Desktop/headphone amplifier. Rated at 10W/8ohm
Made by: Chord Electronics Ltd, Kent
Supplied by: Chord Electronics Ltd
Telephone: 01622 721444
Web: www.chordelectronics.co.uk

Chord Anni

Just 16cm wide, the latest integrated amplifier from Chord Electronics is truly tiny, but the levels of performance it offers elevate it way beyond its apparent novelty status

Review: **Andrew Everard** Lab: **Paul Miller**

The Chord Electronics Anni, selling for £ isn't the company's first compact amplifier – that honour goes to TToby [*HFN* Feb '17], designed as a partner for the Hugo TT 2 DAC/pre/headphone amp [*HFN* Dec '15]. But the Anni is smaller, at just 16cm wide and 4.25cm tall, much lighter at 625g, and conceptually different from the TToby.

In practice, its dimensions are governed by its partnership with the compact Qutest DAC [*HFN* Nov '18] and the Huei phono stage, its claimed power output a tenth of that on the TToby's spec sheet and described as a 'Desktop Integrated Amplifier', not just a power amp.

SPLIT PERSONALITY

It's also a headphone amp – although, as we'll see, it could perhaps more correctly be considered as a headphone amp also able to drive speakers, rather than vice versa [see PM's Lab Report, p77]. The Anni is also a little unusual for not having built-in digital-to-analogue conversion, but then the matching Qutest serves this role, without a headphone amp, so the two have been designed to complement each other as all-in-one solution.

Reinforcing this union between the Anni, Qutest and Huei is the availability of a little desk-stand, the QSS (Qutest Stand System, p77), selling for and made of the same aerospace-grade aluminium that encases products across the Chord Electronics range. One QSS is required for each product you want to stack, so tidying a Qutest and Anni together will also rack a Huei phono stage.

And there's another element of the Anni design created for this miniature system, for while the amplifier is powered by an offboard 15V switchmode supply, an extra socket on the Anni's rear panel allows it to supply a 12V feed to a Huei phono stage (the Qutest DAC is powered via a 5V micro-USB port). Thus, a little cable clutter is minimised across this very compact back panel real estate!

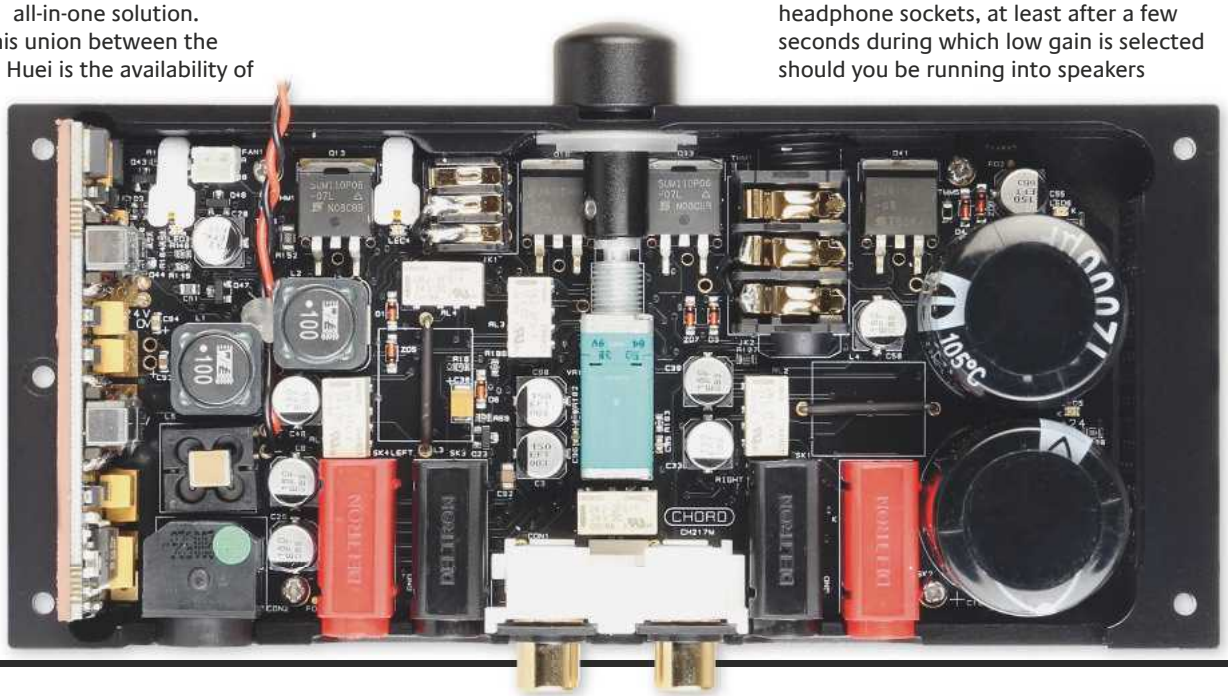
> 'The head-to-head really was a close-run thing'

Those familiar with Chord's way of thinking will find nothing to scare the horses in the way the Anni is operated. A pair of the brand's internally-lit spherical controls are provided, one for power on/off and the other offering a gain boost, but only to the speaker outputs, if required. Blue illumination of the control indicates low gain, and red high. That's almost the only switching the user need worry about, beyond selecting between the two sets of line inputs, which is just a matter of pushing the volume control. An LED ring around the knob shows the input in use – again, blue for input 1 and red for 2.

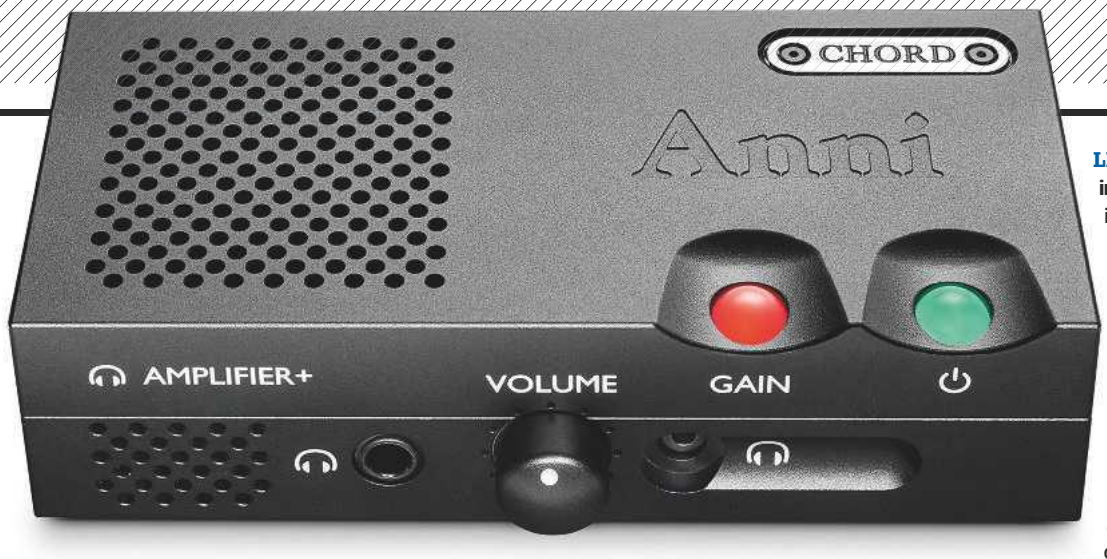
KEEPING IT SIMPLE

Both 6.35mm and 3.5mm headphone outputs are provided on the front panel, along with 4mm speaker sockets to the rear: either or both headphone sockets can be used, but there's none of the fancy balanced connections found on many another DAC/headphone amp. Similarly, the volume control is a simple mechanical device – well, apart from that integrated source selection – with no need for motorisation or any other frills. After all, there's no remote control provision, as this is a desktop product, and therefore intended to be used within easy reach.

Plugging in a pair of headphones will mute the speaker outputs and activate the headphone sockets, at least after a few seconds during which low gain is selected should you be running into speakers



RIGHT: Much of the amp proper is hidden under this eight-layer PCB but the Vishay V-FETs are visible [top]. The vertical PCB [near left] includes the high frequency PSU converter that creates three supply lines for the amplifier



LEFT: Svelte black alloy case includes two of Chord's iconic illuminated 'ball' switches for gain (speaker output only) and on/standby. Volume control also switches between inputs

in high-gain mode. Disconnecting the headphone plug(s) reverts the Anni to its speaker mode. The 'power ball', which glows cyan – light blue to you and me – when the Anni is driving speakers, turns green when in headphone mode.

That's about it, and the technical information Chord supplies about the Anni is almost as simple as its operation. We're told that the power output is 10W/8ohm and the frequency response is 5Hz-60kHz (–3dB), while the amplification within 'benefits from the company's proprietary ULTIMA circuit topology', as used in Chord's high-end power amps, and 'offers Chord Electronics' recently announced dual-feed-forward error-correction circuit topology whether using headphones or compact loudspeakers'.

Editor PM takes a deeper dive into that amplification technology in his Anni Amp boxout [see below], but on a practical level there's some sense of this being a lot of amplifier crammed into a small, high-quality housing: both the front and top panels are 'punched' for ventilation, and the Anni can run a little warm if you choose to work it hard.

DESKTOP DIVA

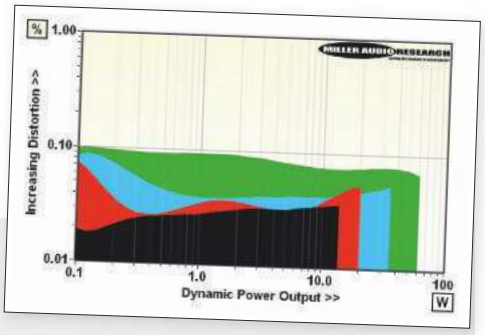
In the absence of a Qutest with which to test the Anni, I substituted a long-serving iFi Audio NEO iDSD DAC/headphone amp [*HFN* Mar '21], fed from my desktop Mac mini computer via USB and with its analogue output set to fixed-level, while the little amp's outputs were run into my usual Neat Acoustics Iota speakers, sitting on foam studio monitor wedges to angle them up to my ears. Headphones included the Bowers & Wilkins P9 Signature [*HFN* Mar '17], the original – and highly revealing – Focal Spirit Pro [*HFN* Dec '15] and the long-discontinued but still excellent Oppo PM-1 planar magnetics [*HFN* Jul '14]. With an eye to Chord Electronics' claim for the little Anni's low-end capability, I also pressed into service a pair of H850 headphones from bass guitar amp manufacturer Phil Jones Bass, latterly of Acoustic Energy and now famed for his bass cabs that use multiple small drivers for 'air-shifting with speed'.

I admit I also tried using the Anni in a larger system, fed from my Naim ND555 network player [*HFN* Apr '19] and powering the larger Neat Iota Xplorer speakers [*HFN* Jul '18]. Now, while it gave a more than reasonable account of itself at levels best described as 'modest to sensible' with an open top-end, smooth midband and punchy, well-extended bass, it soon became clear that desktop sound with smaller enclosures is the Anni's true forte. In all likelihood it's helped in this role by that low-frequency hump PM discovered in the lab [see below left and p77], along with its ability to drive a wide range of headphones with conviction.

I tried the iFi Audio DAC and Anni against the iFi Audio Pro iDSD Signature DAC/headphone amp [*HFN* Jan '22] and – to misquote the Duke of Wellington – it really was a damn close-run thing: impressive, given the price advantage of the combination I was using. The clean, smooth but dynamic sound the Anni develops through speakers, complete with its generous yet tightly controlled bass, is echoed in its headphone performance. Whether with large-scale orchestral/operatic music such as the exuberant LSO/Marin Alsop recording of Bernstein's *Candide* [LSO Live LSO0834; DSD128] or the rough-edged Neil Young/Crazy Horse *Barn* set [Reprise download; n/a cat.no.], the Anni does not lose its grip.

SWEET AND SMOOTH

There's a fine sense of insight and detail, especially with the many voices and clever lyrics and dialogue of the Bernstein but, above all, the impetus of the music-making is delivered intact, which is really what it's all about. Overall, the sound has a sweetness and smoothness about it that's ⇨



ANNI AMP

Here's a perfect example of why we use test and measurement as an investigative tool at *Hi-Fi News*. Without it we'd be trotting out the one specification that's on offer – a power output of 10W/8ohm. But you deserve better [see p39], so we've uncovered the *real* story. In practice, for its main amplifier, Chord employs two pairs of, for this purpose, rather over-specified 'TrenchFET' power transistors from Vishay. These are driven via a comparator that prevents peak clipping but, instead, collapses one half of the PSU rail if an over-current condition is sensed. In practice, the Anni will not sustain a continuous 10W/8ohm – a figure of 5W/8ohm is more likely.

Chord is smarter than this, of course, so the circuit is configured for 'real life/music-like' signals that are dynamic rather than unvarying. Under these conditions [see inset Graph] the Anni delivers a fine 13W, 20W, 35W and 60W into 8, 4, 2 and 1ohm loads [black, red, blue and green traces, respectively]. Hence the reason the Anni is consistently reported as sounding/performing rather beefier than that 10W specification might suggest...

What else? The two gain options are +5.1dB and +13.7dB while, at 1W/8ohm, distortion is 0.02-0.04% through bass and midband, increasing markedly at high treble frequencies to 0.7%/10kHz and 5%/20kHz. The response shows a similar low bass boost to that seen via the headphone output [see Lab Report, p77] while the A-wtd S/N ratio is just a little below average at 81dB (re. 0dBW). PM

ABOVE: Two RCA line inputs are joined by inset 4mm banana plug (speaker) sockets and an earth/grounding post. The 15V DC PSU input also feeds a 12V DC output to power the Huei phono stage [see picture, below]

extremely welcome, along with that warmth in the low bass, making everything sound generous and rich.

While this is true even through the highly-revealing Focal headphones, which are fairly unforgiving of brash or forward engineering, that doesn't mean the Anni is over-tempered. Play a high-quality recording of simple instruments, such as the recent Linn release of Margarita playing the first Saint-Saëns cello concerto [Linn Records CKD 662], and there's plenty of air in the sound, whether via headphones or the little Neat speakers. The solo instrument is treated to bags of timbral detail, with a real sense of the bite of the bow on the strings, and the precision and lyricism of the young cellist's performance.

CAN-DO ATTITUDE

Other headphone amps may throw even more information at you, but the Anni has an appealing mix of detail and ease of listening, and will flatter most headphones with which it's used, as I discovered when using a pair of budget in-ears of unknown provenance. I think they may have been an airport distress purchase at some stage, but they gained a useful dollop of substance when plugged into the Anni's 3.5mm output.

Yes, this may be a headphone amp with benefits, but it does seem to form a fine working partnership with the little Neat speakers, and I could easily see myself using it, along with a suitable DAC, for my day-to-day working background music. The only problem might be that the sound could prove too much of a distraction!

It's wonderfully clear and intelligible with the spoken-word broadcasts I enjoy via Roon's Live Radio service, but there are times when it makes music just a bit *too* interesting for background purposes. For example, with the Rembrandt Trio's gorgeous-sounding *A Wind Invisible Sweeps Us Through The World* [Just Listen Records JL024], the Chord Anni just throws the attention squarely on the sound of the instruments and the sheer quality of the performances.

ABOVE: The Anni slots into Chord's QSS (Qutest Stand System) along with the partnering Qutest USB DAC and, for vinyl fans, the Huei MM/MC phono preamp

HI-FI NEWS VERDICT

Is it a mini-amp with a fine headphone output, or a 'head-fi' design also capable of driving small speakers convincingly? However you look at it, Chord's Anni is a great choice for desktop audio with a sound tailored to flatter partnering equipment. It'll drive bigger, sensitive speakers at a push, but that's not its role – the Anni 'is what it is', to quote an overused cliché, and looks and sounds well-judged for its tasks.

Sound Quality: 83%

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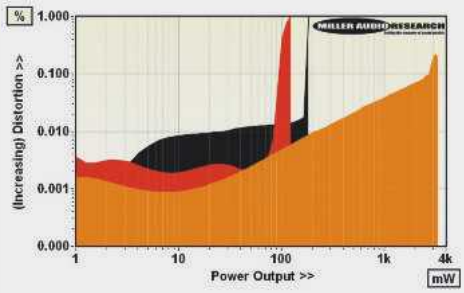
LAB REPORT

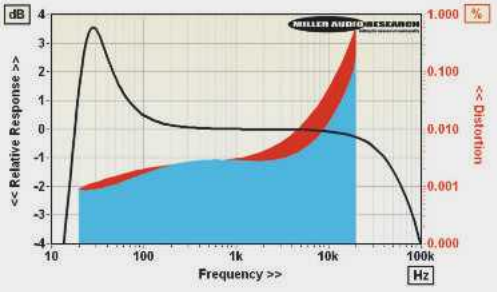
CHORD ANNI

Although Chord offers no specification for its Anni headphone amplifier – aside from a general implication that it leverages off existing, tried-and-tested Chord technologies – the test results are anything but 'ordinary'. Gain is fixed at a modest 5.2dB (x1.8) – a 550mV sensitivity (re. 0dBV) – but this does mean the max. 10.5V single-ended output is only possible from a 5.5V source. Likely? Not really, but as this equates to 184mW/600ohm [black trace, Graph 1 below] your ears will long since have melted. It's also the voltage-clip limit of 3.385W/32ohm [orange trace, Graph 1] – a massive figure and, again, significantly in excess of what's required by even the least sensitive headphones. Using a standard 2V line source, the Anni will deliver 125mW/32ohm which is already the limit of most portable USB headphone amps. Into very low impedance 'phones the Anni is current limited, although 124mW/8ohm [red trace, Graph 1] is generous enough.

Along with the prodigious headroom comes very low noise and an A-wtd S/N ratio of 96dB, improving the Anni's potential for use with very high sensitivity 'phones. The usefully low sub-1ohm source impedance also makes it relatively immune to the peaks and dips of a headphone's load while incurring a minimal 0.1dB signal loss into a standard 32ohm setting. The Anni's native response is tailored, however, with its gentle –0.3dB/20kHz treble roll-off being less significant than the +3.6dB/30Hz low bass boost [black trace, Graph 2]. Distortion, meanwhile, *is* influenced by loading, particularly at very high frequencies where it lifts from 0.0028%/1kHz and 0.17%/20kHz into 600ohm to 0.003%/1kHz and 0.85%/20kHz into 32ohm at equivalent voltage outputs [blue/red traces, Graph 2]. For a deep dive into the main and highly novel amplifier, see boxout [p75]. **PM**



ABOVE: Power output vs. THD into 600ohm (black), 32ohm (orange) and low 8ohm (red) headphone loads



ABOVE: Distortion versus frequency (0.6V unloaded, blue; 10mW/32ohm, red) and freq. response (black)

HI-FI NEWS SPECIFICATIONS

Maximum output (<1% THD)	10.5V (47kohm load)
Power output (<1% THD, 600/32/8ohm)	184mW / 3385mW / 124mW
Output Impedance (20Hz-20kHz)	450-600mohm
A-wtd S/N ratio (re. 0dBV)	95.9dB
Distortion (20Hz-20kHz, 0dBV)	0.0018–0.14% (unloaded)
Distortion (20Hz-20kHz, 10mW/32ohm)	0.0009–0.85%
Freq. resp. (20Hz-20kHz/100kHz)	+3.6 to –0.28dB/–4.0dB
Power consumption	10W (1W standby)
Dimensions (WHD) / **Weight**	160x43x97mm / 0.63kg