiers

HEADPHONE SOCKET Quarter inch (6.3mm) headphone jack fitted to the CD player. VARIABLE OUTPUT Player features both fixed level and variable, volume adjustable outputs



Unison Research Unico CD



Esoteric X-03SE £4.995

Esoteric's entry-level CD/SACD player delivers astonishing sonic detail and precision, coupled with a gorgeous sense of musical structure. Truly, it's brilliant.

295

DVD PLAYERS

Disc players for audio and video

Although players featuring both DVD-Audio and DVD-Video are thin on the ground, the universal disc player (that also supports SACD and CD alongside the DVD formats) continues to dominate the worlds of audio and video alike. In fact, it's rare to find a DVD player that doesn't support DVD-Audio and SACD these days

So, what advantages do universal disc players hold over traditional CD players? Put simply... choice. A DVD player or universal offer the listener the chance to use far more than just your CDs and build up a wider collection of music and video, all played through one device. The technology has matured now, and the performance of all formats played through these devices gets surprisingly close to dedicated players these days. The same cannot be said of Bluray or HD DVD players, many of which are not yet good enough to play CD well.

WHICH AUDIO OUTPUTS GIVE THE BEST QUALITY?

Use the analogue outputs for CD, DVD-A and SACD, and the coaxial digital output for DTS and Dolby Digital

WHICH VIDEO OUTPUTS **GIVE THE BEST QUALITY?**

movie soundtracks

The best connection is HDMI. then component video, followed by RGB Scart. All these are clearly superior to S-video and the basic composite video option.

DO I NEED A MULTICHANNEL AMP TO USE A DVD PLAYER?

Only if you want to hear music and movie soundtracks in multichannel surround. DVD players can be used with stereo amps and just two speakers to great effect, but you'll only get stereo, not surround sound.

WHAT IS 1080P?

HDTV is defined by the number of lines the picture creates and whether it's interlaced (like old TV) or progressive scan (like a PC monitor).



DVD-AUDIO, HD DVD AND BLU-RAY

DVD-Audio is a high-resolution music format that offers multichannel, stereo and Dolby Digital tracks on dedicated DVD-A discs. The discs can be played on any DVD player, but can only be appreciated at their best with a DVD-A or universal disc player. In fairness, the DVD-Audio format has not proved to be a resounding success, and SACD discs are more readily available.

The two new kids on the block are HD DVD and Blu-ray. Both the same physical size as the CD and DVD disc, these formats offer even more data storage capacity than DVD (up to 50GB instead of DVD's 8.5GB). However, these formats are the exclusive domain of home cinema and gaming fans. Sadly, the possibility of super-high-resolution music-only Blu-ray or HD DVD discs remains distant at best.

CONNECTIONS



that carries digital audio and video. like a digital SCART lead. Arguably the best choice for HDTV pictures.

HDMI LINK: A flat, multi-pin socket VIDEO CONNECTIONS: Yellow socket is composite; red, green and blue sockets are for component; the small black multipin socket is S-Video; the big one is SCART.

DIGITAL OUTPUTS: For Dolby Digital, DTS and PCM audio bitstreams

ANALOGUE AUDIO OUTPUTS: For stereo and multichannel connections, use these for best results with DVD-Audio, SACD and CD.

Our favourite BEST BLY C EDITOR'S CHOICE **DVD DI AVEDO**

Aud	io/Video disc playe		reno	DVD-A COMPATIB	SACO COMPATIBLE	ELEC DIG OUTPUT	OPT DIG OU	HEADPHONE SO	ISSUE NUI
BADGE?	PRODUCT	Z.	COMMENTS	18	3.80	R	CUTPUT	SOCKET	NUMBER
WP TO	£1,000								
110	Arcam DiVA DV135	900	Unchanged looks and stereo-only DVD-A/SACD, but the overall performance is great across all formats. Stunning picture, too						296
1(=(Denon DVD-1920	250	Respectable (if unexciting) and flexible audio player, but something of a star from its HDMI equipped upsampling video subsystem						276
F67	Marantz DV7001	600	Enhanced model based on DV6001, but with various improvements, including superior CD replay capabilities						296
0.0	Marantz DV7600	600	A mid-market cracker, with sound and picture quality that generally exceeds expectation						274
00	NAD T585	800	Easy to live with universal player that shows clear signs of rejuvenation of the Classic range						294
	Onkyo DV-SP503E	300	Budget Onkyo universal player is a straightforward Pioneer based implementation, which performs well with audio and video						275
90	Philips DVP9000S	400	Philips proves it hasn't lost its touch with mid market DVD players. Includes SACD and HDMI for quality video, and it's a star						274
7.	Yamaha DVD-S2500	700	Universal player, slightly stronger with video than audio, but well turned out with a wide range of analogue and digital in and outputs						280
ABOVE	£1,000								
EC	Accustic Arts Surr Player 1	4,495	A very high-quality Pioneer-based machine, excellent sound from both hi-res and regular formats						299
	Arcam DiVA DV137	1,250	Good overall audio performance and excellent upscaling HDMI DVD-Video player, but stereo-only SACD playback at time of writing						285
, · · ·	Denon DVD-3930	1,100	Well engineered universal player, with useful bypass facilities for pure audio, and unusually powerful video image processing						287
EC	Linn Akurate CD	3,985	This highly engaging multiformat non-video player doesn't have huge transparency or a fancy box, but is musically addictive						299
	Marantz DV9600	1,500	With excellent, next-generation picture and impressive sound quality on CD and SACD, this sets a very high standard to beat						280
EC	Meridian G98AH	3,625	Meridian's most widely compatible G-Series DVD player – groundbreaking DVD-Audio replay and a fine CD player too						265
EC	Naim DVD5	2,565	Naim's first DVD player is a real success, notable for its class-leading sound with CD and (optional) multichannel DVD-Audio						263
7.	T+A SACD 1245 R	2,000	Dedicated stereo only/SACD/CD player avoids the usual compromises. It does a limited job, but it does it with fine fidelity						279
EC	Townshend TA 565 CD	3,000	A universal machine that excels with music and is quite exceptional with good of stereo CD						270

SPECS KEY DVD-A COMPATIBLE Plays high-resolution DVD-A discs in two and multichannel modes. SACD COMPATIBLE Plays high-resolution SACD discs in two and multichannel modes ELEC DIGITAL OUTPUT Electrical coaxial output for digital connection to a multichannel amplifier or receiver, OPT DIGITAL OUTPUT Optical Toslink output for digital connection to a multichannel amplifier or receiver. HEADPHONE SOCKET Quarter inch (6.3mm) headphone jack fitted to the DVD player







Arcam DiVA DV135 £900

Stereo-only SACD and DVD-A, but excellent performance with audio and video.



Meridian G98AH £3,625

A digital tour de force – as exceptional with both audio and video as you'd expect.

Hear Furutech's latest high grade audio connector at Bristol Sound & Vision, 22nd - 24th February 2008. Room 209.

- (Alpha) Phosphor Bronze Rhodium plated Conductor Earth (ground) Jumper System (US Patent No. 6,696,491) Nyion/fibreglass body incorporating nano-sized ceramic particles for enhanced resonance control
- particles for enhanced resonance control. Multi-layered normagnetic stainless steel and carbon fibre housing containing acetal copolymer. The best damping and insulation materials engineered to improve frequency extension and tonal balance. Specified for cable diameters from 6mm to 20mm. Dimensions. 40.5mm x 80.8mm (D x L). Metal cable clamp improves grip and reduces mechanical states.

- Dimensions, 40.5mm x 80.8mm (D x E)
 Metal cable clamp improves grip and reduces mechanical and electrically induced distortion.

For more information about Furutech call 01635 291357



VINYL

Turntables, cartridges and phono stages

Record players or turntables offer the digital revolution serious competition when it comes to sound quality. Even a modest model can turn musical tricks that most CD players struggle with. Some call it vinyl warmth, but in reality it's a lack of digital hardness that makes the format so engaging. True, the software requires a bit more care, but even a knackered LP is more playable than a scratched CD

Record players are made of three. perhaps four, fundamental parts. The turntable is the plinth and platter, usually also containing the motor and any suspension system. A tonearm sits on the plinth and allows the cartridge to trace the vinyl groove by pivoting or parallel tracking over the record. The cartridge contains the means of turning the mechanical movement of the groove wall into an electrical signal.

A fourth element is an amp dedicated to the delicate job of amplifying and equalising the cartridge's insubstantial output. This is called a phono stage and can be found in some integrated amplifiers and preamps, but is



increasingly purchased separately for use with line-only amps.

There are two types of phono cartridge: moving magnet (MM) and moving coil (MC), and with a few exceptions the latter outperforms the former. But MCs produce a lower output and require better-quality amplification to be heard at their best. As a general rule, MCs offer a broader bandwidth, greater dynamics and more detail, but the better moving magnets do most things well enough to distract you from your CD collection

Setting up a turntable varies from model to model, but the general principle is to level the platter by adjusting the suspension or, as with solid platters, the surface it sits on. Sprung suspensions sometimes require a bit of fine-tuning to sound their best, but the principle is to achieve a smooth, pistonic bounce. Cartridge set-up is even more critical, as the angles at which the stylus traces the groove affects its tonal balance and levels of distortion. A good alignment protractor is essential if you are intending to set up your own cartridge, as is a degree of patience. In essence, there are two angles you need to get right: the tracing angle as the cartridge crosses the record if you are looking from above, and the vertical tracking angle (VTA), which is adjusted by raising or lowering the arm base to bring the arm parallel with the record surface.



Pro-Ject RPM 5 £400

Pro-Ject's entry-level RPM deck is a good-looking, great-sounding package that delivers terrific value for money. A class act and no mistake.



Funk V £760

The more costly of two turntables from The Funk Firm, the Funk V builds on its sibling's virtues to deliver a sound of sheer class - dynamic, detailed and refined.



Clearaudio Champion £1,475

Current king of acrylic, the Clearaudio deck, arm and cartridge combination turns in a beautifully well-balanced delivery, but choose your support wisely.



Avid

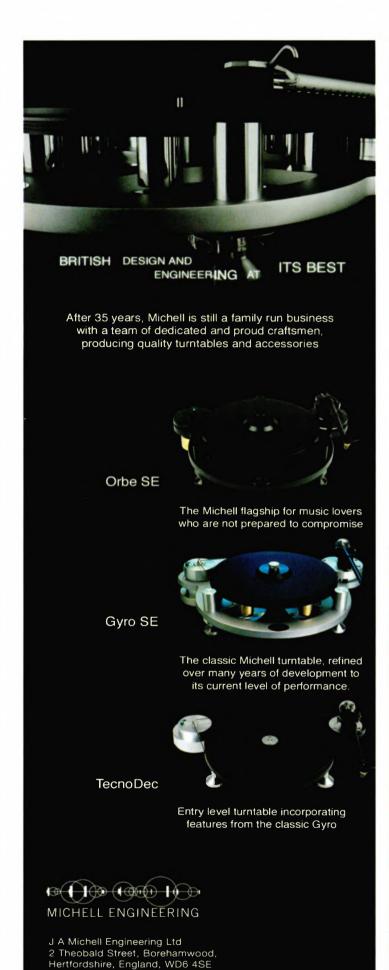
Volvere Sequel £3,500 Avid has been one of the most impressive

exponents of the vinyl arts in recent years, and this mid-range deck is a stunning example of analogue engineering.

	INI FO		SPE	CIFIC	ATIO	IS	
TURNT	IRFF2						
			180	DO.	W	WI	COULT TOO
ecord players	£ COMMENTS	SPEEDS	UBZHASSIS	TO CHANGE	WITH ARM	WITH CAR	OWE
Avid Volvere	2,750 A combination of a heavy platter with a sprung suspension that makes the vinyl it spins sound powerful and solid	33/45	(7)	111175	_	_	2
Avid Volvere Sequel	3,500 Heavyweight turntable that will deliver more of what's in a vinyl groove than most of the competition	33/45					2
Clearaudio Champion	1,365 Smart, practical and good-sounding, with impressively 'dead' arm, isolation recommended	33/45					2
Clearaudio Performance	1,670 Ceramic-magnetic bearing spells a surprisingly uncolored performance. Good arm and cartridge	33/45					2
Clearaudio Ambient	4,220 Innovative use of materials leads to a fast, precise and thrilling sound (tonearm extra)	33/45					2
EAR Disc Master	7,695 Combines new 'no contact' drive technology and high quality materials to bring state of the art resolution	33/45/78			opt		2
The Funk Firm Funk	450 You won't find another turntable at the price that can touch the Funk for dynamics, tone colour or detail	33/45			opt		2
The Funk Firm Funk V	750 Vector drive brings a refinement to the standard Funk that increases resolution. For high-class analogue sound, it's a killer	33/45				opt	2
Goldring GR2	265 Nicely finished Rega-manufactured deck with RB250 arm and an open, engaging sound quality	33/45			Opt	Opt	2
Michell Tecnodec	767 Simple and smartly understated, performs above expectations – full-bodied and highly detailed	33/45					2
Michell Orbe SE	2,015 A superb turntable, able to mix it with the best at virtually any price. Now features new DC motor	33/45					2
Pro-Ject Expression II	250 A smooth and engaging turntable with the ability to revel in the glory of vinyl, with upgradable arm cable	33/45					2
Pro-Ject RPM 5		33/45					2
Pro-Ject RPM 6.1	Great looks plus an on the ball, engaging sound that puts it in the serious league, needs good isolation for best resultsWith its minimal chassis and huge platter this is a steady design that's capable of fine results with a decent cartridge	33/45/78					2
		33/45					
Pro-Ject RPM 9 X Rega P3-24	1,000 A gorgeous turntable that sounds as good as it looks – vital and transparent! Price includes carbon-fibre arm						2
_	398 Very competent, uncoloured and musical, much improved by £148 outboard electronic power supply	33/45		opt			2
Rega P5/R8700	698 Combines a great sense of timing with market-leading resolution and a phenomenal tonearm – a hard act to beat	33/45			opt		2
Rega P7/RB700	1,298 A highly capable player that could hold its own in the most exalted company – a vivid and natural performer	33/45			opt		2
Rega P9/RB1000	2,498 Exceptionally elegant hi-tech player with complex outboard supply, ceramic platter and wonderful RB1000 tonearm	33/45					2
Roksan Radius 5/Nima	850 Sophisticated design with accomplished sound quality, excellent imagery and good isolation (acrylic version tested)	33/45					2
SME Model 10A	3,411 Elegant and extremely capable design, tested here with Series V/309 hybrid arm	33/45					1
SME 20/12A Townshend Rock Anniversary	11,133 Brings a calmness and precision to vinyl replay that we have rarely encountered, build quality is second to none 4,900 If you want to get to the meat and bones of the music this is a great tool for the job (once inc. Excalibur arm)	33/45/78					2
					-		
THUNU	CARTRIDGES					REPLACE	
	CARTRIDGES			MM	MC	REPLACEABLE STYLLS	
M and MC cartridges	CARIRIUGES			MM	MC	REPLACEABLE STYLLS	
M and MC cartridges	₹ COMMENTS	ight arm		NM	MC	REPLACEABLE STYLUS	
M and MC cartridges DGE? PRODUCT Cartridge Man MM III	COMMENTS The MM III challenges MCs at twice the price, it produces detail, space and energy and has stunning resolve in the rice.	ight arm		NM	MC	REPLACEABLE STYLUS	
M and MC cartridges DEEP PRODUCT Cartridge Man MM III Denon DL-103R	COMMENTS The MM III challenges MCs at twice the price, it produces detail, space and energy and has stunning resolve in the rice. Adds refinement to basic DL-103, at a price. One of the best rock'n'roll cartridges around	ight arm		MM	MC	REPLACEABLE STYLUS	
M and MC cartridges OGE? PRODUCT Cartridge Man MM III Denon DL-103R Grado Prestige Gold	COMMENTS The MM III challenges MCs at twice the price, it produces detail, space and energy and has stunning resolve in the rice. Adds refinement to basic DL-103, at a price. One of the best rock in roll cartridges around. Produces rich, open and expansive music with the minimum of fuss.	ight arm		NM	MC	REPLACEABLE STYLUS	
M and MC cartridges OGE? PRODUCT Cartridge Man MM III Denon DL-103R Grado Prestige Gold Lyra Helikon	COMMENTS The MM III challenges MCs at twice the price, it produces detail, space and energy and has stunning resolve in the rice. Adds refinement to basic DL-103, at a price. Dne of the best rock'n'roll cartridges around Produces rich, open and expansive music with the minimum of fuss Highly capable and highly neutral, this is a cartridge for all seasons, albeit fussy about vinyl quality			MM	MC	REPLACEABLE STYLUS	
M and MC cartridges DOSE? PRODUCT Cartridge Man MM III Denon DL-103R Grado Prestige Gold Lyra Helikon Ortofon Salsa	COMMENTS The MM III challenges MCs at twice the price, it produces detail, space and energy and has stunning resolve in the rice. Adds refinement to basic DL-103, at a price. One of the best rock'n'roll cartridges around. Produces rich, open and expansive music with the minimum of fuss. Highly capable and highly neutral, this is a cartridge for all seasons, albeit fussy about vinyl quality. Despite a touch of midrange coloration, this cartridge really involves the listener with good extension and a clean, agile standard in the price.			MM	MC	REPLACEABLE STYLUS	
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EVENT/UTI SYMBS IN SPEEDS Speeds offered in rpm. SUSP SUBCHASSIS Turnlables with a sprung or suspended support for the platter and arm. SWITCHABLE SPEED CHANGE Some decks require manual lifting of the belt from one pulley to another to change speed, but not these ones. **SUPPLIED WITH ARM** Deck is supplied complete with tonearm – some require a separate purchase in this department, but the dealer will fit it for you **SUPPLIED WITH CARTRIDGE** Some decks are supplied with a starter cartridge and this is included in the price shown.

CARTRIDES SPECS KEY MM Moving magnet cartridge — see amp and phono stage features to match this type. MC Moving coil cartridge — see amp and phono stage features to match this type. REPLACEABLE STYLUS Some cartridges have separate styli for ease of replacement, but it compromises sound quality.



Telephone: 020-8953 0771

Fax: 020-8207 4688 michell-engineering.co.uk





RADIO TUNERS

FM and DAB hi-fi separates

Radio is a fantastic musical resource that's in danger of being taken for granted, but whatever your tastes there's someone out there catering for it. If you haven't got a decent tuner hooked up to your hi-fi already, you're missing out!

DAB or FM?

Digital Audio Broadcasting (DAB) is now said to be available to more than 80 per cent of the population and the long-term plan is to switch public broadcasting over to digital entirely, but hardware prices have yet to come down to a point where this would be acceptable. Its advantages over FM include hiss-free reception, the potential for a wider range of stations and the ability to display comprehensive programming information. FM's RDS system means that station name and occasionally track titles are displayed, but the range of information is fairly limited.

Where FM scores over DAB is in the lower

cost of hardware and the greater reception area. It can also provide higher sound quality if reception conditions are favourable. Absolute sound quality judgements are muddied by the fact that you are listening to different forms of compression and processing at the studio for each station.

What is clear, however, is that there are more and more radio stations broadcasting on DAB that aren't available on FM. So if it's variety of programming you're after, they have a lot to offer.

RECEPTION

The quality of signal you feed a tuner will dictate its sound quality. So serious FM listeners should get a decent external aerial and connect it with as few junctions and splits as possible. Every time you split the cable (ie take a feed for another tuner) you halve signal strength! With DAB the same applies but get a DAB-specific aerial. See www.bbc.co.uk/digitalradio for details.



Combines DAB with FM/AM reception and good all-round design at a tempting price.



Creek T50 £550

A thoroughly accomplished AM/FM tuner with a substantial and detailed sound.



T+A T1210R £1.000

This FM tuner looks, feels and sounds ton-notch - great detail and imaging.



Magnum Dynalab MD 90T £1,195

FM tuner with valves - 'affordable' for an MD, but still streets ahead of most radios.

Our favourite BEST BUY CO EDITOR'S CHOICE TUNERS FM & DAB HI-FI SEPARATES BADGE? PRODUCT Creek T50 550 Very fine results indeed with precision, polish and insight added to excellent basics FM.M.L Cyrus EM-X FΜ 500 A classic no-nonsense FM tuner that achieves gratifying sonic results. Upgradable with PSX-R power supply 283 Denon TU-1500AE FM,M,L Well attuned to the crowded modern FM band, this tuner produces clear, detailed sound with plenty of gusto Denon TU-1800DAB There's a little grain on FM, but the decent performance on both bands makes this a great dual-band choice DAR EM M 200 283 Magnum Dynalab MD 90T 1,195. No remote or presets as standard, manual everything and valves .. but its sound is simply sublime FM 257 Marantz ST7001 FM reception could offer a little more detail and insight. DAB is fine, but near-identical Denon 1800 is cheaper! 200 NAD C422 EM M 30 250 Admirably free of roughness or other obvious pasties, with just a slight lack of clarity Primare T21 600 A very fine tuner - bass and treble are both well extended and detail is excellent FΜ 230 Pure DRX-702ES 210 Apparently good value is restricted by persistent veiling on FM: 'PAC' on DAB mellows sound a little DAB.FM.M Rega Radio 3 398 Strong bass, clear treble and a high enjoyment factor make this an appealing FM performer FM M 283 Rotel RT-02 279 A highly competent tuner which always sounds appealing and fuss-free 242 FM M 30 T+AT1210R 1,000 High-end looks are matched by the sound, which is detailed and sophisticated, with useful features too 283 Arcam DIVA DT91 Some grain at low levels, but sound is lively, large in scale and tonally very natural. Very smart! 299 Cambridge Audio DAR500 DAB 248 Very good sound, plus optional response tweaks, and slickest operation yet Denon TU-1800DAB Very good detail and a highly believable impression of real musicians playing. Imaging can be a little constricted DAB.FM.M 200 299 Marantz ST7001 Midband detailed and precise: treble can be thick but bass is extended, and sound generally energetic NAD C445 DAB.FM 30 299 300 FM is laid-back despite bright balance, but has good detail. DAB slightly livelier than most Onkvo T-4555DAB 40 350 Admirably free of grain or obvious tonal blemishes, this tuner achieves a high standard in all areas on DAR EM

SPECS KEY WAVEBANDS Which bands are supported: FM, M - medium wave, L - long wave, DAB - digital audio broadcasting. PRESETS How many stations can be stored in memory. RDS Radio Data System - station names gram titles can be displayed among other lacilities (FM only, DAB has more comprehensive display potential). REMOTE CONTROL For the couch potato. SIGNAL STRENGTH METER Useful for setting up an aerial. ROTARY TUNING KNOB An ergonomic alternative to buttons.

STEREO AMPLIFIERS

Integrated and pre/power amps

Amplifiers come in two basic forms: integrated and preamplifier (pre) plus power amp combinations. Integrated simply means that both pre and power sections are in one box. There are definite advantages to separating the low level, delicate signals in the preamp from the radiations of a power amp, so the more ambitious designs come in two or more cases. In some cases, each channel has its own power amp called a monoblock.

Amplifiers use two basic technologies: transistors or valves. Transistors are popular because of their practical and technical advantages, but valves - aka tubes - live on owing to aspects of sound quality that trannies can't replicate. If you want to play your music loud, use trannies; if you appreciate acoustic music, try valves.

The fundamental of amp/speaker interfacing is power rating and speaker sensitivity. You can drive a high-sensitivity speaker with a ten watt valve amp, but it takes a 200W behemoth to get the best out of speakers which present a difficult load. As a rule, you can't have too much power.

How to choose an amp

The main areas in which amps vary are: timing, dynamics, stereo imaging and transparency. Timing is the ability to present the attack and decay of each note precisely; amps with strong timing have a snap and coherence that is very appealing



Dynamics is a general term for the ability to portray variations in level between individual notes and is different to dynamic range (the difference between the loudest and softest notes). Dynamically strong amps tend to have more life and energy.

Stereo imaging is how solid or three-dimensional an instrument or voice sounds. The point of having two rather than one speaker is to make it possible to recreate the soundstage of the original recording, thus amps that have strong imaging skills can create a sonic space that seems to extend the room.

Transparency of detail is the most obvious difference between amps. One amp will present more subtlety than another, but the drawback with using this as your main criterion is that a forward or 'bright' sounding amplifier will emphasise detail at the expense of overall musical coherence.

SHOULD I LEAVE MY AMP ON **ALL THE TIME FOR BEST RESULTS?**

All audio electronics perform better when they are warmed up, and this is particularly the case when it comes to amplifiers. If there's no way that you can leave it on all the time, make an effort to switch it on at least 20 minutes before listening.

WHAT IS BI-WIRING AND **BI-AMPING?**

Bi-wiring is when you run separate cables to the treble and bass/mid terminals on the speaker. In most instances, this improves sound quality so long as identical cables are used. Bi-amping is using two stereo amps to drive one pair of speakers, using one amp to drive the treble and the other for the bass/mid sections of the speakers.

WHY DO VALVE AMPS HAVE **SO LITTLE POWER?**

Valve amps are inherently low powered in absolute terms - at least when you compare them to their transistor-based cousins. But when partnered with high-sensitivity loudspeakers, they are quite capable of producing perfectly adequate head-banging levels.

STEREO

Stereo amps can be used in home cinema set-ups as well. You don't get the surround and centre channels, but well set-up stereo speakers do a remarkably good job of creating atmosphere for movies. Stereo amps tend to be better at reproducing music as they don't have the (electrical) noiseinducing digital processing of AV amps. AV amps cost three to four times as much as stereo models of a similar quality.



If you thought the PM7200 was a great budget amp, just wait until you hear this! Its sound is so detailed and involving. you'll think it costs twice the price.



Cyrus 6vs2 £600

The latest 'singing shoebox' from Cyrus is an absolute peach! Strong rhythmic flow, tunefully extended bass and excellent stereo imaging are among the highlights.



Are you looking for an amp that combines weight and musical gravitas with rhythm, detail and subtlety, with gorgeous build quality to boot? In that case... here it is!



This amp's massively enjoyable musicality is hard to beat; all the effusiveness of a great valve amp and none of the stereotypical softness. Brilliant!

d practical amp offering good snap and pace, with natural dynamics and good detail inplifier for the money and capable of revealing and exciting sound in the right company includes 4 digital inputs infordable and impressively flexible amp with a laid-back approach but plenty of insight too pap-feeling controls are the only real downside to this powerful and lively little amp be boxes for bass, clarity, imaging etc. and invites the listener into the music with uncommon grace at differences between this and most amps at twice, its price are in looks and show-off factor. Powerful and detailed best accurate, strictly, but it's lively, energetic musical presentation is entirely lovable as appropriate and invites and acoustic spaces well, with real musical involvement owing number of new low cost amps, it offers good timing and analysis at up to moderately high volume levels string amplifier which serves the music admirably with fine bass, sweet treble and unforced detail ing amp and TRIPLE-X power supply, this deceptively powerful valve-sporting amplifier is both enticing and musical of more power and better connectivity against less inputs works surprisingly well in a grunty, musical manner usic first, with sound that delivers the basics correctly but above all involves the listener he mantle of the legendary A400. Not as cuddly, but very resolute and revealing for the money. Has USB input es indifferent measured performance with good detail, balance and flowing melodic quality d whose sound is as idiosyncratic as its styling, short on neutrality but high on sparkle amplifier that brings you the dynamics of valves with the power of transistors in a substantial but well featured design trode operation is available at the flick of a switch with this muscular integrated transparent to detail but less revealing of energy, high power, superb build but only balanced inputs falls of many valve amps, yet retains the euphony typical of the best of breed sured performer that doesn't superimpose its personality on the music		66 MI	M M			FWHOUTHI W 60 100 75 100 85 40 50
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	(M 6	Λ			50
provides firm underpinning for involving and enjoyable listening - real 'smile factor'	(5			1	100
	(op	t			60
pass: slight treble dryness detracts only a little. Good sense of scale and rock-steady rhythms appeal too!	(o ot	ot o	pt	1	100
ed modular all-digital amp with room EQ, capable of adapting to the listening environment	4				2	200
ed, with an elegant build and sound quality, very limited features, even by high-end standards						150
phono stage and built-in valve buffer, this powerhouse amp can really grab hold of a loudspeaker		1				250
	4	1				40
		7				180
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sophisticated yet agile performer, and beautifully built too						100
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r g iii	peptively powerful integrated valve amp with a crisp, pacy sound and flexible, it goes very loud with fine authority and dynamic range, but lacks some sparkle communicative ability meets convenience in this sophisticated and powerful integrated design a sophisticated yet agile performer, and beautifully built too grated, with the accent on music rather than rhythm. Needs more inputs, though aid-state Class A amplifier, sweet as a nut and more powerful than its predecessor detail and coherence. 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SPECSICY LINE INPUTS Input sockets for source components with a line level output: CD players, DVD players, tape decks, funers, phono stages etc. PHONO INPUT input sockets and onboard phono stage for a cartridge Either MM (moving magnet) or MC (moving coil), occasionally both REMOTE CONTROL A remote control is supplied with the amplifier. HEADPHONE SOCKET To drive your cans with POWER OUTPUT Manufacturer's rated output in watts per channel.

1198 Simply featured, but sounds appealingly realistic and solid. Highly capable in all areas design

Russ Andrews HP-1/PA-1

50 303

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Densen Beat B-200/B310

ECS EA-1

Gamut D3

EC

ΕĊ

EC

Gamut D200 Mk3

Krell FPR 700cx

Naim NAP 500

Naim NAC 552

Linn Klimax Kontrol

Primare PRE30/A30.2

Hoyland HP-100/RADIA

BUYER'S BIBLE STEREO/AV AMPS

Our favourite BEST BUY 100 EDITOR'S CHOICE **SPECIFICATIONS** STEREO AMPLIFIERS BADGE? PRODUCT COMMENTS Arcam FMJ C31 Professionally presented, beautifully built and exceptionally revealing, this preamp achieves much by doing little Border Patrol Control Unit 277 Bluff looking valve preamp, with one of the most neutral vet dynamic sounds around 5 opt Bryston BP26 DA/2B SST Bryston's top preamp is now a serious competitor. The power amp reveals a lot of signal and delivers serious grunt 6 ont 100 278 FC Chapter Preface/II+ Among the finest amps available, the resolution of this preamp and power amp challenges the best at any price Chord Prima/Mezzo 140 6.100 Small, muscular, beautifully made and styled and sounds like a dream 120 269 Classe CP-700/CA-M400

13,350 Pre plus mono power combo with superb build, huge power and enormous flexibility. Sounds stunning, too

Uncommonly musical valve/transistor hybrid transcends stereotypes, one of the genuine high achievers

11,875 Wonderful neutrality, bandwidth and dynamic range, plus Naim's traditional leading-edge definition

12,100 Extremely expensive preamp, but still solid value. Magnificent sound with fine flexibility and convenience

Smart kit that lives up to the visual promise with gorgeous sound – a really musical performer

14,998 Reference class amplifier may represent overkill in many systems, but when no compromise is called for, this is it

6,000 Beautifully executed example of Scots audio art, sounds as clean as it looks and is a lot more transparent than most

Understated monoblocks with real transparency to the fine detail, passion and energy in your record collection

Creamy smooth, yet lets you hear all the fine detail that goes to making a tonally rich, dynamically strong sound

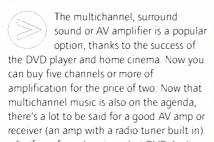
Lively, energetic combination that bring a great sense of scale to familiar recordings

A great power amp that's now even better - one of the best regardless of price

		ERS
AV		PKN

6.000

Surround sound amps for music and movies



So if you fancy hearing what DVD-Audio, SACD or even music DVD-Video can do, then check out a multichannel amp and speaker set-up - they're stunning with movies and none too shabby with music.

AV amps are usually designed primarily for movies and come with digital processing for the various soundtrack formats - Dolby Pro-Logic (analogue), Dolby Digital and DTS, which offer discrete surround sound in 5.1 and 7.1 channel formats. More ambitious designs also offer THX post processing, designed to emulate the sound of the mixing theatre at home.

Processing in AV amps is needed because the surround formats on DVD-Vs are



compressed, limiting their high-fidelity potential. This is why new formats SACD and DVD-A, which don't use 'lossy' compression, were created for music.

All this processing power can take its toll on analogue formats. The best multichannel amps for music are often the simplest, but any that offer a complete bypass option with six-channel input are suitable. It's also worth looking at real power - five or seven channels of amplification are not easy to produce with a feeble power supply, and the cheaper amps in particular often fail to live up to the claims.

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400 293

180 253

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125 250

700 234

140 208

233

HOW MANY CHANNELS?

Depends on how many speakers you want. Multichannel music discs come with six or 5.1 channels, but for new movies, 7.1 is where it's at. 7.1 set-ups also mean you have speakers directly behind you - preferable for music discs.

WHAT'S THE DIFFERENCE **BETWEEN A PROCESSOR AND AN AV AMP?**

Processors don't have built-in amplification and you need separate power amps. AV amps and receivers have processing and amps in the same box.

WHAT DOES THE .1 IN 5.1 STAND FOR?

This is the LFE (low frequency effects) or bass channel that is reproduced by a subwoofer.

FI MEETS SURROUND SOUND

With DVD-Audio and SACD offering highquality multichannel music, surround sound is no longer just a home cinema thing. An increasing number of people want to build a multichannel system that will do their music as well as their movie

DVDs justice, and the number of AV products delivering sufficient quality is on the increase. But most aren't cheap building a top-quality system with five or more channels is inevitably more expensive than sticking with stereo. There

are some very decent integrated options below £1,000, though the best (and most costly) route is to buy a separate processor and power amp(s). Or you can add AV amplification to a stereo model you can't bear to part with.



as well as home cinema, this is a top buy.



DiVA AVR350 £1,500

Arcam's latest receiver offers a good helping of processing and connection options, with exceptionally musical sound.



AVC-A11XVA £2,500

A splendid 7.1-channel amp that packs in the latest digital links and processing formats without sacrificing sound quality.



Classé

SSP-600/CA-5200 £11,900 Anyone seeking a high-end multichannel solution that's equally adept with music and movies should park their ears here.

	r favourite				SPE	CIFIC	CIFICATIONS		
A	V AMP	L	IFIERS			7.10	5-CHANNEL POWER	8	
VIul	tichannel amplifiers			REC	LINE INPUTS	7.1 COMPATIBLE	POWE	SSUE NUMBER	
BADGE	PRODUCT	٤	COMMENTS	RECEIVER	PUTS	THE	H (W)	HER	
	CHANGE MICHAITE AND								
	Arcam DiVA AVR350	1,500	Sets the standard for music and movie performance at the price, although features count low and HDMI limited		7		100	284	
Iryi I	Cambridge Audio Azur 640R	600	Simple and elegant receiver. Attributes that reflect in good sound quality without the distracting toys you'll find elsewhere		7		100	292	
EC	Denon AVC-A11XV	2,500	Sensible, real world derivative of AVC-A1XV, but still immensely flexible, and well endowed with digital Vo		11		140	273	
EC	Denon AVC-A1XV	4,000	Inelegant, but powerful and effective tool with excellent auto set-up and capable of driving two 5.1 systems simultaneously				170	266	
EC	Lexicon RV-8	5,000	Classy multi-zone receiver lacks high tech digital attributes (HDMI etc) but majors on very effective audio engineering		10		140	267	
	Marantz SR-12S1	3,000	A multichannel amp that can be taken seriously in stereo too. Resources are in the engineering rather than the gimmickry		3		160	255	
C	Pathos Cinema-X	4,750	No processing, just sexy Italian style, a sextet of valves and the chance of 450 watts in stereo! Cultured sound, too		5		110	270	
r	Pioneer VSA-AX10Ai	3,000	State of the art one-box amplifier with enhanced sound quality, auto set-up and other enhancements		10		150	260	
	Sony STR-DB798	250	Cheap but effective, and passably good with pure audio sources, but control system messy		7		100	273	
	Sony STR-DB795	300	A superb value little amplifier, well appointed technically and successfully tuned for UK ears		7		100	260	
	Yamaha DSP-AX759SE	500	More a stereo amp with basic multichannel thrown in, but a great performer with music at this price		6		100	287	
MULT	ICHANNEL PREAMPS/PROCESSORS	AND POWE	TO COMPENSATION OF THE PROPERTY OF THE PROPERT						
	Arcam A90+7.1 mod, P90/3	1,920	Add Arcam's multichannel module and a P90/3 power amp to the A90 stereo integrated and you've got got superb purist 5.1		8		90	250	
	Arcam AVP700/P1000	3,000	Cutting-edge processor/tuner with HDMI sounds great, but the matching Class H power amp lacks finess to match its power		8		135	275	
EC	Arcam FMJ AV8/P7	5,750	High-quality preamp/processor (£3,150) and seven-channel power amp (£2,600). An excellent fusion of stereo and surround sound		7		180	235	
С	Classe SSP-600/ CA-5200	11,900	Subtle, exacting sound, tremendous flexibility and high power audiophile standard amplifier - lacks hi-tech digital interfaces		11		200	278	
EC	Copland CVA306/CVA535	3,748	Tube analogue six-channel pre transforms multichannel audio from a novelty into a genuine advance for the high fidelity art		5		125	236	
	Linn Exotik	1,750	Is hi-fi ready to make the jump to multichannel music? Linn think so with this musical preamplifier		4			260	
EC	Linn Exotik + DA	3,245	Good analogue preamplifier with multichannel in/out up to 7.1 and a home cinema processor of quality combine to make a tempting package		8			291	
EC	Meridian 861	9,833	Powerful surround processor with flexible modular construction, marvellous versatility to drive any speaker configuration		6			230	
	Naim AV2/NAPV175/NAP150	4.175	First truly credible multichannel system from Naim is idiosyncratic but offers excellent basic sound with modest spatial steering		5		50	238	
EC	Parasound Halo C1/A51	7.500	Powerful and flexible processor/power amp combo with impressive sound. Excellent value — processor includes onboard screen		11		250	243	
	Primare SP31.7/A30.5	4.200	Great all-round system which brings the qualities of good stereo high fidelity to a multichannel world		5		120		

STECS XEY RECEIVER Integrated multichannel amp with built-in radio tuner. LINE INPUTS input sockets for source components with a line level output: CD players, DVD players, tape decks, tuners, phono stages etc 7.1 CHANNEL COMPATIBLE The amplether has seven-channel in and outputs or in some instances is equipped with seven channels of amplification

5-CHANNEL POWER (W) Power output in watts per channel of all channels driven by the amp.

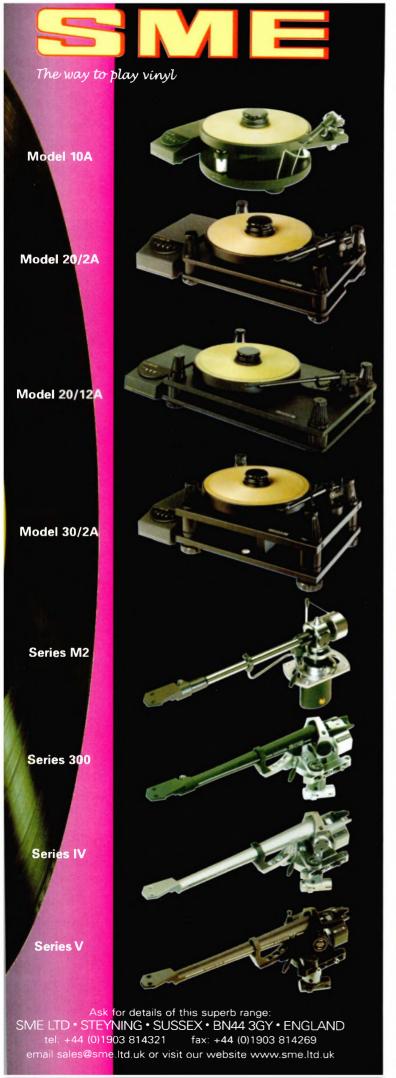


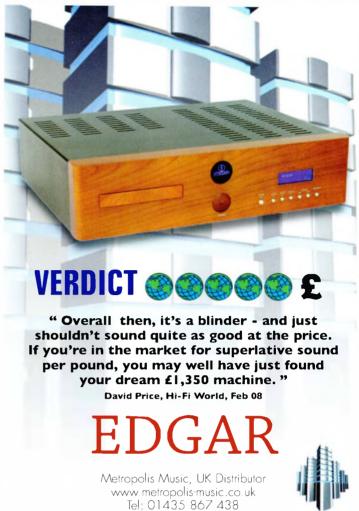
After 5 years in production, the Dino is still one of the most popular phono stages around. Highly versatile with accessible switches on the baseplate to facilitate a wide range cartridges.

'Never Connected' power supply technology virtually removes all incoming mains noise allowing only the music to be heard. Visit our website to learn more about this exciting product and the high performance Diablo phono stage.

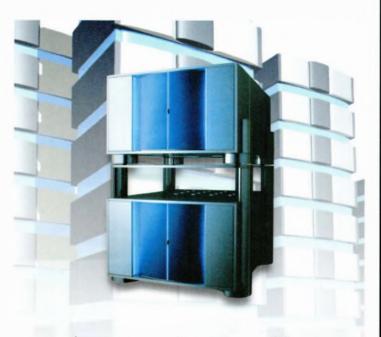












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AMPLIFIER ROKSAN KANDY LIII YAMAHA DVDS1700

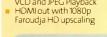
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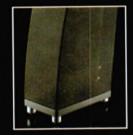
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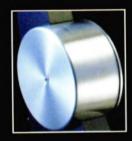
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amplifier internals. The mains transformer and the AC circuitry are now moved to one side away from the amplifier main circuits thus dramatically reducing AC noise layout, distribution and tracking to different sections of the amplifier have been greatly improved.

Kandy L.III Integrated Amplifier MkIII

Roksan

5.1 HOME CINEMA SPEAKER PACKAGE

IKON AV SPEAKER PACKAGE

Ikon AV Speaker Package

AV PACKAGE

5.1 SPEAKER SYSTEM

E CALL FOR PRICE



Mission's Stunning M-Cube consists of an active 250W subwoofer with 2x200mm (8") bass driver, magnetically shielded centre and satellite speakers and 5 Wall brackets



This five star What Hifi award winning speaker package comprises of 2 Ikon 6 floor standing speakers, 1 Ikon Vokal 2 centre, 2 on wall rear speakers and the Dalli Ikon subwoofer. All of which are also available individually with free QED speaker cable.

Quad

The L-ite system is conceived as a complete 5.1 speaker system capable of delivering outstanding performance from unbelievably small speakers Finished to the same high standard as the rest of the L-series range of speakers, the system sold complete includes four satellite speakers, a dedicated centre channel and a 300Wrms 10" powered subwoofer



MJ Acoustics

This amazing new XENO system features High Grade crossover, ability to be fed with a full range signal, Bass driver technology, Tweeter employing soft dome technology and Boundary effect rear ports to enhance the refraction effects from the lower frequencies

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8 ohms, 200VA custom-made toroidal power transformer, power supply capacitors and separate pre-amp output with class A buffer stage

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7.1 AV AMPLIFIER

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Fatman

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The entry-level Fatman product for use with iPod and any other audio device (e.g. CD). Utilising a hybrid-tube design platform, the Tube provides superb audio reproduction and attractive design at an affordable price. The performance of the amplifier and dock has been scrutinised by the world's press and they have awarded it the best accolades possible.

DVD SYSTEM DAV-IS10



Breathtaking 5.1 surround sound DVD home-theatre system that creates an immersive sound through five tiny satellite speakers. Built-in upscaler generates a 720p or 1080i signal via HDMI cable for superb picture quality on your high-def TV. 450W (5x50W) plus 2x100W for subwoofer, using efficient, high-quality S-Master digital amplification

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STEREO SPEAKERS

Speaker pairs for stereo sound

While loudspeakers are relatively straightforward in construction, they have one of the most difficult jobs in hi-fi – turning an electrical signal into an acoustic one. Most consist of two or more drive units in a box that usually has a port in it to make life easier for the cone in your mid and/or bass driver. Alternatives to this arrangement include panel speakers, which use electrostatic or ribbon technology, and horns, which use drive units in complex cabinets that greatly improve efficiency.

Box speakers are either designed to stand on the floor (floorstanders) or on a stand (stand or shelfmounts). Floorstanders have greater internal volume which can translate into greater efficiency and/or bass extension, but less substantial designs also introduce cabinet resonance and thus distortion. But they don't need stands and therefore have the aesthetic edge. Standmounts have less cabinet to vibrate and often score in terms of imaging and timing, but need good stands to work well.

Positioning

The closer the speaker is to a wall, the greater the reinforcement of bass. As all rooms differ, there's no simple formula for placement and experimentation will yield the best results. Altering the angle at which the speakers face the listener can also make a difference to balance and stereo image.

Going multichannel

Many stereo speakers can be augmented with centre and surround channels from the same brand to create a multichannel system. The most important element is a centre channel, which needs to match the stereo pair as closely as possible. For the best musical results, surrounds should be as per the front left and right channels, but if space or funds don't permit, smaller designs can be used quite effectively.

PAWFR

Though some speakers have a power rating, this isn't as informative as a rating for how difficult they are to drive, nor does it indicate wattage extremes for the partnering amp. In practice, an amplifier cannot be too powerful. Our listings quote ease of drive to indicate how much power

your amp needs to avoid a mismatch. An above-average (A+) speaker will work with amps rated at 25W plus, while an average (A) speaker will need 50W or more, and a below average (A-) speaker could require 100W plus to sound its best. These are quidelines rather than rules.



Choosing speakers

Because speakers and the rooms they are used in vary so much, choosing a pair tends to be quite subjective. To find some that will suit you, try to listen to a good variety to hear how they differ, and if possible, audition some at home. Tonal balance tends to vary the most, but is less important than more subtle factors such as timing and dynamics. Finally, listen with your ears not your eyes – great-looking speakers aren't necessarily great sounding.

Spikes

Floorstanding speakers and stands have threaded inserts for spikes that allow rigid coupling with the floor. These have the advantage of draining resonance from the speaker and giving tighter bass, but can result in more vibration getting back to the electronics and often cause the floor to resonate as well.

0&4

IF SPEAKERS ARE RATED AT 75 WATTS, DOES THAT MEAN I NEED A 75 WATT AMP?

No, see the box on power for the full story.

WHICH SPEAKERS ARE BEST FOR SMALL ROOMS?

Those designed to work close to the wall will be smoother in confined spaces. Speakers that have relatively dry, tight bass will also sound better.

WHICH SPEAKERS ARE BEST FOR BIG ROOMS?

Big, efficient, easy-to-drive designs are more likely to be able to fill a room better than compact models.

DO I NEED TO BUY CENTRE AND SURROUND CHANNELS FROM THE SAME BRAND AS MY STEREO SPEAKERS?

Yes, assuming that you're wanting to create a homogenous surround sound experience, where voices don't change when they move from one channel to another.



Mercury F4 £350

Tannoy's Mercury speakers have a long history of 'quality' sound at low prices, and the latest range is no exception - this floorstander is thoroughly engaging.



Ikon 6 £899

 ${\tt Complete\ with\ a\ ribbon\ super-tweeter,\ this}$ is an exceptionally capable floorstander for the money, delivering a highly detailed and truly engrossing sound.



805S £1,600

A superbly well-engineered standmount that's capable of delivering magnificent musical communication, alongside superior subtlety and delicacy.



Performance 6 £3,500

This extraordinary speaker stands at the pinnacle of Mordaunt-Short's current range. State of the art resolution and imaging are among its many attributes.

Our favourite BEST BLY (C. EDITOR'S CHOICE

STEREO SPEAKERS

	eo speakers			SIZE W.H.D. (CM	FLOORSTANDER	EASE OF DRIVE	ASS FROM (HZ)	FREE SPACE	TOSE TO WALL	ESSUE NUMBER
	PRODUCT £1,000	£	COMMENTS	8	#	F	Ø	FF	F	3
OI 10.	Acoustic Energy Linear 1	250	Not at its best with classical but a well integrated, involving, timed aligned speaker nevertheless	19,36,26		A+	50			277
in .	Acoustic EnergyAegis Neo 3	370	Pretty, neutral floorstander sounds open with wide dynamic range and good bass weight	20,90.5,24		А	24			294
(r)	Acoustic Energy Aelite 3	750	Wood-veneered all-rounder has exceptional neutrality with deep smooth bass	20,103,39		А	22			292
	Acoustic Energy AE1 Classic	845	Sharply priced classic replica has a beautifully balanced midband, wide dynamic range and little boxiness	18,295,25.5		A-	45			283
90	ALR Jordan Entry L	500	Not the most pretty speaker but a sonic triumph, with a beautifully judged balance and impressive transparency	20,86,29		А	23			279
	ALR Jordan Note 3	1,350	Costly but clever; adjustable ABR gives much of the weight of a floorstander with the agility of a standmount	245,37,31.5		А	26			288
60	ATC SCM11	849	A very fine little speaker that's at its best with good, natural recordings where it adds little and reveals much	21,38,25		Α-	55			293
	Aurousal A1	450	Single-driver system is coloured but wonderfully coherent and very effective at communicating emotions	20.5,36,27		А	40			299
0	AVI Neutron (V	499	A great example of what can be done with a genuinely small speaker, but the warts-and-all balance won't suit all	15,27,21		A-	65			260
*	B&W DM303	180	Chunky looking and lively sounding, with deep bass, a fine midband and a restrained top end	20,33,23		А	23			228
	B&W CM1	500	Luxury miniature has neutral, laid back sound, with low coloration, fine imaging but weak dynamics	16.5,28,28		A-	40			279
100	B&W 683	899	We have not come across this level of transparency in a sub-£1,000 speaker before, killer bass is sublime	19.8,98.5,34		А	38			297
0	B&W 705	900	Deft, delicate and delightful, if a little bass light, with clever enclosure and driver engineering	22,42,29		А	35			253
	DALI Ikon 6	899	Needs care with setup, but rewards you with impressively transparent and almost obsessively detailed sound	19,100,33		А	37			271
	DALI Ikon 7	999	Bulky vinyl floorstander has high sensitivity and a bright sound with superior coherence, delicacy and transparency	20,114,34		A+	22			275
0	DALI Monitor 1	1,000	Beautiful miniature with advanced drivers sounds marvellously coherent with fine vocal expression	16,32,24		А	40			29
8	Dynaudio DM 2/10	775	Unfashionably bulky standmount has fine dynamics, grip, bass and headroom and is delicate and well mannered	27.5,45,35		А	22			299
10	Epos ELS 303	399	Midband is impressively smooth, even and coherent, but the sound lacks some dynamic grip and top end detail	18,85,20		Α-	28			273
	Epos M5	349	Gorgeous miniature works well close to wall. Could be smoother but communicates with authority	18,33,21		A٠	40		0	269
	Epos M12.2	449	A true classic stand-mount with lovely presentation, fine sound balance, superior coherence and low coloration	20,37,25		A-	40			265
	Epos M22	949	Very classy floorstander has a tricky bass and an edgy top, but a very smooth and even midband	20,88,25		A-	25			275
	Focal Chorus 816 V	1,000	Fine, warm balance, superior dynamics, and a sweet top end, but could be smoother	28,100,37.5		A+	20			288
100	Heco Celan 300	595	Does tone colour, dynamics and detail with a plomb and communicates superbly in its +2dB mode. Sensitive, too	23,36,33		A+	40			301
	JBL Studio L880	700	Good value floorstander with neutrality, massive headroom and plenty of punch. Could be more transparent	22,99,37		А	25			275
7	KEF iQ3	280	Shapely, vinyl-covered stand mount has lively dynamics and fine imaging, but could be smoother and sweeter	22,37,33		A+	40			284
	KEF TQ9	800	Shapely and solid floorstander has wide bandwidth and dynamic range with superior neutrality and sensitivity	22,94,33		А	25			273
	Mission élan e34	400	A return to form for Mission with a pacey, vibrant sound matched to good looks	35,96,34		A+	48			298
	Monopulse 42A	995	Uniquely different in style and sound, midband time-coherence is magnificent but treble is too restrained	26,110,25		Α+	28			271
188	Monitor Audio BR2	200	Good looking standmount has a muscular sound with superior coherence	18.5,35,25		A-	30			294
- 1:-	Monitor Audio BR5	400	Not the best dressed in its class, but detailed, bold sounding, good value and an easy electrical load	17, 85,25		A٠	36			293
ě	Monitor Audio GS10	800	More neutral tonally than some recent MAs. Quality stereo design which take's up little room and is easy to drive	20, 36, 27		A٠	40			284
m	Monitor Audio Silver RS8	800	Bold, dynamic sound marks it out from the crowd, and it's an easy load that works well in larger rooms	90, 18, 27		А	33			276

SPECS KIST SIZE WXHXD (CM) Width, height and depth of one cabinet in centimetres. FLOORSTANDER Speakers that don't require stands. EASE OF DRIVE How much power the amplifier needs (approximately) to drive the budspeaker effectively. A+ 25 waits plus A 50 waits plus A 100 waits plus ACT Active — the speaker has its own in-built amplifier. BASS FROM How low the speaker goes — the smaller the number the deeper the bass FREE SPACE The speakers work best away from wall(s). CLOSE TO WALL The speakers will work best when up against a wall (but avoid corners)

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NAD C515BEE

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- WHE? S&V magazine

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AMPLIFIER

NAD C315BEE

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"A great budget speaker - whether on the end of a micro system or budget separates" - WHF? S&V magazine

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SYSTEM USUALLY £439.85



5YR Supercare Only £33.95

CD PLAYER

Cambridge Audio Azur 740C

"Very flexible, this innovative upsampling player sounds exceptionally neutral and highly informative."

- HI-FI Choice magazine

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Cambridge Audio Azur 740A

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Hi-Fi Choice magazine

100 WPC. Usual Price £499.95

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KEF iQ7 (Pair)

KEF speakers are world renowned for their quality and innovation and, with speakers like the IQ7, it's easy to see wh

150 WPC. Usual Price £499.95





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As NAD separates go from strength to strength, we thought it only right to offer a system deal with FREE Tannoy F1 customs speakers, exclusively for Hi-Fi Choice readers, so do ask in-store.

Similarly the Cambridge Audio 740 amp and CD with FREE KEF iQ7 still offers great value for money and talking of KEF, check out the fantastic 5 star iQ5 at a bargain price.

At the other end of the scale Sony's XDRS20 portable DAB radio is now at a bargain £29.95 and Tangent's popular Evo speakers offer quality sound in a selection of lifestyle finishes.

SEE YOU SOON!





out above the rest TSP £299.95. Model: DM35DAB

WHATHER?

£229.95

KEF FLOORSTANDER SPEAKERS



and these perform in spades. WHF? S&V magazine. TSP £399.95 Model: iQ5 (Pair)

SONY PORTABLE DAB



it's built-in DAB tuner, ecelving the myriad of is set to be a classic amongst portable DABs Model: XDBS50

M.SHORT BOOKSHELF SPEAKERS



remarkable: their up." said WHF?

the Mordaunt-Short TSP £149 95 Model: Avant 902i (Pair)

MORDAUNT-SHORT FLOORSTANDERS



The Avant 906f is a very decent performer overall, especially in view the equipment the speaker is likely to be partnered with. The bass end pretty well controlled and imaging is very effective." said Hi-Fi Choice at a price of £350, TSP £349.95 Model: 906i (Pair)

M.SHORT BOOKSHELF SPEAKERS



has the answer. The Mordaunt Short Mezzo offers up a performance that would embarrass Model: Mezzo 2 (Pair)

Also Mordaunt-Short Mezzo 6 Floorstanders for only £7

TANGENT BOOKSHELF SPEAKERS



you've come to the right place! Yet, although good looking, the Evos' have quality, too

For a small speaker that truly looks as good as it sounds, the Tangent Evo Model: Evo (Pair)

le in 4 other colours

MARANTZ CD PLAYER



WHF? S&V magazine, TSP £269.95

Model: CD6002

Also Marantz PM6002 Amplifier for only £229.95

CAMBRIDGE AUDIO AMPLIFIER



CAMBRIDGE AUDIO AMPLIFIER



"The sound is much better organised with complex music and deliver as ever. Cambridge's budget amplifiers have always been able to mix



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BUYER'S BIBLE STEREO SPEAKERS

0	TENE					RECIFICATIONS						
STEREO SPEAKERS continued Stereo speakers				SIZE WH.D. (CM	FLOORSTANDER	EASE OF DRIVE	FROM (HZ)	REE SPACE	CLUSE TO WALL	CLUSE TO WALL		
ADGE?	PRODUCT	3	COMMENTS	CM	DER	3/1/8	(ZH)	ACE	A	SEX		
213	Mordaunt-Short Avant 906i	350	The generous, well balanced sound shows good enclosure control, could do with more grip and better spikes!	16.5,85,29.5		А	40			2		
	PMC TB2+	795	Classy transmission line stand-mount has superior midband, restrained presence and a bright clean top end	20,40,30		А	28			2		
6	ProAc Tablette Ref Eight	699	Stunning standmount with electrostatic-like imagery. Its Signature brother costs £200 more and is even better!	15,27,23		Α+	40			2		
ik.	Q Acoustics 1010	99	Neatly styled miniature has limited bass and power handling but fine midband voicing at a very sharp price	15,21.5,19.5		А	48			2		
	Q Acoustics 1050	330	Great value, the sound lacks smoothness but has fine dynamics and impressive transparency	19.5,97.5,30		A+	28			6		
.1	Quadral Pico	849	Could be more muscular, but neutral and open with spacious imaging and little coloration	19,34,26		A-	30			6		
	Rega R1	298	Cute baby sounds busy, coherent and involving, if a touch thin. Sweet and delicate treble with even bass	15,32,24		А	50			1		
	Revel Concerta F12	900	Massive multi-driver floorstander is not pretty, but has great headroom, bass weight and impressive neutrality	25,108,36		Α	22					
	Ruark Sabre III	799	Straightforward engineering combined with high finish quality that delivers a beautifully timed and engaging sound	20,33.5,27		A-	50					
95	Tannoy Mercury F4	350	Floorstander has an engrossing sound with good dynamics and a warm, restrained output	20.5,97,29		A+	24					
:	Totem Rainmaker	795	Standmount has a big sound, with a smooth midband and bright top. Could have more punch and warmth	17,35.5,23		Α	25					
9	Triangle Antal Esw	995	Smoother than its predecessors, with a beautifully balanced bass and midband, though the top end is uneven	20, 108, 34		А	20			1		
(i.e.	Triangle Titus ES	370	Not pretty but busy, coherent and involving, if a little thin. Sweet and delicate treble with even bass	18,37,30		A-	40					
100	Triangle Comete ES	500	Bulky standmount lacks style but delivers engrossing musical coherence and vivid dynamics	20,42,34		А	40					
	Wharfedale Opus2-M1	1,000	Elegant mid to compact three way, a new direction in recent years for Wharfedale	23,51,36		A-	42					
LBOV	Æ £1,000											
	A2T Mezzo	2,000	Seamless overall coherence, with persuasive monitoring capabilities. Sounds a little mid-forward. Top could be sweeter	27.5,40,26		A+	40					
	Amphion Prio 520	1,600	Gorgeous styling and a lively sound with good voice band integrity and a sweet top end	16,104,22		Α	40					
3	ALR Jordan Classic 5	1,200	Slim, laid back floorstander has sweet sound with fine coherence, imaging and dynamic range	17,99,26		Α	28					
	ATC SCM16A	2,203	Makes a great case for the active speaker. Good value, including built-in amps, and fuss-free	27,45,33		ACT	42					
	ATC SCM19	1,499	Super linear motor system, heavy weight construction and fabulous veneer that makes the ATC a pro favourite	22,44,31.5		A-	54					
	Audio Physic Spark 3	1,499	Classy and discreetly laid back floorstander has delightfully neutral balance and surprising bass weight	15,98,22		A+	27					
	AVI ADM9	1,000	Active mini-monitors that are exceptionally accurate and dynamic, and they give good iPod, too	20,30,26		ACT	60					
	AVI Duo	1,299	Sophisticated floorstander, a natural partner for AVI's electronics. Unusually clean and honest musical presentation	19,77,28		А	50					
0	B&W 802D	8,000	Great timing, superior dynamics and a sweet top end all enhance musical communication. Makes sweet music	37,115,56		А	<20					
15	B&W 805S	1,600	Classy standmount with excellent coherence and imaging. Can sound laid back but otherwise a real delight	24,39,33		А	25					
	Dynaudio Focus 220	1,850	Cleverly tapered floorstander has a brilliantly smooth, neutral balance and very sweet treble. Could be more dynamic	20.5,98,29.5		A-	<20					
С	Eclipse TD510	1,200	Replacement for the TD512 does astonishing things with musical timing. £600 floor stands also recommended	24,36,26		А	45					
	Focal Chorus 826 V	1,250	Times nicely, goes loud with ease and will produce precise imaging if appropriately set up.	28, 104,37.5		А	45					
	Focal Chorus 836V	1,549	Bulky, sharply priced three-way could be prettier. Has good bass with genuine grip, but top could be sweeter	28,115,38		А	28					
С	Focal Electra 1027 Be	4,000	Outstanding mid and top with fine delicacy and low coloration, but lacks some bass grip and drive	26.5,111,35		A-	25					
C	Focal Diva Utopia Be	7,599	Lovely slimline speaker combines remarkable transparency with fine dynamics and gorgeous bass	25,110,53		A+	30					
	Free FS1	3,000	An elegant active design for anyone after the minimum of wiring. Wireless with Sonos or Airport Express	16,87,27		ACT	35					
3	Gamut L5	5,900	Impressive build and sophisticated driver design make the L5 a stunning speaker with rare transparency levels	20,116,43								
	Jamo Reference R909	7,500	Top model (in a class of one) is open, full and easy on the ear, and surely a classic in the making	48,127,54		A-						
- 3	KEF Reference Model 201/2	3,500	Very classy but costly three-way stand-mount with much improved Uni-Q; could be more transparent	25x42x41		Α						
	MartinLogan Source	1,599	Careful install needed, but capable of remarkable transparency at an extremely competitive price	24,120,37								
	Meridian M3100	1,850	Attractive and capable active (125w) with great imaging and strong bass. High neutrality and good power handling	19,39,25		ACT			ont			
	Monopulse 42A	1,495	Oddball styling, fine bass-to-mid balance and dynamics, and superb voice coherence, but untidy treble	26,110,25				i	- Pr			
	oriopaido YEA	.,,,,,,,	Could be more neutral, but excellent coherence, lively dynamics, fine imaging and a wide dynamic range	20,.10,20								



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Arcam P1000 Power Amplifier NEW (2Yr G/tee) (1600.00)	£1195.00
Audiolab 8000CD CD Player E/D (2Yr G/tee)	£409.00
Audiolab 8000S Amplifier E/D (2Yr G/tee)	£369.00
Epos M22 Speakers L/Cherry E/D (2Yr G/tee) (949.00)	£695.00
Linn Exotik D + A Digital Preamp - Sil E/D (2Yr G/tee) (3250.00)	£2195.00
Linn C2200 2x200w Power Amp-Sil E/D (2Yr G/tee) (2530.00)	£1495.00
Linn Majik 2100 2x100w Power Amp [7] (2Yr G/tee)(1400.00)	£975.00
Quad 99 Preamplifier - Grey E/D (2Yr G/tee) (749.00)	£499.00
Quad 909 Power Amplifier - Grey E/D (2Yr G/tee) (899.00)	£695.00







All items listed below with full two year warranty

Naim CD5i CD Player **E/D** (Was 850.00) Naim NAP 150x Power Amp *E/D*(Was 850.00) Naim NAC 282 Preamplifier ED (Was 3225.00) Naim NAC 252 Preamplifier E/D (Was 4620.00) Now - £635.00 Now - £675.00 Now - £2475.00 Now - £3595.00 Now - £1975.00 Now - £219.00 Now - £495.00

Now - £1075.00

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17,31,23 23,117,37

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A 28

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HIFICHOICE BUYER'S BIBLE

_	ir tavouri				SP	ECIFI	CATIC	INS		
Ste	reo speakers	Ų;	SPEAKERS	SIZE W.H.D. CM	FLOORSTANDER	EASE OF DRIVE	BASS FROM (HZ	FREE SPACE	CLOSE TO WALL	ISSUE NUMBER
EC	PRODUCT Monitor Audio PL300	5.000	COMMENTS Completely new level of sophistication from a brand best known for mainstream, cost effective designs	41.111.47	30	Α-	28	m	_	301
EC	Mordaunt-Short Perf 6	3,500	Revolutionary enclosure design and aspirated tweeter make for a fast, hi-res ride	24.121.37		Α-	35			264
	Neat Elite SE	1,499	Smooth and natural performer with notably expressive midband. Fine voice articulation and unusual sweetness	20.90.18		A	25			267
	Neat Motive 1	1,200	Beautifully neutral balance sounds open without aggression. Fine midband but could be more authoritative	16,92.5,20		Α-	20			276
1 -	Neat Momentum 3i	1,745	Sounds a lot bigger than it looks, with good coherence and an impressively wide dynamic range	22,38,27		Α-	23			302
	Opera Seconda	1,295	Classy cabinetwork plus beautifully judged neutrality with crisp, clean and deep bass	24,102.5,31.5		Α-	20			297
	PMC Wafer 2	1,650	Clever 'hang-on-wall' speaker has minimal sonic compromises. Smooth midband delivers impressive stereo imaging	33.5,57.5,10		Α+	45			285
	PMC FB1+	1,695	Nicely proportioned floorstander has a sweet top and a beautifully natural, open and restrained midband	20,100,30		А	20			260
EC	PMC EB1	5,950	The best argument for large speakers that we've heard in a long time	29,120,46.5)	A-	19			292
EC	ProAc Response D25	2,995	The traditional ProAc high-end detail mixed with greater efficiency and more pace - a splendid speaker	22,107,25		Α+	20			254
EC	Quad ESL 2805	4,500	Uniquely wonderful natural realism, exceptional imaging, coherence and low level detailing	70,107,38.5		A-	45			294
1	Rega R7	1,498	Super-slim and super-smooth floorstander has fine agility with a slightly bright overall character	27,98,35		А	25			271
	Rega R9	2.498	This subtle, laid back but very informative performer has a very superior dynamic range, especially in the bass	17,103,39		А	25			271
EC	Revel F32	3,200	Meticulously balanced, tonally neutral design makes for a taut, well disciplined sound	22,105,39		А	20			256
EC	Revel M22	1,800	A remarkably clean and revealing speaker with superb tonal and microdynamic capabilities	22,37,30		A-	48			274
	Roksan Caspian FR-5	2.000	Sharp looking speaker sounds exceptionally open and lively without aggression. Could be warmer and richer	20.100.25		А	22			290

No bass demon, but a sophisticated and agile speaker epitomising Ruark's design ideals

1,799 The Concerto Domus performs significantly above its price level, especially with acoustic material

1,595 Expensive, but very seductive miniature delivers a beautifully smooth and balanced midband

1,895 Great material value and a solid all round sonic performance with great loudness potential

7.750 Impressive cabinet design combined with hi-tech drivers to make truly world class speaker

5,000 Much (but not all) of the ACTs performance in a much more compact and affordable package

1,395 Not the smoothest sound around, but has great vigour and enthusiasm, plus good scale and weight Triangle Magellan Concerto 14,750 New 'sw2' version is less immediate than its predecessor, but it's easier to live with and remains highly enertaining 60,160,45

8,400 Superb enclosure gives uncanny freedom from 'boxiness'. Well balanced, but top end might be sweeter

9,000 Expansive yet relaxed sounding, the Neo is a coloured but surprisingly musical and enjoyable speaker

1,200 Cunningly crafted stand-mount with a beautiful balance that always sounds lively, open and involving

2,999 With a 250mm dual concentric driver this is a generously proportioned, highly engaging speaker for a good price 36,100,35

Sonus Faber Grand Piano D. 2,498 The Grand Piano Domus has a fabulous physical appearance and delivers a clean, refined sound Tannoy Dimension TD8 4,000 This stylish speaker is a splendid all-rounder, with fine dynamics, precise imaging and minimal coloration

Usher Compass CP-6381 2,500 Lots of speaker for your money, with plenty of deep bass, unusual styling and massive build

Our favourite BEST BUY 100 EDITOR'S CHOICE **SUBWOOFERS**

Bass speakers	Ba	SS	Sp	ea	ke	rs
---------------	----	----	----	----	----	----

Sonus Faber Concerto D.

Tannov Glenair 10

Triangle Celius Esw

Vivid Audio B1

Wilson Benesch ACT

Yamaha Soavo 2

Wilson Benesch Curve

Wharfedale Airedale Neo

66

60

60

Totem Model 1 Signature

Triangle Genese Quartet

BADGE?	PRODUCT		COMMENTS
	B&W PV1	950	Gorgeously styled sub shakes the air but not the floor, delivering a very clean sound with negligible coloration
EC	B&W ASW850	2,000	Does all the things subwoofers should do with music and movies alike, but transparently and seamlessly
EC	Eclipse TD725sw	2.700	Delivers solid meaningful bass, but with unusual tunefulness, speed and articulation
	Monitor Audio ASW100	300	For the price, this compact subwoofer performs particularly well
EC	REL 305	795	Landmark mid-price sub, works particularly well with low crossover frequency, looks great too
	REL Stampede	550	Few subs at this price match the Stampede's subtlety and ease of integration. Much more hi-fi than AV
	REL T1	595	Standard setter at the price: flexible, easily set up and packs quite a punch
	REL Strata 5	700	Highly musical sub that integrates well but the REL Stampede offers near-identical performance for less money
	REL Storm III	900	Excellent sub with powerful, detailed and deep bass. Comprehensive facilities, including flexible filter adjustment
	REL Storm 5	1,000	Well engineered, good bass depth, appropriate for mixed hi-fi & home cinema/multichannel systems
	MartinLogan Dynamo	449	Refined, compact sub brings established MartinLogan virtues to a new price and size point
	Velodyne SPL-800R	699	Powerful, highly configurable sub with auto setup feature and attractive, compact packaging
EC	Wilson Benesch Torus	5.200	Amp and sub package built like a sophisticated pile driver, with deep, state of the art performance

SIZE WXHXD (CM) Width, height and depth of one cabinet in centimetres. POWER (W) How many watts the onboard amplifier of active models delivers BASS FROM How low the sub goes, the smaller the number the deeper the bass

SPEC	IFICAT	ION:	
SIZE W.H.D. (CM)	POWER (W)	BASS FROM (HZ)	ISSUE NUMBER
29,34,35	500	20	259
53,56,52	1,000	18	246
52,47,50	500	40	287
32,32,34	120	27	225
32, 36, 34	300	25	284
28,40,29	100	18	257
36,40,420	300	25	291
32,46,33	150	18	257
42,62,33	150	18	225
34,52,37	200	15	267
29,35.32	200	25	301
26,27.33	1,000	28	286
45,33,45	1,000	10	290

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HEADPHONES BUYER'S BIBLE

HEADPHONES

For your ears only





Headphones come in several varieties and some are designed for particular usage. The majority of 'cans' use

dynamic cone and coil-type drive units and can be used with anything from a personal stereo to a dedicated amplifier. Other types also exist, most significantly electrostatics that use a charged panel membrane to produce a distinctly refined sound. These are supplied with their own dedicated amplifiers, which tends to increase the price.

Cans are split into several types. There are open and closed back designs, the latter being

best for noisy (or noise sensitive) environments as they minimise leakage and intrusion. Open-back types tend to have a more open, less 'in-head' sound. There are also three variants of earpad design: circumaurals enclose the ear and press on your head, supra-aurals press on the ear and intra-aurals sit in the ear and are particularly popular with personal stereo users.

Getting the best from your cans

Getting a good result with headphones is not

quite as straightforward as it should be. Merely plugging them into the output on your CD player or amp will not give particularly engaging results unless you are very lucky. If you are planning on serious listening, invest in a dedicated amp - the increase in dynamics is not in the least bit subtle. A variety of models are made and prices start at around £80 for a QED, a little more for designs from, say, Creek or Musical Fidelity. And if you're really into cans, look up the valve-powered Earmax.

Our favourite ... BEST BUY CE EDITOR'S CHOICE **HEADPHONES**

Ste	reo headphones			MAISON	A.AURA	MAURAL	EN BACK	ED BACK	(i) INDIA	DAPTOR	NUMBER
BADGE?	PRODUCT	2	COMMENTS	5	E	A	8	8	0	£	里
-	AKG K270 Studio	129	Pro oriented design which is very transparent and great with acoustic material						270		230
EC	AKG K1000	650	Neutral, analytical and completely out of the head sound, suitable for connection to speaker outputs only						270		244
	Beyerdynamic DT990	160	Impeccable balance, very extended bass and treble, and bags of detail place this model ahead of the pack						250		245
	Beyerdynamic DT770	190	A touch coloured in the mid, but less than most closed cans: detailed and with excellent bass						290		287
	Beyerdynamic DT880	200	Informative, neutral and surprisingly close to good loudspeakers. Good for occasional and long-term listening alike						205		300
	Grado SR225	180	Tonally shows the way to Grado's amazing GS1000 flagship, but detail and soundstage are not truly class-leading						200		300
EC	Grado SR325i	310	Highly sophisticated and detailed sound with great extension: check for comfort						200		270
EC	Grado GS1000	995	One of the finest transducers on the planet, with detail to die for						250		288
	Sennheiser HD485	65	A great all-round headphone for occasional or even heavy use, refined in sound and comfortable, too						220		296
	Sennheiser HD595	150	Technology from upmarket HD650 model makes this a very revealing headphone that's also extremely comfortable						270		266
EC	Sennheiser HD650	300	Astonishing resolution and hardly less impressive tonal balance make this a true hi-fi experience						260		252
	Sennheiser PXC450	299	Noise-cancelling model: as good as it gets for making the most of listening in planes, trains and automobiles						240		302
	Shure SE420	240	Expensive and no replacement for top conventional 'phones, but streets ahead of most in-ears with real refinement						15		295
	Shure E500PTH	420	Sophisticated in-ear design with three drivers, plus switchable 'voiceover' mic in the lead; high-quality stuff						20		285
	Stax SR-001 Mk II	239	Expensive and power hungry, but this electrostatic drags personal stereo into the world of high fidelity						280		268
EC	Stax SRS-2020 Basic Svs. II	349	Luxury option at its price, but the sound delivery is five-star quality all the way						205		295

SPECS KEY ELECTROSTATIC Uses electrostatic film instead of more common cone or dome dynamics SUPRA-AURAL Earpads sit on ear rather than around it CIRCUMAURAL Earpads rest on the head around the ears ACK Vented capsules let sound in and out. CLOSED BACK Sealed capsules. WEIGHT in grams 3.5MM JACK ADAPTOR Allows connection to personal stereos, computers et



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- Wrexham Acton Gate Audio 01978 364500

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- Stourbridge Music Matters www.musicmatters.co.uk
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- British Audio Products Wilstead
- Market Harborough Divine Audio 01858 432999 www.divineaudio.co.uk North England
- Huddersfield Huddersfield Hi-Fi
- A Fanthorne Ltd • Hull 01482 223096
- www.fanthorpes.co.uk Gateshead Lintone Audio
- Gateshead (Metro) Lintone Audio www.lintone.co.uk
- Sheffield Moorgate Acoustics
- Scotland Aberdeen Holburn Hi-Fi
- Glasgow 0141 332 4 Glasgow Audio

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Cable Tower
Oehlbach Accessories

Bel Canto Project Turntables Audio Physic Speakers STAX headphones Tanny
Echo Busters
Arye CD - IsoTek CD
Lyra Moving Coil
Ortofon Moving Coil
Sumiko Moving Coil

Component cables Digital Cables HDMI Optical Cables S video SCART

XI R cables XLR cables Sub woofer cables Chord iPod cables Nordost iPod cables Din cables Chord cables for Naim Mains & Power cables ONLINE SHOP

















NÖRDOST

TEWNSHEND AUDIO

analysis plus









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CABLES BUYER'S BIBLE

CABLES



Wires to hook your system together

Hi-fi cables come in two varieties: interconnects and speaker cables.

Analoque interconnects come in preset lengths, generally with RCA (phono) plugs attached, though some equipment uses XLR connectors for balanced connection – this can be sonically advantageous, especially over longer runs. Speaker cable is commonly sold by the metre and can be used without plugs or can be fitted with screw or solder-on types

Choosing cables is not quite as straightforward as it might seem. One problem is that components interact with the cables you use and this often results in audible effects, but there are few cables that are fundamentally incompatible with any components, and we recommend the advice of a good dealer. In any case, you should look to spend as much as you can afford

Digital cables come in two flavours: electrical and optical. In most instances electrical varieties sound better than optical, given the choice, but optical cables may be a better bet over long runs (10m+). Optical inputs/outputs usually use Toslink connectors, while most electrical types use RCA plugs, but some opt for BNC connection instead – check your components before you buy.

Our favourite | BEST BUY | EDITOR'S CHOICE **CABLES** Interconnects and speaker cables Atlas Questor Very open and informative at high and mid frequencies, with slightly dry bass. Imaging particularly fine 295 297 A lively and detailed cable, with fine tonality and excellent rhythm. Slight added upper-bass warmth does little to detract Audioquest Sidewinger Black Rhodium Prelude Practical and sensibly priced all-rounder that seems happily compatible with a wide range of kit 293 Black Rhodium Coda Superb bass and excellently neutral and detailed midrange: treble generally sweet with occasional slight constriction Black Bhodium, Concert 255 This DCT cable from the Polar range gives a distinctively dark timbre rich in detail, with low subjective noise Cambridge Azur Reference Performance wouldn't shame a cable at twice the price: especially adept in the treble with no trace of dryness 296 Clearer Audio Copper-Line Alpha 50 Sounding like something a good deal dearer, this cable offers near high-end detail and seems highly compatible too 295 Clearer Audio Silver-line Complex, well-screened cable which offers good sound all round with exceptional bass - at a price! 279 CrystalCable Piccolo Thin cable, but tougher than it looks, Piccolo has some qualities of a solid core type generically - notably resolution, focus and articulation 294 283 Ixos Ixotica IX1 Notable for its relaxing sound, this cable still presents plenty of analytical detail -,-Monster M350i 281 45 Few cables at this price reveal so much about the recording space. Clear treble, too Monster M1000i 200 Very capable, with only a hint of bass dryness to set against excellent results elsewhere 284 Nordost Wyrewizard Dream Slight lack of precision in extreme treble, otherwise detailed and neutral with authoritative bass 303 - -281 Oehlbach NE214 63 The bass is a matter of taste, but suits many smaller speakers. Very good mid and treble Profigold PGA3000 60 Not the ultimate for lovers of clinical precision, its character is engaging and detail and extension are good Supra Sword-ISI Unusual inductance-free design, beautifully built, with bold, finely detailed and outgoing sound quality and excellent discipline Townshend Isolda DCT100 Silky-smooth treble, with remarkably good detail too; midrange and bass also very fine 303 289 Van den Hul MC Silver IT MkIII 2.250 incredibly resolute and low distortion cable that makes the alternatives sound crude, pity about the price Wireworld Luna 5 273 Authoritative bass and clear treble outperform many cables at twice the price DIGITAL INTERCONNECTS Slight improvement in detail over giveaway cables, plus distinctly more tuneful bass and more open treble, make this fine value Atlas Compass 289 Clearer Audio Silver-line Very satisfying performance with finely-etched detail and sweet treble Kimber Select KS2020 Provides a subtle but rewarding lift in musicality with any DAC, justifying the price 260 EC QED Qunex Signature 75 265 First-rate balance and imaging - ever so nearly as good as it gets at any price Wireworld Starlight 5 Clear gains in detail and imaging precision are this cable's main strengths; good value and near-high-end performance 279 299 Atlas Hyper 1.5 Don't look to this cable to beef up the bass, but its performance at higher frequencies is revelatory at the price Atlas Ascent 2.0 A highly analytical cable, with more bass extension than at first appears and very fine detail across the board Chord Epic Twin Good all rounder, which generally sounds relaxed and musical, and a full bass that stops the right side of sounding blowsy 287 302 CrystalCable Piccolo Tougher than it looks, Piccolo has some of the qualities of a solid core type generically - notably resolution, focus and articulation Kimber 8PR A cable that really enjoys the music, also admirable for the levels of analytical detail it allows through. Excellent value 299 280 Monster MCX-1s Notable for its bass, which is perhaps a touch overdone at times but could be a good foil to small speakers. Good mid and treble 278 Nordost Heimdall Alternative to Valhalla, silver plated, micro-monofilament construction, low colouration, hi-res and suitable for exacting systems QED Silver Anniversary XT Full bass and nicely detailed treble combine with good imaging - a budget bargain 276 QED X-Tube XT300 10 A natural and well controlled sounding cable that's cost effective for mid-priced systems Zero inductance construction, medium resolution cable that has an excellent midband and is fundamentally musical 287 Supra Sword Townshend Isolda DCT 50 Cryogenically treated 'impedance matched' cable with stabilising components added: great sound all-round 241 van den Hul The Bridge Better bass than treble, with good detail though a touch of constriction at times 291 Wireworld Luna 16/4 Budget biwire cable offering tuneful and extended bass, good treble, and midrange with just a little lack of detail

STRANDED Cable has a number of (usually) livisted strands to conduct the signal. SOLID CORE Cable has one or more individually insulated strands to conduct the signal COPPER Material used to form the conducting element of the cable SILVER Alternative material used to form the conducting element of the cable. DIGITAL CABLE TYPE E - electrical, 0 - optical

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STANDS AND SUPPORTS

Equipment racks and speaker stands

If you want to get the most from your source and amp components, it's important to consider good quality support. Dedicated equipment supports are racks and tables made specifically to hold hi-fi gear, and the best can have a profoundly positive

effect on sound because, for example, they can help to isolate kit from ground-borne vibrations and mechanical or electrical interference. Equally, if you own a pair of small 'bookshelf' or 'standmount' speakers, it's important to place them on good quality, purpose-built speaker stands.

Our favourite BEST BUY EC EDITOR'S CHOICE

EOUIPMENT SUPPORTS

Equ	ipment supports			HEIGHT (ATE SIZE (0	WELDED	R OF SHELVES	SHELF TO	SUE NUMBER
BADGE?	PRODUCT	£	COMMENTS	CM)	(CM)	B	ÆS.	TYPE	#
	Alphason A5-G	399	Nice looking, very solid and practical with a pretty well balanced sound, but lacks a little detail	80	66,46		5	Glass	247
	Atacama Equinox	280	Stable, modular design with style. Excellent bass transients and a fresh design concept	81	50,50		4	Glass	217
	Audiophile Base Std Supp't	900	Not cheap and quite bulky, but it's all worth it as sound is unusually detailed and resonance-free	57	46,35		3	MDF	302
	Custom Design Icon Signature	330	Gorgeous wood and glass looks: sound lacks a little detail but is nicely lively	75	56,37		4	Glass	286
	Custom Design XL4	380	Simple construction pays off in smart looks. Sound contribution is minimal and largely harmless	65	60,42		4	Glass	293
1	Custom Design Icon 400	600	Beautifully built, conveniently adjustable and with little sound of its own, a very classy rack	75	57, 41		5	Glass	263
	Custom Design Concept 400	700	Slightly drab looks, but great sound and efficient use of space ('Acoustic' version tested – standard version £300)	74	48,40		4	Metal	247
	Custom Design Milan	449	Respect is due to any stand that looks this good with nothing more to complain of than slight muddying of detail	57	48,39		4	Glass	302
17.5	Custom Design Vantige	449	'Acoustic Aluminium' shelves plus steel supports equal practicality plus musical satisfaction: just a shade bright	62	49,44		4	Metal	271
	Partington Minim	420	Adds its own character to the benefit of rock most particularly, but slightly to the detriment of acoustic sounds	78	45,37		5	Glass	302
	Quadraspire Q4 Reference	480	Excellent performance from the school of wobbly racks. Natural sounding and plenty of detail	51.5	49,39.5		4	MDF	217
	Russ Andrews Torlyte Rack	988	Attractive modular system made of very light Torlyte: a touch of added warmth is its only vice	68	54,49		4	Torlyte	240
	RA Torlyte Platform	130	This unassuming platform can be a godsend, cleaning away mid/treble muddle from the sound	8	48,36		1	Torlyte	302
EC	Townshend VSSS	1,300	The Seismic Sink goes all glassy and attractive, yet retains the same excellent vibration-killing sound quality	76	35,50		4	Glass	273

Our favourite BEST BUY C EDITOR'S CHOICE

SPEA	KER	ST	AN	DS

Spe	aker stands			IGHT (C	SIZE (C	FILLABLE	WELD	9F EE	NUMBER
BADGE	PRODUCT	Σ	COMMENTS	(CM)	(CM)	H	OEO	SS	99
	Anvil Sound Display Stand	226	A variety of smart looks available - sound is clear and precise	50	20,17			1	293
- 7	Custom Design RS300	110	An attractive stand whose lack coloration and ringing makes suits it to high resolution systems, at a tempting price	56	16.5,18			1	281
	Custom Design SQ402	100	More a range than a model, capable of fine results especially with Acoustic Steel top plates	62	18,16.5			2	299
EC	Custom Design SQ404	200	Robust four-pillar design gives very low coloration and maximises performance of speakers great and small	61	18,16.3			4	283
56	Partington Ansa 60	99	Elegant flat-packer 'disappears' sonically; restrained but neutral and coherent	62	18,15			4	232
EC	Partington Dreadnought BS	249	The Dreadnought Broadside is a superb stand for high-class standmount speakers – and it looks great too!	61	17,15			5	261
EC	Partington Heavi II	399	Robust to the nth degree, this stand helps produce very taut, precise bass and detailed upper frequencies	53	31,22			6	287
EC	Russ Andrews Torlyte	299	Very relaxed sound from this metal-free design, with excellent imaging too	60,50	15,21			3	280

EQUIPMENT SUPPORTS SPECS KEY HEIGHT Of complete stand. TOP PLATE SIZE (CM) Width by depth of the supporting platform(s). Single figures indicate a square platform. WELDED As opposed to boll-together construction. NUMBER OF SHELVES To put your kit on (different configurations are often available). SHELF TYPE Material that shelves are made of

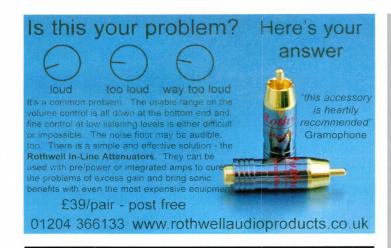
SPEAKER STANDS SPECS (137) HEIGHT Of each stand, not including spikes TOP PLATE SIZE (CM) Width by depth of platform. Single figures indicate a square platform. Speakers generally overhang top plates.

FILLABLE The stand can be mass-loaded with sand and/or lead to stop ringing. WELDED As opposed to bolt-together construction. NUMBER OF LEGS That support the stand

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Nottingham Analogue Dais turntable pictured right with 12" Ace Space tonearm. This stunning heavy weight turntable comes with Wave Mechanic power supply. It costs £3,520 excluding tonearm, with arms starting from £587 for a 9" and £710 for a 12" version.



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2nd-hand shootout

There are plenty of state-of-the-art amplifiers to choose under the £2,000 mark

budget of £2,000 will buy you a lot of amplifier. And one of the most intriguing has to be the Unison Research S8. Key to the S8's beguiling character is the use of 845 valves. These monster tubes are notoriously tricky when it comes to performance, but with a decent design the results are stunning. Grace, delicacy and an architectural formation of music are all in abundance; probably more so than any of the others here. In terms of running costs, a pair of decent quality 845 valves cost around £150 and the small triode valves sell for £45 for a matched set of three. The S8 has been in production for nearly eight years now and has proved reliable. When buying used, an audition is essential. An S8 should be mechanically and electrically silent, with no hiss, hum or odd valve noises. Should things go wrong then the UK distributors, UKD, offer a full service and repair back-up. Cosmetically, a little polish may be needed for the chrome trim and perhaps some teak oil on the wood, but otherwise this is a robust design. Although around £4,000 new, we've seen S8s for as little as £1,750 (even with a warranty), which is well within our budget

Around the time the S8 was launched, a similar amount of money would have bought a very different amplifier. The Naim NAC82 and NAP250 pre/power combo offers up a dynamic, rhythmic sound quality, in the true Naim style. As Naim equipment tends to hold its value extremely well, our budget would get a ten year-old pairing. Look for serial numbers higher than 130,000 to be sure of units that

are under this age. Although the units will have the older casing, the plain 'olive' finish has aged well and is iconic. If aesthetics really concern you, then Naim will happily upgrade the casing to the current specification. In fact, there's very little Naim won't do. Like all Naim equipment, both NAC82 and NAP250 are fully supported. Just ensure that you take the units to a Naim dealer and not the manufacturer itself: a new tracking system means that Naim no longer take products directly from customers. Reliability from both units is excellent, with little but ageing components to worry about. Indeed, the NAP250 is renowned as having been used by the BBC in broadcasting and has a solid reputation for robustness. A second-hand Naim amp may be older than most of the others here, but it's also likely to hold its value best.

For something a little more unusual Nuforce are well worth investigating. This American company has been represented in the UK by hiaudio (who also work closely with Graham Slee) for the past two and a half years. Nuforce



Above: Nuforce pre-amplifier

This was quickly rectified and the cure is simple, but it's something you might want to check as it gives an indication of the unit's age.

Finally, although it may push our budget, a classic combination that can't be ignored is the Mark Levinson 26 and 27 pre/power combination. Although they typically start at around £1,250 a piece, it's worth bearing in mind that the combo would have set you back a whopping £8,000 in 1990. They may be the oldest here, but there are many who feel the 26/27 combination represented something of a golden age for Mark Levinson and that, in some respects, the newer equipment isn't as good. Another reason Mark Levinson equipment makes a good second-hand choice

"...the NAP250 is renowned as having been used by the BBC in broadcasting ..."

work on the principle of making their amplifiers modular, which also makes them easy to upgrade and, therefore, an excellent second-hand purchase. Our budget is enough for a pair of Ref 9 monoblocks and a P8

> preamp or, if the budget is stretched a little, a pair of the excellent Ref 9SE monoblocks. In addition to being fully upgradeable to the latest V2 spec, Nuforce also offer a generous trade-in – around 75 per cent of

the original price when trading

up. With regard to service, hiaudio will collect and deliver for £25 and claim to be able to turn repairs around within two weeks. The innovative technology tends to be reliable, but it's not

unknown for RCA sockets to crack. Also, the very first 9SE power amplifiers did suffer from a power 'thump' on switch-on. is its reputation for build quality and reliability. HighEnd Workshop (01494 752 171) are the official UK service agent, and say they've had very few back for repair. Most electronic parts are still available, although cosmetic casing and circuit boards are harder to get hold of.

The 27 power amp' uses a circuit breaker on the power switch. Switch the unit on yourself and check that it stays on. If it switches off on the first couple of attempts, then there's possible trouble ahead. Both units use the unusual Camac connectors that can snap when fitted with an RCA or XLR convertor – best to buy a tailor made cable with Camac connections. With the 26 preamp, do check that the separate power supply is both fully operational and comes with the umbilical link. Get a good pairing and you'll have an audiophile classic that should hold its value exceptionally well. **HFC**

Dominic Todd Next month: E3,000 speakers



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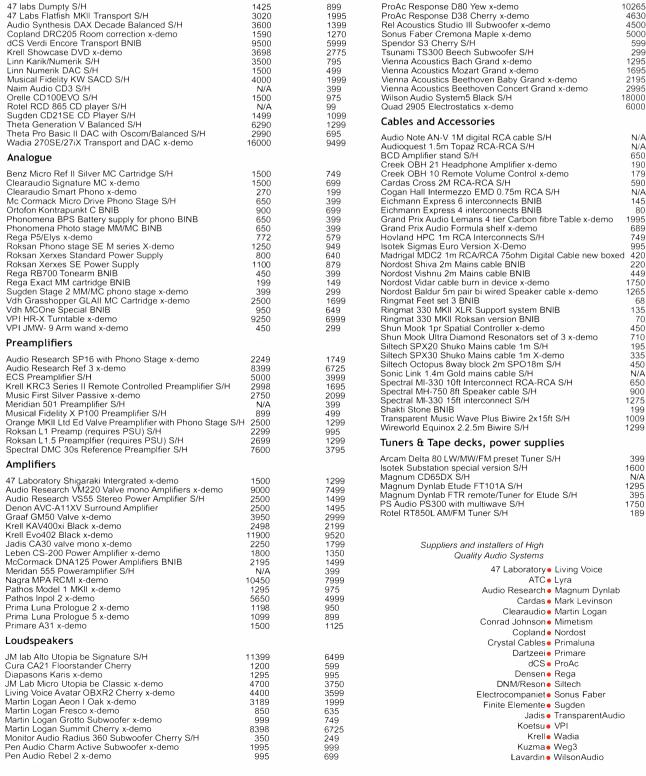
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Buying second-hand can be a great way to pick up a bargain. A formerly expensive second-hand component might well prove a better long-term bet than a brand-new product if the price is right.

Do some research on which brands have a good service back-up, so if something does go wrong, you can get it fixed. Unless you purchase from a dealer, you're unlikely to get any warranty, so it's up to you to ensure the fitness of any gear that you buy.

Usually, speakers should be less prone to breakdown than amps, and amps should be more reliable than CD players. But any abused component could be trouble – have a proper dem, and judge the seller as well as the goods!

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SONY SCD-XA9000 ES, Super Audio CD player, champagne gold finish, manual, mint condition, (£2,000) £900. Tel: 01243 528010 (West Sussex)

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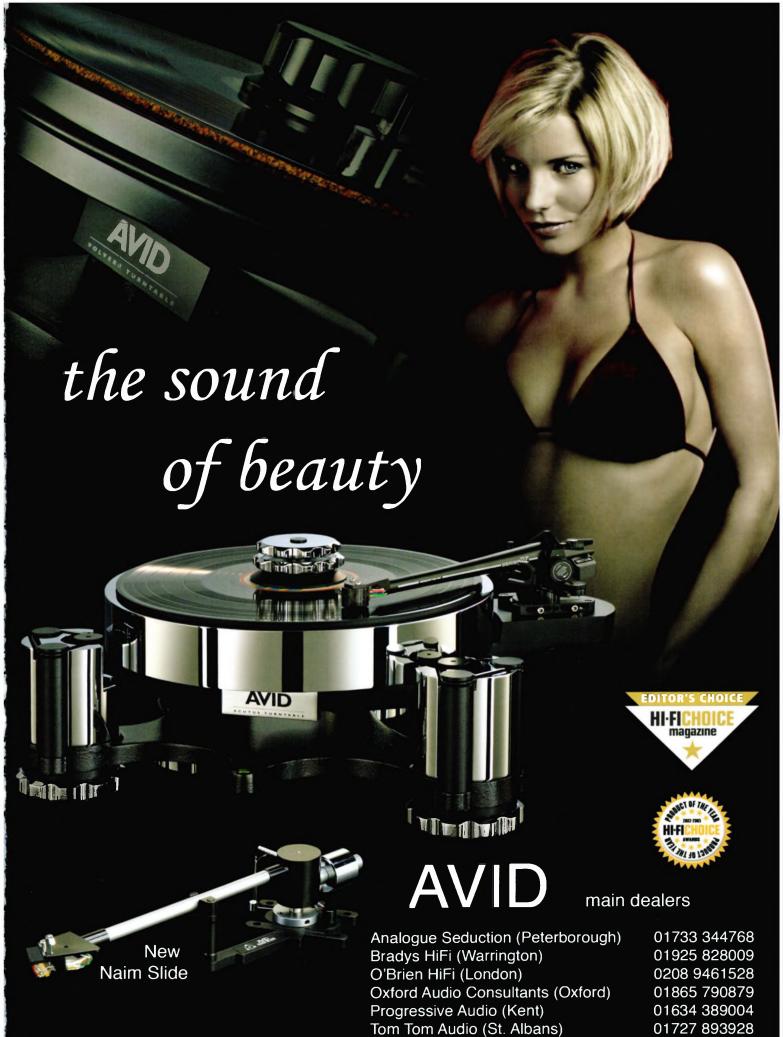
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