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DECEMBER 2017



6 PAGES OF LETTERS - THE BEST WINS A PAIR OF
QUADRAL RHODIUM 200 LOUDSPEAKERS! (UK ONLY)



The Right Chord

Noel Keywood tries out Chord's new Hugo 2 desktop DAC - and rates it as one of the best he has heard.

Our Rohde&Schwarz spectrum analyser – the world's best – tells us quite clearly there are two genuinely impressive DACs in this world – and one of them I am reviewing here. It's the new Hugo 2 from Chord Electronics (UK). The other? ESS (USA). So you'll be reading this review then if you are interested in getting an inside view of what the Hugo 2 offers, especially with its new filter set. OK measurement isn't everything, if it was I would not choose to use a valve amplifier in this review but it does say much about the level of design engineering – and what to expect in sound quality terms.

If you want a portable DAC, Chord Electronics Mojo is the one. Hugo 2 is a slightly more ambitious version, not 'portable' but 'transportable' – meaning you can carry it from place to place easily enough and it can work from internal rechargeable batteries for up to 7 hours, or a mains supply.

With measurements of 131mm x 100mm x 23mm, and a weight of 450gms Hugo 2 will hardly go into a shirt's top pocket but it fits the trouser pocket of cargo trousers however if, like me, you use them to house a small electronic workshop. You can then use Hugo 2 on the move, but it is purposed more for a home hi-fi of some sort – as an adjunct to a computer, as a hi-res

digital preamp with volume control feeding a power amplifier, or perhaps as an upgrade for an ageing CD player with digital output.

Chord Electronics have always made stylistically bold products and Hugo 2 is all of this. It comes in a bullet-proof machined aluminium billet, with contours not found elsewhere – that's why it feels good and looks it too. The Hugo 2 logo and Chord name are deeply engraved in, so no surface graphics that rub off here. The case is bomb proof and beyond easy degradation all round.

Pressing the on-button I was met with a blaze of light! Pull this out on a bus or train and it will catch attention, since all its many spherical rotary controls are



illuminated in different colours. Also, internal sensing logic scans inputs for signal and feeds the data back as a colour light display, both in the spherical buttons and through the central window into an internal light display. Hugo 2 puts up a great multi-coloured and changing display, according to what it is doing – but you have to read the handbook to interpret!

So Hugo 2 isn't your average dull box, with miserable graphics and low design input. It is audacious in style and its face to the world. It has plenty of basic ability too. There are optical and electrical digital S/PDIF inputs, plus a USB input, the only wrinkle being the electrical S/PDIF is through a 3.5mm jack socket instead of the usual phono socket – and no lead or adaptor is supplied. Also, this is a two channel digital input selected as Coax 1 / Coax 2 on the remote control and can accept two 384kHz dual-data lines for 768kHz sample rate from a suitable source. I used a simple 3.5mm stereo jack-to-phono socket lead – available from Maplins – to find that on the remote control Coax 1 is left channel and Coax 2 the right channel. The optical input works up to 192kHz measurement confirmed so will work with Astell&Kern players and such like.

Bluetooth with aptX is fitted, allowing wireless connection to a mobile phone or portable player (DAP) similarly equipped.

There are stereo analogue line outputs through the usual phono sockets, and both 3.5mm and 6.3mm

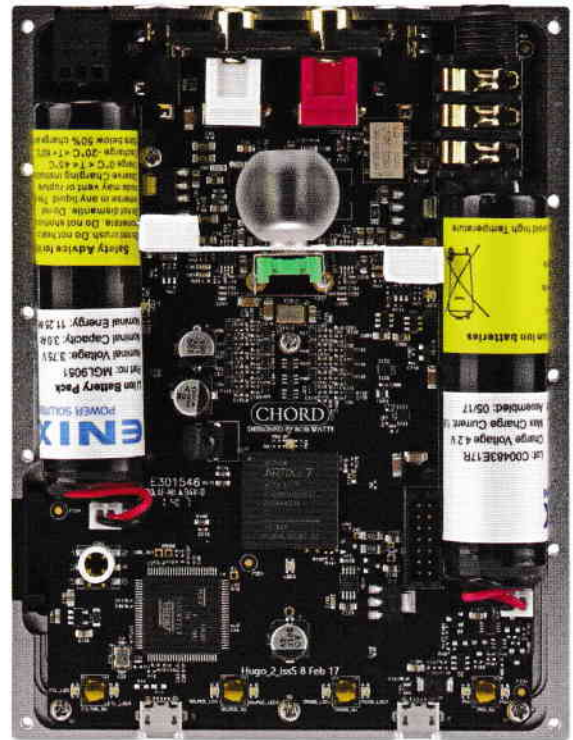
(1/4in) jack sockets for headphones.

A small external wall-wart power supply connects via its own microUSB input socket. Unfortunately, it is unmarked and only distinguished by a microUSB plug so may well get lost amongst all the others unless a Hugo label is stuck on. The unit works from 100V-240V mains input and provides 5V/2A out through a 1.7m (slightly less than 6ft) cable. This is a cheap switch-mode supply – Audiolab and Oppo fit big linear supplies, for better sound quality, albeit in non-portable, mains powered, ESS equipped converters. They are competitors if transportability is not needed.

Hugo 2 comes with a small remote control with all functions selectable, including filters and volume. There are four filters, identified as Incisive Neutral – the reference position – and Incisive Neutral with high frequency roll off.

Then at a lower multiple of the sampling frequency there's Warm and Warm with roll-off – more of which later in Sound Quality.

The fun volume control, a rolling ball that changes colour with level and remembers its setting at shut down, can also be locked out (fixed output). Volume is adjusted before the output amplifiers and full digital level (0dB) will cause overload if volume is turned right up, an unusual situation. The volume control button lights up white to warn of



Internals are neat and tidy with (centre) Chord's own DAC circuit designed by Rob Watts.

this; you can't use full volume with rock albums compressed up to full level, which most are to sound loud. Because full output is so high, this is very unlikely to happen in real life use, except possibly if running into a preamp with volume turned down, but in this circumstance Hugo 2 should be set to fixed output.

There's a crossfeed (X-PHD) facility to give a more out-of-head loudspeaker listening experience, with four settings: off, light, medium and heavy.

Hugo 2 accepts conventional digital (PCM) up to 768kHz and DSD up to eight times sample rate (DSD512) – ahead of most else.

SOUND QUALITY

Hugo 2 has internals no other DAC has – and it sounds like it. 'Different' is the word. Pressing the Play button on my Astell&Kern AK120 portable digital player, connected in optically, Hugo 2 raced off the line with Fleetwood Mac's 'Go Your Own Way' (24/96). Mick Fleetwood's bass line was resolved conspicuously well in terms speed and drums were firm and powerful centre stage: Hugo 2 comes over as fast paced – and super sharp in its timing. Almost weird to hear music speeded up, for that is what Hugo 2 seemed to do with this up-tempo track.

A selection of hi-resolution



Illuminated buttons mean the Hugo 2 presents a riot of colour to the user.



The Hugo has 3.5mm and 6.3mm headphone sockets, plus analogue output and coaxial and optical digital inputs.

Rock tracks confirmed Hugo 2 is strongly about pace, insight and timing – and gripping to hear. It has fine high frequency resolution and strong top-end bite, cornet in Duke Ellington's 'Stompy Jones' rasping out at me with firm projection. I am used to ESS Sabre32 DACs that are big, fulsome and rich sounding; Chord Electronics offer a polar opposite here – an immediately impressive and engaging one. Hugo 2 has a lighter air, the music is strongly lit. It is fast, exciting and quite obviously ahead in its sonics.

Intense high frequency detail and insight is a small revelation; I was hearing things here I don't normally

hear. But I was hoping for a filter like Audiolab's optimally damped designs that could remove the glare from some recordings; Queen's 'Under Pressure' (24/88.2) was succinct but light-ish in hue – and switching in the filter options made little difference. Only the most severe Red option had perceptible impact and although it dulled things a bit, it didn't provide the sense of improved stage composition I had hoped for. Switching through the filters at all sample rates, from 44.1kHz (CD) up to 768kHz (from a Mac running Sierra) made no difference here (and, out of interest, 768kHz offered no benefit over 96kHz, using Philips

Fidelio XI headphones).

Classical fared well, with orchestras firmly presented, slow plucked bass in Richard Strauss' 'Don Quixote' (24/96) having convincing solidity and body, whilst violins of the Berliner Philharmoniker stretched wide across a broad soundstage, coming over as well lit and vivacious. Selecting X-PHD (crossfeed) interestingly added bulk and atmosphere to the Minnesota Orchestra playing Rimsky Korsakov's Snow Maiden, if contracting the stage slightly; it was a small but quite enjoyable change of presentation that suited classical well.

Bluetooth connected immediately to my iPhone (using code 0000), but the Bluetooth input must be first selected. Running 24/48 files showed all the basic qualities heard through USB and S/PDIF, with a slight loss of inner detail due to Bluetooth's music compression system.

CONCLUSION

Hugo 2 is a wonderfully hewn product that looks great, feels great and delivers a vivacious sound, succinct and full of detail. It comes over as fast-paced and tightly timed. With a wide range of inputs and an ability to cope with them all superbly it is one of the best DACs at its price point.

MEASURED PERFORMANCE

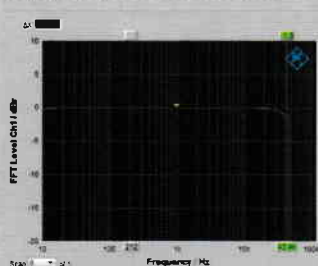
The optical digital S/PDIF input (via a QED glass optical cable) worked to 192kHz, as did the electrical input. Frequency response with a 192kHz sample rate signal reached 43kHz before rolling away to the theoretical upper frequency limit of 96kHz, as our analysis shows, this being achieved with either orange or white filters. With the red or green filters roll-off was earlier, if with slightly curtailed frequency response reaching 21kHz. The roll off is sufficient to give a subtly 'easier' sound.

Fed CD (16/44.1k) frequency response ran flat to 21kHz with either orange or white filters or was very slightly softened by the red/green filters, by -1dB at 20kHz.

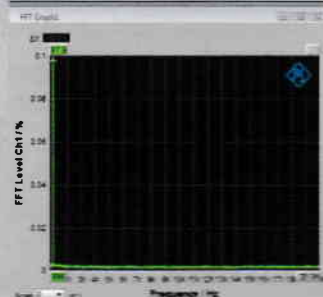
Dynamic range via the headphone output nudged 124dB with the output level control set to avoid overload – a figure higher than all others, except ESS who manage identically. With volume turned to max the Hugo 2 measured 140dB dynamic range – monstrously high. This would be achieved only with low level digital recordings where volume had to be turned right up. Whatever,

Hugo 2 offers the highest dynamic range available today, of any DAC – worldwide.

FREQUENCY RESPONSE



DISTORTION



Distortion was negligible at 0.013% with a -60dB, 24bit digital input, as our analysis shows. There are no visible distortion harmonics, even in this high resolution analysis. With CD the figure was 0.2%, limited as always by 16bit quantisation noise.

Output from the headphone and Line outputs measured a very high 4.7V, dynamic range and distortion figures being identical.

The USB input gave a marginally better result to S/PDIF, dynamic range measuring 125dB, distortion at -60dB 0.009% and bandwidth flat from 4Hz to 43kHz.

The Hugo 2 produced excellent measured figures in all areas. Its filters are fairly subtle in effect though. NK

Frequency response (filter white)	
	4Hz- 43kHz
Distortion (24bit, -60dB)	0.013%
Separation	102dB
Dynamic range	125dB
Noise	-123dB
Output (Line/H'phone)	4.7 / 4.7V

CHORD ELECTRONICS HUGO 2 DAC £1750



OUTSTANDING - amongst the best

VERDICT

A technically advanced transportable DAC that looks good, feels it and sounds superb – fast yet punchy.

FOR

- solid build quality
- visually arresting
- clean, fast sound

AGAINST

- lacks warmth
- ineffective filters
- cheap mains supply

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