

Budget  
esoterica

HEADPHONE AMP/USB DAC

Battery-powered headphone amp/DAC  
Made by: iFi Audio, China  
Supplied by: AMR/iFi Audio (Abbingdon Global Ltd), Southport  
Telephone: 01704 543 858  
Web: www.ifi-audio.com  
Price: £599

AUDIO  
FILE

hi-finews  
HIGHLY  
COMMENDED

# iFi Audio xDSD Gryphon

Replacing both the xCAN and xDSD, iFi Audio describes the xDSD Gryphon as its most ambitious portable headphone amplifier yet. Is this another boost to the success story? Review: **Jamie Biesemans** Lab: **Paul Miller**

Since launching in 2012, iFi Audio has established a reputation for delivering affordable, compact, often portable audio products. And at some pace too – looking back over the past decade, it's hard not to feel overwhelmed by the number of devices the company has released. Not all are entirely 'new', because iFi Audio likes to 'tweak' its products, which is why the xDSD Gryphon tested here follows the EISA Award-winning xDSD DAC [HFN Jul '18], and also serves as a successor to the xCAN [HFN Feb '19].

True to form, the xDSD Gryphon is a (just about) pocket-sized unit packed with inputs, outputs and a few tone/eq features unique to iFi Audio, plus an internal battery allowing for operation on the go up to eight hours, depending on usage. Charging is via USB-C, but when connected to a computer you have the option of juicing the Gryphon via the same port or connecting a second USB charging device.

## ADDED X FACTOR

This DAC/amp looks a little sleeker than its predecessor, even though it's slightly larger. Luckily the size increase brought about by its larger battery has been put to good use with improved ergonomics. The centrally placed volume button is more user-friendly than that of the original xDSD, as are the controls – it's a lot less fiddly to switch inputs or engage iFi Audio's XBass II and XSpace functions, for example.

The xDSD casework now has a matt finish, so it's no longer a fingerprint fest, and build quality is excellent. Based on my own usage in the last few months, you can throw the Gryphon in a bag when you leave the house without worrying about it showing damage afterwards. Nonetheless, acquiring the optional suede-effect case from iFi Audio might be a good idea. At

215g the DAC/amp weighs about the same as a flagship smartphone.

A major new addition is the Gryphon's OLED screen, which appears to span the top of the device but doesn't actually make full use of all that real estate. During operation this display shows the selected input, volume level and the format of the incoming audio stream, and is bright enough to be viewed even in strong sunlight. Better than the colour-coded LED lighting scheme on the first-generation xDSD, or the glowing spheres of the rival Mojo 2 from Chord [HFN Apr '22]? Definitely.

Streaming via Bluetooth might be frowned upon by many audiophiles, but in the 'real world' it can be extremely useful. OK, it's not totally impossible to wander around with the xDSD Gryphon dangling from your smartphone via the supplied USB-C cable, but I'd expect most people will prefer the Bluetooth mode for casual,

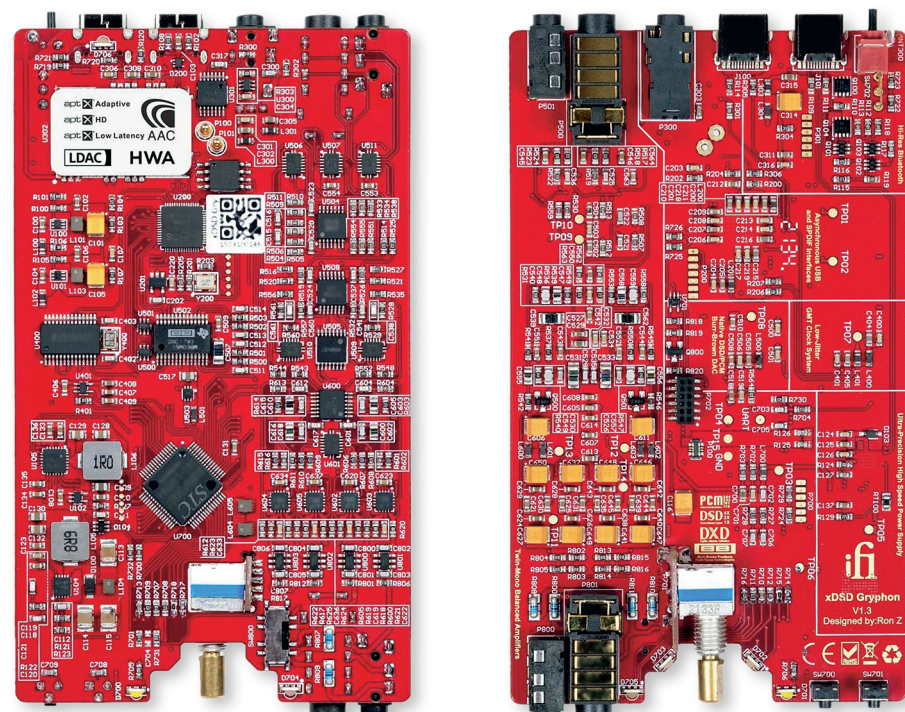
portable listening, and utilise the cable connection when at home.

However, until Qualcomm releases a chipset with lossless support – apparently in the works – Bluetooth will remain a lossy experience. At least iFi Audio seems determined to make it as high quality as possible, utilising the current top-spec QCC5100 silicon, and – crucially – the xDSD Gryphon supports an exceptional range of compression codecs. AptX HD and LDAC are the main, high-performance options, but even the HWA/LHDC codec, which supports

(lossy) 96kHz/24-bit, is included. Of course, this last one is only relevant if you happen to own a Huawei smartphone, which is a rarity nowadays in Europe and the US.

There are plenty of other input options – USB caters for hi-res audio from a computer or network transport, and there's an S/PDIF input too. If you want to use the device

'Richter has created a grittier "punk" performance'



**RIGHT:** Left PCB – Qualcomm QCC5100 Bluetooth processing [top left] is joined by USB/MQA XMOS processor [below] and Texas Instruments' DSD1793 DAC [centre] governed by custom clock [left]. Right PCB – high quality chip capacitors/resistors on underside



**LEFT:** Gryphon's slimline alloy case is light, rugged and features an OLED screen carrying a host of details, including battery life. Power/volume/menu dial is flanked by input and XSpace/XBass II processing plus 3.5mm and 4.4mm headphone outputs

terms of getting this compact DAC up and running. Opening Roon confirms iFi Audio's device is Roon Tested, as the software immediately recognises it and presents an xDSD icon in the interface. Plug and play, as it should be.

PM's boxout indicates the Gryphon ought not to be fazed by a demanding headphone, and my initial experiences with a Beyerdynamic DT 1990 Pro and Sennheiser HD 650, both connected via the balanced 4.4mm jack, supported this. The energy to present 'Franacapa' from Alessandro Quartra plays Astor Piazzolla [IAN Solutions LC30467; 96kHz/24-bit ALAC] in its full, fast-paced intricacy was certainly there on Sennheiser's difficult-to-drive HD 650, including the sustained low note played on a contrabass at the end of each main section.

Now, that note should really be even more physical, and while I was hitting the limits of the HD 650 itself, a quick comparison with a decidedly not-portable Ferrum OOR amplifier [HFN Dec '21] did reveal the headphone could unleash more. At the same time there's no need to labour this point, as the more affordable xDSD Gryphon certainly proved an able

purely as an amp, a third-party DAC can be hooked up via single-ended or balanced 4.4mm Pentaconn rear-panel connections. This is another departure from the past, as the earlier xDSD sported only digital ins. Around the front there's a similar dual-port arrangement of 3.5mm single-ended and 4.4mm balanced outputs.

## GOING NATIVE

For the Gryphon's digital side, iFi Audio is using the same DAC we saw in the £3249 Pro iDSD Signature [HFN Jan '22] but note that the latter contains four of the DAC chips in an interleaved configuration, not just one. Regardless, the 'True Native' design of the DAC (PCM and DSD files have discrete pathways), together with an XMOS microcontroller running iFi Audio's homegrown firmware, delivers first-rate

performance. The Gryphon's USB connection handles up to DSD512, PCM to 768kHz, and offers full MQA decoding. The S/PDIF inputs are necessarily capped at 192kHz.

In a further example of trickledown, the Gryphon's headphone amplifier is inspired by the dual-mono NEO iDSD desktop model [HFN Mar '21]. This focus on component tweaking is very much what iFi Audio seems to stand for and, in this instance, the xDSD Gryphon turns out to be more powerful [see PM's boxout, below].

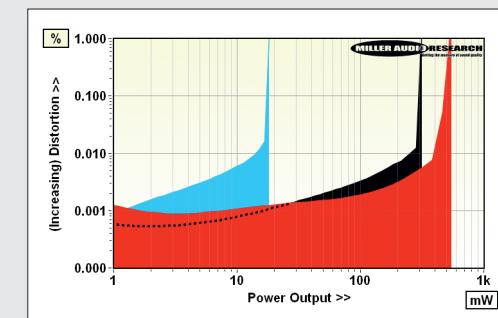
## PLUG AND PLAY

The bundled USB-C to USB-A lead was a little too short to connect the xDSD Gryphon comfortably to the rear ports on my iMac, but that small niggle aside, there's not much to grumble about in

## GRYPHON GROWL

When we tested the inaugural xDSD [HFN Jul '18] its performance marked a clear uplift on iFi Audio's earlier portable DAC/headphone amps, including the nano iDSD [HFN Dec '14] and 'Black Label' variant [HFN Apr '18]. It was also the brand's most powerful battery-powered amp – rated at 270mW/50ohm and 500mW/16ohm, it delivered a comparable 330mW/25ohm on test with 3.35V or 18.7mW/600ohm for high impedance headphones. Four years later the xDSD Gryphon, the xDSD's 1750mAh Lithium-Polymer battery replaced here with a 3600mAh cell for extra 'grunt' and +90g bodyweight, is rated at 320mW/32ohm. Again, on test, the xDSD Gryphon matches the xDSD's specification into high impedance loads with 3.33V or 18.5mW/600ohm but its extra current capability delivers an uplift into lower, tougher headphone loads at 314mW/32ohm and a full 520mW/8ohm [see Graph, right].

The 500mohm output impedance is also usefully low, ensuring the xDSD Gryphon/headphone system response is largely unaffected by swings in load impedance – from -0.2dB/20Hz to -0.05dB/20kHz (without bass/presence shaping) out to -0.7dB/100kHz. But, in a further twist, the nested feedback regime adopted in the Gryphon ensures distortion is a fairly constant 0.004-0.006% (20Hz-20kHz) into 600ohm with a slight rise under load to 0.008-0.015% into 32ohm. Noise is low too with a residual of just -101dBV (9µV) and a S/N ratio of 101.5dB (re. 1V/32ohm), ensuring the xDSD Gryphon is both quiet with high sensitivity ear buds and lusty with low impedance cans. PM



**ABOVE:** Headphone power output into 600ohm (blue), 32ohm (black) and 8ohm (red)





**ABOVE:** The xDSD Gryphon provides single-ended (3.5mm) and balanced (4.4mm) sockets that act as inputs in analogue headphone amp mode and as line outs in DAC/preamp mode. One 3.5mm S/PDIF and two USB-C inputs serve digital in and battery charging, respectively, with bass/presence response shaping toggled nearby

partner. In contrast, the original xDSD handles this track with the Sennheiser headphone competently but with less authority.

### BASS INVADER

I rarely experiment with bass lifting functions, but iFi Audio's XBass II analogue processing is the exception, as it manages to narrowly boost lower frequencies without suppressing the lower midrange. Its effect is enjoyable too, ensuring the incessant beat drone on 'Release' by Kelly Lee Owens [LP.8, Smalltown Supersound STS394; 48kHz/24-bit FLAC] dominated the track without darkening it.

I wouldn't engage XBass II with every model of 'phone, but it did make some presence-focused Final Audio B1 in-ears more to my liking. As expected, on a bass-oriented headphone, such as Sony's MDR-Z7M2, the processing can be a bit too much. Approach with care!

XSpace, a crossfeed function for a loudspeakers-in-the-room listening effect, is more of mixed bag. According to iFi Audio it adds a 'cavernous soundstage' to recordings, which happens to be an accurate description. It does conjure a sense of grandeur, but this often comes at the expense of natural tonality. For example, 'Armee Der Tristen', from Rammstein's recent *Zeit* album [UMG 0602445085019; 48kHz/24-bit FLAC], sees a midrange lift with XSpace engaged. Not a bad thing *per se*, but noticeable with guitar-driven music.

It was with the Final IEMs I pondered if composer Max Richter really needed to re-work his controversial *Vivaldi: Recomposed* album from 2012. Listening through the B1, which the xDSD Gryphon

drove nicely without a trace of background hiss, it turns out, that, yes, *Vivaldi Recomposed (2022)* [DG 4862468; 96kHz/24-bitFLAC] is at least a worthwhile effort. Returning to period instruments, Richter has created a grittier performance – a 'punk rock sound' – which the DAC/amp painted intensely and richly. It was possible to focus on the strings in the background of 'Spring 3' and discover a lot of texture, getting a real sense of the character of these Baroque era instruments.

### SOUNDS OF SUMMER

That said, it was the tempestuous violin playing from Elena Urioste which really grabbed my attention. The sheer speed and accuracy delighted here, while at the same time the xDSD Gryphon DAC/amp avoided presenting it in too penetrating a fashion. Even the violin finale 'Summer 3', which the DAC resolved so finely you get the impression the violin strings are ready to snap, stayed away from jarring brightness. ☺

### HI-FI NEWS VERDICT

The xDSD Gryphon possesses an admirable combination of useful features and superb sound, all at an affordable price. Comprehensive Bluetooth support, proprietary eq modes, plus a balanced output, make it as well suited for those seeking an on-the-go upgrade as for audiophiles feeding demanding headphones at home via their hi-res library. iFi Audio's impressive track record continues...

Sound Quality: 84%

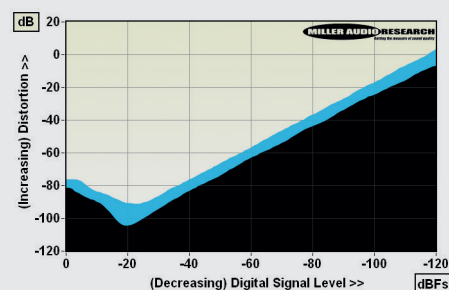


## LAB REPORT

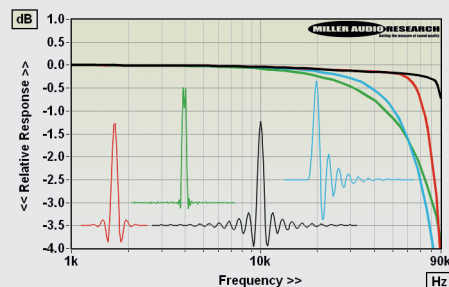
### IFI AUDIO XDSD GRYPHON

Our boxout [see p81] includes a full exploration of the xDSD Gryphon's headphone amplifier while this lab report is devoted to its USB input/line output performance. In practice, the xDSD Gryphon clips at volume setting '103' (re. 0dBfs), the optimum maximum being '101' which yields a 2.28V output from a 144ohm source impedance with a usefully wide 106.7dB A-wtd S/N ratio. The underlying digital/line performance is very good, the DSD1793 DAC delivering a low 0.00045% distortion at –20dBfs/1kHz, increasing to just 0.0025%/20kHz at the same level [see Graph 1, below]. Jitter is as low as we've seen in any high-end DAC solution – less than 10psec at all sample rates via the USB-C input – while low-level resolution is good to within ±0.1dB over a full 100dB dynamic range. One oddity – in *line* output, 'XBass II' brings about a +4.3dB boost at 1.2kHz...

As ever, the selection of digital filters is a trade-off between stopband rejection, frequency response and time domain distortions. There are four rather than the three filters mentioned in iFi Audio's manual – the 'Std' filter [black traces, Graph 2] is a linear phase type offering a stopband rejection of 53dB and the flattest response here at –0.2dB/20kHz with CD/48kHz media and –0.7dB/90kHz with 192kHz media. 'GTO' is a minimum phase type [blue traces] dropping to –5.4dB/90kHz and offering a mere 12dB stopband rejection while 'Min' [red traces] is actually a very slow roll-off *linear* phase filter reaching –3.2dB/20kHz and –4.4dB/90kHz with minimal time domain distortion but a poor 7dB stopband rejection. The 'BP' option [green traces] offers no upsampling or digital filtering at all and rolls-away early to –3.2dB/20kHz with 48kHz media but is flatter to –3.9dB/90kHz with 192kHz files. PM



**ABOVE:** Dist. vs. 48kHz/24-bit digital signal level over a 120dB dynamic range (1kHz, black; 20kHz, blue)



**ABOVE:** (High) frequency/impulse Filter responses [Standard, black; Min, red; GTO, cyan; BP, green]

### HI-FI NEWS SPECIFICATIONS

Maximum output (re. 0dBfs into 47kohm)	2.28V (unbalanced line out)
Max. power output (re. 0dBfs into 32ohm)	314mW (headphone out)
Output Impedance (20Hz-20kHz)	490-510mohm (headphone)
A-wtd S/N ratio (0dBfs; re. line/10mW)	106.7dB / 100.8dB
Distortion (20Hz-20kHz, line/ re. 10mW)	0.009-0.013%/0.008-0.015%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0 to –0.2dB/–0.4dB/–0.7dB
Digital jitter (48kHz/24-bit data)	<10psec
Power consumption	3600mAh battery
Dimensions (WHD) / Weight	75x19x123mm / 215g