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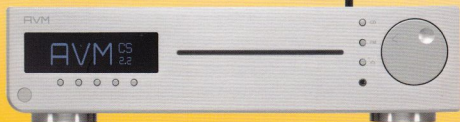
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iFi Audio Micro iDSD portable headphone amp, preamp, and DAC

by Chris Martens

What follows is a review of iFi Audio's remarkable Micro iDSD portable headphone amplifier/preamp/DAC (£415), which is without a doubt the most ambitious product the company has yet released. Moreover, one could argue that the stunningly versatile Micro iDSD is possessed of more clever, creative, and forward-looking features than just about any other product of its size, type, or price. How best, then, to summarise the many things the Micro iDSD can do? My suggestion is for readers to take a brief pause, to flip to the end of this review to scan the TECHNICAL SPECIFICATIONS for this product, and then to return to our normally scheduled review. I say this because the Micro iDSD does so many different things at such a high level of performance that the specifications panel might be the only way to grasp at a glance the full scope of the product's capabilities.

As mentioned, the Micro iDSD can serve in three capacities: as a high-performance and high-resolution multi-format DAC, as a powerful and flexible headphone amp, and as a (mostly) digitally-orientated preamplifier. Granted, there have been other products designed to fill this same basic design brief, so that iFi's basic product concept is not, itself, unique. What sets the Micro iDSD apart, however, is the sheer depth and comprehensiveness of its very elaborate features set. Stated simply, almost everything about the Micro iDSD seems geared toward pushing performance envelopes right to the cutting edge of technology, and to do so with a serious high-end company's practiced eye for selecting features that actually enhance sound quality (as opposed adding glitzy-sounding marketing gimmicks). High-end sonic values are well represented, too, as you would expect from a firm whose design know-how comes directly from Abingdon Music Research. As a result, there's a certain old-meets-new quality about the Micro iDSD that marks it as a product you can enjoy in the here and now, but that is—in ever-so-many ways—ready for tomorrow.

First, let's look at the Micro iDSD as a DAC. The Micro iDSD is a PCM, DSD, and DXD-capable DAC that uses a dual-core native DSD/PCM Burr-Brown chipset (two DAC chips; four channels; eight signals; custom interleaving). To reiterate, this means that for all supported digital audio file formats the Micro iDSD provides native decoding with no internal hardware format conversions of any kind. Next, iFi pushes the envelope by making the Micro iDSD capable of handling not only the highest resolution formats commonly available today, but also capable of even higher resolution formats that may appear in the future. Thus, the Micro iDSD not only handles single- and double-speed DSD files,

but also quad- and octa-speed DSD files—all with native processing. Similarly, it not only handles single-speed DXD files, but also double-speed DXD files. The pattern repeats itself with PCM files, where the iFi supports everything from 44.1 kHz/16-bit files all the way up to 768 kHz/32-bit files, and all PCM formats in between. Then, to further enhance performance, the Micro iDSD incorporates a built-in 'GMT femtoclock' for ultra-low jitter (<280 femtoseconds). As for inputs, the iFi support coaxial or optical S/PDIF (supporting rates up to 192 kHz) and provides an asynchronous USB port (supporting rates up to 768 kHz). Completing the picture are an extensive set of switch selectable filters (three for PCM files, three for DSD files, and one fixed filter for DXD files).

As has become the norm for products of this kind, the Micro iDSD requires no device drivers for use in Mac environments, but does require installation of an iFi-provided device ▶



▶ driver for use in a Windows environment. Actually, the term driver (singular) might be a bit of a misnomer since the Windows driver package includes a bundled set of four drivers (ASIO, WASAPI, Kernel Streaming, and Direct Sound), each with subtly different characteristics to the others.

If you pause for a moment and consider the preceding paragraphs, you might agree that the extensive features set described would more than do justice to any number of premium-priced DACs, which makes the fact that these features are found in a £415 DAC that much more impressive. Plainly, iFi Audio has poured cubic barrels full of 'midnight oil' into the design of this affordable but extremely sophisticated product.

Moving on, let's consider what the Micro iDSD has to offer as a headphone amp. For starters, note that the amp can be either USB-powered or battery powered, depending upon the exact start-up sequence that's followed. Interestingly, the Micro iDSD is fitted with a 'SmartPower' circuit that enables the amp, even when initialised for battery-powered use, to sense when it is connected to a PC and thus to 'top off' its batteries via the USB power lines to achieve longer playing times—especially when driving extremely power-hungry headphones.

Next, note that the iFi is one of the most powerful portable headphone amplifiers available, with maximum continuous output of 1,560 mW @ 64 Ohms, or peak output of 4,000 mW @ 16 Ohms. In practice, this means the pocket-sized Micro iDSD is actually capable of driving such power-hungry headphones as the HiFiMAN HE-6 with genuine authority. But iFi has also made provisions for owners of far more sensitive headphones, earphones, or custom-fit in-ear monitors (CIEMs). Thus, the Micro iDSD provides three switch-selectable 'Power Modes', which are—in descending order of power output and noise: Turbo Mode, Normal Mode, or Eco Mode. As a detail touch geared specifically for CIEM users, iFi also incorporates a function called 'EMatch' that offers three settings (Off, High Sensitivity, and Ultra-Sensitivity) to help fine-tune the amplifier's output characteristics to match the sensitivity of the listener's chosen in-ear monitors.

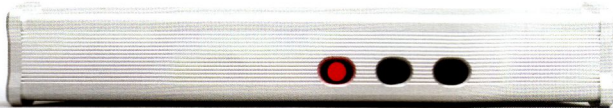
With audiophiles in mind, iFi includes a polarity control for the amplifier's outputs, plus two front panel-mounted mini-toggle switches that allow users to engage or disengage iFi's signature 'XBass' low frequency enhancement circuit or 3D Holographic sound circuit. Last but not least, the amp incorporates a side-mounted USB charging port that enables users to re-charge connected iPhones, etc. While iFi anticipates that the Micro iDSD will typically use its built-in DAC as its primary source, the unit also includes a front panel-mounted 3.5mm analogue input so that the amp can be fed signals from the headphone jacks of smartphones and such. Finally, as a savvy nod to those who might use the Micro iDSD either as a DAC or a preamp, there is a bottom-

"If you pause for a moment and consider the preceding paragraphs, you might agree that the extensive features set described would more than do justice to any number of premium-priced DACs, which makes the fact that these features are found in a £415 DAC that much more impressive."

mounted switch that provides either Direct (fixed output) or Preamp (variable output) control over the iFi's analogue outputs.

My point in supplying these details is to emphasize the fact that iFi has left no stone unturned in its quest to give the Micro iDSD a comprehensive and intelligent features set. Indeed, very few full-size, high-priced, tabletop DACs, amps, and preamps are as well-equipped as this affordable iFi is, which speaks volumes for the thoroughness of iFi's engineering team. One final point I should mention is that the Micro iDSD is thoroughly documented through both a useful set-up guide that ships with the unit, plus additional, supplementary information found on the iFi web site. Competitors would do well to study iFi's efforts in these areas and then to follow suit (if they are able).

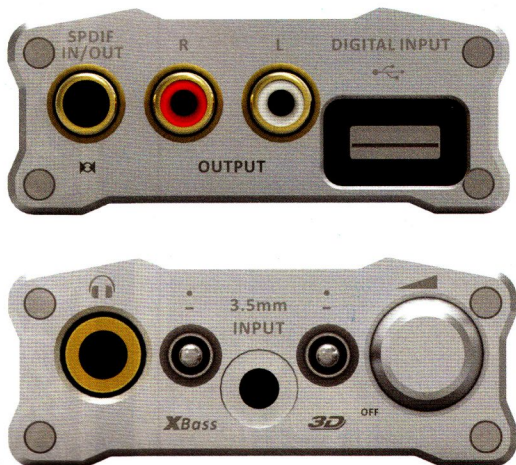
Sonically, the Micro iDSD reflects its Abingdon Music Research roots, which are made manifest through the unit's wonderfully natural, organic, and some might say 'holistic' sonic presentation. Where many contemporary digital audio products seem bent on achieving maximum delineation of ▶



musical elements at any price, the iFi takes a completely different tack, seeking instead to weave disparate musical elements into a coherent and unified (though decidedly not 'homogenised') musical whole. The benefits of this approach become apparent on many different types of music.

I put on the Michael Tilson-Thomas/San Francisco Symphony's recording of Mahler's Symphony No. 8 (or 'Symphony of a Thousand') [SFS Media], paying particularly close attention to the symphony's closing 'Blicket auf' and 'Alles Vergängliche' passages. There, in what is arguably Mahler's most challenging and spiritually aspirational finale, the interplay of the soloists, layered choral voices, horns, low percussion, and pipe organ coalesced in a rare and beautiful way to suggest through powerful waves of sound the experience of a soul reaching upward toward the heavens. This ability to put the musical pieces together and to show in an almost tactile way how individual musical threads relate to the larger tapestry is one of the Micro iDSD's greatest strengths and plainly it's a quality made possible through liberal application of AMR-inspired design DNA.

The iFi not only works its magic on large scale pieces where musical coherency is highly prized, but also in much smaller scale and perhaps more detail-orientated pieces. A good example would be Anne Bisson's cover of the Pink Floyd song 'Us and Them' from Bisson's *Portraits & Perfumes* [Camillo Records], which is a carefully crafted, close-mic'd studio recording that is full of sly and subtle textural elements that underscore the dark humour of the lyrics. Above, I said the iFi's sonic presentation does not centre on delineation of details, per se, which is true, but this does not mean that the Micro iDSD is lacking for resolution or focus. Rather, it means that the iFi (rightly, in my view) treats sonic details, textures, and transient sounds as but a handful of many possible means of achieving broader musical ends—not as ends in themselves.



As you listen to 'Us and Them', then, note how Bisson's voice takes on the ever-so-slightly sing-song quality of an off-kilter (or possibly deranged) carnival barker as she delivers the ominous line, "Listen, son/said the man with the gun/there's room for you/inside." The dark undertones of the passage are further emphasized as what initially sound like percussion instruments from a circus take on a subtle and then more forceful martial character. Again, it is not that the iFi draws your attention to any one musical element, but more that it expertly combines elements in a brilliantly understated way to support the thrust of the music.

As advertised, the Micro iDSD is, with the appropriate switch settings, quiet and subtle enough to use with high sensitivity earphones (for example, my Noble Kaiser 10 custom-fit-in-ear monitors), yet with alternate switch settings can belt out full-tilt rock-and-roll through brutally difficult-to-drive full-size headphones such as the Abyss AB-1266. In my experience, no other portable amp/DAC save perhaps for Chord Electronics' superb (but nearly four times more expensive) Hugo can pull off this all-things-to-all-users act as well as the Micro iDSD can. You might wonder whether the iFi's myriad sound enhancement controls, such as its three PCM and three DSD filter settings, power mode settings, and polarity, XBass, and 3D Holographic sound circuit switches offer tangible benefits and the answer is that they do, though often in subtle, situation-specific ways.

I found that the best approach was to start with the power mode settings (experimenting to discover which setting best matched any given headphone or earphone), then to choose polarity and filter settings as appropriate for the music files being played, and finally to try the XBass or 3D settings to see if they added

anything beneficial to the mix. One further point is that it pays to experiment with running the Micro iDSD under battery power vs. USB power. In an absolute sense, I found battery power tended to produce a slightly more fine-textured and nuanced sound, though this was not an ironclad rule, so that experimentation and careful listening proved the order of the day. The main point is that the Micro iDSD gives listeners useful sonic options and plenty of them.

Industry friends and colleagues know I am a confirmed headphone/earphone enthusiast, so I am frequently asked if anyone makes a genuinely high-performance headphone amp/DAC that sells for under £500. In response to such inquiries, I have—over the past several months—found myself recommending iFi's Micro iDSD to more and more listeners. The reasons for this are simple. Few other DACs (at any price) are more flexible or forward looking, and few other amps can convincingly drive as wide a range of loads as the iFi can. Add to this the iFi's elegant good looks, fine build quality, and solid documentation and you have the very definition of a product that does all things well, and for a price that is not just a bargain, but a gift. **+**

"I found battery power tended to produce a slightly more fine-textured and nuanced sound, though this was not an ironclad rule, so that experimentation and careful listening proved the order of the day. The main point is that the Micro iDSD gives listeners useful sonic options and plenty of them."

TECHNICAL SPECIFICATIONS

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

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

Outputs: Coaxial S/PDIF jack; 6.35mm analogue headphone output jack; One stereo analogue output (via RCA jack)

Digital formats and data rates supported: 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 768/705.6/384/352.8/192/176.4/96/88.2/48/44.1 kHz

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

Clock/Jitter: Ultra low-jitter GMT computer controlled Femto Clock provides <280 femtoseconds of RMS jitter, 12 kHz to 1 MHz

Headphone Amp Power Output: three switch selectable modes: Turbo Mode: 1560 mW @ 64 Ohms, continuous; 10V and 4000 mW @ 16 Ohms, peak; Normal Mode: 950 mW @ 64 Ohms, continuous; 5.5V and 1900 mW @ 16 Ohms, peak; Eco Mode: 250 mW @ 16 Ohms, continuous; 2V and 500 mW @ 8 Ohms, peak

Headphone Amp Dynamic Range: >115dB

Headphone Amp Distortion: <0.008% THD + Noise

Accessories supplied: USB cable with in-line power filter; One stereo pair of analogue interconnect cables; One 3.5mm – 3.5mm stereo analogue input cable; One 6.35mm to 3.5mm headphone adapter plug; One optical S/PDIF to TOSLINK adapter plug; One USB-A to USB-B adapter cable; One USB-A to USB-OTG adapter plug; One USB-B to USB-2.0 OTG adapter cable; One heavy duty USB-A to USB-2.0 OTG adapter cable; Fabric carrying pouch with drawstring closure; Four adhesive rubber feet; One rubber scuff pad; "11m An Octa-Adopter" logo sticker; and Two rubber straps for attaching phones or iPods to the Micro iDSD.

Dimensions (HxWxD): 28 x 67 x 177mm

Weight: 310 g

Price: £415

Manufacturer: iFi Audio

URL: www.ifi-audio.com

Distributed by: Select Audio

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