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iFi Audio Micro iDSD Black Label portable headphone amp, preamp, and DAC

by Chris Martens

Fi Audio is a spin-off from the well-respected British high-end audio company Abbingdon Music Research (or AMR for short). Leveraging design know-how drawn from AMR, the iFi team has set as its mission the creation of compact, beautifully made, and decidedly affordable audio components that in most ways capture the essence of the AMR sound, but at Everyman prices. Thus far, iFi Audio's efforts have succeeded brilliantly.

When *Hi-Fi+* reviewed iFi Audio's original Micro iDSD headphone amp, preamp, and DAC back in 2014 we said it was "possessed of more clever, creative, and forward-looking features than just about any other product of its size, type, or price."

That's still true today, but now the Micro iDSD has evolved into a significantly improved new Micro iDSD Black Label Edition (£549/\$549), which sports updated parts on the inside and a distinctive satin-finished, "none more black" chassis exterior. Like its predecessor, the Black Label seems the very definition of what a 'do-it-all' product should be, which means reviewers face the daunting task of describing the device's many features, functions, and capabilities within the tight confines of a print review. I'll do my best, but please bear in mind I've got a lot of ground to cover.

As our review title suggests, the Micro iDSD Black Label serves as an accomplished high-resolution/multi-format DAC, and as a powerful headphone amp/preamp. Let's begin by looking at the Black Label's DAC functions.



At the centre of the Black Label are its dual-core Burr-Brown DSD512/PCM768/2xDXD True Native® DACs. According to iFi, the True Native device was, "one of the last chipsets from Burr Brown Japan," and was, "Burr-Brown's 'swansong' and embodied all their converter technology. It is unrivalled in terms of subjective musicality..." To support the Burr-Brown chipset, the iDSD Black Label incorporates upgraded digital signal and digital power sections, plus an Abbingdon Music Research Global Master Timing femto-precision clock system said to offer extremely low phase-noise and jitter. Reflecting iFi's depth of digital audio experience, the Black Label also incorporates a side-mounted digital filter switch with options labeled Standard, Minimum Phase, and Bit-Perfect. When the DAC plays DSD files, those three settings instead stand for Standard, Extended, and Extreme filters, while DXD files automatically default to the Bit-Perfect setting.



▶ The headphone/preamp section of the Black Label is based on special German OV-series ('Operationsverstärker') op-amps that, says iFi, "use HCOFC copper lead-frames and 4N Gold bond-wires, which are streets ahead of mainstream commercial chips that use inexpensive aluminium bond-wire, and low-grade/low-cost copper in the lead-frames." Supporting these op-amps are very high quality signal path parts sourced from MELF, COG, Sanyo/Panasonic, and others. In particular, iFi is proud of the Black Label's Sanyo/Panasonic OS-CON capacitors—devices typically found only in far more costly full-size components, such as AMR's CD-77 Reference CD Processor. Finally, the Black Label features revised analogue signal and power sections.

iFi's goal is for the Micro iDSD Black Label to be powerful enough to drive even extremely power-hungry full-size headphones, but also quiet and revealing enough for use with ultra-sensitivity custom-fit in-ear monitors, and

everything in between. To this end, the Black Label features a side-mounted Power Mode switch offering Eco (low power), Normal (medium power), and Turbo (high power) output modes. Then, to provide even finer gradations of output control, the Black Label sports a bottom-mounted iEMatch switch that comes into play only when the main Power Mode switch is set in the Eco position. Then, iEMatch offers users three fine-tuning settings labeled Off (the default setting), High Sensitivity, and Ultra Sensitivity. In this way, users can make subtle adjustments to match the amp's gain and output characteristics to fit the requirements of whatever headphones, earphones, or CIEMs are at hand.

As a further sonically important touch, the Black Label provides a side-mounted Polarity switch that controls the absolute phase of the amp's outputs. The effects of this switch aren't always obvious on all recordings, but on some the right polarity setting can make for a big leap in perceived realism. Last but not least, the iFi offers a bottom mounted output switch with settings for Direct fixed DAC-level outputs or for preamplifier variable-level outputs.

The Micro iDSD Black Label features revised versions of the firm's signature 3D and XBass functions—now called the 3D+ and XBass+ circuits. The 3D+ function provides two separate circuits, one optimized for headphones and the other for loudspeakers; there is context sensitive auto-switching to invoke the appropriate circuit depending on whether the Black Label is being used as a headphone amp or as a preamp/DAC. The XBass+ function in turn provides a judicious touch of bass enhancement that gives more deeply extended and also tighter bass response. Having worked with iFi's earlier iterations of the 3D ▶



▶ and XBass circuits, I can confirm that the 3D+ and XBass+ versions are audibly subtler and more refined than their predecessors, meaning they have become features even finicky audiophiles might now wish to use.

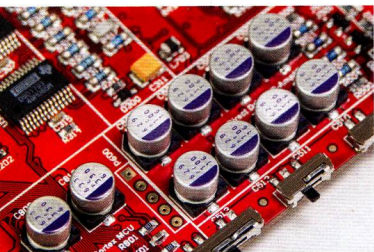
The Black Label sports an intelligent combination optical/coaxial S/PDIF input/output jack (rear panel), a USB 2.0 'OTG' port (also on the rear panel), and 3.5mm stereo analogue input (front panel). It also offers the aforementioned combo S/PDIF coaxial/optical input/output jack, set of stereo analogue output via RCA jack (rear panel), and a 6.35mm headphone output jack (front panel). As a convenience touch, the Black Label provides a side-mounted USB fast charging port (1.2–5V @ 1.5A) for topping off the charge on smartphones, etc. The Black Label's user controls are simple and elegant, comprising on/off toggle switches for the aforementioned 3D+ and XBass+ circuits plus a rotary on/off switch and precision analogue volume control (both found on the front panel). Finally, there is a small, top-mounted, multi-function/multi-colour pilot light that indicates battery charge status when the unit is hooked up to a USB charger, but that indicates digital audio formats and resolution levels when the Black Label plays music from digital sources.

To put the Micro iDSD Black Label through its paces in my listening tests, I connected it to a Windows/River Media Center-based music server loaded with a mix of standard and high-res PCM, DXD, and DSD files. To test the amp's versatility, I used it with three sets of transducers: the very low-sensitivity HIFIMAN Susvara planar magnetic headphones, the moderately sensitive MrSpeakers ETHER Flow planar magnetic headphones, and the extremely sensitive JH Audio Lola custom-fit in-ear monitors.

From the outset, the Black Label offered the smooth, engaging, and highly musical presentation we've come to expect from iFi and AMR components, but with a significant twist. Specifically, the Black Label offered audibly

enhanced transient speed, definition, clarity, and resolution vis-à-vis the iFi models that preceded it. As a result the Black Label breaks with past iFi tradition in a good way, offering a sound that finds the just-right balance point between natural warmth and inviting musicality on the one hand, coupled with dramatic levels of focus, detail, and transient agility on the other. Musically speaking, this combination of sonic virtues is simply intoxicating.

Let me cite two tracks that showed the level of performance of which the Micro iDSD Black Label is capable. The first is 'No Apology' from composer/guitarist Janet Feder's album *THIS CLOSE* [Blue Coast, DSD64], primarily featuring Feder's guitar accompanied by simple percussion, and captured in a rich, reverberant space. On all my test headphones, but especially the HIFIMAN Susvara, the Black Label unlocked the intricate transient sounds and rich harmonics of Feder's guitar along with the dry, soulful 'skin sounds' of the percussion accompaniment, both presented with the oh-so-rare combination of crystalline clarity and natural organic warmth. Moreover, the recording conveyed an uncanny sense of ▶



▶ space while neatly overcoming the tendency headphones sometimes have of trapping the sound 'inside the listener's head'. Best of all, the Black Label's Power Mode and iEMatch switches let me tune the amp's output to take full advantage of all three of my test transducers.

Next let me reference the track 'Celestial Echo' from Malia and Boris Blank's album *Convergence* [Verve, 16/44.1], which highlights Malia's airy and breathy-sounding vocals as set against the almost brooding backdrop of atmospheric synth passages interspersed with periodic very low frequency bass passages. What struck me was the Black Label's ability to 'float' Malia's voice in the open air, while at same time delivering the sometimes very sharp attack of synth notes plus the deep-plunging low bass comments, which were supplied with terrific pitch definition and satisfying weight and gravitas. Candidly, I have heard this track played through full-size desktop headphone amp/DAC with four-figure price tags, and I can say with absolute confidence that the portable Micros iDSD Black Label can and does stand tall in their company, which is pretty remarkable.

I'm often asked by headphone newcomers to recommend headphone amp/DACs that are 'not too expensive', but that also offer very serious high performance. Judging by the performance I observed from iFi's Micro iDSD Black Label, it perfectly fits that bill—and then some. +

TECHNICAL SPECIFICATIONS

Type: Battery/USB-powered headphone amplifier, preamplifier, and high-res DSD and DXD-capable DAC

Inputs: Combination coaxial/optical S/PDIF input/output jack, USB-2.0 'OTG' port with built-in iFi iPurifier technology, and One 3.5mm stereo analogue input.

Outputs: Coaxial S/PDIF jack (uses 'Intelligent S/PDIF jack for input and output), 6.35mm analogue headphone output jack, One stereo analogue output (via RCA jack) with switch selectable fixed or variable-level outputs, and One USB-type 'Smart Power' socket suitable for charging iPhones

Digital formats and data rates supported (all native):

DSD: 512/256/128/64 at rates of 24.6/22.6/12.4/11.2/6.2/5.6/3.1/2.8 kbps

DXD: 2x/1x at rates of 768/705.6/384/352.8 kHz

PCM: Supports rates of 768/705.6/384/352.8/192/176.4/96/88.2/48/44.1kHz

Filters:

DSD: three switch-selectable analogue filters (Extreme/Extended/Standard Range)

DXD: fixed analogue filter (Bit-Perfect Processing)

PCM: three switch-selectable digital filters (Bit-Perfect Processing/Minimum Phase/Standard)

DAC Dynamic Range: >117 dB

DAC Distortion: <0.003% THD + Noise

Jitter: Below AP2 test set limit

Headphone Amp Power Output: three switch selectable modes, as below.

Turbo Mode: 1560 mW @ 64 Ohms, continuous

166mW @ 600 Ohms, continuous

10V/4000 mW @ 16 Ohms, peak

Normal Mode: 950 mW @ 64 Ohms, continuous

100mW @ 300 Ohms, continuous

5.5V/1900 mW @ 16 Ohms, peak

Eco Mode: 250 mW @ 16 Ohms, continuous

2V/500 mW @ 8 Ohms, peak

Headphone Amp Dynamic Range: >115dB

Headphone Amp Distortion: <0.008% THD + Noise

Dimensions (HxWxD): 28 x 67 x 177mm

Weight: 310 grams

Price: £549

Manufacturer Information: iFi Audio

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