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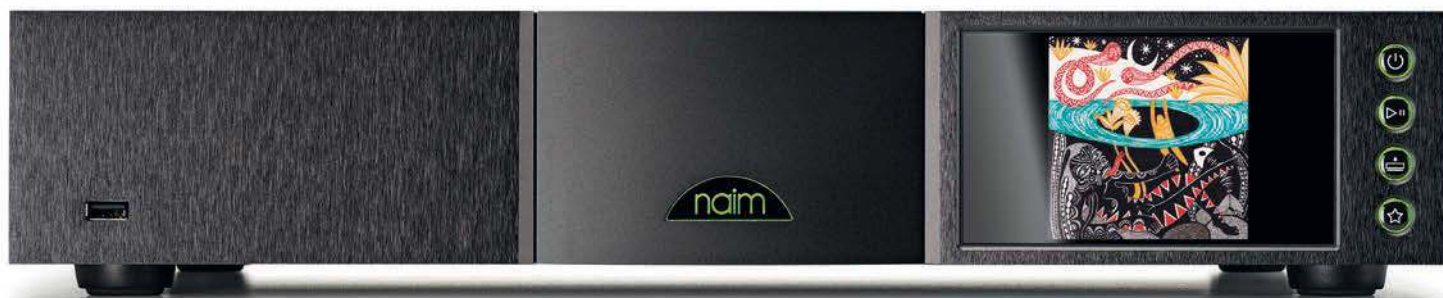
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editorial

At the moment, it's a little hard to be British. The country is divided by Brexit and – wherever people stand on the Leave/Remain continuum – the one thing that unites the kingdom is that politics has not covered itself in glory in recent years. If you travel abroad, you are often met with expressions of sympathy – not necessarily about the event, but about the abject mishandling of the event as it draws to what (as we go to press) might be a close.

However, if you take a few paces away from the Westminster play pen, Britain is busy getting on with life! Granted there are those seemingly stuck on those six letters like a cryptic crossword, but beyond that we're seeing a rekindling of good quality British gumption, expressed through the medium of high-performance audio! It's time to move on and get on with enjoying the world once more.

Of course there will be those keen to differentiate between 'British' in the sense of 'designed, built, and made in the UK' and 'designed in the UK, built elsewhere, owned elsewhere', and get upset about the latter, but I think that mindset fails to see the positive. The UK might be an expensive place to build things, but it remains one of the most important places on the audio map for high-quality audio product design and development. In being sour-faced about the decline of audio manufacturing in the UK, many seem to forget that the UK still has a pivotal role in the development of high-performance audio streaming and continues to push loudspeaker performance. This is not just down to chance; if you look to almost any high-technology/precision engineering exercise, we punch above our weight!

We should not be complacent or arrogant about this, or think it speaks of exceptionalism. There is no destiny component in the British making good audio equipment; it's investment in STEM education (Science, Technology, Engineering, and Mathematics), which helped forge generations of audio designers, just as it helped create generations of Formula One engineers, movie-making technologists, and ensured technology companies like Google sought out the UK as a European centre of excellence.

Because of the farce taking place in the Mother of Parliaments, the UK needs to have something it can be justly proud of. It needs a boost, and there's nothing quite so uplifting as listening to good music played properly.

Congratulations this month go out to our lucky winner Willie Mackie from Ayrshire, who wins a tour of some of that high technology – the Linn factory in Glasgow!

Alan Sircom
editor@hifiplus.com

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Or email them to editor@hifiplus.com

incoming!

in association with **audioquest**

LETTER OF THE MONTH WINS A DRAGONFLY BLACK

Both AudioQuest and *Hi-Fi+* are passionate about music and the sound it makes. We know what makes a good audio experience, and we know what makes it better. Most modern audio equipment is good, but with the right attitude, right advice, and the right components, the sound it delivers can move from 'good' to 'great' to 'fantastic'. AudioQuest has to deal with a lot of queries regarding audio systems, because almost everything in an audio system is connected with a cable. The company has amassed a wealth of information on a range of topics in audio, both in general terms and with a team comprising keen, specialist audio experts willing to impart their expertise.

Which is why we've teamed up with the good folks at AudioQuest to award the letter of the month a free AudioQuest Dragonfly Black headphone amp/DAC.

Noise abatement society

I use a five-year-old Apple MacBook Pro as my music server. I run Audirvana Plus and either stream music from a USB drive or (increasingly) from Tidal and Qobuz. I connect this via USB to an ex-demonstration Ayre QB-9 DAC. The QB-9 has galvanic isolation to keep noise from the computer from entering the DAC, but the power supply of the MacBook is plugged into the same distribution block as the rest of my system. Maybe I am being paranoid, but I can't help thinking its power supply is dragging the sound of the whole system down a notch (it sounds better when I run it from battery power alone, but that's no use in long listening sessions). Without running a cable from a different mains spur (my audio system is on its own separate spur), is there anything I can do to help the system?

Lloyd Stephens, via email

Hi Lloyd,

Thanks for the mail, I was drawn to your question for a couple of reasons, predominantly because there are a couple of options to try, and because every system is different, they'll have interesting effects.

The second is that the QB-9 and our DragonFly are related, as they both utilise Gordon Rankin's excellent Streamlength USB code as a backbone of the design. A little audio geekery there...

Anyway, I digress, my first instinct is to touch upon the MacBook Pro, in reality, most computers are noisy, their inbuilt power supply does in fact have to do an awful lot of work: screen; trackpad; keyboard, and the various peripherals in the computer are greedy and – most worryingly – noisy. Using it on battery power isn't going to stop those issues, but what I'd guess you're hearing is the benefit of disconnecting the switching



apple PSU from the system. Without a doubt, as it's a demo we've done many times, the use of a product like our Niagara 1000 would help handle and dissipate the copious amounts of noise that these types of supplies dump into our AC/power line. Also I'd take a look at trying the Jitterbug or a similar USB device, you may ask why as the QB-9 does have excellent isolation, however the Jitterbug stops unwanted noise that very easily hops onto the data and power buses that make up USB, from ever leaving the computer and having to be handled by the DAC. It's a super simple demo to do for yourself, we used a QB-9 three years ago at a London show to do the 'demo' with my own MacBook.

I'd also ensure you use Audirvana in it's optimised mode, if you go to preferences in the software, you'll see and option for 'System Optimiser', I'd recommend you use this, as it does make a decent difference.

My last is a slightly left field suggestion, which is to completely



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► separate the computer from the DAC via a network. Ethernet connectable 'end-points' are now affordable, that are a perfect add-on for your DAC, Project, Auralic, and UK newcomers Stack Audio all make devices that connect to an Ethernet network and supply a USB output to feed your DAC. They all have apps that enable you to connect to Tidal, Spotify, Qobuz and so on directly, and you'll only need to connect to your library when you want to pull down one of your own discs. Ethernet provides an extra layer of electrical isolation, and typically very low jitter. Audirvana can also see and send music to these end points so if you use their app to control it, you don't have to change any habits.

I'm sure Alan and the team will be taking a look at more of this kind of network audio bridges soon in the magazine.

Robert Hay – AudioQuest

BBC is the one for me!

I am pleased to see *Hi-Fi+* reviewing the acme of loudspeaker technology once more. The LS3/5a was perhaps the most well-designed loudspeaker in history and its continued popularity and constant re-making by brands demonstrates this fully.

It always strikes me as surprising that so few people respect the performance of loudspeakers today. In terms of loudspeakers for typical living rooms, there remains nothing better.

Ed Merton, via email

While I am very partial to the LS3/5a and agree that it deserves its continued popularity, I'm not wholly convinced by the notion of it being 'the acme of loudspeaker technology.' Things have moved on in the last half a century, and the changes

in materials science, component tolerance, and especially in computer modelling and measurement have significantly raised standards across the board. By way of example, the drive-unit tolerances set by the BBC for the LS3/5a were incredibly hard to achieve at the time of developing, but are commonplace now. This both democratises good loudspeakers at lower price points, and stretches the limits of what is possible from any given cabinet volume as the price rises. We still have a long way to go with loudspeakers, but the best today have an order of magnitude lower distortion than they did just ten years ago! – Ed

Temperature vs. run-in

Running in a product – especially a piece of electronics – sounds counter-intuitive, but I found big changes in an amplifier that I recently bought. Judging by the temperature of the box and its contents when I received it, I think it had been stored in an icebox for a few months. But this made me wonder how much of 'running in' is actually down to bringing the amplifier back to room temperature, and can temperature extremes change the performance of good audio?

Chris Slater, via email

I wish there was an easy answer to this, but like many things, it's... complicated! Products do take time to run-up to their optimal thermal conditions, and that can influence performance, especially if trying to get a Class AB amplifier to spring to life in a very cold listening room. In most cases, however, the product will take no more than 30 minutes from stone-cold to sounding good. Audio electronics tend not to be too troubled by warm rooms, unless the room is unbearably warm and extremely humid – sauna-fi is not recommended. High ambient temperatures coupled with high humidity are more likely to create havoc with loudspeakers. Or so I've been told... the UK has never exceeded 38.5°C/101°F (at about 70% humidity), and even a valve amplifier in a poorly-ventilated room is relatively unlikely to damage loudspeakers in such conditions.

The correct thermal conditions for an amplifier do not wholly explain 'running in' of electronics, however, and this is one of the reasons why many Naim Audio users around the world never switch off their preamplifiers, CD players, or streamers unless they are in a thunderstorm or are going away for a long period. The amplifier can take far longer to come back on form than any notion of thermal conditions would suggest. It's difficult to say precisely what this mystery running-in/conditioning factor relates to. We know it exists in many devices from pure observation, but such observations are often dismissed as anecdotal by those of a more objectivist viewpoint. While the results are convincing, the jury is still out – Ed

it just sounds right



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SHOW REPORT

CanJam NYC 2019

by Chris Martens



From its inception a few years back, the two-day CanJam NYC show has been a special event on the high-performance personal audio calendar. There are several reasons for this. For starters, CanJam NYC is the first headphone/earphone-specific event of the year and it is held in the Marriott Marquis hotel located in Times Square (a vibrant and upbeat setting by any standard). Second, given the fading influence of the January CES show within the audio community at large, CanJam NYC has emerged as the event where many personal audio manufacturers choose to roll-out new designs ranging from cost-no-object statement class efforts on through to value-priced sonic wonders. The result, for personal audio enthusiasts, is a show with something for everyone. Finally, while NYC can be a bit chilly in February, the CanJam community itself is—as always—warm and inviting so that everyone from personal audio novices to veterans is made to feel welcome.

If you have never attended a CanJam event, I urge you to give one a try. One word of advice, though: if you like listening carefully and thoughtfully to new audio products, plan on spending the full two-day span of the CanJam event to take things in. Even then you may find, as I often do, that you wish you had more time to explore the offerings at hand.

The next CanJam events on this year's calendar include:

- CanJam SoCal, 22–23 June, 2019
- CanJam London, 27–28 July, 2019
- CanJam RMAF, 5–8 September 2019
- CanJam Shanghai, 9–10 November, 2019

For more information, visit canjamglobal.com.

In terms of new products, CanJam NYC proved a treasure trove of sonic gems. Below, I provide capsule descriptions of some of the most noteworthy new (or recently released) products I saw and heard. +



Abyss launched a version of the \$5k-\$8k AB-1266 with TC ('Total Consciousness') planar magnetic drive units.



64 Audio's N8 ("Nate") CIEM (\$1,699) sports a 9mm dynamic bass driver, six balanced armature midrange drivers, one balanced-armature high-mid driver, and one tia-type high frequency driver.



Hi-Fi+'s own Pete Collingwood-Trewin and Tom Hackforth enjoying the sights and sounds of New York City, or at least the sounds and more sounds of the 2019 New York City CanJam.



Audio-Technica's new c.\$1,200 AP2000Ti sports 53mm dynamic drivers with a light, stiff "diamond-like carbon coating".



The GT2 (\$699) is Advanced Sound's most, well, advanced universal-fit earphone to date. It features an all-new dynamic driver with a proprietary PHPC (Pressurized High Purity Carbon) diaphragm.



Sennheiser's Momentum True Wireless are a serious attempt to make a best-in-class Bluetooth earphone. It's capable of four hours of playing time, with eight hours back up from the case.



Based on one EEC 81 and two PL 95 tubes, the vertical Auris Audio Euterpe (\$1,699) put out a healthy 0.9 Wpc RMS.



Astell&Kern has launched a sub-brand called Activo whose first product is the new Cirrus Logic equipped C10 (\$299)—by far the least costly DAP Astell&Kern has ever offered.



German firm AudioValve has a versatile tube-powered headphone amplifier called the Luminaire (€3,200) that works in transformer-coupled or OTL mode, and can even drive electrostatics!



Campfire Audio's new flagship Solaris earphone (\$1,499) is a hybrid design, combining balanced armature-type treble and mid drivers with a 10mm diamond-like coated dynamic driver.



Cayin Audio announced the coming release of an updated and revised \$799 'Mk2' version of its excellent iDAC-6 hybrid tube/solid-state DAC, as favourably reviewed both in *TAS* and in *Hi-Fi+*.



Beyerdynamic's (\$399) Lagoon ANC Bluetooth noise cancellers take personalisation seriously with the Make It Yours app.



Dekoni Nuggets (\$20) are stick-on riser pads that you attach to the underside of your headphone's headband strap to help lift the headphone ear cups up to a higher level for a better ear cup-to-ear fit.



Effect Audio's latest Leonidas II cable uses palladium-plated, ultra-purity OCC, golden ratio silver conductors, along with a "Litz Silver Hybrid". Prices start at \$888.



Focal's new \$2,999 Stellia Beryllium driver-equipped closed-back dynamic headphones. Utopia revisited?



Empire Ears' hybrid Legend X CIEM (\$2,299) features two dynamic W9 'subwoofer drivers' and five balanced-armature drivers all joined together by a 10-Way (!) synX crossover network.



The \$299 FiiO FA7 provides four Knowles-built balanced armature drivers and features earpiece enclosures that are 3D printed using a distinctive resin medically designed for ears.



HeadAmp showed its new cost- and complexity-reduced single-chassis GS-X Mini balanced headphone amp (\$1,795 - \$1,995, depending on volume control option chosen).



HiFiMAN's very compact \$600 BA1000 Bluetooth speaker, which sports an LDAC BT interface, a black anodized metal chassis, two small 53mm full range drivers, and a small oblong passive radiator.



InEar ProPhile 8 earphones from Germany (\$1,428) provide bass and treble adjustment and near-CIEM-grade noise isolation.



Singapore-based Jomo Audio showed the remarkable Trinity universal-fit earphone (\$2,795), so named because it uses three different types of drivers, including a self-biased electrostatic!



Labkable's Golden Samurai uses—get this—the combination of a four-core gold-plated wire and a four-core platinum alloy wire. The price is a jewelry store-like \$1,770 per cable!



Stabi R Turntable, Stogi 4Point 9, CAR-40



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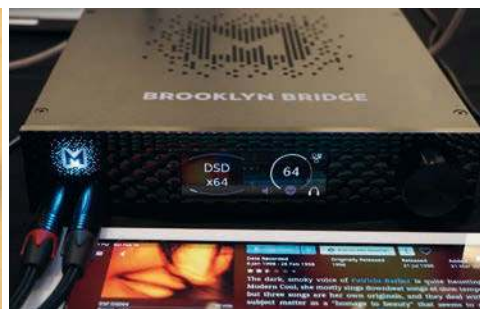
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MrSpeaker's ETHER 2 planar magnetic headphone (\$1,999), building upon strengths heard at CanJam RMAF in late 2018.



Meze's flagship Empyrean headphone (\$3,000) was a long time coming, but is now in full production and has proven worth the wait. See our review on page 112 of this issue!



Mytek's \$2,995 Brooklyn Bridge offers all the functionality of its DAC+, plus streaming via built-in Bluetooth or Ethernet, and server-like capabilities from a USB music library drive port.



Noble Audio returned to CanJam with its new Khan hybrid universal-fit earphone. The \$2,395 five-way flagship will feature a piezoelectric tweeter alongside balanced-armature and dynamic drivers.



oBravo's HAMT-3 Mk2 dynamic/AMT headphones is an improved and – at \$900 – lower cost replacement to the HAMT-3.



Pro-Ject's Pre Box S2 Digital headphone amp/digital preamp/DAC (\$399) features a pair of ESS Sabre ES9038Q2M DACs that can decode PCM, DSD, and are fully MQA capable.



Stax SR-009S electrostatic headphones (\$4,800) feature all-new stator panels, which are more dished than the 009.



RHA's new True Connect Bluetooth Ear pods (\$170 or £150 complete with charging case) can be thought of as AirPods on steroids, yet selling for about the same price as the Apple models.



Schiit Audio's \$1,499 Ragnarok 2 headphone/integrated amp will be much cooler running, include remote control, and provides bays for optional phono stage and multibit DAC modules.



Westone's W-series earphones—comprising the W10, W20, W40, W60, and W80—have all received across-the-board updates and revisions with very subtle voicing changes... and Bluetooth dongles!



Woo Audio's \$1,399 WA11 Topaz is a fully balanced Class A amplifier and a high-performance DSD128 and 24/384 PCM-capable DAC section in one portable battery-powered box.



ZMF's Verité (\$2,499) is the firm's first headphone to use PEN diaphragms with vapour-deposited Beryllium coatings.

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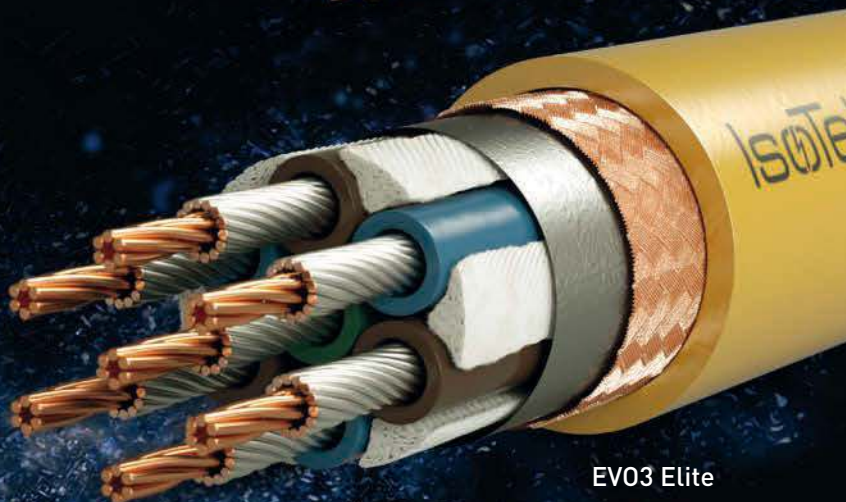
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Naim NDX 2/XPS DR Music Streamer and PSU

by Jason Kennedy

I used to wonder why Naim persevered with DIN connections when the rest of the audio world had given up on them decades ago. They're not particularly nice things and must be a pig to solder, and you can't use them with chunky cables. It's no wonder they went away with only a few diehard adherents such as DNM standing alongside Naim standing up to the RCA/XLR hegemony. But now that I have had the chance to connect a Naim source and amplifier with a DIN to DIN cable I can hear why they have stuck to their guns. I'll come back to this.

The main subject of this review is the middle model in Naim's latest range of ND streamer/DACs; this was launched last year and became the second generation of streamers to take top spot(s) in Naim's source hierarchy. The NDX 2 is the middle model and sits in the company's Classic Series and it comes in casework that's typical of that range except for the presence of a large (five inch) TFT display. This is a purist audiophile streamer and digital to analogue converter, but Naim has given it a broad feature set that enables integration with a wide range of contemporary sources alongside outputs that

mean it can be used with pretty much any amplifier. Features that are not essential to the purist audiophile cause but make the NDX 2 a bit more flexible include the ability to receive Airplay, Chromecast, and Bluetooth signals, built-in access to Spotify and Tidal streaming services on the Naim app, and a slew of digital inputs for most of the likely sources. The only omission is HDMI for connection to an AV source, but most of these have a Toslink optical output for which the Naim has two inputs.

Control is largely achieved with the iOS or Android app but you do get a remote control that's useful for pausing playback without having to wake up a touch screen. ▶



“As is the case across the streamosphere, Naim has concentrated on keeping noise at bay in its ND streamers.”



- ▶ You can also control a connected amplifier or preamplifier with this remote, which saves on coffee table clutter. If you prefer, and many do, the NDX 2 can be controlled with the Roon app, which brings an enriched feature set and the ability to stream Qobuz on top of the native streaming services offered by Naim. It can be connected to a network over Ethernet (preferred for its reliability) or Wi-Fi.

While the streaming engine is the same across all of Naim's network streamers the surrounding architecture varies, as does the all-important power supply. The NDX 2 has an onboard supply, with a transformer that's as big as are found in some of Naim's power amps, so it can be used on its own (unlike the ND 555), but you can also augment it with an XPS DR as was the case for this review, or even a 555 PS should the urge to upgrade prove too strong. Digital to analogue conversion is provided by a Burr-Brown PCM1792A chipset but jobs that are usually done within such chips such as digital filtering and current to voltage conversion are covered by Naim's discrete electronics. 16 times integer oversampling is achieved with a SHARC DSP prior to the DAC, which can deal with signals up to 32-bit/384kHz and DSD128, totally adequate figures unless you have a penchant for obscure audiophile recordings. As yet there is no support for MQA but one suspects that if this were to take off in a big way the software could be updated for the purpose.

As is the case across the streamosphere, Naim has concentrated on keeping noise at bay in its ND streamers. High frequency noise is the enemy of high resolution and contributes largely to the unappealing characteristics of digital audio, so this is the way forward. One example of the approach is that data transfer to the screen is switched off when the image is static, such as cover art, which eliminates one small source of noise. Another angle is that the standby power is supplied by a high efficiency (but relatively noisy) switched mode supply, this is replaced by a linear supply when it's in operation.

This seems like a good idea but if you add an external power supply it's recommended that it is left always on so isn't quite as polar bear friendly.

The XPS DR power supply as the name suggests benefits from the discrete regulator (DR) configuration that was rolled out in Naim's amplifiers a few years back. The aim is to deliver lower noise, low impedance power from the six separately regulated supplies.

I didn't start out using a DIN connection because the NDX 2 was for the most part connected to a Townshend Allegri+ preamp and ATC P2 power amp (no DIN inputs there), but that did not stop the NDX 2 sounding spectacular once it had been given enough time to settle down. Which is a lot more time than is the case with most audio electronics and all part of Naim lore that says 'never switch off'. I also started out using a Super Lumina DIN to RCA cable so was halfway to the brand's preferred connection system. Under these circumstances the sound has a distinct emphasis on percussion if it's in the recording and rhythm instrument lines in general. This lies at the heart of Naim's renowned ability to bring out the timing of the music and the way that the musicians ▶



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“The Naim reflects the intrinsic nature of both the recording and the music with everything you choose to play.”

► lock into the groove together. It's very compelling and sounds realistic at the same time. This struck me with Keith Jarrett's *Eyes of the Heart* [ECM], a live recording that starts out quietly building up the tension with Jack de Johnette's drums before a saxophone soars above the band sounding bright and open. This has a 'reach out and touch it' realism, but seems a bit forward if you are used to the vinyl balance. It is vibrant and intense but sometimes a bit too much that way and, in the end, I switched to my regular Townshend Fractal interconnects with RCA plugs at both ends. This requires you to go into the settings on the app and change the output which is straightforward. What is less obvious is that Naim recommends that all inputs should be turned on for best results, this is the opposite to the previous range and includes Chromecast, which had appeared in an update during the review period so wasn't switched. I didn't do an A/B to see if it helped but the streamer sounded better toward the end of the period, probably because like a cat it was more at home in its surroundings, or whatever it is that makes these things improve over long periods.

The Naim reflects the intrinsic nature of both the recording and the music with everything you choose to play, thus the Hadouk Trio's *Live à FIP* (Mélodie) has a palpable tactility to the low end and fabulous three dimensional scale, while Jimmy Hendrix's 'Wait Until Tomorrow' (*Axis Bold as Love*, Track) is as fast as you like and reflects the remastered late sixties sound to a tee. I doubt the original vinyl had this much bass on it. The NDX 2 is not the most neutrally balanced of streamers, as there does seem to be a bit of extra oomph to the bass, a degree of high frequency roll-off, and a slightly dry feel to the mids, but this balance serves the musical communication side of things extremely well. Image depth isn't up there with the best, but rhythmic cohesion is in the top one per cent; it puts the message well ahead of the medium and that is a laudable goal in my book. Resolution of detail is also very high; it's easy to peel

apart the layers on Nils Frahm's *All Melody* [Erased Tapes] thanks to a sense of clarity that puts you in the hot seat at the mastering engineer's desk. This album has lots of scale and should be auditioned by anyone who thinks it's necessary to put speakers in the ceiling in order to create a sense of height. You need a very good processor indeed to get home cinema to even approach the degree of transparency and effortless scale that can be achieved with good two channel.

Frahm's earlier masterwork *Spaces* [Erased Tapes], a collection of live recordings of varying quality, shows its grittiness and even distortion on some tracks but remains entrancing nonetheless. The slight dryness of the NDX 2's presentation probably emphasises this quality in the recording, but doesn't let it get in the way of the performance. This is not the sort of streamer/DAC that smooths over the cracks; it digs deep into the signal and shows you what's there – and if that isn't particularly slick, then you will hear it. Equally, if there are life and dynamics in the music, they are presented front and centre, there is a slight emphasis on the upper mids that brings out reverb really well and also serves to make more intense ►



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“The crowd’s enthusiasm is contagious and you can’t help but become fully immersed in the performance.”

- passages that much more immediate and thrilling. In many respects this Naim has qualities akin to a good turntable, it’s tighter in the bass as digital often is, but the timing is very close to that which can be achieved with vinyl.

Contrasting high-res tracks on 24/192 PCM and DSD128 delivers big differences, the one-bit format sounding more relaxed but also softer and slightly smoothed over. It also makes a good case for DSD128 over DSD64 where there is an upgrade in realism and fine detail resolution. As alluded to earlier the NDX 2 also responds well to connection via Naim’s preferred DIN interface. Naim’s Supernait integrated turned up late in the review proceedings and I fished out the basic Naim DIN connector from the NDX 2 box to see what difference it would make. Initially it sounded coarser and less transparent, but before too long it became obviously apparent that the timing had stepped up significantly. In fact, it was a bit of an epiphany, using a DIN cable between Naim components makes the result so much more cohesive that you just can’t put the thing down. The presentation becomes less refined but more musically deep and incredibly involving especially where rhythms are concerned, yet equally, atmosphere is very well served. Frank Zappa’s *Halloween* [Vaulternative] is a high-res release originally on DVD-A (remember that?) that starts out with just the sound of the New York audience, you can hear exactly why it was included. It maps out the scale and the energy in concrete terms, so when the music starts, the crowd’s enthusiasm is contagious and you can’t help but become fully immersed in the performance. This happens despite the track being an instrumental piece that’s not very well known (‘Ancient Armaments’), I guess Zappa could have played anything and got a rapturous reception from that audience back in 1978.

I also contrasted the NDX 2 with and without the XPS DR power supply, it sounds very good indeed without the supply but the extra control that the XPS DR brings does give everything more power, weight, and authority. Dynamics benefit from this and bass lines have a solidity that brings substance to the whole picture. It’s not essential and I enjoyed the streamer with its onboard supply for some time before adding the XPS DR: however, going back proved to be a less enjoyable experience. I’m told that the 555 PS represents a considerably bigger jump but it costs £2,600 more so you’d want a decent result even in the high-end world of diminishing returns.

The combination tested here gets to the heart of the music in a fashion that is impossible to ignore thanks to the immediacy and detail resolution that goes with it. Naim understands that music like art is more than an aesthetic experience; you can only enjoy the sound for so long, it’s the musical message that makes listening so rewarding. Strangely, Naim is in a pretty select club in this regard, presumably because this has always been their ethos and because their engineers know how to achieve such a difficult to define goal. They have certainly scored with the NDX 2 and XPS DR... back of the net, so to speak. +

TECHNICAL SPECIFICATIONS

NDX 2

Type: Solid-state network streamer, DAC

Analogue Inputs: none

Digital Inputs: Two coaxial S/PDIF (via RCA and BNC jacks), two TOSLink, USB A for stored audio/MP3 player

DAC Resolution/Supported Digital

Formats: FLAC/AIFF/WAV/ALAC/

DSD etc. Sampling rate for D/A

conversion up to 384kHz/32 bit,

DSD128

Music services/Wi-Fi inputs: Spotify

Connect, Tidal, Chromecast,

Bluetooth, Airplay, Roon

Analogue Outputs: One stereo

unbalanced (via RCA connectors),

one stereo unbalanced (via

DIN jack)

Digital Outputs: One coaxial S/PDIF

(via BNC jack)

Frequency Response: Not specified

Distortion (THD + Noise): Not specified

Supplied with: Power-Line Lite mains

cable, DIN to DIN interconnect

User Interface: 5inch TFT display (on

main unit), Naim application

software for iOS, Android

Dimensions (HxWxD): 87 × 432 × 314mm

Weight: 10kg

Price: £4,999

XPS DR

Type: Linear add on power supply

Power outputs: ± 22V, ± 10V, 2 × 15V

Supplied with: Burndy cable.

Dimensions (HxWxD): 87 × 432 × 314mm

Weight: 15.1kg

Price: £3,999

Manufacturer: Naim Audio

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Constellation Audio Pictor preamp and Taurus Stereo power amplifier

by Alan Sircom



Constellation Audio needs little introduction but a lot of explanation. The products were famously made by a ‘dream team’ of designers given a blank sheet and the lone requirement of “make the best one you always wanted to, if price were not a consideration”. These basic circuits form the core of every range of Constellation Audio. You get more and better the further up the Constellation Audio range you go.

This has two big advantages; there is a consistency of sound and upgrading is easy. You can pick and mix a system from different ranges (up to a point – using the Hercules power amps from the Reference series with the Inspiration Preamp 1.0 isn’t going to benefit either product) without ever leaving the Constellation ecosystem (perhaps that should be ‘universe’). Revelation is Constellation’s middle range, comprising the Pictor preamp, both a stereo and a mono version of the Taurus power amplifier, and the Andromeda phono stage. Above Revelation are Performance and Reference ranges, and below is Inspiration and the still-to-be-launched Leo system in the upcoming Dominion range. There are phono stages in everything above Inspiration and the Performance range includes Constellation Audio’s lone digital source, Cygnus.

Revelation was launched in 2017 to fill the space between Inspiration and Performance, and both the Pictor line preamplifier and Taurus Stereo power amplifier do that in a visual and audible sense. If anything, they lend themselves more toward the Performance; no mean feat as Performance is considerably more demanding and built to a standard few can attain. While it would be both wrong and dismissive to paint the Pictor as a Virgo III in Preamp 1.0 livery, or the Taurus Stereo as a Centaur II in a Stereo 1.0 chassis, there’s more than a grain of truth in the notion. That’s no compromise – the touchy-feely of the Pictor and Taurus Stereo are exceptional... until you start to run your hands over the Virgo III or Centaur II. The Pictor/Taurus feel smooth almost like the shell ►



► of an Apple product, where the textured feel of the Virgo/Centaur is like some kind of polymer metal that James Cameron could base a movie around. The modular nature of the original circuit designs means that the Revelation series models retain much of the, erm, performance of the Performance line, just with a few of the extremes smoothed away.

Take the Pictor, for example. It uses the same Line Stage Gain Modules found in the Virgo III and originally designed for the lofty Altair II; a unique design that uses a servo circuit to monitor and maintain the balance between the positive and negative halves of the audio signal. This means when Pictor is used with a Constellation power amplifier, the Constellation Link may be employed, maximizing sound quality by bypassing the power amplifier's gain stage. It also uses the same basic circuit topology and even the same separate power supply module as the bigger preamp. Internally at least, the main change is fewer inputs, with three RCA and three XLR inputs in place of the four each in the Virgo III.

The other difference between the preamplifiers is that in the case of the Altair II, the components used are all the rarest of the rare (including long-discontinued components chosen for their sound quality), and the level of physical isolation even heftier amounts of aluminium can bring. Even so, the Pictor's audio circuit boards mount on a thick metal plate, which is 'floated' using soft, pliable isolators, while key chassis components are machined from thick aluminium slabs. The sheer mass of the metal makes it harder for vibrations to affect a preamplifier, and the unusually thick panels are capable of blocking any electromagnetic or radio-frequency interference commonly encountered in a home. The Pictor is extremely well isolated from these forms of interference, but the Virgo III and the Altair II take this isolation to the extreme... and then beyond.

The Taurus is more immediately recognisably distinct from the Performance line (with the Pictor, the give-away is the sculpting around the display panel and the depth of the finish), because it's quite a bit smaller. In fact, the Taurus chassis is only slightly deeper than the Stereo 1.0 of the Inspiration line, and

stands less than 22cm tall. Regardless, it still features Constellation Audio's fully-balanced Line Stage Gain Module input stage, using the same topology found in the company's preamps. That identical nature of design has a secondary bonus, as a Direct input can connect a Constellation preamp to the Taurus, by-passing the power amplifier's own input stage in the process.

The modular nature of Constellation Audio designs means the Taurus shares the same Balanced Bridged amplification circuits found throughout. These are identical 125 watt, single-ended modules, which all feature only NPN output transistors. Unlike a conventional amplifier circuit (where NPN transistors drive the positive half of the signal and PNP transistors power the negative) using NPN transistors only in the output of each module eliminates the difference between the two types of output device, reducing a potential blurring of fine detail. To make a 250 watt amplifier like the Taurus requires two such modules, while the Centaur 500 Stereo from the Performance range doubles the number of modules to double the power output.

The modular layout of the Constellation Audio power amp design has a unique benefit that – once experienced – is hard to ►

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“Pinning down the sound is like trying to grasp musical smoke.”

you are focused on the soundstaging, and they were struck by the quality of the timbre. If you seek sonic holography, you’ll find it here to impressive levels, but if you seek musical integrity and beat-precision, you’ll find it here too, and to the same degree of impressiveness. Detail hounds, those who define their music by dynamics micro and macro, those who seem obsessed by vocal articulation (one of my triggers), or the overall coherence of the sound... most will see the Pictor and Taurus as ‘their’ amplifier, one that was also made for ‘their’ loudspeakers. Pinning down the sound is like trying to grasp musical smoke... in a good way.

In fact, the best musical example of how the Constellation Pictor and Taurus behave is to listen to them in the company of an equally musically-driven friend, family member, or associate. Judge the success of a product by the number of recordings you acquire from your side-kick’s music collection, and how many of your pieces of music they reach for. Constellation takes this to new extremes, said the guy who ended up buying a Melba Moore disco album, *La Voz* by Xiomara [Chesky, SACD], and dug out the almost forgotten *Whites Off Earth Now* album by the Cowboy Junkies [Latent], while introducing Nils Frahm, the XX, and Rag ‘n’ Bone Man to someone a few decades off the target demographic for those artists.

The Pictor and Taurus are also paradoxical in performance in that they at once reveal all the performance criteria in a loudspeaker while bringing out its musical enjoyment. This left me stumped, as these are typically polar opposites; an amplifier that’s ‘revealing’ is often musically barren, while an amplifier that turns every session into an entertaining jaunt through your collection is routinely masking the limitations inherent to the speaker design. ▶

▶ roll back from. It’s essentially banks of small amplifiers put together to make a big amplifier, and the Taurus takes the benefits from both. So, you get the delicacy, subtlety, and musical integrity of a small amplifier coupled with the power and dynamic range you expect from a big power amp. It simultaneously appeals to the buyer of typically European and Brit-fi amplifiers (small, fast, musically engaging, but lacking power to grip a pair of full-range speakers) and the buyer of more powerful American amps (which offer control, depth, and slam, but sometimes at the expense of those quicksilver musical reactions). That makes the amplifier a musical Rosetta Stone; to the music lover weaned on 30W Class A designs, it demonstrates the need for power, while the person who cut their musical teeth on sub-kilowatt powerhouses gets to understand why there’s more to life than grip. Neither have to compromise.

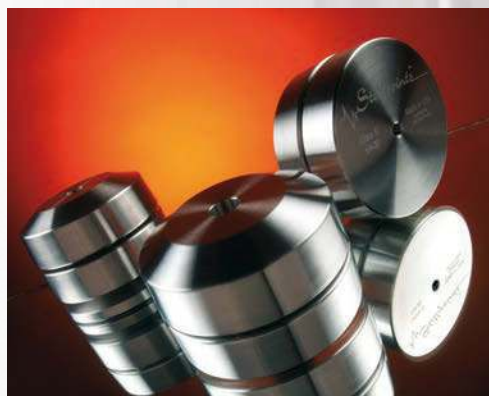
All of which means the Constellation Audio approach is uniquely open. The dark art of matching amplifiers to loudspeakers is less of a concern here, because the amplifiers have that rare combination of gripping the loudspeaker tightly by the drive units and yet – somewhat paradoxically – allowing it the freedom to express itself in the way it always wanted to. This makes the Pictor and Taurus at once uniquely satisfying to listen to, and uniquely frustrating to write about, as you realise that you are actually defining the sound of the Constellation Audio equipment by the sound of the sources and speakers to which it is connected. The oft-touted, never-achieved goal of an amplifier being ‘a straight wire with gain’ is closer here than in many designs.

This nature also extends to personal sonic ‘triggers’ that one focuses on in assessing a component. If you talk to another audiophile about the Pictor and Taurus, it’s as if you are discussing another set of amplifiers, because



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“Give it a few days, however, and you will think most pre-power connections border on the crude and rough-edged.”

- The Constellation Audio duo are unique in they show you exactly what your equipment is doing honestly and accurately, and yet make that experience as musically satisfying as it can be. Meaning it is at once the perfect tool for the designer wanting to know where the next speaker can be improved and the salesperson wanting to make their speakers sound great – that is a first, and bespeaks of the quality and accuracy of the Constellation Audio sound.

The Direct input is interesting, although I suspect not everyone will take to it at first. We are programmed to like a little distortion in life, it seems, and the addition of that extra input stage in the power amplifier makes the Pictor/Taurus combination sound a little more like its peers. When you try the Direct for the first time, you might find that absence of a slight sheen across the music ‘too refined’. Give it a few days, however, and you will think most pre-power connections border on the crude and rough-edged. That sounds like audio snobbery at its acme – “power amp input stages are just so jejune!” – but that’s what you hear and that’s how you change in hearing the Constellations working in tandem.

At this level, you don’t really encounter downsides, just different approaches to the same goal. Someone buying a DartZeel is never going to be truly happy with D’Agostino, and vice versa. So it is with Constellation Audio; that combination of absolute detail and absolute control is not for everyone, and the ‘small amp writ big’ presentation might not appeal to those wedded to either a small amp sound or a huge amplifier sound. But at this level, we are in ‘how do you take your coffee?’ territory.

Pictor and Taurus are the secret sweet spot of Constellation Audio. More buys you better, but mostly it buys you ‘more’. More inputs in the preamp, more power in the power amp. Yes, you also get more fluidity and detail, but we’re at a fairly high degree of nuance here. What you get when you move up from Revelation to Performance is the kind of mechanical isolation, depth of finish and industrial design that puts a lot of the audio industry to shame and that all has a profound effect on sound quality. That’s not to say Revelation has any rough edges or sounds compromised by comparison, but it’s like the difference between two and three Michelin stars; Revelation is like a two-star restaurant, which gets you the finest food, wine, and service in one of the best restaurants in the world, but the three stars of Performance gets you the audio equivalent of a gastronomic tour-de-force. As to the Reference Line... well that’s like having Alain Ducasse, Thomas Keller, Clare Smyth, and Seiji Yamamoto on speed-dial!

Constellation Audio is one of the hottest properties in audio electronics at the moment. And judging by the performance of the Pictor line preamp and Taurus stereo power amp from its Revelation line, it’s not hard to see why it’s such hot property. If you want a system to be honest without forcing that honesty down your throat, your next amp is a Constellation. It’s written in the stars! +

TECHNICAL SPECIFICATIONS

Pictor line preamplifier

Inputs: 3× XLR stereo, 3× RCA stereo, USB (for control)

Outputs: 2× XLR stereo, 2× RCA stereo, 12v trigger

Frequency response: 10Hz–100kHz, ±0.5dB

THD+N: <0.001%, 20Hz–20kHz at 2V output

Signal to noise ratio: >105dB, A weighted

Dimensions (W×H×D):

43.2 × 13.3 × 38.1cm (preamp),

43.2 × 7 × 36.8cm (PSU)

Weight: 20.4kg (preamp), 10kg (PSU)

Price: £20,998

Taurus power amplifier

Inputs: 4× XLR (2× XLR for Constellation Link), 2× RCA

Outputs: binding posts

Power output: 250W into 8Ω, 500W into 4Ω

Frequency Response: 10Hz–100kHz, +1/-0.5dB

THD+N: <0.05% (1kHz at rated power)

Dimensions (W×H×D):

43.2 × 21.6 × 58.4cm

Weight: 54.4kg

Price: £22,998

Manufactured by: Constellation Audio

URL: constellationaudio.com

Distributed by: Absolute Sounds

URL: absolutesounds.com

Tel: +44(0)20 8971 3909

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Chord Electronics Hugo TT 2 DAC/M Scaler upscaler

by Chris Martens



As many music lovers know, the legend of Chord Electronics' Hugo family of products started several years back with the first generation Hugo, which was a wildly overachieving portable headphone amp/DAC that took the marketplace by storm. Though that first Hugo was ostensibly a personal audio product, it didn't take audiophiles long to discover that it could handily compete with (or in many cases surpass) the performance of like-priced standalone DAC's for use in full-size audio systems. Granted, it did make for a strange sight, as the system would be comprised of racks full of big, full-width components plus the compact little paperback book-sized Hugo, which at least sounded big.

Audio history took its course, so that the first-generation Hugo begat the critically acclaimed first-generation desktop-sized Hugo TT ('TT' stands for table top), which was essentially the DAC section of the Hugo bolted on to an even more capable and powerful Chord headphone amplifier/preamp. As time moved on, those first-generation Hugo models gave

rise to what was and is one of Chord Electronics' greatest achievements: namely, the cost-no-object DAVE (Digital Audio Veritas in Extremis) preamp/headphone amp/DAC.

From the beginning, two things set the Hugo/DAVE family of products apart. First, they possessed extremely quiet, powerful, and low-distortion amplifier sections. Second, they incorporated extremely sophisticated Rob Watts-designed DAC sections that used distinctive FPGA-based digital filters that supported extremely long tap-length filtering schemes and could therefore use Watts' proprietary WTA (Watts Transient Aligned) filter algorithms. (To avoid confusion, let me mention that Rob Watts acts as an independent Digital Design Consultant to Chord Electronics, although he is regarded as an honorary member of the Chord team.)

What's the significance of the ultra long tap-length digital filter and of the WTA algorithms? In seminars given around the world, Watts has suggested that few designers recognize the full implications of digital audio sampling theory, which according to Watts point to an astonishing conclusion. ►

► Specifically, Watts contends that garden variety 44.1kHz digital audio files could, if processed through a digital filter of near infinite tap-length, yield analogue waveforms every bit as accurate and complete as those produced from higher-res audio files, albeit with slightly higher noise floors. Stop a moment and let that claim sink in. Watts is saying, in essence, that a DAC with a properly designed filter system can deliver ultra high-res sonic results from conventional CD-quality files.

To give some perspective, most normal DACs use filters offering a couple of hundred taps, whereas Chord's DACs use filters offering tens of thousands of taps, or more (the DAVE, for example, offers a filter with ~164,000 taps). Each time new Chord Electronics products up the number of available filter taps, says Watts, the WTA algorithm has had to be revised to take advantage of the additional processing power, while sound quality has audibly improved. This "more filter taps = superior sound" philosophy forms the underpinnings of the DAC designs found in the Hugo, Hugo TT, DAVE, Hugo 2, and now the new

Hugo TT 2, which offers 98,304 filter taps (second only to the DAVE DAC within the Chord Electronics range). The Hugo TT 2 is one of our two review subjects here, the other being the Hugo M Scaler, which we will get to in a moment.

To state things simply, the Hugo TT 2 is different to and better than the original Hugo TT in every way. It is quieter, yields un-measurable levels of noise floor modulation, offers greater dynamic range, provides a different and better power supply, produces much more output power, and incorporates a markedly improved DAC section. In short, everything the Hugo TT could do, the Hugo TT 2 can do better.

The Hugo TT 2 sports a host of useful digital inputs: two optical, two coaxial BNC inputs, one driverless USB input (for use with tablets and smartphones), one USB Type-B input, and an aptX Bluetooth interface. Analogue outputs include: stereo XLR, stereo RCA, 2 x 6.35mm headphone jacks, and 1 x 3.5mm headphone jack. One set of dual DX BNC digital (expansion) output are also provided. By design, the Hugo TT

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offers three distinct operating modes: DAC mode with fixed line-level outputs, Amp mode with variable-level rear panel outputs, and Headphone mode with variable-level outputs from front panel-mounted headphone jacks.

The amplifier section of Hugo TT 2 is very powerful, delivering up to 7.3 W @ 8 Ohms in single-ended mode or a stonking 18 W @ 8 Ohms in balanced mode. For this reason, and with headphone/hearing protection in mind, Chord Electronics advises owners to start out with extremely low volume level settings and to proceed with appropriate caution. The DAC section of Hugo TT 2 is as flexible as the amplifier section is powerful, offering support for PCM digital audio files ranging from 44.1kHz on up to 768kHz sampling rates and with DSD support via DoP (DSD over PCM) for DSD 64 through DSD512 digital music files. As mentioned above, Hugo TT 2 uses a 10-element digital filter that provides 98,304 taps and that runs a 16FS WTA 1 filter algorithm. Moreover, the DAC section provides four user selectable sub-

filter settings: Filter 1 'Incisive Neutral' (the recommended reference setting), Filter 2 "Incisive Neutral with HF roll-off", Filter 3 "Warm", and Filter 4 "Warm with HF roll-off". An IR remote control is included.

Now we come the Hugo M Scaler, which in many ways is a ground-breaking product. Basically, the M Scaler is a very powerful digital upscaling device—claimed by Chord Electronics to be "the most advanced in the world". The M Scaler can accept virtually any digital audio file input regardless of resolution or sampling rate and will upscale the input data to either 705.6kHz or 768kHz levels (depending on whether the data was based on a multiple of 44.1kHz or 48kHz). But upscaling, per se, is only part of the story; the other part is an FPGA-based digital filter that offers a staggering 1,015,808 taps and that runs under a specialised version of the WTA algorithm—one adapted to take advantage of the enormous processing power on tap. In the end, the M Scaler can send upscaled and pre-filtered audio data to any of the Chord ►



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“Quite candidly, the M Scaler makes substantial, across-the-board improvements to almost every qualitative aspect of the sound.”



- ▶ Electronics DACs that support 705.6kHz and 768kHz inputs, including the Qutest, Hugo TT 2, and DAVE.

Much of the technology of the M Scaler is drawn from Chord Electronics' previously released Blu II upscaling CD transport, with the primary difference that the M Scaler features digital inputs only (no CD transport) and is sized and styled to conform to the Hugo TT family design idiom. From a sonic perspective, though, the real significance of the M Scaler is that it can take garden variety CD-quality material and upscale it to the highest practical sampling rates possible, while applying a digital filter so powerful that, says Watts, the result is sound quality equal to or better than that of ultra high resolution digital files. But here's another point to ponder; the M Scaler lets its owners access the most sophisticated digital filter Chord Electronics presently knows how to make—a filter better than the ones used either in the Hugo TT 2 or in the DAVE.

The M Scaler provides 2 × BNC digital inputs, 2 × optical digital inputs, and one galvanically isolated USB Type-B input. Digital outputs include 1 × optical output, 1 × coaxial S/PDIF output via a single BNC connector, and one dual BNC output, which is the output of choice for best performance. While the Hugo M Scaler can conceivably be used with any DAC, the manufacturer makes it clear it is really optimised for use with Chord Electronics DACs that provide high-bandwidth dual BNC inputs able to take full advantages of the Scaler's full capabilities. Once I heard the M Scaler in action I thought that its sonic benefits were both transformative and profound.

Using a group of very high performance reference headphones from Final, HiFiMAN, Meze, and MrSpeakers, I listened to the Hugo TT 2 both with and without M Scaler and here is what I learned. Heard in isolation, the Hugo TT 2 sounds like exactly what it is: one of the finest headphone amp/DACs available today. While it is not quite on a par with the more than twice as expensive DAVE, the Hugo TT 2 takes worthwhile steps forward relative to its predecessor in terms

of resolution, clarity, focus, and coherency, while also offering quieter backgrounds and more dynamic muscle. In short, the Hugo TT 2 can more than hold its own in comparison to like-priced competition. However, fold the M Scaler into the equation and the picture changes dramatically for the better.

Quite candidly, the M Scaler makes substantial, across-the-board improvements to almost every qualitative aspect of the sound—so much so that you might feel like you are either A) listening through an altogether different and better headphone amp/DAC, or B) listening to delightfully remastered and/or much higher resolution versions of your favourite recordings. Once you hear the M Scaler in action, there's no going back.

I played a Virgil Fox pipe organ performance of Bach's Prelude and Fugue in D Minor from the Reference Recording *30th Anniversary Sampler* [Reference Recordings, HDCD] through the Hugo TT 2 and, as expected, it sounded superb. But, with the M Scaler in play, the unexpected sonic improvements I heard left me slack-jawed with astonishment. First, the pipe organ's low frequency pedal notes sounded more deeply extended (right down to the very low frequency shudder of air columns in the large pipes), much more tightly focused, and possessed of considerably more textural nuance. Second, the pipe organ's middle register sounded rounder, more expressive, and more full-throated, with a more spacious and three-dimensional presentation overall. Third, the organ's upper register passages, which had sounded just a bit congested when played through the Hugo TT 2 alone, suddenly sounded clearer, more delicate, and far more articulate, with virtually no congestion at all. Finally, the acoustic interaction between the pipe organ and the recording space was rendered more vividly and naturally, while apparent soundstage size increased. Impressively, these improvements were wrought upon a recording widely acknowledged to be a superb one to begin with. ▶



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► I enjoyed similar benefits when I played the 'Triptych (Excerpt)' from *A Company of Voices – Conspirare in Concert* [Harmonia Mundi, 16/44.1]. This exuberant and syncopated piece for percussion ensemble and concert choir is not one that is easy for most DAC's to handle, in part because of the large-scale dynamic swings involved and the perhaps slightly over-modulated choral swells that at times threaten to become ragged and strained. However, with the M Scaler assisting the Hugo TT 2, the timing and timbres of the percussion ensemble instruments improved dramatically, with more incisive transient sounds, rounder tonalities all around, and the all-important qualities of 'swing' and dynamic 'jump' in evidence. Individual choral lines also became clearer and more intelligible, while the potentially problematic vocal swells sounded better controlled

and more expressive, with elements of congestion mostly (though not entirely) cleared up. In addition, the sounds of the concert venue were captured more realistically (I can say this with some conviction because I was present in the hall on one of the evenings when the recording was made) and with appropriate stage width and depth. Once again, the M Scaler/Hugo TT 2 pair made an already good recording sound a whole lot better.

The Hugo TT 2 and Hugo M Scaler fit together like a sonic hand in a glove; once you hear them together, you won't ever want for them to be apart. While Chord Electronics' DAVE may be in a class of its own as a standalone headphone amp/DAC, the combination of the Hugo TT 2 and the Hugo M Scaler actually costs less than the DAVE and may actually offer better all around performance, which is saying a mouthful. +

TECHNICAL SPECIFICATIONS

Chord Electronics Hugo TT 2 headphone amplifier/preamp/DAC

Type: Solid-state headphone amplifier/preamp/DAC

Inputs: Two TosLink optical, two coaxial BNC, one driverless USB input, USB Type-B, aptX Bluetooth

Outputs: Analogue: Stereo XLR, stereo RCA, 2 × 6.35mm headphone jacks, 1 × 3.5mm headphone jack

Digital: 2 × DX BNC (expansion outputs)

Formats supported: PCM from 44.1kHz to 768kHz sampling rates. DSD (via DoP) from DSD64 to DSD512

Digital Filters: 98,304-tap 16FS WTA 1 (Watts Transient Alignment) digital filter. Four user-selectable sub-filters:

Crossfeed: Four user selectable settings

Operating Modes: Three options are supported:

Headphone mode: Hugo TT 2 operates as headphone amp/DAC with variable output levels.

Amplification mode: Hugo TT 2 operates as a digital preamplifier with variable output levels. DAC mode: Hugo TT2 operates as a DAC with fixed line-level outputs

Dynamic Range: 127dB (A weighted)

Noise: 4µV (A weighted, high gain), 1.7µV (A weighted, low gain) with no measurable noise floor modulation

Distortion: 0.00008% @ 2.5V, 300 Ohms; 0.00016% @ 6W. 8 Ohms

Power Output (@1% THD): Unbalanced 300 Ohms: 288mW RMS, 8 Ohms: 7.3W RMS

Balanced: 300 Ohms: 1.15W RMS
8 Ohms: 18W RMS

Dimensions (H×W×D): 40.5 × 235 × 223mm

Weight: 2.53kg

Price: £3,995 (UK), \$5,795 (US)

Chord Hugo M-Scaler digital upscaling device

Type: Digital upscaling device with a greater than 1M-tap digital filter

Digital Inputs: 2 × BNC, 2 × optical, 1 × galvanically isolated USB Type B

Digital outputs: 1 × optical, 1 × S/PDIF, 1 × galvanically isolated dual BNC (which supports upscaling to 768kHz from 48kHz data)

Upscaling: 44.1kHz digital audio files (or multiples of 44.1kHz) upsampled to 705.6kHz via dual BNC outputs
48kHz digital audio files (or multiples of 48kHz) upsampled to 768kHz via dual BMC outputs

FPGA device: Xilinx XC7A200T

Digital Filters: 1, 015,808-tap WTA (Watts Transient Alignment)

Dimensions (H×W×D): 46 × 235 × 236mm

Weight: 2.55kg

Price: £3,495 (UK), \$4,995 (US)

Manufacturer: Chord Electronics Ltd.

Tel.: +44 (0) 1622 721444

URL: chordelectronics.co.uk

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KEF LSX Active bookshelf loudspeaker

by Alan Sircom

Reviewers both love and hate in equal measure reviews that basically write themselves. We love them because they are so easy to write – words fall onto the page without a care. We hate them for pretty much the same reason, as we barely get a chance to place our own fingerprints on the review itself. The KEF LSX is one such review; about 20 seconds after I had plugged it in, the review was practically fully constructed in my head, nothing in the extended process of listening swayed that early impression, and only one out-of-the-blue event was worth adding. None of which should detract from the LSX... quite the reverse in fact.

The simple way of thinking about the LSX is that it's a smaller, cheaper version of the LS50 Wireless wrapped in a range of natty cloth finishes, and is designed to fit almost anywhere (hence the 'bookshelf' description – they stand as high as a paperback and can be legitimately used in a bookshelf as long as you have provision for a couple of power cables and ideally a signal cable or two). The downside to that pithy description is it dismisses the substantial amount of R&D work that has gone into the LSX in an attempt to try and squeeze a quart into a pint pot, and do it without it sounding like someone throwing a sack of spoons down a fire escape in the process.

You can't break from the whole LS50 Wireless aspect of the LSX though, and I don't think that's something KEF would necessarily want you to do either. If KEF was keen on breaking that link, it probably wouldn't have made the LSX look like a scale model of the LS50/LS50 Wireless. It has the same proportions, just smaller. The smaller size means the top-plate control panel of ▶



▶ the LS50 Wireless goes away and everything is driven by the app. This is no bad thing, as it's very 'Spotidal' friendly and both quick and easy to set-up. Parameters on the app include whether the speakers are on stands (expected mid-year) or sitting on a shelf, distance from wall (and lip of said shelf), master/slave orientation (no need for gimp masks, just whether the master loudspeaker drives the left or right channel), and increasingly connections. Alongside the more conventional analogue aux minijack, Toslink and increasingly ubiquitous Ethernet connection (one is used to connect master to slave, as well as master to outside world), it can connect to the world through Bluetooth and wireless Ethernet, although Class 2 USB audio and a pair of conventional RCA analogue sockets are lost in the shrinking process. Although the on-board DAC can support up to 24-bit, 192kHz file sizes, the LSX downsamples to 24/96 as that is the limit of the master-to-slave Ethernet connection (run wireless, this drops to 24/48). It has a subwoofer output RCA connector and can even charge your smartphone via USB while you are playing tracks through Bluetooth. In other words, it taps the zeitgeist!

Technically, the shrinking process makes for a smaller Uni-Q drive unit and the loss of the Class A/B amplifier for the tweeter, the LSX going for a complete Class D active amplifier system. Doing away with a Class A/B design means the loudspeaker has less heat-dissipation requirements and that means no heatsinks at the rear; in the process sparks a move from a heavy MDF cabinet to an ABS casing. The active amp system does deliver a healthy 100W to that latest generation Uni-Q drive unit, however.

The LSX relies heavily on its app, or rather 'apps': Stream and Control. As the names suggest, one controls basic functionality of the LSX, and the other drives the content, speaking to DLNA servers, aptX Bluetooth, and Spotify Connect like a native, Tidal like a fluent speaker, and is currently learning how to speak Apple AirPlay 2. In an ideal world, KEF would get this down to a single app, as there is some flitting from app to app (fortunately both run concurrently and don't crash), and there is a little bit of hesitation in its Tidal connection. I'd ideally like it to speak Tidal with the same fluency it speaks to Spotify or a DLNA server, but this is more an occasional hiccup than regular drop-outs.

What's good about the LSX is its clearly a design that comes down the audiophile pipeline, and not through the mass-market sound-producer development team. People who like the sound of music made this, rather than the sound of people who flit from one industrial design to another throwing drivers in a box.

The LSX has big shoes to fill. The LS50 Wireless set new standards in active 'next-gen' complete audio systems. Fortunately, the LSX does the same at a new price point. It also has to deal with the kind of music most audiophile systems will never get close to; like 'Boss' from Little Simz excellent third album *Grey Area* [Age 101

Music]. This is hard, spiky MC-driven rap to a distorted back-beat. LSX deal well with the stripped-back music, pushing her overloaded microphone front and centre so you can hear every angry word, and you realise why this 25-year-old English rapper is destined for greatness. Dropping back to a more ambient tip, 'Polar' by Icelandic neo-trip-hoppers Vök from their 2017 *Figure* album [Record Records] and the deep synth sounds mix well with the breathy vocals like they did when I used to listen to Portishead on KEF Reference speakers. ▶





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“The LSX produces a sound of surprising width and depth, and most importantly gets the timbre of the instruments right.”

► Of course, music that is electronically generated is not the complete story, and how a loudspeaker like the LSX copes with orchestral and piano pieces is perhaps more telling. But even here the LSX acquits itself well. Playing piano first [Bill Evans playing ‘Young And Foolish’ from *Everybody Digs Bill Evans* on Riverside], the LSX separates the sounds of the trio well and doesn’t tangle with that piano sound, even when the key change forces a lot of left hand work. In all these tracks, there is also an important sense of rhythm underpinning the music that the LSX is remarkably good at reproducing. Meanwhile, the DG recording of the Amadeus Quartet playing Beethoven’s ‘Rasumovsky’ quartet (Opus 59/1) is rich and expressive. This might not be the ultimate in spatial reproductions, but the LSX produces a sound of surprising width and depth, and most importantly gets the timbre of the instruments right, especially in the midband. Granted, trying to squeeze all that sound into that small a loudspeaker imposes limits on the sound itself. You will get surprisingly deep bass from the LSX, but if you are intending on playing Mahler’s Eighth at high volumes, you’ll hear where those limits kick in.

This is a fine loudspeaker system, but KEF isn’t going to lie awake at nights worrying about cannibalised Blade sales, or even that the LSX will cut into sales of the LS50 Wireless. Both of those systems deliver a lot more than the LSX ever will, in the two fairly fundamental areas of absolute volume headroom and bass extension. But that is missing the point; the LSX also delivers a lot of what loudspeakers like the LS50 Wireless do so well and does it for those with smaller rooms and smaller bank balances. The mid-range and top-end are pure KEF and the size of the speaker makes it behave almost like a point-source, so its imaging is absolutely top-notch. Forget the glass-half-empty Eeyore types, this is a great loudspeaker for a generation unwilling or unable to devote huge amounts of space to their audio equipment!

The LSX proved a success in the Sircom household too. Often when some large crate containing a pair of huge, ugly loudspeakers rocks up during the day, that evening I can hear the sound of ice forming on my wife’s upper slopes. Instead they got a nod of approval. The nod became a chorus, as my brother-in-law popped round, heard them, and bought a pair. It’s that kind of speaker; despite some audiophile inverted snobbery suggesting only golden ears justify a difference enough to put hand in pocket, the reality is when presented with something so much better than the sound of an Amazon Echo or a Sonos One, real people like what they hear, too.

The joy of the KEF LSX is that it’s an Everyman loudspeaker, and it isn’t just designed to be some kind of audiophile-creation machine. People who listen to music through these loudspeakers like what they hear enough to both buy a pair and gain appreciation for those of us who go deeper into sound quality. If I was dumped on a desert island with only a pair of KEF LSX to keep me company, I’d be fine with that... that’s how good they are. +

TECHNICAL SPECIFICATIONS

Type: Active two-way stand-mount loudspeaker with wireless and network connectivity

Drive Units: 1× Uni-Q driver array, with 19mm aluminium tweeter dome, 115mm magnesium/aluminium alloy mid-bass cone

Inputs: 2.4GHz/5GHz Dual-band Wi-Fi network, Bluetooth 4.2 with aptX® codec

TOSLINK Optical, 3.5mm Auxiliary Input, RJ45 Ethernet (For network)

Output: Subwoofer RCA, 5V 2A DC output

Wi-Fi network standards: Dual-band 2.4GHz/5GHz, IEEE 802.11a/b/g/n

Bluetooth frequency: 2.402GHz–2.48GHz, 10m range, eight devices remembered

Bluetooth power: 2.5mW (Bluetooth Class 2 Device)

Resolution: Supports up to 192kHz/24bit (input), Wireless mode 48kHz/24bit, Cable mode 96kHz/24bit (output)

Master/Slave connection: RJ45 Ethernet or propriety 2.4GHz wireless

Amplifier output power: 70W (LF), 30W (HF)

Maximum output (SPL): 102dB

Frequency Response: (±3dB) Measured at 85dB/1m
54Hz–28kHz (More bass extension)
59Hz–28kHz (Standard)
69Hz–28kHz (Less bass extension)

Finishes: Black, white, metallic red, blue, and green

Dimensions (H×W×D): 240 × 155 × 180 mm

Weight: 3.6kg (master), 3.5kg (slave)

Price: £999 per pair

Manufactured by: KEF

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Exposure XM CD Player

by Roy Gregory



While BOGOF has an undeniable ring to it, BOGTF is just so much better – even if it is unpronounceable. That might have stood in the way of the wider advertising industry, but it hasn't discouraged Exposure: when it comes to upping the versatility and value stakes, its new XM CD player really is three rather fine products in one. Of course, delivering rather more than meets the eye tends to be something of a digital speciality, with apparently plain fascias concealing a rear panel packed with every socket imaginable – and often a few that defy any useful application. But that's not the nature of Exposure's pint-sized CD player, which is all business and no frills. At £1,200 it might just be the right box, in the right place, at the right time.

Housed in a half-width 'shoe-box' chassis, the XM ticks more boxes than just having a sensibly small footprint. In this day and age, when the industry and audiophiles alike

seem intent on a lemming-like repetition of recent history, prematurely condemning CD to the dustbin of disused formats with an unseemly, uncritical, and irrational haste, any disc-spinner that takes up minimal shelf space gets to pose as an occasional source – a bit like all those record players that were disinterred a few years ago. And just like those record players, the XM CD player is quite capable of demonstrating just why we should all still be taking CD seriously. By doing the simple things well, Exposure has created a product that is as effective as it is affordable and versatile. Principle amongst those design choices is the adoption of a top-loading transport – something the XM shares with all of the very best sounding (and most expensive) CD players. But just as important is the minimalist interface, consisting of just stop, play, and skip buttons on the front-panel; everything else is on the comprehensive remote (allowing the XM to drive a matching amp too), while the back panel is just as on point. Alongside the single-ended analogue ►

“Perch the XM on a set of equipment couplers and you realise just how much its lively chassis construction has been holding it back.”

- socketry you’ll find two digital outputs, a ubiquitous TosLink optical and a genuine 75 Ohm BNC for S/PDIF, a choice that allows the XM to play the all-important transport card without being cut off at the knees by a sub-standard connection.

To play a disc you slide the top cover back, drop the CD onto the spindle, secure it with the small, magnetic puck, slide the lid shut and you are ready to go. It’s far from the slickest top-loader I’ve come across, but it’s no less effective for that. Fire up the Exposure and it delivers a solid, engaging, uncomplicated sound, long on musical substance, and the sort of solid rhythmic purpose that serves as an instant reminder of just what CD has to offer. Play Ryan Adams or Rag And Bone Man and the musical energy and presence are as impressive as they are enjoyable. There’s nothing halting, effete, or disjointed here. This may not be the most incisive player you’ve heard and ultra transparency or resolution aren’t its strongest suits, but when things are this straight forward and enjoyable, why worry?

If that was all the story, the XM would probably go down as one of those worthy, musically enjoyable but less than sparkling CD players that British designers do so well. It’s a fine example of the breed, but it’s when you hook it up to a DAC or the digital input on a decent integrated amp that things

start to get really interesting. For a start, you lose that slight softened vagueness that rounds off the analogue output’s musical edges, with a crisper, more detailed and more positive sound. It’s a step that raises the Exposure’s game, making it the most affordable transport I’d recommend. It also puts it head to head with the prettier, heavier, and £300 more expensive Heed Obelisk, a dedicated transport only unit, built into a similar shoe-box chassis. In direct comparison the Heed sounds noticeably more dynamic and emphatic in its delivery, just about justifying the cost difference between the two – if you ignore the fact that the Exposure includes an internal DAC that, even if you don’t plan on using it, constitutes a useful back-up.

But this is where things get even more interesting – and the Exposure’s lighter construction becomes an unexpected bonus. With any CD player, support is a critical consideration. Perch the XM on a set of equipment couplers and you realise just how much its lively chassis construction has been holding it back. Give the internally generated mechanical energy an exit path and somewhere to go and suddenly the performance locks in, with a serious increase in dynamic range, resolution, focus, and separation. For the first time the player starts to throw a soundstage with both depth and convincing lateral ►





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Drawn from many years of BBC research, and through the engineering genius of Derek Hughes, these speakers have been recreated using state of the art materials and technology under license from the BBC. A new addition to this series is the Chartwell Sub 3, a bespoke compact, passive sub-woofer designed to be used in conjunction with the LS3/5 monitors.

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“Kill the display and you get the icing on the cake as the sound loses a layer of grain and the mid-band firms up.”



TECHNICAL SPECIFICATIONS

Type: Top-loading CD Player

Outputs: 1pr single-ended analogue

1× TosLink Optical

1× BNC S/PDIF

Analogue Output Level: 2.0 V RMS

Inputs: None

DAC: PCM 1716 24-bit

Dimensions (W×H×D): 218 × 94 × 348mm

Weight: 4kg

Finishes: Black or silver

Price: £1200

Manufacturer: Exposure

Lancing, West Sussex, BN15 8TU

Tel: +44 (0)1273 423877

Net: exposurehifi.com

► spread. The extent of these improvements is going to depend on the couplers you choose, but even the basic bamboo blocks supplied with the Blue Horizon rack delivered a substantial benefit. Of course, using the couplers under the Heed also delivers benefits, but that player's more substantial construction offers less potential for gain. Instead, the Exposure now outstrips it, with a more agile and more clearly delineated performance to go with its solid sense of purpose. Moving up to more costly alternatives like Grand Prix Audio Apex Minis or Neodio Origine B1s delivered greater benefits – especially in terms of resolution and separation – but at a significant cost. Just like the player itself, I'd be inclined to keep things simple...

However, there is one other mechanical area just crying out for attention – the sliding lid that covers the transport. Rather cleverly, the rails in which it runs act to brace the top of the chassis, but the lid itself is a thin, flat plate. Applying some resonance control has a remarkable impact on performance. You don't want to go too heavy (the thinnest, smallest HRS DPlI damping plate would be a perfect fit, but my thicker ones are two massive) and while the likes of Apex cones or Origine B1s do a great job, the best solution I came up with was a single Shun Mook Mpingo disc. With bamboo couplers and the lid damping in place, the XM becomes a more articulate and intimate performer, with a more developed soundstage and significantly better timing. Just listen to the verbal exchange that opens Ryan Adams *Heartbreaker* [Bloodshot] and you'll see what I mean: there's a more natural

rhythm to the humour, more articulation in the speech, and a more clearly defined and much more dimensional image – all qualities that carry over to the musical presentation. Kill the display and you get the icing on the cake as the sound loses a layer of grain and the mid-band firms up, gaining attack and musical intent. And best of all? All those tweaks work, albeit to a slightly lesser degree with the player's on-board DAC.

The Exposure XM really is three (or even four) products in one: the CD player, the transport, and then either of those with a few simple steps taken to maximise their performance. Perfectly respectable and reliably entertaining straight out of the box, using couplers and damping the disc cover is the audio equivalent of not just whipping off its glasses and letting down its hair, but running it through make up and the designer floor at Harrods too. It's that big a transformation with results that are that arresting. For such an apparently simple device, the XM does a great job of hiding its considerable light under a bushel. Don't be fooled by appearances: if you've invested heavily in a DAC but still want to play CD, or if you just want to play CD period, this Exposure is just the ticket. +



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Triangle AIO 3 Bluetooth loudspeaker system

by Alan Sircom

Like many audio brands – especially, it seems, audio loudspeaker brands – French loudspeaker manufacturer Triangle is up for a spot of diversifying. The new AIO system is the result. There are two AIO products in the line-up. The AIO C, a small Bluetooth streaming portal to open the 21st Century to an existing system, and the AIO 3, which takes that core technology and builds a small loudspeaker system around it. We went for the AIO 3.

The AIO 3 competes almost head on with devices from Bose and Sonos, which are priced above and below the AIO 3. These two brands dominate this market to the extent where there are only two ways to compete; go for a different approach, or go out of business. Triangle went for the different approach, and it's one I think will work well.

The way Triangle has tried to compete is to push the 'elegant' angle, and push it hard. This is a product designed to be sold both in audio stores where people appreciate the finer things in sound, or in elegant department stores where people appreciate the finer things in life. Basically it sells to people because it looks good or sounds good, and occasionally because it both looks good *and* sounds good.

The AIO 3 itself is elegant and understated. It has a range of four different colour grilles surrounding the loudspeaker system itself, and contrasting metal finish along the top and base of the AIO 3. Two grilles – black and grey – come with brushed aluminium contrasts, while lime green and 'Arctic blue' are finished with a nice shade of champagne gold aluminium.



“Fresh out of the box the sound might not be ‘disappointing’, but neither is it truly ‘appointing’.”



Operationally, the AIO 3 tells the world its status through the medium of a range of little LEDs. There are seven hidden behind the left-hand front of the grille; five denoting volume level, remote activity, and power/standby status. The light next to the bank of four little buttons denotes source selected by colour, although because it sits next to the power button, it is almost universally mistaken for some kind of power status indicator. The other three buttons control source selection and volume up and down. These controls are replicated and extended by the remote control (it also controls tracks and can adjust bass level), which has something of the Apple remote about it.

Under the grilles are two 25.4mm tweeters and a two 9.9cm mid-woofers, and the cabinet itself is rear ported, although the racetrack-shaped port is very small. The AIO 3 is powered by 2x 45W Class D amplifiers.

While the AIO 3 can work through Wi-Fi, the best and easiest way to set it up is to connect it to a wireless router through Ethernet, making sure your phone or tablet is running on the same network, and can access the Triangle AIO app (Android or iDevice). The app works by taking over control of your Spotify Connect, Tidal, Qobuz, or Deezer accounts. You can also access internet radio through TuneIn. The app is vital to the AIO 3 but fortunately it is extremely flexible. The AIO 3 defaults to L-R stereo mode as standard, but two AIO 3s can be allocated as left and right channel loudspeakers in their own right in a stereo setting. Or, they can be used in multiroom mode, grouped together in party mode (five AIO units per Wi-Fi network, or as many as ten if used with wired Ethernet), and you can rename the individual AIO 3 models to suit purpose, colour, sense of humour, and so on. Add in UPnP network streaming capabilities, a USB input for flash drives or charging smartphones, a 3.5mm stereo mini-jack, optical, and automated NFC Bluetooth pairing, and the AIO 3 ticks all of today's music boxes.

The app works extremely well, although there is some latency in operation. If you try to turn the volume up, you can end up accidentally turning up too far while waiting. But, in all other aspects the app is stable and easy to follow. There is a slight touch of 'Franglais' in the online manual, but more in a quaint mistranslation rather than the kind of mistakes that end with a broken AIO 3. What's more, given I once walked into a restaurant in Paris and proudly ordered a fried orange, who am I to talk?

Triangle loudspeakers have two things in common; they are fast and exciting sounding... and they need to be run in to get to that point. The AIO is no different, and fresh out of the box the sound might not be 'disappointing', but neither is it truly 'appointing'. While it has good clarity in spoken word, it's also thin and reedy sounding with no real dynamic range. Give it a good thrashing for a few hours and things are very, very different. Suddenly the sound seems to fill in and grows some dynamic range. Put simply, it goes from 'glorified clock radio' to 'viable Bluetooth music source' like someone threw a switch.

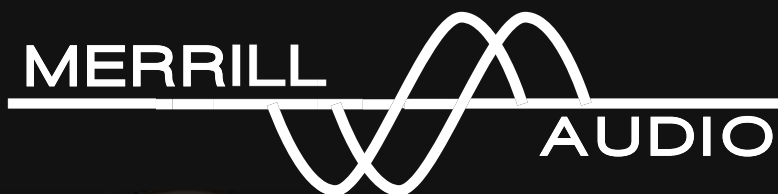
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“The Triangle system works from the midband out, which is always a good sign.”

TECHNICAL SPECIFICATIONS

Type: Wireless streaming one box system

Power Output: 2 X 45W (8 ohms)

WiFi: IEEE 802.11 b/g/n

Bluetooth: 4.2 AptX

Ethernet: RJ45 10/100K

Audio Formats: APE, FLAC, WAV, ALAC, AAC, MP3

Colours: Blue, Black, Green, Grey

Dimensions: 196 x 360 x 150 mm

Weight: 5.1 kg

Price: £599/€599

Manufactured by: Triangle

URL: triangle-fr.com

► In fact, once the speaker driver has bedded in, the only real downside is “how do you pronounce ‘AIO’?” Is it ‘Ay-Eye-Oh’ or ‘Eh-Oh’, or even ‘Aye-Oh’? If you are from Yorkshire in England, it’s probably ‘Eeee, aye-owe!’ which is almost straight out of Old MacDonald’s Farm.

What you get from the AIO 3 is a ‘good plus’ sound, but for the money, the clientele, and the competition, ‘good plus’ is exceptional. the AIO 3’s main strength is its midband clarity and speed. This comes across best when playing something like ‘Come Down’ by Anderson .Paak [*Malibu*, Empire]; his voice is usually somewhat swamped by the rest of the mix (in particular that insistent hi-hat and funky bass line), but here it’s pushed to the fore, very articulate, and rhythmic. Granted, the midrange clarity does cut through the mix because the top and bottom end of the music are more recessed here, but it also cuts through the innate compression slapped on that album. Often at this level of equipment, you hear the lose-lose of a curtailed frequency response with a muted midrange. The Triangle system works from the midband out, which is always a good sign in any system.

Triangle have also taken the (in my opinion, correct) line of going for a more honest, less DSP-driven sound. This does mean the loudspeaker system doesn’t give the same impression of room-filling bass than some of its rivals, but the key word there is ‘impression’... and not necessarily a good impression at that. The key indicator in this is piano, specifically ‘Young and Foolish’ by the Bill Evans Trio [*Everybody Digs Bill Evans*, Riverside]. Too much ‘playing’ with the sound cuts into the attack of the piano keys, a bit like putting cards in the spokes of a bike wheel (we all did it), but at a much lower level. The AIO 3 instead goes for a more naturalistic approach, once again leading from the middle registers. It’s a fast and refined sound, albeit not one for those who want oodles of bass, powerful dynamics, or a large holographic soundstage. It does go surprisingly loud in a non-threatening manner, though.

In getting very used to this kind of system, there seem to be two ways of using them. Systems like the Naim Mu-so for example are ‘planted’ devices; you place them in a room, and they stay there. The AIO 3 is more a ‘roving’ device; although it’s not designed like a portable radio (there’s no handle), you do find yourself moving it from room to room more than you might expect. Of course, this would go away with the simple expedient of more AIO 3 models dotted round the house, but I found it worked well as a ‘transportable’ device rather than a product that collected dust in one room.

In fact, the only use-case of the AIO 3 I didn’t warm to was using it as an alarm clock. It works, and works really well in fact, but I kept slamming my hand on the top of it to try to press the snooze button. I guess some habits are ingrained. But, in fairness, the sound jolts you awake... in a good way.

If you think good sound has to be a fun-free, cloistered experience, where each musical morsel deserves praise and every musician must be a virtuoso, the Triangle AIO 3 is not for you. Instead, it’s for those who like to enjoy their music with the least fuss or bother. +



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Node Audio Hylixa loudspeaker

by Paul Messenger

Node Audio is a brand-new operation that's both radical and unusual. Situated a few miles south of Cambridge, Node shares an advanced manufacturing facility with a hi-tech engineering company. Its two key principals are Ashley May and David Evans: essentially hi-fi enthusiasts who have operated successfully as industrial design consultants for nearly a decade. However, the company has also brought in the established and experienced acoustic engineer Christien Ellis to help with the design technicalities, a name that will be familiar to anybody who recalls Mission in its pomp.

Together, the three have created a new and decidedly unusual loudspeaker called the Hylixa, which combines wide bandwidth with compact dimensions. (The name is initially a play on the word Helix, referring to the 'Helical Transmission Line that lies at the core of this design's good bass extension.)

The egg-shaped styling is striking (albeit somewhat reminiscent of the Japanese Eclipse brand), with a shiny reflective boss housing the drivers on the front, giving the speaker something of a 'War of the Worlds' appearance. The rest of our sample's enclosure came finished in high gloss black, though any colour may be specified, in either gloss or 'soft-touch silk' finish. Ultimately, the Hylixa is arguably one of the very few audio products that might appeal to those who also have to live with the results. In less 'woke' times, this was known as WAF, or 'wife acceptance factor'.

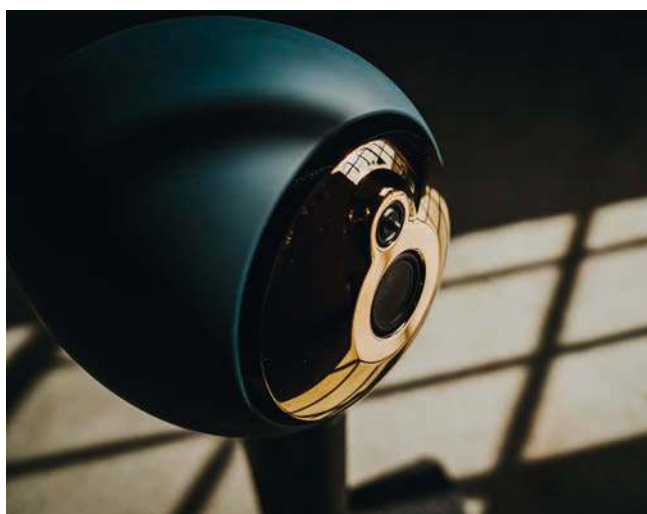
The enclosure's helical transmission line is created by a process known as 'Selective Laser Sintering', a version of 3D printing in which tiny (0.2mm) particles of glass and nylon are alternately fused by a laser under computer control. The result is an enclosure which has virtually zero cabinet coloration, and because of the shape also has virtually perfect acoustic distribution.

The down side, however, is a very high price tag that starts at £27,000 per pair, which means that it's possibly the costliest speaker to come my way in forty odd years. There are plenty that are larger, heavier, and more expensive still, but this is certainly a genuine high-end speaker nonetheless, albeit rather different from most in philosophy and manufacture.

I regularly use two power amplifiers. The Naim Audio NAP 500 DR is rated at 140W/channel, whereas my Howes single-ended PX4 triode monoblocks have just 3.5W output. For reasons of long-term reliability I tend to use the Naim most of the time, but I am very conscious that the valve amps not only sound rather sweeter, but also go loud enough for most purposes. ▶



“While it does resemble the Eclipse speakers, the resemblance is purely superficial because this is actually a three-way design.”



► How much power do we really need? Not very much, it would seem. Furthermore, sensitivity tends to be inversely proportional to bulk, so why not sacrifice some sensitivity in order to minimise bulk? Instead of having a considerable excess of power available to drive a pair of average sensitivity loudspeakers, let's reduce both the sensitivity and the bulk of the speakers (this could be called the LS3/5a syndrome!).

The BBC LS3/5a might be the classic example of accepting low sensitivity in order to minimise bulk, but much the same could be said of this Node Hylixa. While it does resemble the Eclipse speakers, the resemblance is purely superficial because this is actually a three-way design (as distinct from an Eclipse's single full-range drive unit).

Which should not imply that the Hylixa is in any way conventional – quite the reverse, in fact. Operating below 200Hz, the bass driver is hidden within the enclosure, and is loaded by a helical transmission line that actually exits through a ring surrounding said bass driver. Nor is that the only unconventional element,

as the midrange drive unit is a BMR (balance mode radiator) device, with a diameter of about 4.5cms, running from a low 200Hz up to a high 5kHz. Only the tweeter is a relatively conventional device, as it's simply a soft fabric 'doughnut', held between a central 'spike' and an edge surround.

Furthermore, the Hylixa comes complete with its own integrated stand – arguably essential in view of its egg-like shape – and this adds substantially to the elegance of the whole package. A solitary pillar, shaped and slanting backward from above, drops around 60cms below the 'egg' before spreading out into a tripod with an unusually large footprint that measures roughly 37cms wide and deep.

The spiked feet themselves are both very decorative and large in diameter, as is their locking arrangements. A single terminal pair is fitted at the lower part of the hollow stand/pillar, which also accommodates the necessarily complex three-way, second-order crossover network.

This undoubtedly complicated loudspeaker incorporates a great deal of advanced detail design and engineering. The crucial question therefore has to be whether or not the sound quality can measure up to the excellent presentation – or indeed the hefty price.

Measurement confirms a number of observations, starting with the basic fact that the Hylixa does indeed combine low sensitivity (estimated c. 83dB) with fine bass extension. That said, while the far field averaged frequency response above 250Hz is essentially very well judged and impressively even, the bass end seems to be rather less smooth. Although the actual extension is quite impressive, significant excess is seen at around 50Hz, alongside some loss of output between 100–250Hz. ►



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D2
C2
A2

“It delivers a bottom-end extension that is normally only found in a much larger loudspeaker.”

- The impedance trace might be a trifle curious, but it does at least stay above 6ohms for most of the audio band. However, it's a little too current-heavy from 70Hz up to 300Hz, and this seems to be especially true around 100Hz, where it drops briefly below 3ohms.

I found that this speaker became increasingly seductive over the time I spent listening to it, though this should not be taken to endorse its total sound quality. I've long suspected that high sensitivity is a good thing for the sake of dynamic drama, and that would seem to be further reinforced here, as dynamic expression is a little too restrained. However, the level of box coloration is very low indeed, so the noise floor is similarly low; dynamics therefore might be somewhat challenged, but the actual dynamic range is consequently very high.

In fact, despite its compact dimensions, this speaker does have serious high-end capabilities, as I discovered when subsequently carrying out some serious listening tests. I was comparing a Rega Aura moving-coil phono stage with an Audio Note S9 transformer feeding a Pure Sound P10 phono stage, and it was clear that the (costlier) S9/P10 combination did have an advantage through the Hylixa loudspeakers (using Naim amplification).

I was even more impressed when using the S9/P10 combo to compare an original pressing of *Freewheelin'* by Bob Dylan [Columbia] with a recent reissue of the same disc. Although the two had seemed virtually identical via the solid-state Aura, the difference was altogether more obvious when using the S9/P10 combo (and favouring the original). Once again, the Hylixa proved quite capable of distinguishing without ambiguity between the two versions, which is further evidence of its genuine high-end capabilities.

It took quite a while for the penny to drop, but the crucial fact about this loudspeaker is that it looks small but sounds large – a paradox that certainly plays with the senses. When one sees a small loudspeaker, one automatically assumes that it will have limited bass extension. In most cases this is undoubtedly the case, but the Hylixa is very much an exception to this rule, as it delivers a bottom end extension that is normally only found in a much larger loudspeaker.

Alongside this remarkable sense of scale is an equally superior stereo imaging performance. First there's an almost unbelievable 'out of the box' sound, as the sound does indeed avoid clinging in any way to the enclosures, and instead creates considerable depth perspectives. Furthermore, my better half discovered that she could hear a central stereo image, even when sitting well off-axis and quite close to one of the pair.

This seems to be all good news, but there is also a down side, as the second-order crossover network adds a degree of time-smear to the overall sound, with a bass that comes in slightly late.

Although the Hylixa is unquestionably a very costly prospect, it's also rather good, especially in terms of its exceptional stereo imaging, plus arguably

TECHNICAL SPECIFICATIONS

Type: 3-way floorstanding helical transmission line loudspeaker

Enclosure: Laser-fused single-part cabinet, featuring a 1.6m transmission line fed from two optimised points, with no flat surfaces

Drive Units: 1× 25mm ring radiator supertweeter, 1× 46mm wideband BMR, 1×140mm bass unit

Frequency Response: 39Hz–25KHz (+/-6db)

Impedance: (6 ohm Nominal/2.6 ohm Minimum):

Sensitivity: 82.4dB (2.83V/1m)

Finishes: Cabinet in either high gloss or satin silk in any colour. Baffle fascia and feet finished in anodised black, polished nickel, polished copper, or polished 24 Karat gold. Specialist finishes by request.

Dimensions (H×W×D): 971 × 433 × 435mm

Weight: 15kg/each

Price: From £27,000/pair

Manufacturer: Node Audio Research Ltd

URL: node-audio.com

Tel: +44 (0)1223 895854

the lowest cabinet coloration I have ever encountered. That said, dynamics could be stronger, bass timing is slightly slow, and the frequency response measurements are a bit wayward at low frequencies. However, at higher frequencies the balance seems close to ideal, with no indication of a presence 'dip' or unwelcome 'forwardness', and an exceptional dynamic range.

Recommendation seems very appropriate here, as there's no avoiding the fine sound quality in its areas of strength. But it's also essential to add the proviso that this loudspeaker is very expensive, so it should only be considered by those interested primarily in the impressive compactness and styling, rather than value for money *per se*. +

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► The Colorado Symphony Orchestra

"The United States full-time professional orchestra, the Colorado Symphony embraces a tradition of musical excellence by presenting a diverse array of symphonic performances throughout the year. Originally established in 1989 as the successor to the Denver Symphony, the Colorado Symphony performs in Boettcher Concert Hall and throughout the Front Range, presenting outstanding education and outreach programs, as well as Masterworks, Pops, Holiday, Family, and the exciting new Inside the Score and Symphony on the Rocks series that have attracted a historic level of first-time concertgoers. By presenting music that is both timeless and inspiring, while taking risks with new musical collaborations and interactive concerts, the Colorado Symphony is attracting more diverse and younger audiences than ever before. The increasing popularity of Colorado Symphony concerts as well as a strong fund-raising base not only re-affirms the artistic excellence of the orchestra, but also reflects the Symphony's relevance to its Colorado community and deep-rooted enthusiasm for symphonic music felt by so many individuals across the region."

► From the producers point of view

The idea of this CD production is to use an entire microphone set-up of digital state-of-the-art microphones for a classical stereo orchestra recording. All microphones which we have used for this music production are regular products from the new digital product lines of Neumann, Berlin, (Solution-D) and Sennheiser (MKH digital).

The selection of these classical pieces of music are a variety of emotional streams from world famous composers such as Mozart, Beethoven, Bach, Beethoven and many more. This series of recordings has been made during some rehearsal days of the Colorado Symphony. It is mainly made for technical demo purposes in terms of practical usability of our digital microphone technology in the field of recording and arts.

My special thanks go to the Colorado Symphony Orchestra consisting of such wonderful musicians; their Resident Conductor Scott O'Neill, to my entire team in the control room and in administration of this project - and to my friend and main mixing engineer, Mr. Mike Pappas, who was and is a highly professional help and technical advisor for all digital recordings.

I also want to thank my friends Tim Schwieger and my Grammy Award winning sound engineer Duke Markos for their contribution to my recording project in Denver, Colorado.



Wolfgang Fraissinet

► Neumann & Sennheiser: Two audio pioneers

About Neumann

Georg Neumann GmbH, with its headquarters in Berlin, Germany, is well known as one of the world's leading manufacturers of microphones. The company, which was established in 1920, has a long track record of world-leading product designs and has been recognized with a string of international awards for its technology innovations.

The basis for this success is an uncompromising quality-oriented approach to both product development and manufacture. This ensures that with their unparalleled sound quality, reliability and enduring value, Neumann microphones represent an investment which often outlasts several generations of audio engineers.

In recent years, Neumann, Berlin has been working intensively on the development of the world's first digital microphone system. This has involved basic research regarding a completely new technology. The so called Solution-D family includes a series of large and small-diaphragm microphones. Many of these microphones have been used for this recording.

Since 2010, Neumann offers its expertise in electro-acoustic transducer technologies to the studio monitoring market, and will provide optimum solutions to its customers in the areas of TV and radio broadcasting, recording, and audio productions.

Neumann has manufacturing facilities in Germany (microphones) and Ireland (audio monitors), and is represented in most countries worldwide by Sennheiser subsidiaries, as well as by long-term trading partners. Georg Neumann GmbH is a Sennheiser Group company.

www.neumann.com



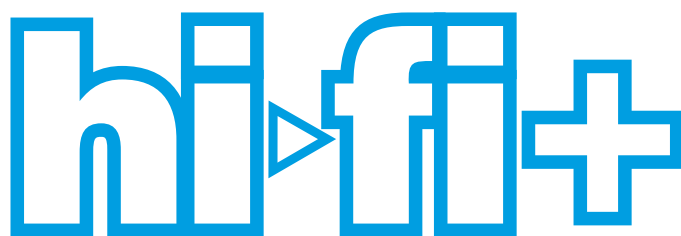
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Spendor A4 floorstanding loudspeakers

by Steve Dickinson

Back when I was just getting interested in audio, ahem mumble years ago, the Spendor BC1 was one of the darlings of the hi-fi press, and rightly so. But to some Spendor is a brand forever associated with those 1960s vintage, BBC-inspired monitor loudspeakers. The classic BC1 large monitor design made the company's name but has, somewhat unfairly, linked Spendor with the slightly fusty air of the BBC of the 1960s; technically competent but a bit buttoned-up, which is as much a description of the BBC as it is of the BC1.

Of the current crop, perhaps the larger and rather more expensive D-Line does most to break Spendor out of that BBC straitjacket in most peoples' minds, but the A-Line, launched a couple of years ago, pitches Spendor into that hotly-contested field; the relatively inexpensive, high-performance domestic hi-fi loudspeaker. The range consists of four two-way designs: one small stand-mounter, the A1, and a trio of floorstanders from the dinky A2, to the relatively capacious A7. Unsurprisingly, the A4 sits in the middle; it uses the larger bass/mid unit from the A7, in a 25-litre cabinet sized about mid way between the A2 and A7. It probably occupies something of a sweet spot in terms of performance versus domestic acceptability and flexibility. At £2,300 it works the 'relatively' bit of 'relatively inexpensive' quite hard, but then again it doesn't perform like a budget loudspeaker either.

In terms of technology, Spendor has developed new drivers: the 180mm polymer-coned bass/mid unit has new surround and suspension materials, for optimised thermal and mechanical stability, good power handling, and low-level linearity. The 22mm polyamide dome tweeter has been engineered to offer the high-frequency response of a small diaphragm while retaining the lower frequency characteristics of a larger dome, and a clever diaphragm profile is claimed to help dispersion over a wide listening area. The crossover network is a combination of 2nd and 3rd order ►





“This, Spendor explains, converts energy instantly into heat.”

else that was going on, was a definite bonus, and by no means guaranteed in speakers at this price.

Replacing my regular Russell K Red 150 loudspeakers, the Spendors look quite diminutive in comparison (much to my wife's approval), helped no doubt by the narrow front baffle, and the nicely understated walnut finish complements the clutter-free lines of the cabinet. There are no grilles, so no arguments about leaving them on when not listening, or 'forgetting' to put them back on afterwards. Spendor eschews heavy cabinet damping, citing its role in blurring and slowing the sound by storing and then releasing energy. So, the A4s are lightly damped using what Spendor terms 'dynamic damping': small, low mass, constrained polymer dampers applied at key points to deal strategically with spurious energy finding its way into the cabinet. This, Spendor explains, converts energy instantly into heat resulting in a fast, dynamic sound.

Of course, there will be compromises. The drivers are a decent size for a small domestic speaker, but it is a two-way design in a modest-sized floorstanding cabinet. Bass goes acceptably deep, thanks to the reflex-loaded design, but the bottom octave isn't especially tuneful. It may lack a little scale and weight, the lowest frequencies hint at mass but don't put much flesh on the bones, but it still has plenty of pace and drive, which does suggest Spendor's cabinet damping methodology works. Freddy Kempf's interpretation of Prokofiev's *Piano Concerto no. 2* [BIS SACD-1820] could do with more heft, but his articulation and phrasing was well portrayed. The A4 is also an easy load, if not especially efficient; Spendor cites 86dB for 1 Watt at 1 metre, with an impedance which doesn't drop below 5.7 Ohms. ▶

▶ filters, but uses precision wound inductors that allow additional fine control over the complete acoustic response. Spendor explains that this allows detail refinements in the crossover filter characteristics that can often have a significant effect on sound quality, especially in areas like soundstage and timing. The more complex the crossover, the greater the potential to mess with phase relationships in the music signal, which tend to be most apparent in the areas of focus, imaging, and timing, so Spendor's care in this aspect of the design is going to be crucial.

One of my 'go-to' tracks for timing and imaging is 'Untitled II' by Graham Fitkin, from *Flak* [GFCD990901]. The sense of interplay between the two pianos, and their complex rhythmic interrelationships, were very well portrayed without obvious mis-steps, and it was perfectly possible to discern the two separate pianos, spatially and musically. The A4s also took the trouble to give a very good sense of the phrasing and piano technique which, considering all



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“Their ability to get to the heart of the musical message is undoubtedly a key strength.”

- Playing ‘Peshwari’ from Andy Sheppard’s *Learning to wave* [Provocateur PVC 1016] and the track is as jaunty and dance-like as you’d hope. Lively, rhythmic, and pacey, with an excellent sense of the interplay between Sheppard’s sax and John Paricelli’s guitar, the A4s deliver the sense of life and vitality without the need to turn the volume up. Indeed, this is a track which delivers energy without bombast, and doesn’t rely on sheer volume for its effect. That’s not a bad summary of the A4s methodology too; their ability to get to the heart of the musical message is undoubtedly a key strength.

In a similar vein, *All’ Improvviso*, by Christina Pluhar and L’Arpeggiata [Alpha 512] is seldom far from my CD player, partly for the sheer beauty of the music, but also because the small ensemble’s dancing, improvisatory ebullience never fails to lift my mood. No shortage of that through the A4s, which swing effortlessly between the effervescent ‘Voglio una casa’ and the stately ‘Romanesca’, capturing the essential character of the music at all turns. The subtleties of the playing are not difficult to discern; one can listen and appreciate the musicianship without conscious effort. I think, if pressed to find one adjective to encapsulate the speaker’s essence, I’d describe the A4s as unobtrusive; they are not invisible, but they let the music speak without drawing attention to themselves – an admirable and desirable trait.

Given Spendor’s heritage you’d expect instrumental tonality to be above par, and you’d be right. L’Arpeggiata’s flavoursome mix of ancient and more modern instruments is rendered with its character intact, and vocals are natural, fully rounded and expressive, and without obvious colorations. Bigger forces are also handled with a goodly measure of assurance. Chamber orchestras, such as the ECO playing the ‘Waltz’ from Shostakovich’s *Jazz Suite No.2* [Naxos] has plenty of finesse and interplay between the parts. It’s not really jazz, but it is a fine period piece and the ambience comes across very nicely – the interpretation is nicely evocative of the pre-War era and the A4s render that faithfully. Larger scale forces, The Royal Philharmonic’s *Karelia Suite* [Tring] for example, probably test the limits of what is feasible for a speaker of this type. There is a decent sense of scale, especially if you crank the amplifier up a notch or two, but it lacks the solid underpinnings a larger driver/cabinet combination could muster – timpani don’t have the mass and solidity or quite the clarity of pitch, that bigger beasts might offer. But this is to pick nits. The A4s give a convincing impression of the energy of a large ensemble and retain their composure even when pushed pretty hard. This is a loudspeaker that impresses mostly by what it doesn’t do in these circumstances. It doesn’t get shouty and confused, nor does it get big, slow, and bloated. It’s that unobtrusive thing, you see.

The A4s don’t pretend to be something they are ill-equipped to be, but instead play on their considerable strengths. There is a deftness to the A4s

TECHNICAL SPECIFICATIONS

Type: two-way, two driver, floorstanding speaker with bass reflex enclosure

Driver complement: one 22mm polyamide dome tweeter; one 180mm EP77 polymer cone bass/mid driver

Crossover frequency: 3.7kHz

Frequency response: (in-room, typical) 34Hz–25kHz

Impedance: 8 Ohms nominal, (minimum 5.7 Ohms)

Sensitivity: 86dB for 1 Watt at 1 Metre

Finishes: Black ash, dark walnut, natural oak and satin white

Plinth: satin black

Dimensions (HxWxD): 831 × 165 × 275mm

Weight: 16Kg/each

Price: £2,300 per pair

Manufacturer: Spendor Audio Systems Ltd

Tel: +44 (0)1323 843474

URL: spendoraudio.com

presentation which makes it easy to appreciate the essence of whatever music is playing, and the traditional Spendor virtues of vocal and instrumental timbre are abundant. Given Spendor’s heritage, it would be easy to pigeonhole the A4s as a classical music lover’s loudspeaker. Rookie error; Mari Boine’s ‘Modjás Katrin’ from *eallin* [Antilles 533 799-2] retains its full complement of fast, dynamic rhythm and clean vocals, the percussion is tactile, and the whole is undeniably propulsive and easily carries the listener along. The unobtrusive character of the A4s stems as much from what they don’t get wrong, as from what they do well. At £2,300 per pair, it’s right to expect a well resolved product, and that’s what you get. If you’re prone to the occasional bout of audiophilia nervosa, the A4s might just be the right prescription: install, relax, and just get on with enjoying your music. +

Amplifiers with elegance and finesse



Integrated amplifiers clockwise from top left: Hegel H590, AVM EVOLUTION MP 5.2 CD/Receiver/Streamer, Audio Analogue Puccini Anniversary, Audio Analogue Maestro Anniversary, AVM OVATION A 6.3 Integrated Amplifier

Three amplifier manufacturers that offer a more refined sound than many. Their common aim is to produce a more natural sound, with accurate tonal balance, large holographic sound pictures, and fast dynamics, recreating music of all genres as honestly as the artists intended.

Audio Analogue have recently redesigned several of their long-standing products with new dual mono circuitry, using higher grade components and stylish cabinets. This new Anniversary range consists of two integrated stereo amplifiers called Puccini and Maestro which have a more refined, detailed sound within a large sound stage.

Hegel Music Systems are known for producing high-end quality electronics at realistic prices. Their unique SoundEngine technology reduces the noise floor and distortions producing a clean, organic sound. A very focused range of products which include four integrated amplifiers and two pre-power amplifier combinations. All integrated amplifiers include sophisticated DAC designs.

AVM have been manufacturing high quality audio equipment for more than 30 years. All design and development is done in-house and manufactured totally in Germany. A truly high-end sound using simple, logical design principals, with the highest quality components, to achieve optimal performance. AVM offers a wide range of models encompassing integrated and pre-power amplifiers, All-In-One units, CD players & Streaming.



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Cambridge Audio Alva TT turntable system

by Simon Lucas



It's a bold manufacturer who underestimates the appetite amongst audiophiles for pain and aggravation. The belief that optimum sound is truly worth suffering for – in fact, can't be achieved *without* suffering – is all too common. And like any religious supplicant anxious to display the scars of their self-flagellation, the audiophile zealot will have numerous anecdotes about the physical and financial lengths they've gone to in order to transcend to audio Nirvana.

With the Alva TT, Cambridge Audio wants to encourage the fanatics to cast aside the crown of thorns. To take their feet off the hot coals and slip them into something a little more comfortable. With the Alva TT, Cambridge Audio wants to make achieving that optimum sound easy and convenient. This, at first glance, looks like heresy.

The Alva TT isn't the first turntable equipped to deliver a wireless Bluetooth signal, but nothing that's gone before could remotely be described as 'audiophile'. Quite the opposite, in fact – for the majority of Bluetooth record players convenience is the be-all and end-all. They're a way for dabblers to put some vinyl on without having to faff about while doing it. It might be argued that a cheap Bluetooth turntable could be considered a 'gateway drug' – and no doubt some owners might well be seduced on to the harder stuff in due course. But for audiophile listeners who've had the vinyl habit for years, a Bluetooth turntable isn't to be countenanced. It doesn't sound good and it's in no way fiddly or demanding. Where's the religious ecstasy in that?

By building a turntable priced to compete with some established, well regarded models from brands with fearsome pedigree, Cambridge Audio surely

knows it has its work cut out. But by making the Alva TT the world's first with aptX HD Bluetooth capability (so it's able to wirelessly stream at a giddy 24bit/48kHz resolution), it's given itself a unique selling point and offered reassurance to the vinyl agnostic. It's actually able to make good on the promise of the pictures in every turntable's promotional literature, the one that shows a huge loft apartment with virtually nothing in it but a pristine turntable and not a cable in sight.

At first glance the Alva TT looks absolutely as you'd expect. The turntable design template was set some time ago, after all, so – unless you want a bit of wilful weirdness à la Kronos or Kuzma – nothing here is going to set your pulse racing or startle the horses. This is a chunky (11kg), smoothly finished slab of clean industrial design, built upwards from an aluminium plinth to an aluminium top plate. The brand logo is tidily punched into the surface of the top plate, below the tonearm, and there are power and speed selection buttons on the



▶ opposite side. The dust cover is pleasantly weighty too. There's probably a little more overall tactility to the Alva TT than to a comparably priced Rega, and just as much visual satisfaction as Clearaudio can provide for the money.

The tonearm itself is a single-piece aluminium casting, and looks awfully similar to one of Rega's RB designs – it's an eminently sensible choice if it is in fact a Rega item. Neither Cambridge Audio nor Rega seem all that keen on confirming or denying, from which we are all invited to draw our own conclusions. At the business end is the Alva MC; a Cambridge-branded, high-output, moving-coil cartridge with elliptical stylus, a replacement for which will set you back £450 according to the Cambridge Audio website.

The platter completes the picture, and it's as smooth and substantial as the deck it sits on. It's a high-mass polyoxymethylene item, and it proves to be just a tiny bit broader in diameter than a 12in vinyl disc – which makes getting a record off just slightly weirder than it really should be. It's turned by a direct drive motor system – unusual but not unheard-of in purposeful audiophile-grade decks – as Cambridge Audio asserts its medium-torque motor/high mass-platter arrangement gives optimum pitch stability. Coupling the motor to the hefty plinth ought to sink vibrational energy rather than let it excite the rest of the chassis – and, in fact, Cambridge Audio is claiming measurable wow and flutter of just 0.06%.

The fact that this direct-drive arrangement requires less effort from the new owner when setting up, and then when changing speed or when it comes to maintenance, can't have passed Cambridge Audio by either.

So far, nothing about the Alva TT is going to alarm even a wary audiophile. It looks and feels the money's-worth, and the moving parts are all prodigiously engineered. But from here, the Cambridge Audio starts to put meaningful distance between itself and the specification of its nominal competitors.

The back of the Alva TT features a Bluetooth on/off switch and pairing button alongside the stereo RCA outputs, so – as long as the pre-amp or active speaker(s) you're streaming to can deal with aptX HD – a wireless signal at a standard Cambridge Audio suggests is indistinguishable from a wired connection. A tell-tale light indicates when the Bluetooth connection is made.

There's no switch or button to control the integrated phono stage, though. It's always on, which seems an eccentric decision. Of course, it's appropriate Cambridge Audio should incorporate pre-amplification in the Alva TT, because it wants to make the whole experience as painless as possible. And the company does have some very capable stand-alone phono stages in its line-up – the Alva Duo, in particular, is a bit of a bargain at £250.

But simply assuming that no potential buyer might have an existing phono stage – against which they'd like to compare the Alva TT's alternative – doesn't send quite the right message. Perhaps it's fiendishly difficult and/or expensive to make the integrated phono stage defeatable but, given the lengths Cambridge Audio has gone to pretty much everywhere else with the Alva TT, it jars a little nevertheless.

The Cambridge Audio pairs to a Moon 390 streamer/preamp quickly and solidly, even when it's 15 feet away. There's something to be said for knowing your record player is ready to go even though it's sitting prettily on a convenient shelf and wired only to the mains. The 390 is aptX HD equipped, so this is as good an opportunity as any for the Alva TT to make its case. Can a wirelessly transmitted rendering of a heavyweight reissue of Kate Bush's *Hounds of Love* [Fish People] deliver the goods?

Well, yes and no. In ultimate terms (and 'ultimate' probably means a Rega Planar 6 with Ania cartridge, which costs almost the same as the Alva TT), the Cambridge Audio doesn't have quite the transparency to give completely full expression to a track like *Cloudbusting*. In every other significant respect, though, it makes its case as a turntable to be reckoned with.

Timing, of course, the organisation of information concerning the interaction between musicians and instruments, has long been held up as proof of the vinyl format's superiority, and here the Alva TT is sure-footed and believable. The relationship between Bush's piano and Eberhard Weber's electric upright bass on *Mother Stands for* ▶

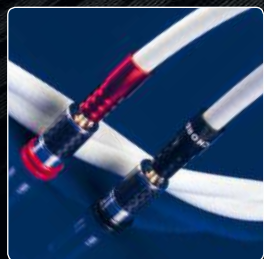
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“The Alva TT has uncommonly well-controlled bass presence – it delves deep and can hit hard.”

- *Comfort* sounds instinctive, while the synthesised whistles and smashes, along with the desert-dry drums, further illustrate the Alva TT’s confident way with integration and focus.

The impression of control and authority is furthered by a listen to Chicago Symphony Orchestra’s tilt at Prokofiev’s *Lieutenant Kijé Suite* [Deutsche Grammophon]. The Alva TT turns in a rousing and passionate performance without getting carried away or in any way ill-disciplined – it may be lacking the last scintilla of insight but it’s not short of animation.

These characteristics remain constant regardless of whether The Walker Brothers’ *Nite Flights* [Columbia] or Four Tet’s *Everything Ecstatic* [Domino] is spinning. The Alva TT has uncommonly well-controlled bass presence – it delves deep and can hit hard. But it controls overhang well, so even Four Tet’s low-end playfulness doesn’t overstay its welcome. It communicates the feeling loaded in Scott Walker’s foreboding baritone during the bonkers *The Electrician* just as well as it delivers the fine details of his technique. There’s absolutely as much bite to treble sounds as is allowable – some of the high-end excesses of Four Tet’s *Smile Around the Face* can get quite threatening, but the Cambridges manages to keep a firm-ish grip on the reins.

And, let’s not forget, this ‘ultimate terms’ comparison to the Rega doesn’t really apply here: everything the Cambridge Audio has been doing until now, it has been doing wirelessly. From a distance. With no extraneous noise from the arm or other potentially microphonic components, and no dropouts.

No, for a true like-for-like comparison, the Alva TT needs to be parked very close to the Moon 390 and a whole lot of fiddling about with cables in the confined area behind the main system needs to be indulged in. Cambridge Audio provides some chunky RCA leads in the Alva TT’s box, so they’re deployed to form the union with the Moon. Not to the 390’s extremely capable phono input, mind you, let alone to the Leema Elements phono stage that is also standing uselessly by.

With the Alva TT hard-wired to a pre-amplifier, you lose a ton of the Cambridge Audio’s visual drama – but there are mild-yet-undeniable gains in performance. There are no night-and-day differences in the way the Alva TT goes about making music – which illustrates just how effective a wireless source it is – but there’s a little more calmness at the top end and there’s a touch more fluency in the way a tune like Peter Tosh’s *Downpressor Man* [Columbia] glides along.

The fact the Alva TT sounds a little bit more enjoyable, slightly more lushly analogue, when hard-wired into a system might be a dog-whistle to sceptics. It could be said to prove that analogue will always trump digital when discussing this most analogue of sources. But it really shouldn’t.

It’s possible to spend £1,500 on a turntable that comes with more hair-shirt suffering than the Alva TT. But for listeners who want a satisfying vinyl

TECHNICAL SPECIFICATIONS

Alva TT Turntable

Type: Full size

Rotational Speeds (RPM): 33.3, 45

Drive Mechanism: Direct

Platter Type: POM

Dimensions (H×W×D) (mm):

139 × 435 × 368

Weight (kg): 11

Price: £1,500

Tonearm

Type: One-piece aluminium casting

Tonearm Length (mm): 238

Effective Tonearm Mass (g): 11

Phono stage

Type: High-output moving coil

Input impedance: 47k/ohm

Input capacitance: 320pF

Output level: 250Vrms (nominal)

RIAA linearity:

Distortion: 0.0025% THD+N 1kHz

Signal to Noise Ratio: >90dB

Alva MC Phono Cartridge

Type: High-output moving coil

Tracking Force (g): 2

Load: 47k/ohm

Output (at 1 kHz @ 3.45cm/s): 2mV

Price: £450 (included with Alva TT)

Manufacturer: Cambridge Audio

URL: cambridgeaudio.com

Exclusive UK Retailer: Richer Sounds

Tel (UK only): +44(0)333 900 0094

URL: richersounds.com

experience without jumping through hoops, who don’t want to be dictated to by their own electronics, or who are just turned on by some worthwhile modernity crashing into some venerable technology, the Cambridge Audio Alva TT is the obvious choice. +

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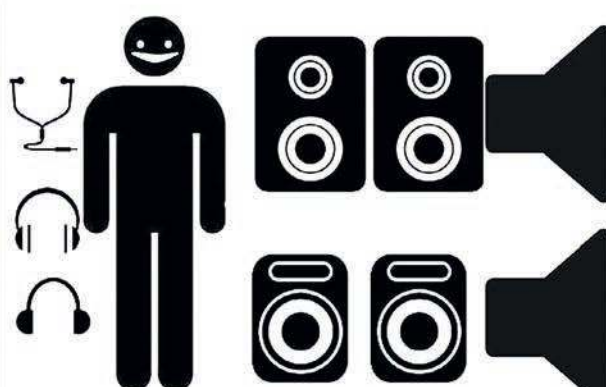
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Rega Aura phono stage

by Paul Messenger



In these days when amplifiers (and pre-amplifiers) often have line-only inputs, there are several ways of dealing with a phono cartridge, and indeed several types of phono cartridge. Ignoring specialist devices like strain gauge and optical types, the vast majority of cartridges use magnetism to convert the mechanical groove energy into an electrical signal.

One characteristic of these magnetic devices is a lack of LF and excess of HF output, so they require something called RIAA equalisation in order to deliver a 'flat' response. There is also a substantial – usually around 20dB – difference in gain between 'high' (typically moving magnet) and 'low' (normally moving-coil) output levels.

Nowadays most amplifier manufacturers have moving-magnet style phono stages in their portfolios, to be used alongside a line-

level integrated amp or pre-amp; some also have a built-in moving-coil option that boosts the output by around 20dB. That said, Rega regards high- and low-output cartridges as having separate and distinct amplification requirements, which explains the absence of what could be a 'legacy' MM input in the Aura.

Although the RIAA equalisation is invariably handled electronically; the boost part may be electronic, but the alternative of a transformer can vary dramatically in size and cost. The predecessor of Rega's Aura, the £4,000 Ios, uses a couple of small transformers to boost moving-coil cartridges; at the other end of the scale, Audio Note's large and heavy S9 booster transformer costs nearly £20,000 – several times the price of an Ios!

However, the Rega Aura phono stage is entirely electronic, and is only suitable for low-output (moving-coil) cartridges. It has three symmetrical stages, and unlike its Ios predecessor, uses FETs (field effect transistors) in place of step-up transformers. One bonus of using FETs is that it avoids any bias current flowing within, or indeed any coupling components between the FETs and the cartridge. Careful matching between channels is undertaken, along with the gain needed to handle the passive (upper) part of the RIAA equalisation. The second stage is a Class A differential design and deals with the RIAA boost at low frequencies, while a similar third stage reverses the phase for the balanced outputs.

“Demand for the device has apparently caught Rega by surprise, involving a tenfold increase in sales over its predecessor.”



► I first had the opportunity to try a prototype of the Aura when Roy Gandy and Phil Freeman visited around eighteen months ago, primarily to install a Naiad turntable. I was happy enough to use it on the day, as it was clearly superior to the Ios or Naim's SuperLine/555PS(DR), which were my normal step-up/EQ devices, and was slightly miffed when they took it away at the end of the day. (Much mollified by the Naiad doing its thing against the wall!)

I've simply put myself on 'hold' since then, even though it has taken rather longer to get into production and to myself than the 'few months' originally promised. One reason for the extended delay in trying out and reviewing the Aura is that demand for the device has apparently caught Rega by surprise, involving a tenfold increase in sales over its predecessor. Indeed, extra staff have had to be diverted in order to meet this unexpected demand.

The costliest of several phono stages in the Rega product portfolio, which includes three Fonos (including one for low output cartridges) plus an Aria, this Aura has an

almost £4,000 pricetag (the same as its Ios predecessor). This figure may seem high by Rega standards, but should be viewed in context. The Aura – like the Ios before it – is designed to sit with the brand's top Isis CD player and Osiris integrated amplifier (itself more than £13,000 worth of electronics proposition), and is a worthwhile foil to Rega's £3,000 flagship Aphelion cartridge, probably sitting below the tonearm of a Planar 8 or RP10 turntable. More importantly, in outright sonic terms, the Aura more than justifies its price.

There are also plenty of much more costly alternatives: although the Audio Note S9 transformer certainly delivers outstanding sound quality, its c£20,000 pricetag does seem rather excessive, especially as such a device only boosts the signal, so an additional equalisation stage will also be needed.

I carried out a number of listening tests, both informal and formal. The former were simply thoroughly entertaining, as I played my way through a number of favourite discs. All the tests used a Rega Naiad turntable (the one with the zirconium main bearing) and a Rega Aphelion cartridge (that's the one with the boron cantilever).

The formal listening compared the Rega Aura with an Audio Note S9 transformer feeding a Pure Sound P10 phono stage. Although the difference wasn't all that obvious, the costlier S9/P10 combination did have a clear advantage (using Naim amplification), as it showed up the difference between the original and a reissue of Bob Dylan's *Freewheelin'* album [Columbia], which had seemed virtually identical when using the solid-state Aura.

Rather more relevant were comparisons between Ios and Aura, and those between Aura and the Naim SuperLine with SuperCap DR. The most obvious comparison is the former, as both have the same price, and there's no doubt that the Aura is much better, as it sounds significantly more coherent and has ►

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TECHNICAL SPECIFICATIONS

Input Sensitivity (200mV Unbal.):

67µV, 131µV (Gain Setting I/II)

Gain Input (Unbalanced Out):

63.5dB Min/69.5 dB Maximum

Input Load Options:

50, 100, 150, 300, 400Ω

Capacitive Load Options:

1000, 2000,

3200, 4300, 5700pF

Input Overload @ 1 kHz:

9.6mV, 4.9 mV

(Gain Setting 1/2)

Rated Output Level: Unbal. 200mV;

Balanced 400mV

Maximum Output Level: Unbalanced

14.5V; Balanced 29V

Output Resistance: Unbalanced 100Ω,

Balanced 200Ω

Frequency Response:

13.5Hz (-3dB)–100 kHz (-0.2dB)

THD: Typically 0.03% (1V 20Hz–20kHz)

Output Noise (Unbal., A-Weighted):

69.5/63.5dB (Gain Setting I/II)

Power Consumption: 15.3 W

Weight: 13Kg

Dimensions (H×W×D): 88 × 435 × 350mm

Price: £3,995

Manufactured by: Rega Research

Tel: +44(0)1702 333071

URL: rega.co.uk

- ▶ altogether superior dynamic expression. FETs are an obvious improvement over small transformers!

The Naim combo sounds rather better than the los and provides serious competition for the Aura, beating it but only by a relatively small margin. The two have much in common, sounding very similar tonally but with a slightly superior dynamic tension and drama in favour of the Naim combo. However, by the time a high class SuperCap DR power supply is added to the basic cost of a SuperLine phono stage, it also costs nearly twice the price of the Aura, so it's clearly less good from a value for money point of view.

Back to the informal, Lowell George's solo album has become a firm listening test favourite, partly because of the excellent vocal; partly due to the fine musicianship; and partly down to the considerable variety of the material involved. Aura did a fine job on all three strengths of this excellent album.

The Who's *Live at Leeds* [Decca] has long been a favourite single live album of mine, so I was well chuffed when my son bought me a 3-disc version for my birthday (especially as I wasn't even aware it existed; such is life). I might not have been particularly impressed by the *Tommy* sides, but was very taken by the various tracks from the earlier *A Quick One* album. By the end of the set I was left wondering why it had been just a single album when it first came out, as plenty of doubles were around at the time.

I also spent a little time playing Stephen Fearing's *The Secret of Climbing* – a very fine Rega-made recording and release of a rather good singer/songwriter. Once again the Aura did a fine job of a quite delightful recording, which was actually made using a restored Studer analogue recorder in Roy Gandy's capacious lounge. (A major strength of this album is that it's effectively a case study of the superiority of analogue over digital techniques!)

On balance the Aura did a fine job of whatever disc I was playing, and although Naim's SuperLine/Supercap does have a slight performance edge, the difference is (in my opinion) rather smaller than the price differential.

The Aura seems to make very good sense in delivering an essentially good value package alongside a comparably priced low-output moving-coil cartridge. One could spend more but in context the Aura does seem

to vindicate the dramatic boost in sales that Rega is currently enjoying for the Aura compared with its los predecessor.

That it sounds significantly better than the los is both undeniable and incontrovertible. There may be plenty of significantly more expensive step-up-plus-EQ devices than an Aura, but this low-output phono stage simply makes good cost-effective sense against the current cost of moving-coil cartridges. I'm therefore not surprised that I had to wait for eighteen months to get my mitts on a sample, or that Rega is finding demand outstripping its ability to supply! +

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VooDoo Cable Stradivarius Amati signal cables and Dynasty power cords

by Nicholas Ripley



Calling a cable brand 'VooDoo' is at once asking for and shutting down trouble from audio's Angry Brigade. Those who think audio cables are all voodoo anyway are going to be angered by the name because they can't be angry about it. It's up there with the Heart Attack Grill, but with less risk of atherosclerosis. In fact, VooDoo Cable is relatively open about its construction and product development and no chickens were sacrificed or zombies were raised in the making of these cables.

Instead, VooDoo Cable goes with good quality conductors (primarily high-purity copper and silver) with silver-plated copper braid shields and Teflon dielectrics. The components that go to make up the company's cables are all cryo-treated in VooDoo's own "computer-calibrated cold-fusion liquid nitrogen deep-immersion cryogenic process." These component parts are then wound to length by hand in VooDoo's own engineering shop.

The cables themselves are offset and enhanced by a catalogue of the best and brightest stars in the audio firmament, featuring Cardas, Wattgate, Furutech, and Hubbell connectors where relevant. In addition, every cable supplied is given a full machine polish, and given the Caig's contact enhancement spa treatment before dispatch.

We picked a selection of some of VooDoo's more up-scale ranges, with two sets of power cords from the Dynasty range, and signal cables from the Stradivarius Amati line. I guess any cable that is named after not one but two Cremonese violin-making families and a 1980s TV series with Joan Collins must be good!

The Dynasty power cords are of similar size and weight, but designed for very different use; the Dynasty Digital being best used for (as the name suggests) digital audio components, and low-power products like preamps and phono stages, where the Dynasty Power is designed to partner beefier power amplifiers. VooDoo suggests the power cord is the most important and sonically-influential cable of the lot, and judging by the performance, VooDoo has a point.

I dislike the whole 'lifting veils' cliché that permeates high-end audio, but it's there for a reason; sometimes it's the best description of what happens in an audio system. And in plugging the Dynasty Digital into a range of line-level components (from streamers to preamps), that 'lifting veils' cliché rang true time after time. As it did with the Dynasty Power. The sound was better defined, clearer, the system more transparent... and veils were lifted. VooDoo also claim the cable can lower heat dissipation in amps, but I didn't find this. ▶



“They are exceptionally good at resolving the structure of music ... but especially good at making high-frequencies detailed without being bright or hard sounding.”

► On to the Stradivarius Amati. The interconnects are a Litz wire design, with pure-cast silver and high-purity copper solid-core conductors, with oil-impregnated silk in Teflon insulation. The loudspeaker cables share the same grade of material, but are laid into seven distinct conductor groups. And if we used a cliché of lifting veils for the power cords, the signal cables adhere to the ‘it’s silver, so it’s detailed’ canard. But they are incredibly detailed, with lots of top-end energy, but in a detailed rather than outright bright way. They are exceptionally good at resolving the structure of music from top to toe, but especially good at making high-frequencies detailed without being bright or hard sounding. It’s about extension and refinement rather than zing and immediate, crowd pleasing. This was best expressed by listening to Mahler’s *Das Lied Von Der Erde*, perfectly sung by Ferrier way back in 1952 [Decca]. Her impeccable phrasing, her contralto voice, and the orchestration all work together perfectly, but require a system of great poise. If the system isn’t working beautifully and has any idiosyncrasies in the upper registers, you quickly become aware of the age of the recording, but if the system works, the music is truly masterful, as is the case here.

Best of all, however, the two somewhat disparate voicings of each VooDoo cable combine with good synergy. You get the feeling of a well-oiled machine at work. If pressed, I would be a little more taken by the performance uptick of the power cords than the signal cables, but there really isn’t a lot between them and as they work together so well, singling out one at the expense of the other seems a little pointless. The musical example that best highlights this cooperation between power and signal is John Coltrane’s *A Love Supreme* [Impulse!]. Not only did I play it louder and longer than usual (I find the tone-poem gets a little cloying by about half-way, a confession that will

PRICE AND CONTACT DETAILS:

Stradivarius Amati interconnect:

£2,000/1m pair

Stradivarius Amati loudspeaker cable:

£3,200/8’ pair

Dynasty Digital power cord: £850/3’

Dynasty Power power cord: £1,150/3’

Manufactured by: VooDoo Cable

URL: voodoocable.net

Distributed in the UK by: Mackenzie Hi-Fi

URL: mackenziehifi.com

Tel: +44(0)7905 362545

see me drummed out of the Jazz Cavalry), but I found the themes and improvisation to flow and speak to me more clearly, and the soundstage took on real depth too.

Perhaps the big bonus of the VooDoo cable line-up tested here when used as a family was they presented an air of increased believability in the sound produced by my system. Then I tore apart the system for a new product, and they brought the same believability to that next mix, which suggests VooDoo Cable are as consistent as they are good sounding. It’s not hard to like the voodoo that they do so well. +



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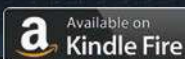
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The one that got away: Sugden A21a

by Alan Sircom



Several eagle-eyed readers noted one big omission in our list of our top 100 from Issue 170... it was a Top 99! Somewhere along the way, one of those best brands went missing. It's understandable; after reaching '10' I run out of fingers and thumbs to count on. I can make it to 21 on my own, but there are laws against doing that in public.

In fact, Sugden was originally listed as 'Audio Synergy' (a name the parent company took in the early 2000s) in our top 100, and when that listing was moved from 'A' for 'Audio Synergy' to 'S' for 'Sugden', it got overlooked. Which is kind of a shame, because Sugden was one of the companies we most had in mind when creating the whole 'Top 100' in the first place.

You see, Sugden is one of those brands that doesn't change its product line with the wind. In fact, the A21 integrated amplifier (reviewed as an A21a in *Hi-Fi+* issue 7 by Dave Davies) remains in production to this day. OK, so it has had a few small changes (the most recent A21 Signature has a newer case, a shorter signal path, and a beefier power supply), but it remains the same all-NPN transistors in the output stage, 25W per channel pure Class A line or line-and-phono integrated amplifier it was at the turn of the century. In fact, it isn't that far removed from



the original A21 circuit that Jim Sugden used 50 years ago. That original design required a lot of hand-selection of components (in part because of the poor and variable quality of transistors of the time), and that was soon changed to create a more consistent design with a less time-consuming construction.

Back in Issue 7, we said "The new A21a has been designed with its musical legacy in mind... Clearly Sugden wanted to build on the strengths of the original but needed to address issues of power output, headroom, load tolerance, and bandwidth." That still holds today. The A21 line (comprising the A21 and the A21SE, now both in Signature guise, and the A21SE Stage Two phono amplifier) also remains a constant reference point in *Hi-Fi+* reviews. In fact, I have been using an original A21SE since its launch; it was highly praised in *Hi-Fi+* Issue 39, and the same model won a *Hi-Fi+* Award that year. In all cases, the reason this amplifier line is so well loved is the way it manages to combine Class A musicality and warmth with plenty of detail and surprisingly good bass.

Many think recommending a minimalist, low-powered, hot-running amplifier with a circuit design that pre-dates the Moon Landings to be something of an anachronism in 21st Century audio. They are known as 'people who haven't heard a Sugden A21 amplifier'. Those who have heard what a Sugden amp can do are more inclined to find loudspeakers that partner the amplifier.

Sugden – the missing link of our top 100 – was and is one of the best. Our apologies to all inconvenienced by missing out on the one that got away! +

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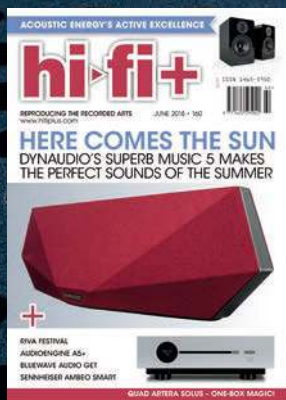
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John Challenger

by Alan Sircom

John Challenger is the Assistant Director of Music at Salisbury Cathedral. You don't get to do that job unless you are uniquely passionate about both the music and the sound it makes within that 800-year-old space. A large part of that passion is expressed through the cathedral's remarkable 65-stop Victorian organ, built by Henry Willis (who earned the sobriquet 'Father' Willis through his immense contribution to the art and science of organ building). The organ has recently been dismantled for a full restoration, but not before John Challenger took the opportunity to cut a second CD, following the success of his 2015 *Elgar From Salisbury* [Regent]. This time, however, he's chosen the music of a different country and produced the recording entirely under his own steam.

We caught up with John at the cathedral in the first weeks after the organ had been shipped north for restoration. We waited a few weeks so he could get over the loss...

AS: Please tell us a little about yourself.

JC: I was a chorister at Hereford Cathedral. It was a great period for instilling in me what I do today. I just love singing, but also the organ at Hereford is a beautiful 'Father' Willis from 1892, and I suppose I must have just absorbed that. The wonderful improvisation of the organist Dr. Roy Massey and the assistant director of music Peter Dyke, and just before I left Geraint Bowen took over in 2001, and he is still there. He did wonderful things – like Bach *Passions* in Holy Week – which we take for granted now, but no-one was doing this in a cathedral at that time. My musical upbringing was hugely privileged in that regard.

I then went on to be an organ scholar at St. John's College, Cambridge. I was there for four years, in fact, and fell in love with the sound that choir makes. I was hugely lucky to get this job from there and I've been at Salisbury since 2012. It's something of a homecoming because I always wanted to work in a cathedral. I like working in a proper worshipping community (I run the chamber choir at the cathedral – which is our volunteer adult choir, and a spot of directing the Salisbury Music Society, the local chorus and a chance to conduct the local symphony orchestra) but mainly I play the organ and I love playing the wonderful 'Father' Willis organ... until last year of course, when it went away for restoration.

Tell us about the organ itself.

The organ was built by 'Father' Henry Willis built between 1876 and 1877. It's divided into two cases above the north and south aisles of the choir. At the moment, these cases are looking rather sad as only the largest pipes remain because they are just too big to remove and don't need a huge amount of work done to them. So, we've kept those, but if you can imagine when it's



restored, all the space of both cases – right back into the depths of the instrument – will be filled with just under 4,000 organ pipes. We have different layers – different families of pipes and different sections of the organ. It really is packed full.

Most of these pipes have now gone up to the workshop of Harrison & Harrison in Durham. Even the console has gone. ▶



► **What are the pipes made from?**

All sorts of things. There are some made out of wood. Most pipes are an alloy of tin and lead, and some other metals. In Victorian times, sheet zinc was often used for larger pipes. At one stage, there used to be an enormous amount of lead in this instrument because it was then pneumatically controlled; there were lots of little tubes with little jets of air controlling things on both sides of the instrument, but that's all gone.

There was a big fuss about a blanket ban on lead being used near electrical wires a few years ago, which would have meant almost every organ in the country would have had to have been disposed of safely, but clearly that doesn't apply to these instruments!

You have huge amounts of material going into the building of an organ. So many different types of metal, wood, leather, glue of different sorts, and of course now you've got electromagnets and wires... so many different things going on. It's not really surprising that it takes a year to restore.

How is that year's restoration spent?

Most of the year is spent in repair. The scaffolding went up in January. It took

Harrison & Harrison a few weeks to dismantle the whole thing, but they are very efficient. It was lowered down in crates and taken away. The scaffolding then came down... and it became very miserable because we knew we had a year without the instrument.

Every pipe has to be cleaned. Every pipe has to be regulated to insure it is still working. And then they are all 'put on the wind' up in Durham and voiced up there. Then they are brought back down to Salisbury. We are having a little bit of a change in layout inside; not to change the sound, just to make it more accessible and safer.

What's next for the organ?

In September the scaffolding goes back up and everything goes back in, and that ►

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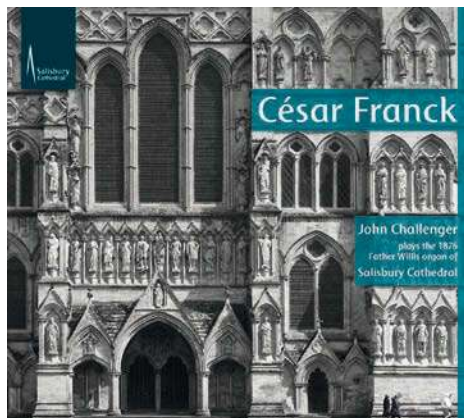


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“The organ is so versatile; it frees you as a player because it sounds wonderful, and it makes lots of decisions for you.”

we change this time?” or anything like that. We’re not changing anything; we just knew we would leave it as it was.

How is that money raised?

The money is raised through private donation (go to bit.ly/2AN2DOX) and other fundraising means, we’ve had a few grants, but it’s an ongoing project, as there is still money to be found. It’s a big development project for us.

► takes about six weeks. It’s not then playable until they have voiced it, which will be an extended period of not very nice noise while they regulate and voice every single pipe for the building to make sure it sounds how it did when it was taken out. In reality, we’re not really going to have the organ for several months after the scaffolding goes back up. But the day it’s back working I will want to be using it!

So, it will back by early 2020 then?

Yes. It’s a big year for Salisbury Cathedral next year because the foundation stone was laid in 1220. And we can’t celebrate 800 years of Salisbury Cathedral with a little chamber organ! We did a BBC Radio Three broadcast with that last week – playing a tiny chamber organ is somehow more terrifying than playing an organ of 65 stops because you feel more exposed. We also have an electronic organ, with a collection of loudspeakers in the triforium which is keeping the big liturgy going. It makes quite a sound, but it’s not the same! We also have a sampled Salisbury Cathedral organ in our exhibition that visitors can play on headphones.

How much will the restoration cost?

We need to spend £700,000 on the restoration because it’s a national treasure. It hasn’t changed in sound and it’s one of the finest Victorian organs in the country. We are not faced with the conundrum of “what do

Moving over to the recording, tell us more!

This is my second solo recording. The Elgar (in 2015) was a bit of a voyage of discovery, but it came about because the Willis here just does transcriptions so well. I wouldn’t have put myself down as a transcription sort of person, but I am already contemplating doing another transcription disc when the organ is back.

This second CD, which will be released this summer, is a little different, as it’s French symphonic organ music. It’s all music by César Franck (1822-1890), who was himself an organist (the first organist of a then-newly built Cavaillé-Coll organ at Sainte-Clotilde in Paris). The beautiful nature of that organ coupled with Franck’s music influenced generations of French symphonic organ composers. I’m playing an English organ, but in many ways we’re talking the same philosophy; the organ has so many expressive sounds that I was just playing Franck’s music one day and thought, “This is so beautiful, and no-one has recorded this music on this organ yet, why not do it?”

Why do orchestral transcriptions work so well on this organ?

Organs like this that have more than one expression box allow you to be so creative. You can really orchestrate the music and it’s what makes these Victorian instruments so good. It was the height of the transcription period.

Is there any music that doesn’t sound wonderful on this organ?

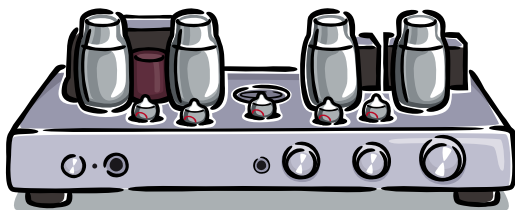
Henry Willis was building instruments to deal with Romantic music and huge choral works. They could accompany Handel’s Messiah without an orchestra. He wasn’t thinking about scholarly explorations of Bach!

How does this recording differ from the last?

While all of that first album was music transcribed for the organ; this second CD is entirely made up of music composed for the organ. The flavour of this recording is so different from the first: I don’t think they could be more different, to be honest. I suppose in that regard the organ is so versatile; It frees you as a player because it sounds wonderful, and it makes lots of the decisions for you because the music just flows! +

John’s CD of César Franck music will be available from early Summer 2019.

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record reviews

How To Read Them

The information contained in the record reviews is presented in the following way. Albums are identified by label and – where possible – serial number. Beneath this you will find one or more icons that denote the available formats for the recording. The first icon refers to the format reviewed.

The ratings at the bottom of each review reflect the reviewer's opinion of the recording quality, and musical merits of the album. You'll soon realise that a great many musically significant albums offer less than wonderful sound. Don't let it put you off! For your information, the scale rates a standard, good quality pop recording as slightly below average.

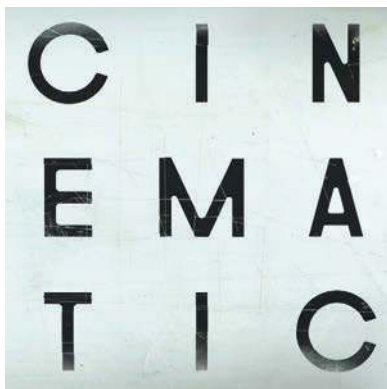
This issue's featured reviewers are:

DD – Dennis Davis

JMH – James M Hughes

JK – Jason Kennedy

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To Believe

The Cinematic Orchestra

Ninja Tune



It's been a while since the Cinematic Orchestra released *Ma Fleur*. In fact, I had began to wonder if Jay Swinscoe and Dominic Smith had parted ways and followed new paths. But it seems that they have been distracted by soundtracks and a string of live performances.

To Believe sees collaborations with artists seen on earlier TCO albums including Roots Manuva, Heidi Vogel, and Grey Reverend, alongside newcomers Tawiah (Mark Ronson) and Miguel Atwood-Ferguson (Anderson .Paak, Flying Lotus). The latter contributes strings while the rest provide vocals for the seven songs on the album.

To Believe is not the most upbeat of albums. Tempos tend to be on the slow side and beats only come to the fore in a few instances, the most obvious being Roots Manuva's 'A Caged Bird/Imitations of Life' where the rapper opines "Why would you hide, from yourself, belief is here to find you."

The opener and title track is more typically TCO, with a gentle quiet opening that's very atmospheric, as Moses Sumney's voice is used very effectively both alone and doubled up over a soft and simple guitar melody. Lovely deep lows are a hallmark of the album and with a substantial sound system really plumb the nether regions of synth bass.

The first instrumental, 'Lessons', is a slow builder with a tempo that seems to increase as drums, synths, and string sounds are added to the keys that take the higher ground. It's quite an extended number; none of the tracks on *To Believe* are under five minutes, but this one develops and expands over nine plus minutes to leave you relaxed but not soporific. It has a full bodied sound that's somewhat thickened by the low end.

Tawiah's vulnerable vocals have an inner strength on 'Wait Now/Leave the World' which makes a good contrast with the preceding track. The song's theme starts out as one of loss but it clearly seeks a way to repair and look forward in a positive fashion.

This is a sumptuous production as shown by a bridge into the second half, where the instruments take centre stage until the denouement. 'Workers of Art' refines the essence of the Cinematic Orchestra. It's an instrumental piece of great subtlety.

The finale 'A Promise' is the longest tune on the album at over 11 minutes, with Heidi Vogel providing the vocal for this requiem for a heartbreak. It's a beautiful song with church organ highlights and strings that go beyond the romantic.

To Believe is a powerful and mature work that's full of hidden depths, but can wash over you and provide an escape from the chaos of modern life too. **JK**

RECORDING
MUSIC





Glass Bead Games

Clifford Jordan

Pure Pleasure/Strata-East
SES-19737-8



A review of the back catalogues of today's premier LP reissue labels shows that the winner for diversity is Pure Pleasure, which has issued titles from literally dozens of labels. One of its more recent ventures is the release of over a dozen titles from the small U.S. label Strata-East. Jazz artists Charles Tolliver and Stanley Cowell founded Strata-East Records in New York in 1971. It released almost 60 titles on LP and over 30 on CD, many by Tolliver and others by Cowell, Cecil Payne, Pharoah Sanders, Billy Harper, Cecil McBee, and others. Known for their uncompromising artist-produced Afro Jazz, collectors flipping through used bins over the next several decades knew to pick up any Strata-East title that cropped up. Shop owners knew to mark these up in price. The problem was that you kept running into the same dozen titles like Cecil McBee's *Mutima*, Charles Brackeen's *Rhythm X*, and Cecil Payne's *Zodiac*. Other titles were extremely rare and unless you ordered from the first run, or it was a title reissued on CD, odds are you never had a chance to hear the music until the advent of the Internet.

Jordan's *Glass Bead Games* is a two-disc set of sessions recorded in one day in October 1973. It's often cited as the most accomplished recording in the Strata-East catalogue, as it incorporates all the

label's trademark themes of avant-garde, spiritual, and groove-laced jazz without exhibiting any of their many excesses.

Glass Bead Games threads a path that incorporates the spiritual and avant-garde without losing the interest of jazz fans who might prefer the Miles Davis first classic quintet over the second. The sessions were recorded by two different quartets. Both groups feature Jordan on tenor and Billy Higgins on drums. One quartet brings in Stanley Cowell on piano and film director Spike Lee's father Bill Lee on bass, while the second quartet has Cedar Walton on piano and Sam Jones on bass (referred to as "base violin" in the liner notes). Jordan's debt to Coltrane is very much on display in this release, even down to the song titled 'John Coltrane', with vocal parts very much in the spirit of *A Love Supreme*, chanting "John Coltrane, Black Spirit, John Coltrane, first newborn." There also appear to be several nods to Ornette Coleman, including employment of Ornette's early drummer Billy Higgins and the Ornette sounding riffs on the closing number 'One For Amos.'

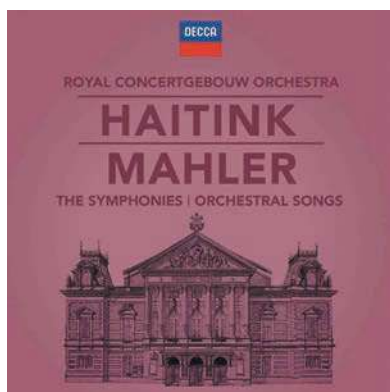
Jordan organizes the album along the themes set forth by Herman Hesse in his 1943 novel *The Glass Bead Game* which is set in an unspecified future where an order of intellectuals run boarding schools for boys whose education is devoted to playing the Glass Bead Game, an exercise to synthesise all of the arts and sciences. Whether or not Jordan's aim to mimic this exercise in

his music succeeds can be debated, but it is beyond question that the mix of cerebral, introspective music, and a heavy groove succeeds in delivering music of the highest level. In the album, half the compositions are named for heroic figures including Coltrane, Paul Robeson, and Eddie Harris, and the compositions are all by band members.

The original release was issued both as a double album and as two separate discs. It was underappreciated at the time and originals became high-priced collectors items. Until this year, it was not available on vinyl, although it has been reissued from time to time on CD, including as part of a 'complete' Clifford Jordan package from Mosaic Records. None of these predecessors, however, will prepare you for just how well recorded and reproduced this reissue sounds. Ron Carran recorded the sessions at his Minot Sound Studio in White Plains, New York. Hundreds of titles were recorded at Minot in the 1970s and 1980s, none of which have struck me before as being exceptional. This reissue proves the exception to the rule—the instruments are well recorded and balanced, and the soundstage is exceptional. If there is a better sounding title in the Strata-East catalogue I have not heard it. I wonder how many other Strata-East titles have such sonics awaiting discovery? **DD**

RECORDING
MUSIC





Mahler
Symphonies 1-9,
10 (Adagio), Song cycles,
Concertgebouw orchestra,
Amsterdam
Bernard Haitink
 Decca 483 4656

CD x12 BR

Bernard Haitink began his Mahler Odyssey for Philips back in 1962 with a recording of the first symphony. Whether or not Philips planned to record all the symphonies isn't clear – probably not, as the next symphony (the 3rd) wasn't taped until 1966.

Haitink had reservations about his first recording of Mahler 1, and persuaded Philips to let him record the work again. For this reason, I always feel the 1972 remake is the one that forms part of the complete cycle, not the 1962 performance. But, with this newly-remastered reissue on CD and Blu-Ray Audio you get both versions. His performances have stood the test of time very well.

The Philips recording places the orchestra in deep, spacious acoustic, which really suits the music. It was taped in the famed Amsterdam Concertgebouw, but with the orchestra in the centre of the hall, rather than on the stage – all the floor seats having been taken out.

Via Blu-ray Audio, Haitink's 1966 Mahler 3 has never sounded better. Okay, it's not as vivid as Solti's Decca, but the sound is rich and full, with a great sense of hall ambience and a wide dynamic range. Even the 1962 recording of the first symphony sounds surprisingly good, and the

performance is very fine too. Judging by this reissue, I'm not too sure what Haitink was unhappy about in '62.

Each of Mahler's symphonies has its own distinct sound-world, and the scoring for each creates very specific colouring. The Philips recordings capture this individuality very well. The set even includes most of the original LP covers. The recordings sound good for their age. Tape hiss is low, but there is a lack of really deep bass and sometimes a slight thinness at high frequencies.

A good – but not great – 8th and a slightly disappointing 6th are the only real weaknesses in Haitink's Concertgebouw Mahler cycle. However, there's also excellent accounts of the early Das Klagende Lied, and a first-rate Das Knaben Wunderhorn.

Haitink's 1975 Das Lied von der Erde was eagerly anticipated, and featured Janet Baker in what turned out to be her only commercial recording of the work. The recording is technically superb, but Dame Janet's voice seems a bit 'droopy' and recordings of her live performances around the same time strike me as being better-sung. James King, Haitink's tenor, is also a tad strained and by 1975 he was past his best.

Haitink has since re-recorded most of the Mahler symphonies – some, several times over – for a number of different labels, including an aborted digital cycle with the Berlin Philharmonic for Phillips which (sadly) was abandoned before the 8th and 9th were recorded.

The Concertgebouw 8th is Haitink's only recording of the work – I believe he doesn't like the piece, and only recorded it to complete the cycle. Likewise he only ever recorded the first movement of the 10th – he never touched any of the various reconstructions of the full work.

The Blu-ray disc only gives us the recordings in two-channel stereo. Some of the later sessions (for symphonies 5, 6, 7, 8, and 9) were possibly taped in experimental surround. Indeed, symphonies 5 and 8 have already been issued on SACD in stereo and surround by Pentatone.

Since Haitink recorded this cycle of the Mahler symphonies in the '60s and early '70s, conductors tend to take the music slower, and aim to wring more detail and angst from it. Everyone knows this music a lot better now (thank you, Maureen Lipman in *Educating Rita*), so interpretations have deepened.

Haitink's 9th is a case in point. While it's not lacking in passion or depth, it is a lot less intense than (say) Bernstein's (with the same orchestra), Giulini's, or Karajan's – all on DG.

But don't get me wrong – I'm not complaining. It's great to have Haitink's pioneering accounts of the Mahler symphonies and songs on a single Blu-ray Audio in state-of-the-art remastered sound, and with the original album covers. "Wouldn't you just *die* without Mahler?" **JMH**

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Incoming!

Monophonic must-have

I am profoundly deaf in one ear. This doesn't cause problems with conventional stereo systems, as I hear the full stereophonic sound in mono anyway, but with headphone systems I am often unable to hear one half of the music. However, headphone amplifiers rarely include even a balance control these days. If possible, I would want a system that can reduce the stereophonic sound into monophonic and deliver it to the left channel only. I am not sure if the answer lies with the hardware, the software, or a combination of both. I would like to spend no more than about £400.

Dieter Ulrich, via email

Hi Dieter,

Thanks you for your inquiry. You are correct that headphone amplifiers with mono switches are pretty thin on the ground, but perhaps another way to tackle the problem might be from the source end of you system.

Your letter doesn't mention what your music source is (or sources are), but my guess is that you might be using either an Android or Apple smartphone or tablet, or a Windows PC or Mac computer as your primary music source. If so, the good news is that all of the above offer internal drop down menus that allow you to choose (or enable) mono audio.

Once you have selected mono audio output, you could take things a step further by enabling Bluetooth audio and then using wireless Bluetooth universal-fit earphones. Naturally, such earphones are normally worn as a stereo pair, but I suspect you could get away with wearing just the left side earpiece (although you would probably want to keep the right side earpiece at hand in case essential user controls happen to be positioned on the right side earpiece). Might this sort of 'source-driven' solution work for you?

Chris Martens, Editor, Ultimate Headphone Guide

Thinning down the pack

I want to find a pair of headphones that work well with my iPhone. They have to be Bluetooth and Noise Cancelling. I have tried the Bose QuietComfort 25 and 35, and much prefer the more expensive models, but can't justify the expense. I also tried the Beats Studio 3, (which fall into the right price point, but I found the sound too bassy) the Sony WH-H900N (which sounded good, but I didn't like the way they felt), and the Sennheiser Momentum 2.0 Wireless, which I really liked. My listening experiences are pretty much limited to hearing them side-by-side in airports, and there are some gaps in my listening as a result. Is it worth trying any other models from other brands, or should I just buy the Sennheiser models?

Chloe Mansfield, via email

Hi Chloe,

Thank you for your inquiry. It sounds to me as if you have already done your homework and I think the Sennheiser Momentum 2.0 Wireless would be a fine choice. However, I would like to mention two other models for your consideration. The first is not inexpensive, but it is one of the very best Bluetooth/ANC headphones I have yet heard: namely, the PSB M4U 8 (\$400, £299). If the PSB's styling/industrial design is not quite your cup of tea, consider also the almost identical (but very different looking) NAD HP70. The other is the Cleer Flow (\$279). Both these models enjoy a reputation for well-rounded, natural, and neutrally voiced sound, with noise cancellation circuits that do not intrude unduly upon the music. In the end, you may still prefer the Sennheisers, but I think you'll have fun trying out these other two options.

Chris Martens, Editor, Ultimate Headphone Guide

The upgrade path

I have been enjoying the sound of good personal audio for some years now, and it has revitalised my listening enjoyment. However, now it's time to upgrade. I have a pair of Beyerdynamic DT 880 headphones that I listen to through an original Chord Electronics Hugo running off my laptop. I really like the sound of this system, but wonder what the next step should be? I am thinking of upgrading the headphones, possibly to a higher end dynamic driver or planar magnetic models, or maybe biting the bullet and buying a pair of electrostatics. I know that if I buy the electrostatics, I will need a dedicated amplifier, but will the headphone amplifier in the Hugo

“I think you might be best served with a very high quality set of closed-back headphones.”

- be good enough if I don’t go down the electrostatic route? I have about £2,000 to spend in total, but this has to be a long-term investment. I listen predominantly to classical orchestral music.

Matthew Cole, via email

Hi Matthew,

Thank you for your inquiry. To go straight to the heart of the matter, the original Chord Electronics Hugo was a landmark headphone amplifier/DAC and while Chord’s new Hugo 2 has surpassed the original Hugo, the first gen model remains a very fine sounding and capable component you can enjoy for years to come.

If you keep the Hugo to use as your main amp/DAC, then you can spend the entire £2,000 budget on new dynamic or planar headphones and, as you are probably aware, there are some very fine options in that price range, many of them well suited to classical orchestral music. There are too many options to list, but three to consider would be the MrSpeakers ETHER 2 (£1,900), Focal Clear (£1,395), and the Sennheiser HD 800 S (£1,395).

However, if the electrostatic ‘bug’ has bitten you, I would still recommend that you retain your Hugo, but use it as the DAC front-end for your new electrostatic headphone/amp package. Is it possible to buy such a package for £2,000? You can come very close; specifically, the complete Stax SRS-3100 electrostatic headphone/energiser package can be had for £2,026.18, or thereabouts. As Hi-Fi+ Editor Alan Sircom has observed, the SRS-package makes a great way to get started in the world of electrostatic sound.

**Chris Martens, Editor,
Ultimate Headphone Guide**

Personal audio, flat-earth style!

I love my main system, but unfortunately that love is not shared by the rest of my family! My current system is made up of a Linn LP12 turntable with Naim Audio electronics and Neat Acoustics loudspeakers, and I love that tight, fast, and rhythmic sound it produces. I listen to a lot of 1970s rock and folk and the system just springs to life. The system doesn’t deliver oodles of bass and isn’t particularly good at imaging, but those aspects are secondary to me as long as it has good ‘Pace Rhythm and Timing.’

The times I get to play my system without causing distress are few and far between, so I would like a personal audio rig that replicates what I like so much about my main system. I like to play quite loud and my partner hates hearing that ‘tsss, tsss’ sound from earphones, so they shouldn’t leak sound too much.

Guy Fowler, via email

Hello Guy,

Thank you for your inquiry. To avoid the annoying ‘tsss, tsss’ sound leakage problem common with open-back headphones, I think you might be best served with a very high quality set of closed-back headphones.

Six well-regarded closed back headphones I would encourage you to audition are the Focal Elegia (£653), the Audeze LCD2 Closed-Back (£699), the MrSpeakers AEON CLOSED (£800), the MrSpeakers ETHER FLOW CLOSED V1.1 (£1,500), the Audeze LCD-XC (£1,699), and the Sennheiser HD 820 (£1,999). All of these should offer reasonably neutral tonal balance, anywhere from very good to exceptional resolution, and true full range sound. They should all meet your Pace, Rhythm, and Timing requirements quite nicely.

Then, you’ll need a good, PRaT-worthy headphone amp or amp/DAC. One personal audio electronics manufacturer whose components offer what I consider strong PRaT performance is Questyle Audio Engineering (whose amplifier sections use distinctive and very fast-sounding current mode amplification circuits). Models of possible interest include the CMA400i (£799), the CMA600i (£999), and the new CMA Twelve (£1199). Another excellent amp/DAC for PRaT virtues would be the British Prism Sound CALLIA (£1,794). If you are running a vinyl-only system, or wish to use your existing system as is, you could add a headphone amplifier from one of the recording ‘tape’ loops on your Naim amplifier. If you can take a feed from a Naim power supply, the company’s own Headline 2 is a good choice.

Put these components together and I think you’ll have a personal audio system that preserves the sonic virtues you now enjoy in your loudspeaker-based system.

Chris Martens, Editor, Ultimate Headphone Guide



ULTIMATE ACOUSTICS | STELLIA & ARCHE

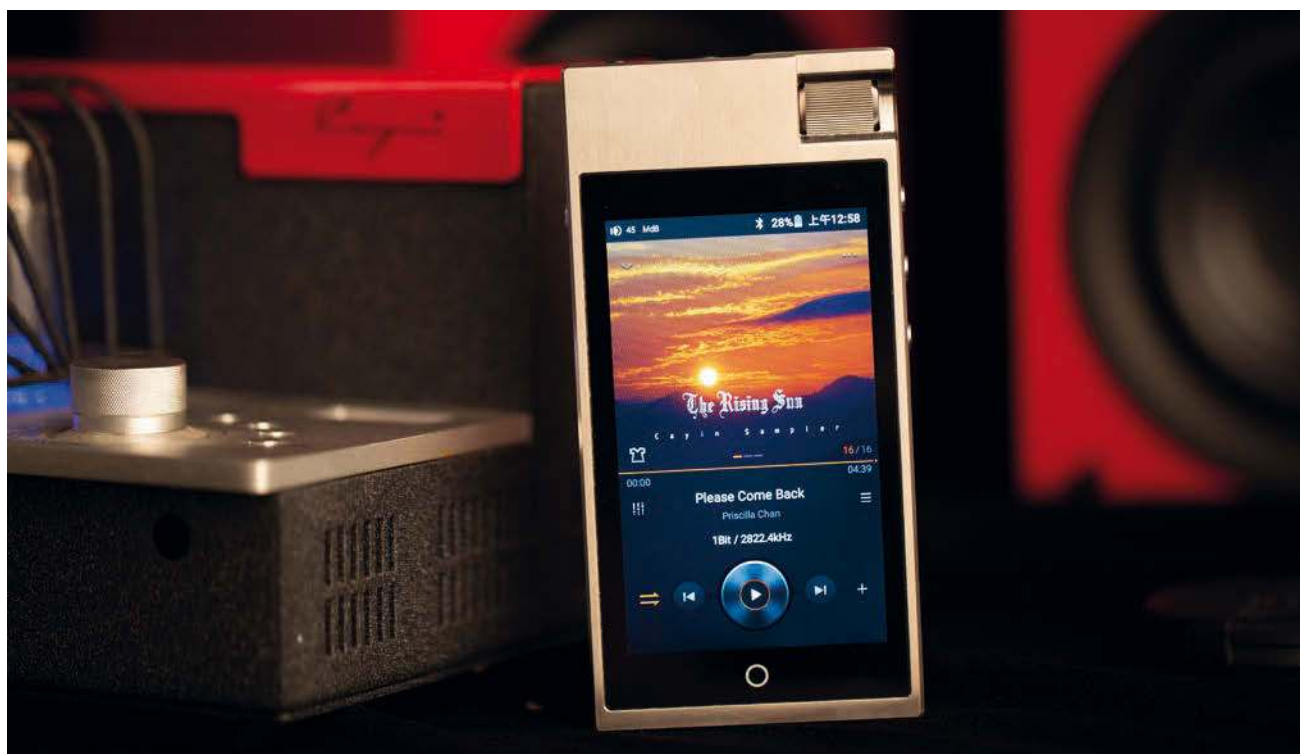
Featuring groundbreaking circum-aural technology and a new generation of exclusive electro-dynamic speaker drivers, **Stellia** closed-back headphones are capable of offering outstanding performance and an extensive frequency response in any environment.

Arche is an ideal all-in-one DAC and headphone amplifier solution, also equipped with the capability to integrate with your home Hi-Fi system. Offering presets for every set of Focal Premium headphones, Arche ensures you get the absolute best result from this ultimate combination, every time.

Acoustic sound purity, everywhere | Amplify your emotions

Cayin N5iiS digital audio player

by Chris Martens



Cayin is a Chinese high-end audio electronics manufacturer best known for its full-sized amplification and source components. In recent years, though, the firm has worked to create an ever-expanding range of personal audio components, including the N5iiS digital audio player (£429 or \$499) that is our review subject here.

The N5iiS is a 'smart DAP' based on a custom Android 5.1 operating system and that incorporates Wi-Fi and Bluetooth v4.0 connectivity features. Other features include a 3.5-inch LG full-colour 480 x 800 touchscreen, 2GB of RAM, 64GB of internal memory, two micro SD card slots (512GB capacity, each), a 3000mAH battery, and a DAC section based on an ESS ES9018K2M device. The ESS DAC handles PCM files to 32/384 and DSD files to DSD256 (native). Finally, the amplifier section provides a full differential amplifier circuit that supports both singled-ended (3.5mm) and balanced (four-conductor 2.5mm) headphone outputs.

The N5iiS uses high quality parts in select locations, such as polymer tantalum filter capacitors in its power supply. Battery charging is via a USB-C port, which also serves as an OTG data port and what Cayin terms a "proprietary embedded S/PDIF (coaxial) output at USB-C." A user selectable 'Audio Only' mode turns off unnecessary player functions. Helpful detail touches include a tempered glass screen protector, premium pleather protective case, and braided USB-C cable.

The N5iiS screen display itself is delightful, but I found the player's user interface somewhat more cumbersome than others I have experienced. For example, the Cayin requires you to log in to Google Play and then to download and install music apps you wish to use (e.g., Tidal), whereas many competing DAPs come with popular music apps pre-installed. Similarly, the Cayin's Wi-Fi login processes seem more convoluted than equivalent processes in competing DAPs. These two minor drawbacks notwithstanding, however, the Cayin is satisfying to use.

TECHNICAL SPECIFICATIONS

Cayin N5iIS

Type: High-resolution digital audio player

Inputs: Wi-Fi, Bluetooth 4.0, playback from onboard storage, OTG/USB

Outputs: Balanced 2.5mm and unbalanced 3.5mm headphone outputs; Proprietary S/PDIF coaxial via USB-C; 2V line out

Supported file formats: PCM to 32-bit/384kHz, DSD to DSD256 (native)

Storage: 64GB internal, two Micro SD card slots

Frequency response: 20Hz – 20kHz (± 0.2 dB, $F_s = 192$ kHz), 5 Hz–50kHz (± 1 dB, $F_s = 192$ kHz)

Distortion: 0.003% (1kHz, $F_s = 44.1$ kHz; 20Hz–20kHz, A-Weighted)

SNR: 116dB (20Hz–20kHz, A-Weighted)

Output power:

Balanced output: 250 Wpc @ 32 Ohms

Single-ended output: 150mWpc @ 32 Ohms

Battery: 3000mAh Lithium Polymer

Accessories: Braided USB type C cable, two micro SD card slot covers, tempered glass screen protector, pleather carry case.

Dimensions (H×W×D): 15.3 × 59 × 117mm

Weight: 248g

Price: £429, \$499

MANUFACTURER INFORMATION

Cayin

Tel: +86 (0) 756-3828711

URL: www.cayin.cn

Summary

Sonic Character: Natural organic warmth, very good resolution, lifelike dynamics



(All ratings relative to comparably priced digital audio players.)

Resolution/Focus:



Freedom of noise:



Dynamics/Expression:



Features and versatility:



Sound staging/Imaging:



Value:



Pros

- Stainless steel chassis is robust, attractive, and feels great in one's hand
- Audio Only mode turns off unnecessary functions for best sound
- Easy-to-love sound offers natural warmth, very good resolution, and lively dynamics

Cons

- Does not come with any popular streaming music apps (e.g., Tidal) pre-installed
- User Interface: Wi-Fi login process can be convoluted, finicky
- User Interface: Once engaged, Audio Only mode is tricky to switch off

To evaluate the N5iIS, I used two very high performance earphones: the Campfire Audio Solaris and the Sony IER-Z1R. Why test the Cayin with earphones selling for several multiples of the N5iIS' price? Because the Cayin's sound quality warrants using top-shelf earphones, even though many prospective users will probably opt for less costly transducers.

In press and marketing materials, Cayin often speaks of its 'house sound'—a concept that plainly has deep meaning for the firm. I would say the Cayin house sound combines, in roughly equal parts, qualities of natural organic warmth, clearly and incisively rendered transient and textural details, and vivid (but never overblown) dynamics that—on good recordings—convey a vibrant sense of energy and life within the music. Let me supply a musical illustration to show what I mean.

Using my two reference earphones with the N5iIS, I listened carefully to 'For Turiya' from Charlie Haden and Antonio Forcione's *Heartplay* [Naim, 16/44.1] and just drank in the timbres of the instruments at play. Several things stood out

for me. First, the deep sonorous 'woodiness' of Haden's bass sounded spot on, while the sweet yet also highly articulate voice of Forcione's guitar sounded positively luminous and three dimensional. Next, the attack and decay characteristics of both the bass and guitar were deftly rendered with precision, finesse, and a high degree of musical sensitivity. The Cayin invited me to become caught up in the launches of individual notes and then to follow them as they bloomed and gradually faded back into silence. Finally, the N5iIS enabled my high-res earphones to dig way down deep into the recording to reproduce subtle interactions between the instruments voices and the acoustics of the recording space. Put all these factors together and you have a DAP that not only sounds powerful, articulate, and refined, but also helps to bring the music alive.

In the end, the primary reason to choose the attractive and well-built Cayin N5iIS involves its sound quality, pure and simple. Thanks to its hearty, expressive, and dynamically engaging sound, the N5iIS far exceeds expectations for its price. +

Sony DMP-Z1 Signature Series Digital Music Player with headphone amp and DAC

by Steven Stone



When Sony unveiled the DMP-Z1 it drew the attention of the audiophile press like a perfectly cooked steak in a room full of starved Paleo dieters. But it was not so much its looks or technological accomplishments that drew curious eyes, but its price: £8,000 or \$8,499 US MSRP! However, having spent some quality time with the DMP-Z1, I think that, if anything, it might be underpriced!

The DMP-Z1 was designed from the ground up with sound quality as the primary goal, with a blank slate and almost a blank cheque for development. From its rigid milled aluminium H-shaped chassis (to isolate digital from analogue circuitry), three separate battery packs and five individual cells that isolate the digital and analogue sections from AC power, customised analogue rotary volume controller that supports the volume for four separate signal paths, Asahi Kasei Microdevices AK4497EQ DAC Chip, TI TPA6120A2 amp chip, dual micro SD card slots, 256 GB internal storage, USB type C connections and Bluetooth receiver, it displays a level of rethinking that is reserved for state-of-the-art signature products.

The DMP-Z1 DAC section will support PCM to 384KHz/32bit and DSD 11.2MHz; interestingly, however, PCM files can be resampled into DSD 5.6 format via a built-in "DSD Remastering Engine" when turned on. Two other sound processing options include a 'Vinyl Processor' and a DSEE HX 'Digital Sound Enhancement Engine'. The former option, says Sony, recreates "low-frequency tonearm resonance, surface and scratch noise, and resonance on the vinyl" to give "back the character of vinyl to your digital tracks." The latter option uses artificial intelligence to recognise "instruments, voices, and musical genres" and then applies that information to "accurately rebuild audio lost during digital compression for a full fidelity experience."



The DMP-Z1 has two headphone outputs, a stereo-mini unbalanced and a 4.4mm balanced output—both with Kimber Kable wiring. It has no preamp-output or other analogue outputs besides the two headphone outputs, which default to the balanced output when connected. And while the DMP-Z1 is certainly transportable, it is not and was not designed to be a portable on-the-go device: its designated place is on your desktop where it can serve as a USB DAC, play files from one of its two micro SD card slots, or from a Bluetooth source device.

In my time as an audio equipment reviewer, I've probably fondled over 1,000 knobs (all metal, all consenting), but none have been anywhere near as beautiful or as satisfying to turn as the big golden volume knob that dominates the front panel of the Sony DMP-Z1. To touch it and turn it is gratifying on a deep tactile level.

The DMP-Z1 is mostly an ergonomic delight, but there are a few operational anomalies. For example, the unit re-creates the database for the micro SD cards in its card bays each and every time you turn it on. Similarly, the DMP-Z1 asks users to choose between AC and battery power every time it is powered up. Finally, the unit sports a top-mounted 2.75 × 1.5-inch colour touchscreen that some may find too small to see clearly or to use effectively.

The good news is that these few quirks in no way diminish the DMP-Z1's essential riches, which are its sonics. The sound reminds me of the Sony NW-WMZ1 portable player—it is lush without being sluggish and detailed without sounding mechanical. The bass through the Abyss Diana headphones connected via its balanced output extended down to the depths. And while with some amps the Sony MDR-Z1R headphones can sound bass-heavy, the DMP-Z1 tightly and successfully controlled the MDR-Z1's low bass. Spatial characteristics through both headphones mentioned were superb—tight, well defined, with effortless three-dimensional imaging.

If you are searching for a great all-around, flexible, and ergonomically elegant DAC/headphone amp for your desktop

Summary

Sonic Character: Neutral



(All ratings relative to comparably priced digital audio players.)

Resolution/Focus:



Dynamics/Expression:



Sound staging/Imaging:



Freedom of noise:



Features and versatility:



Value:



Pros

- Superb sound
- Unique design
- State of the art build quality

Cons

- Limited outputs (no preamplifier functions)
- Balanced output is 4.4mm—no XLR

look at Sony's superb TA-Z1ES. But if you want to experience the bleeding edge of high-resolution DAC/headphone amplifier design and execution (with some limited flexibility) I encourage you to investigate the Sony DMP-Z1 further. It has the most beautiful sound (and volume knob) I have experienced from a desktop-based DAC/headphone amplifier so far. +

TECHNICAL SPECIFICATIONS

DMP-Z1 Signature Series Digital Music Player

Type: Battery-powered desktop Digital Music Player with headphone amplifier and DAC

Frequency Response: 20 Hz to 40kHz

Max Power Output: 570 mW single-ended, 1500 mW balanced

Storage: 256 GB internal memory, plus two Micro SD card slots

Battery Life: from 8 to 10 hours

Wireless capabilities: Bluetooth® Specification Version 4.2, NFC, A2DP, AVRCP, SBC, LDAC, aptX, aptX HD, AAC

Dimensions (H×W×D): 6.83 × 13.82 × 27.89cm

Weight: 2.49kg

Price: £8,000 UK, \$8,499 US MSRP

MANUFACTURER INFORMATION

Sony

URL: sony.co.uk or sony.com

Meze Audio Empyrean planar magnetic headphone

by Chris Martens



The Empyrean can without exaggeration be called a work of industrial art; it is extremely comfortable, well made, and lovely to behold. At the top is a carbon-fibre headband beneath which is suspended a leather headrest support strap with patented 'support wings'. All metal frame parts, including the finely filigree rear grills, are CNC machined from solid aluminium (the process takes about 20 hours). Angled mini-XLR-type signal cable connectors protrude from each ear cup housing, while high quality OFC cables with various termination options are offered. Completing the picture are two sets of magnetically attached ear pads, one with Alcantara covers, the other clad in leather.

Rinaro's hybrid array Isoplanar driver is Ovoid-shaped and features a diaphragm made of a custom isotropic thermally-stabilised polymer said to be "ultralight yet rigid". Significantly, the driver features two distinctly different voice coils trace patterns. Down near the narrow tip-end of the ovoid is a spiral coil said to be "more efficient at reproducing middle-high frequencies", while in the wider upper sections of the ovoid Rinaro uses a serpentine 'switchback coil' claimed to be "more efficient at reproducing low frequencies." The result is a crossover-less, mechanical two-way driver, where the mid-high frequency sections of the drivers are deliberately positioned over the wearer's ear canals to minimise time delays.

The driver features sandwich-like construction; on the outside are front and back fibreglass-infused ABS frames within which are front and back neodymium magnet arrays, and at the centre of which is the diaphragm. Meze says the resulting driver is sensitive, offers high resolution, and is extremely low in distortion (Meze claims it to be, "under 0.1% in the whole audio frequency range"). It also incorporates features to improve efficiency while minimising stray magnetic fields directed toward the wearer's head.

As I began evaluating the Empyrean, I quickly learned two things. First, the headphone initially sounds good, but perhaps a little softly focussed and dynamically reserved. It

Until now the Romanian firm Meze Audio has been best known for its excellent and affordable 99 Classics headphones, which offer incredible value for money. However, for over two years Meze has been hard at work developing an extremely sophisticated, ultra high-performance, cost-no-object headphone called the Empyrean (£2,699, \$2,999).

The Empyrean is an open-back planar magnetic headphone stemming from collaboration between Meze Audio and the Ukrainian firm Rinaro™ Isodynamics (a veteran planar magnetic driver technology specialist). Basically, Rinaro developed the Empyrean's Meze-exclusive, patent-pending, hybrid array Isoplanar™ driver, while Meze created everything else.

"If you give the Empyrean time, it will reward you with a rare combination of balance, finesse, and all-round expressiveness."

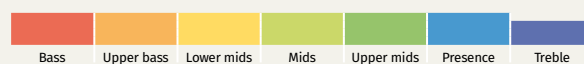
needs substantial run-in time (>100 hours) before it opens up to achieve optimal resolution, transient speed, and dynamic acuity. Second, the Empyrean proved very sensitive to the quality of ancillary amps and DACs; plan on using top-shelf electronics to hear the Meze at its best.

At its best, the Empyrean offers neutral (yet never austere) tonal balance, extremely fine levels of resolution for both textural and transient sounds, expressive dynamics, and an almost casual-sounding, offhand quality of sonic naturalness. Candidly, I suspect some listeners might miss what the Meze does right, precisely because it is less about serving up hi-fi pyrotechnics and more about 'going deep' with the music.

As an example, try 'Walking On the Moon' from the The Yuri Honing Trio's *Star Tracks* [Jazz in Motion, 16"/44.1]. The track begins with a subtle, softly plucked figure from bassist Tony Overwater, whose call is later answered by an expressive response from percussionist Joost Lijbaart. Then, the proceedings really take shape when Honing joins in on his saxophone. In each case the timbres and dynamic qualities the instruments sound spot-on and incredibly engaging. Major sonic treats include Honing's powerful, evocative sax solo in the middle of the track and several dramatic bass and percussion exchanges along the way. Stated simply, the Empyrean creates large believable soundstages and the sort

Summary

Voicing: Neutral and natural – never clinical



(All ratings relative to comparably priced headphones.)

Resolution/Focus:



Sound staging/Imaging:



Dynamics/Expression:



Value:



Pros

- Beautiful industrial design and exquisite yet robust build quality
- Rinaro driver really works as advertised
- Disarmingly natural sound with abundant detail and resolution

Cons

- Extremely sensitive to amplifier and DAC quality (you'll need to use top-shelf ancillary components)
- Sounds very promising at first, but gets considerably better with 100+ hours of run-in time (don't judge the Empyreans prematurely; give them time)
- Expensive (though worth the money)

of gripping, you-are-there realism that's rare to find in any transducer, regardless of type.

If you give the Empyrean time, it will reward you with a rare combination of balance, finesse, and all-round expressiveness. It is only with extreme reluctance that I must force myself to give these headphones back to Meze. +

TECHNICAL SPECIFICATIONS

Meze Empyrean planar magnetic headphone

Type: Open-back planar magnetic headphone

Driver complement: "Ovoid"-shape (102 × 73mm), hybrid array, Rinaro Isoplanar™ MZ3 planar magnetic driver with 4650mm² working area per driver

Frequency response: 4Hz–110kHz

Impedance: 31.6 Ohms

Sensitivity: 100dB @ 1mW/1kHz

Total Harmonic Distortion: <0.1% across the audio spectrum

Weight: ~430grams

Accessories: High-strength black anodised aluminium suitcase-style carry case with thick foam internal padding, two sets of ear pads (one Alcantara, one real leather), and

the users choice of 3m or 1.3m OFC signal cables terminated with 6.35mm or 3.5mm headphone plugs.

Price: \$2999 US, €2999

MANUFACTURER INFORMATION

Meze Audio

Str. Independentei 12/3,

Baia Mare, 430071, Romania

URL: mezeaudio.eu, mezeaudio.com

UK DISTRIBUTOR

SCV Distribution

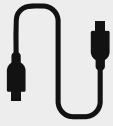
Unit C1, Belcon Industrial Estate, Geddings Road

Hoddeston, Hertfordshire EN11 0NT United Kingdom

URL: scvdistribution.co.uk



SYNERGISTIC RESEARCH



Cables Home



Power



Digital



Subwoofer



Phono

Atmosphere X Series Cables

The science of emotion.



Blue Fuse

Our most advanced UEF Technology to date.



MrSpeakers



SCHITT
EU.COM

Sieveking
sound



electromod
the sound connection

electromod.co.uk

EQUIPMENT REVIEW

Campfire Audio Equinox custom-fit in-ear monitors

by Steven Stone



One driver... While many custom-fit in-ear monitors use two, three, four, or more balanced armature drivers, Campfire Audio has forged a different path, choosing to refine and perfect a single full-range dynamic driver design. The Equinox is the firm's first CIEM. Instead of the more common molded acrylic two-piece shells, Campfire's earpieces employ a direct solid printing manufacturing process. With internal acoustic chambers that are incorporated into its 3-D printed design, the Equinox possesses a unique set of ergonomic features and sonic characteristics.

Although the enclosures are 3-D printed, the Equinox driver housing is made of stainless steel. Campfire uses steel because it delivers "a certain robustness to the earphone's sonic signature and provides an additional level of protection for the earphone." The Equinox come standard with a removable pure silver Litz-wire cable with Beryllium copper MMCX terminations. The Equinox's dynamic driver uses a 10mm ADLC (Amorphous Diamond-Like Carbon) diaphragm; ADLC is a hybrid of diamond and graphite carbon. This non-crystalline diamond-like material has low density but high rigidity, which makes it an ideal diaphragm material.

CIEMs are all about the fit—an area where the Equinoxes have an advantage over many custom in-ear designs because

their earpieces do not intrude very far into your ear canal. This makes for a less obtrusive and more comfortable fit than any universal-fit earphones and many CIEMs I've used. Unlike a universal design, there is one additional step required with custom in-ears—you will need to have impressions of your ears made by an audiologist. Since the Equinox CIEMs do not extend deeply into your ear canals, good impressions could be taken without requiring a bite-spacer (which makes one drool). When the Equinox in-ears arrived, I tried them on immediately and found the fit was perfect with no readjustment needed. Custom-fit in-ear monitors should be more comfortable than universal-fits, and the Equinoxes rank as the most comfortable CIEMs I've experienced. I could wear them for hours with no irritation.

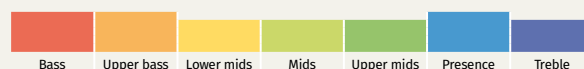
The sound of the Equinox was impressive. Due to their single drivers, which need no crossovers, the Equinoxes ►

"This spacious soundstage allowed each instrument to have a specific and well-defined location in three-dimensional space."



Summary

Voicing: Neutral, apart from moderate bass lift



(All ratings relative to comparably priced CIEMs.)

Resolution/Focus:



Sound staging/Imaging:



Dynamics/Expression:



Value:



Pros

- Excellent fit from silicone impressions
- Superb sonics
- Removable, replaceable cable with MMCX connectors

Cons

- Slightly elevated bass response
- Requires impressions made by an audiologist

► image with precision. On some tracks the sound appeared to span not only the front 180 degrees of the soundstage, but also extended so some instruments and voices could be detected almost beyond the 180-degree arc of the front stage. The opening of 'Anything' by RØRY Alex Mattson [*Anything*, Ultra Records] demonstrates this 'VistaVision' soundstage nicely. This spacious soundstage allowed each instrument to have a specific and well-defined location in three-dimensional space.

Bass through the Equinox was elevated above what I consider neutral. While the bass never intrudes into the lower midrange, it is big and well defined with lots of visceral impact. On some cuts that feature a 'big' bass such as on 'Michelle' from the Beatles WAX Apple complete FLAC set, it can be overbearing. But on the Rolling Stones' 'Street Fighting Man' [*Beggars Banquet*, ABKCO] the bass balance sounds right on. Virgil Fox fans (if any are any left) will love the way the Equinox delivers the 64 Hz Low C pipe organ note in Bach's Toccata and Fugue in D Minor [*Organ Works: Bach* by Virgil Fox, Sony Classical].

Single driver designs all share one liability—their ability to remain linear throughout their entire frequency range without any dips or spikes. Except for the additional low frequency energy noted earlier I found the Equinox were smooth and lacking any noticeable hot-spots in the midrange and lower treble, but since my hearing goes up to only 13kHz I can't vouch for the upper treble. The Equinox midrange was

delicious; I dare anyone to listen to the high-resolution version of the original recording of Joni Mitchell's *Blue* [Rhino] without melting into a puddle from her gorgeous vocal timbre.

Although for \$1,499 (and under) you have quite a few CIEM options, few offer the combination of features and fit offered by the Equinox. For those audiophiles who want to hear all the low bass, treasure a large soundstage presentation with excellent specificity, and plan to wear their custom CIEMs for long, uninterrupted periods of time, the Equinox ticks all their boxes. +

TECHNICAL SPECIFICATIONS

Campfire Audio Equinox custom-fit in-ear monitors

Type: Custom-fit in-ear monitor

Driver complement: Single full-range 10mm dynamic driver

Frequency Response: 5 Hz–20 kHz

Impedance: 19 ohms @ 1kHz

Sensitivity: 105 dB @ 1kHz/1 mW

Connector: 1/8" headphone plug; compatible with all systems

Weight: Not specified

Price: \$1499 US, UK price not yet announced

MANUFACTURER INFORMATION

Campfire Audio

2400 SE Ankeny, Portland, OR, USA

URL: campfireaudio.com/shop/equinox/

Nordost Purple Flare USB cable

by Michael Mercer

Nordost Corporation has been at the forefront of high end cable innovation and technology since they were founded in 1991. Precision and scientific methodology are the cornerstones of Nordost's approach to cable solutions for audiophile systems. They provide everything from audio/video cables to resonance and vibration control devices and power products (as well as their new grounding devices). Their products are currently sold in over 68 countries worldwide, and everything they produce is developed and manufactured in their factory in Holliston, Massachusetts, USA.

Nordost's patented Micro-Monofilament Technology has been the foundation of their cable designs ever since their globally renowned Flatline speaker cable series took the audiophile two-channel world by storm in the nineties. Flatline featured the lowest capacitance and inductance of any speaker cable on the market at the time. Nordost figured out that the less a cable acts as a filter the more musical information can shine through. They've taken that foundation and built upon it with their digital and USB cables.

Their Purple Flare USB data cable is "purpose built" and features four silver-plated OFC conductors encased in high performance FEP (fluorinated ethylene propylene) utilizing Nordost's high precision extrusion process. The cable also features double-shielded construction, "ensuring an electrical and sonic integrity that is unmatched in its stock counterparts." In addition, Purple Flare also incorporates fully-shielded metal-jacket connectors in order to "maintain optimal signal transfer."

Transparency and coherence are the name of the game with Purple Flare USB. Hi-hats glisten and dissipate effortlessly into a black background. Drums are authoritative and lifelike. Vocals are realistically rendered in size and tonality. Transients race across the soundstage with precision and flare (pun intended). Purple Flare gives you top-tier performance at an incredibly affordable price.

Price: £169.99, \$199.99, 1m
(also available from
0.3m-3m)

**Nordost
Corporation**

Holliston, Mass,
USA

URL: nordost.com



iFi Audio Gemini 3.0 USB cable

by Michael Mercer

IFi Audio took the high end two-channel and personal audio worlds by storm when they introduced their first products in 2012. Their incredibly powerful (while diminutive in size) iCAN headphone amp, iPhono phono stage, and iUSB USB clarifier all won awards from numerous hi-fi journals, winning them an instant cult-like following. iFi currently offers over 30 hi-fi products, ranging from digital to analogue, uber-portable to full-sized desktop reference-grade components. They also claim that none of their products contain hazardous toxins, and all their gear and packaging are made from recyclable materials.

iFi took a genuinely unique approach to USB audio with the Gemini 3.0. The cable consists of two individual USB leads: Dual-headed at the source end yet combined at the DAC/amp end, thus physically splitting the digital audio signal from the power. USB typically carries power and signal data in the same cable, which can render the audio noisy. iFi addresses this issue with practicality and innovation. Physically and electrically separating the audio (or music signal) from power has many benefits, but the foremost are reduced noise and jitter. The Gemini also addresses common-mode noise issues with its slick (literally, as you slide them up and down the cable for further 'tuning') RF3 Custom Noise Silencers. In addition iFi Audio incorporates quadruple shielding throughout Gemini, in order to address EMI as well as RFI issues. Its connectors are also machined entirely from aircraft-grade aluminium.

From the very first notes it's clear iFi's done their homework. The Gemini 3.0 is as quiet as any more expensive high-end USB cable. It's strikingly resolute and quick. The leading edge transient attack is sharp and focused, and smacks with authoritative slam. The midrange is lusciously detailed and silky smooth. The highs glisten, but they're also open and clean. Overall soundstaging is wide and deep, while image specificity is spot-on and dimensional. Low-end frequencies hit with focus and vigour. The iFi Gemini 3.0 USB cable is a top-level performer, with the applied science of a reference-level cable in an affordable solution. +

Price: £379, \$379 US

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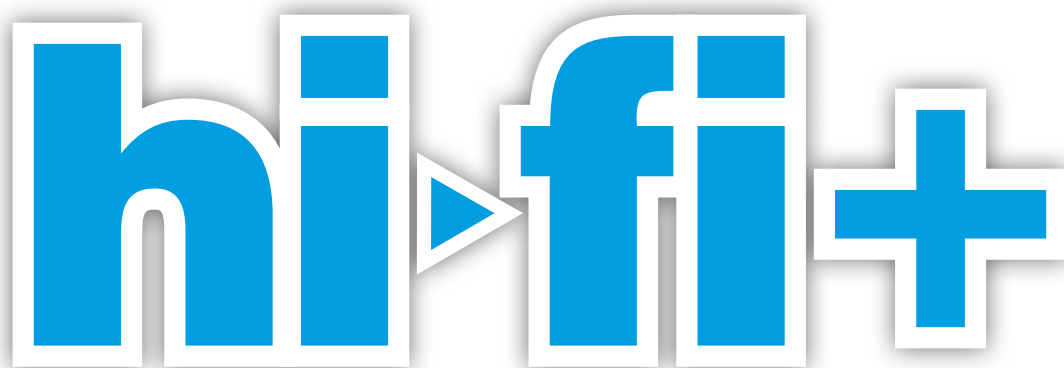
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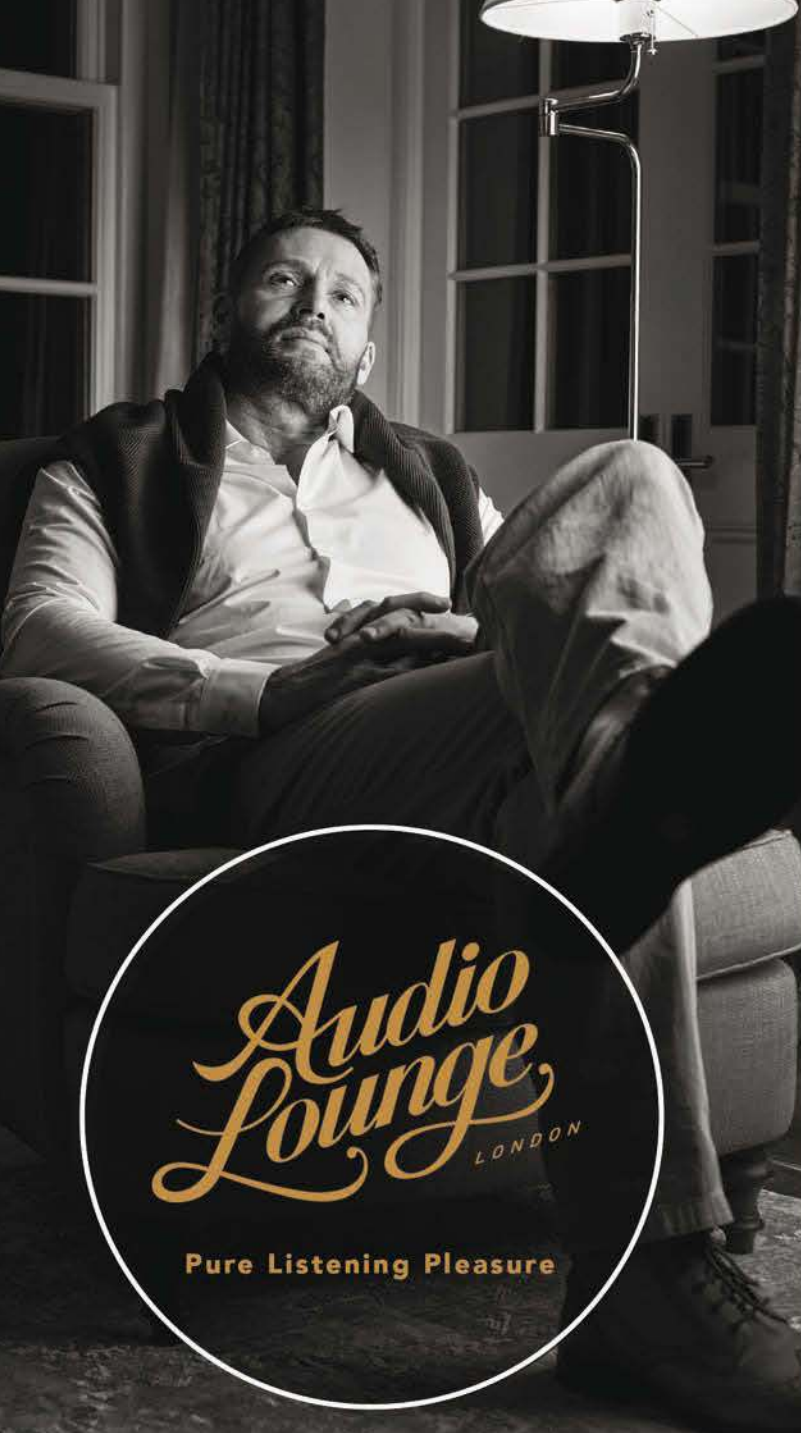
Magico changed the face of high-end audio in the 21st Century with its range of top-quality loudspeakers. Now, with the A3 floorstander, Magico hopes to shift perceptions once again, making a loudspeaker that delivers everything we have come to expect from the brand... except a stratospheric price tag! In a first English language review in print anywhere in the world, is the Magico A3 the 'reset button' for the high-end?



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