iDSD Diablo 2: Revel in the details

**Dressed in devilish red, iFi’s new premium-level portable DAC/headphone amp sports a supremely powerful engine under the hood, expertly tuned to deliver an exhilarating sonic performance**

***Southport, England, November 13, 2023 –* In January 2021,** [**iFi**](https://ifi-audio.com/) **introduced its best-ever battery powered DAC/headphone amp: the indomitable iDSD Diablo. Engineered to sit proudly at the top of the company’s illustrious range of mobile and transportable devices, the Diablo was built for purists— true headphone enthusiasts who crave pure, unadulterated sonic performance. Since then, iFi’s industry-leading design team raises the bar once again. iFi is now proud to launch the iDSD Diablo 2, ready to capture the musical souls of headphone lovers everywhere with its devilish power and heavenly sound. The iDSD Diablo 2 is now available from selected retailers starting for $1,299.**

The iDSD Diablo 2 has been thoroughly redesigned inside and out, building on the performance-tuned design philosophy and prodigious power of its predecessor’s amp stage with technical advances across the board. While similar in size to the original it is more transportable than pocket sized, and its versatility has been enhanced too; while the original Diablo focused solely on cable connectivity from the source device, the Diablo 2 adds the latest generation of iFi’s famous Bluetooth engine, complete with aptX Lossless support. This makes it the world’s first portable DAC/headphone amp capable of processing lossless Bluetooth audio – the convenience of wireless connectivity delivered with the best possible sound quality.

Diablo 2's new aluminium enclosure is boldly coloured red and sports an eye-catching new grooved design dressed in a new shade of metallic crimson. The 22 grooves aid with thermal dissipation and 8 of which are compatible as rails for the devilish ‘wings’ supplied with the iDSD Diablo 2. These detachable appendages act as a desk stand and can be positioned in different ways, allowing the Diablo 2 to be placed horizontally or vertically.

**DAC’s entertainment**

The iDSD Diablo 2’s digital stage incorporates a Burr-Brown DAC chip that iFi uses extensively, selected for its natural-sounding ‘musicality’ and True Native architecture. Two of these chips are installed in a custom ‘interleaved’ configuration, enabling four pairs of differential signals (two pairs per channel). This lowers the noise floor, improves channel separation and enhances the DAC’s ability to resolve fine musical detail and micro-dynamics.

The iDSD Diablo 2 also incorporates a 32-bit, 16-core XMOS Cortex microcontroller to optimise sound quality and unlock the full potential of the Burr-Brown DAC chip. Extensive jitter-eradication technologies are also applied, including the latest version of iFi’s GMT (Global Master Timing) femtosecond-precision clock and smart storage cache. This combination of technologies forms the basis of a proprietary ‘digital engine’ that is unique to iFi.

**Every format at the highest quality**

Hi-res audio support is state-of-the-art handling PCM data to 32-bit/768kHz and all levels of DSD to 22.5792MHz (DSD512). With the Burr-Brown DAC chip’s four-channel True Native design, PCM and DSD take separate pathways – this enables DSD, as well as PCM, to remain ‘bit-perfect’ in its native form right through to analogue conversion. MQA ­is supported, with full decoding/upsampling of MQA files right up to the format’s highest 384kHz specification. The iDSD Diablo 2 also includes iFi’s newly redesigned Bluetooth module, making it the first portable device that supports Bluetooth version 5.4 as well as aptX Lossless— the first Bluetooth audio format capable of streaming CD-quality (16-bit/44.1kHz) audio ‘losslessly’.

In addition to aptX Lossless, a full suite of Bluetooth formats is supported, including aptX, LDAC, HWA/LHDC, AAC and SBC. This means that every source device is covered at the highest resolution its Bluetooth specification allows. iFi’s Bluetooth module can also be updated over-the-air, so further codecs may be added as they emerge in the future. iFi’s NEO iDSD 2 was the world’s first DAC to include aptX Lossless decoding; now, the iDSD Diablo 2 becomes the first portable DAC to do so, benefitting from iFi’s close collaboration with Qualcomm to ensure the format’s benefits are maximised. The Diablo 2 stores up to eight paired Bluetooth source devices in its memory, making it easy to switch between them.

**Powerful amplification delivers musical gratification**

High-bandwidth power supply circuity is dedicated to each critical part of the iDSD Diablo 2’s design, with independent linear regulation delivering excellent PSRR (Power Supply Rejection Ratio) performance. The headphone amp stage eschews IC regulators in favour of Panasonic OS-CON capacitors, delivering 2320uF between them. The DAC section benefits from an ultra-low-noise regulator with additional passive filtering, reducing high order harmonic distortion and, in turn, jitter. Even the USB input stage benefits from dedicated regulation and multi-stage filtering, and the microprocessor control circuitry (often a local source of digital noise) has separate regulation too.

Able to drive all manner of headphones with ease from highly sensitive in-ear monitors to current-hungry planar headphones, the iDSD Diablo 2’s amp stage delivers prodigious power, propulsive energy and engaging dynamics, coupled to a remarkable ability to resolve fine texture and detail. With output power of 5,180mW/12.9V into 32 ohms and 611mW/19.2V into 600 ohms through its 4.4mm balanced output, the Diablo 2 has more power to drive the toughest headphone loads than any other portable DAC/headphone amp on the planet.

The amp stage offers three gain settings to suit the drive requirements of the connected headphones or IEMs. The default mode is Normal (0dB); from there you can step up to Turbo (+8dB) or Nitro (+16dB). There is also an IEMatch attenuation mode—useful with super-sensitive IEMs, removing potential background noise and increasing the usable volume range. Volume is controlled by a high-quality analogue potentiometer, which delivers superior sonic transparency compared to chip-based volume controls and can be locked in place to avoid accidental adjustment.

**Excelling with xMEMS**

xMEMS is a new solid-state micro-speaker technology with the potential to revolutionise the headphone/IEM market, utilising a micro-electromechanical systems (MEMS) manufacturing process that blends semiconductor technology with moving parts. xMEMS micro-speakers are voltage-driven, rather than current-driven, which means they have special requirements of an amplifier. A silicon diaphragm combines with a piezoelectric layer to create a tiny speaker capable of phase and transient response far superior to conventional moving-coil drivers, with remarkable high-frequency fidelity. Earlier this year, iFi released the world’s first DAC/headphone amp with an output mode optimised for xMEMS— a limited-edition version of the original iDSD Diablo called the Diablo-X. This technology has transferred to the next-generation iDSD Diablo 2, with bias voltage, EQ and amp circuits dedicated to make the most of headphones/earphones that use xMEMS drivers – the first of these are now arriving (such as Singularity’s ONI IEM) and more will emerge over time, so this mode is all about cutting-edge futureproofing.

**PureWave – exemplary circuit design for the purest sound**

The digital stage is only half the story in any DAC/headphone amp; when it comes to the crucial analogue circuitry, many such devices fall short. Since launching the Pro iCAN headphone amplifier in 2016, iFi has gradually introduced balanced circuit designs of various levels of sophistication across its range. The original iDSD Diablo introduced a new twin-mono topology, fully balanced from input to output – iFi calls this level of circuit design ‘PureWave’, referring to the sonic purity it achieves thanks to exceptional linearity and infinitesimally low levels of noise and distortion.

PureWave circuits are highly sophisticated in design and implementation, incorporating premium-quality components, and are therefore reserved for the upper tiers of iFi’s DAC and amplifier range. The iDSD Diablo 2 features the latest generation of iFi’s PureWave design, further enhanced to elevate audio quality and headphone amp power.

**OptimaLoop – negative feedback that is purely positive**

Another important aspect is the iDSD Diablo 2’s direct-coupled circuit design, achieved without a conventionally applied DC servo – iFi calls this design Servoless Direct Drive. Many hours of listening tests, alongside rigorous analysis in the lab, has determined the optimum circuit design to deliver maximum musical enjoyment.

Recognising that different parts of a circuit benefit from specifically optimised feedback loops, iFi has developed a negative feedback system that is much more accurate than the usual approach. This incorporates multiple feedback paths instead of one global loop, each path optimised for a particular function and working synergistically with the others to deliver optimal overall performance. Developed for the original iDSD Diablo and further refined for the Diablo 2, iFi calls this configuration OptimaLoop.

To enable the iDSD Diablo 2’s powerful amplification and a long life between charges, a high-capacity 4800mAh lithium-ion battery is built in. The Diablo 2 can also be used when connected to the mains via the bundled iPower 2 – much more than just a mains charger, this AC/DC adapter contains active noise cancellation circuitry that benefits the Diablo 2’s sonic performance when powered by mains electricity.

**A premium portable package**

The iDSD Diablo 2 comes with a generous accessories pack, as befits its premium status. Along with the ultra-low-noise iPower 2 AC/DC adapter and associated USB-C charging cable, three digital audio cables are supplied: a USB-C OTG cable for smartphones and other portable devices, a longer USB-C cable for PCs/Macs, and a Lightning to USB-C cable for iOS devices equipped with Apple’s proprietary connector.

Various adapters are included for different connector types: USB-C to USB-A (to connect the USB-C cable to source devices with USB-A outputs); 3.5mm to Toslink (to convert the iDSD Diablo 2’s S/PDIF input to Toslink optical); and a 3.5mm to 6.3mm headphone adapter. The wing-style appendages that serve as a devilishly clever desktop stand are also supplied, together with a premium-quality travel case to protect the Diablo 2 and keep everything neat and tidy.

To read more about the product please click the attached document.

For more information, please visit— <https://ifi-audio.com/>

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| **AT A GLANCE – iDSD DIABLO 2 KEY FEATURES** |
| GENERAL |
| Powerful, responsive, fluid and detailed – the iDSD Diablo 2 delivers a bewitching sonic performance |
| Multiple operational modes: DAC/headphone amp, pure DAC, analogue headphone amp |
| Powered by battery or mains – iPower 2 power supply with active noise cancellation included |
| High-capacity lithium-ion battery permits remarkable amp power and hours of portable use between charges |
| Supplied with multi-position desktop stand, custom-made travel case and an array of cables and adapters |
| DIGITAL SECTION |
| Custom ultra-resolution DAC stage with dual interleaved True Native DAC configuration and advanced XMOS processing |
| Extensive jitter reduction – enhanced GMT femto-precision clock and smart storage cache |
| State-of-the-art HD Bluetooth 5.4 with aptX Lossless – fully optimised performance, whatever your source device |
| ANALOGUE SECTION |
| Enhanced PureWave fully balanced twin-mono circuit design delivers ultra-low noise and distortion |
| Remarkable amp power – drives the toughest headphone loads with consummate ease |
| Technologies such as Servoless Direct Drive and OptimaLoop elevate performance to the highest level |
| Top-grade audiophile circuit components and sophisticated power supply design ensure exceptional sonic purity |
| Three gain settings and IEMatch ­­– tailor amp power and performance to match your headphones or IEMs |
| Custom bias, EQ and amp circuits for next-generation xMEMS headphone driver technology |

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| **AT A GLANCE – iDSD DIABLO 2 KEY SPECIFICATIONS** | |  |
| **Maximum file resolution** | 32-bit/768kHz PCM; native DSD512; full MQA decoding to 384kHz | |
| **Bluetooth format support** | aptX Lossless; aptX Adaptive (aptX, aptX HD, aptX LL); LDAC; HWA/LHDC; AAC; SBC | |
| **Audio inputs** | USB–C; coaxial/optical S/PDIF; 4.4mm balanced analogue | |
| **Audio outputs** | 4.4mm balanced headphone; 6.3mm headphone; 4.4mm balanced line-level | |
| **Headphone gain settings** | 0dB; +8dB; +16dB; -12dB (IEMatch) | |
| **Headphone power – 4.4mm** | >19.2V/611mW (@600Ω); >12.9V/5180mW (@32Ω) | |
| **Headphone power – 6.3mm** | >9.6V/153mW (@600Ω); >8.9V/2450mW (@32Ω) | |
| **Headphone power – xMEMS mode** | 28Vpp, 22Ω, 10-14V DC bias | |
| **Battery life (4800mAh)** | 6-12 hours, depending on headphone sensitivity, volume and gain mode | |
| **Dimensions and net weight** | 166x85x28.5mm; 455g | |