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IFI NANO
IDSD AND
iCAN - BIG
SOUND, SMALL SIZE



iFi Nano iCAN portable headphone amplifier

by Chris Martens

In high-end audio, context can be everything. Directly following this review, I have also prepared a review of iFi Audio's Nano iDSD portable DAC/headphone amplifier, in which I observe that the iDSD can be a very fine-sounding headphone amplifier *if*—and this is a big 'if'—it is used with the sorts of high-sensitivity headphones and earphones that it is capable of driving well. But this observation naturally invites a question: What happens if you want to listen through not-so-easy-to-drive headphones? The simple answer is that the iDSD runs out of sonic steam in such contexts, meaning you might want to consider using a more powerful auxiliary headphone amplifier such as iFi's portable Nano iCAN amp (£149), so as to have more sonic 'muscle' at your disposal.

"But hold on a second," I can hear the diehard specifications readers interjecting, "iFi says the Nano iCAN makes almost as much power as the Nano iCAN does, so what good will adding an iCAN do?" It's a fair question because iFi's published technical specifications claim the Nano iDSD's amp puts out about 130mW of power (at 16 Ohms), while the Nano iCAN's amp produces 150mW of power (at 32 Ohms). So, the iCAN is nominally the more powerful product, but not by so large a margin as to lead us to expect significant sonic differences, or so it might seem at first glance. However, in practice the Nano iCAN sounds demonstrably and substantially more powerful than the iDSD does, which is why I think it makes a terrific add-on—or a fine choice for those who need a good, versatile, low-cost portable headphone amp, whether they use portable DACs such as the iDSD or not.

Perhaps the easiest way to understand the Nano iCAN is to picture it as a portable model roughly half the size and less than half the price of iFi's bigger and more potent (but non-portable) Micro iCAN headphone amp. And, though the Nano iCAN offers less power output, it preserves many (perhaps even most?) of its bigger brother's sonic virtues. If you've read our *Hi-Fi+* review of the Micro iCAN (from issue 97), then you know we regard it very highly and consider it a benchmark in its price class.

The prospect of achieving very similar sound quality from a unit that's smaller, less expensive, and portable to boot can only be considered a good thing.



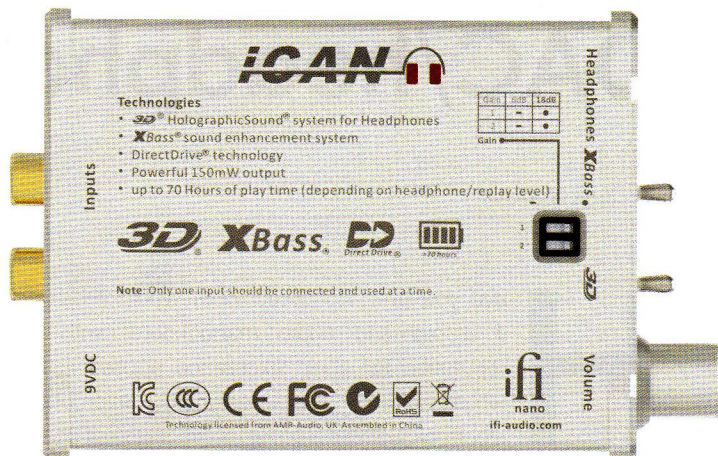
What is more, the iFi folks somehow managed to endow the Nano iCAN with almost all of the features of the bigger amp (albeit in a more streamlined form). For example, the Micro iCAN sported a two-position 'Xbass' low-frequency boost switch, which in the Nano iCAN has become a simplified single-position 'Xbass' switch. Similarly, the Micro iCAN offered a two-setting '3D' enhancement circuit that has been distilled down to a single-setting '3D' switch for the Nano iCAN. But, given that less is often more in high performance audio components, one might argue that the Nano iCAN's simpler control circuits work even more intuitively and actually sound better than the more complicated versions found in the bigger Micro iCAN.

Before delving into sonic qualities, let's do a quick tour of the Nano iCAN's features and functions. The little amp provides two stereo analogue inputs (one via RCA jacks, the other via a 3.5mm mini-jack), and a single 6.35mm TRS headphone jack. There are two tiny toggle switches for the aforementioned Xbass and 3D controls, plus a combination on/off switch and rotary volume control. A tiny, recessed, green LED serves as a pilot light, while on the bottom of the unit we find a pair of recessed DIP switches that allow users to select either +6dB or +18dB of master gain (the former setting is for high sensitivity earphones, IEMs, and headphones, while the latter is for more difficult-to-drive and/or power-hungry ▶

▶ headphones). Interestingly, iFi documentation indicates that, once the Nano iCAN's 1400mAh battery is fully charged, playing time is a stonking 70 hours, which means that—depending upon your listening habits—you might conceivably charge up the Nano iCAN before going on a long-ish trip and not really need to charge it up again until you got home. Pretty cool idea, no?

But now, let's shift our attention to the Nano iCAN's sound. To appreciate the qualities the Nano iCAN brings to the party I found it instructive to connect my reference Audeze LCD-3 planar magnetic headphones first (and directly) to the Nano iDSD DAC/amp and then to add in the Nano iCAN as an auxiliary amp for use with the iDSD. As you would expect, the iDSD was indeed able to drive the fairly demanding LCD-3s to a point, though without—to be honest—coming even remotely close to eliciting all the performance the LCD-3s have to give. When the Audezes were driven straight from the iDSD they sounded reasonably clear and articulate, but lacking in body, three dimensionality, natural warmth, and especially bass weight. In short, I was hearing all of the expected warning signs that the LCD-3 was simply 'too much headphone' for the iDSD to handle on its own.

But, the minute I added the Nano iCAN to the signal path, everything got better in a big, big way. Suddenly, the presentation sounded appropriately full-bodied, full of natural and organic weight and warmth, while dynamics became markedly more expressive and, when the music warranted, downright powerful. Candidly, the before/after difference was so great that the LCD-3 almost sounded like a different headphone with the Nano iCAN in play. Does this mean the iDSD has an inadequate or 'weak' amplifier? No, not at all. But it does mean the iDSD is fairly particular about the loads it can and can't drive well. The Nano iCAN's role, however, is to open up the playing field to help the iDSD (or any other portable source component) drive a much broader spectrum of headphones and earphones. This it does wonderfully well and with such good-natured grace and exuberance, refinement, and sophistication, that you may find yourself wondering how iFi managed to pack so much goodness into such a small case for just £149. Trust us: It's money well spent. +



TECHNICAL SPECIFICATIONS

Type: Battery or AC powered, portable headphone amplifier

Analogue Inputs: One stereo RCA, one stereo 3.5mm mini-jack

Analogue Outputs: 6.35mm TRS headphone jack.

Battery capacity: 1400 mAh, provides approximately 70 hours of playback time.

Headphone amplifier output: 150mW

Dimensions (H x W x D): 28 x 68 x 87mm

Weight: 160g

Price: £149

Manufacturer Information: iFi

URL: www.ifi-audio.com

Distributed by: Select Audio

URL: www.selectaudio.co.uk

Tel: +44(0)1900 601954

iFi Nano iDSD portable DSD DAC/headphone amplifier

by Chris Martens

Have you ever wondered what would happen if a high-end audio manufacturer with a reputation for sonic excellence applied itself wholeheartedly to designing affordable electronics for personal audio applications? As it happens, that very question has been answered by the British firm Abingdon Music Research, through its subsidiary brand iFi Audio.

iFi's first components were its compact, affordable, desktop-orientated Micro-series models that demonstrated an uncanny ability to channel many of the sonic virtues of AMR's full-size, high-end components. I reviewed the iFi Micro iCAN headphone amplifier in *Hi-Fi+* issue 97 and stated that it represented "a new benchmark in its price class and ... a perfect entry point for high-enders who would like to experiment with top-tier headphones, yet without investing an arm and a leg in dedicated headphone electronics." Lately, however, iFi has focused on developing an even more compact range of portable Nano-series models.

Given favourable past experiences with the brand, we decided to review iFi's new Nano iDSD portable DAC/headphone amplifier (£165) and Nano iCAN portable headphone amplifier (£149, reviewed elsewhere in this issue). Candidly, £165 is such a modest sum that many might question whether it represents a viable budget for something as sophisticated as a multi-format, DSD-compatible DAC. But if you set aside such 'it's-too-cheap-to-be-good' biases, you may discover, as I have, that the Nano iDSD can sound ridiculously good in many (though not all) listening contexts. In short, the Nano iDSD begs to be taken seriously.

The Nano iDSD's list of features and functions is extensive and impressive. For starters, the iFi is an asynchronous USB DAC that uses a BurrBrown DAC chipset to provide true native decoding for PCM files (44.1 – 384kHz, 16 – 32-bit), DXD files (352.8 – 384 kHz/24-bit), and DSD files at rates of 2.8, 3.1, 5.6, and 6.2MHz. The unit's high-speed asynchronous USB interface uses iFi's signature "Bit-Perfect" data transfer technology, backed by proprietary "ZeroJitter Lite" clocking technology. Finally, the Nano iDSD provides a useful 130mW headphone amplifier.



Inputs, outputs, and controls are simple and straightforward. On the rear panel, one finds a USB 3.0 (2.0 compatible) jack that is used for file transfers and battery charging, a coaxial S/PDIF digital output, and a standard/minimum phase digital filter selector switch (iFi recommends minimum phase settings for listening, but standard settings for test measurements). Out front, the Nano iDSD provides a stereo RCA analogue output, a 3.5mm headphone jack, and a control knob that doubles as a volume control and power switch.

The top panel of the Nano iDSD sports a tiny, multi-function, multi-colour LED that indicates formats and sample rates for files being played, connectivity status, and battery charging status. Unlike inscrutable DACs that refuse to tell you what they are doing, the Nano iDSD's status LED tells you exactly what's going on (once you learn its colour code, of course).

Unlike competing compact DAC/amps such as the Audioengine D1, Audioquest Dragonfly II, Resonance Labs Herus, or the upcoming Light Harmonic Geek Out, the Nano iDSD incorporates a 1400mAh Lithium-polymer battery and thus can be USB or battery powered. Users select their preferred power mode by following specific start-up sequences. By switching on the DAC before connecting ▶

- ▶ a USB cable, the Nano iDSD will run on battery power, but by plugging in the USB cable first and then powering up the DAC, the Nano iDSD will run on USB power. This feature means listeners can use the iFi with devices (tablets, etc.) that might not be capable of supplying USB power. iFi also offers this important tip: "For Apple iPhone/iPad/iPod Touch, (or) Android devices, please use Battery Power; otherwise you may receive error messages from your device."

According to the manufacturer, "MAC OSX (10.6 or later) has built-in native support for the iDSD." However, Windows users (XP or later) will need to download and install driver software from the iFi website: www.ifi-audio.com. Note that iFi makes periodic improvements to its driver software and iDSD firmware to expand the unit's capabilities and improve sound quality over time. For example, planned firmware upgrades for the Nano iDSD will soon add support for ASIO 2.2 Extensions for DSD, plus support for DSD256 (11.2Mhz/12.4MHz). Plainly it pays to keep your iDSD driver and firmware up to date.

How does the Nano iDSD sound? The answer depends, in no small part, upon the transducers you choose to use—a point I make because the Nano iDSD's potentially excellent-sounding but relatively low-output amplifier handles certain loads far more gracefully than others. As a general rule, the iDSD responds well to earphones and headphones that offer a combination of high sensitivity, high resolution, and neutral tonal balance. On the other hand, if you choose 'phones that are low in sensitivity or known to be 'current-hungry,' you may overtax the iFi and get less than ideal results (in such cases, you might need an auxiliary amp such as iFi's Nano iCAN or the more powerful Micro iCAN). While I tried the Nano iDSD with 17 different earphones and headphones, I did the bulk of my listening through two models that yielded spectacularly good results with the iFi: namely, NuForce's phase-coherent, quad-driver, Primo 8 earphones and Oppo's very high sensitivity PM-1 planar magnetic headphones.

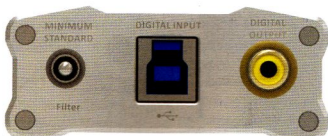
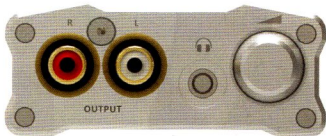
At its best, the Nano iDSD delivers a refined and decidedly musical sound that exhibits natural (not artificial)

"At its best, the Nano iDSD delivers a refined and decidedly musical sound that exhibits natural (not artificial) warmth, a beautifully rounded and full-bodied presentation, excellent bass, suave yet articulate mids, and smooth, well-detailed highs."

warmth, a beautifully rounded and full-bodied presentation, excellent bass, suave yet articulate mids, and smooth, well-detailed highs. I also found the Nano iDSD did a good job of conveying the three-dimensional qualities found in better recordings—even though, unlike some other iFi models, the Nano iDSD does not incorporate specialised '3D' circuitry.

I was particularly impressed by the Nano iDSD's ability to leverage the top-to-bottom phase coherency and all-around timing accuracy of 'phones such as the NuForce Primo 8s and Oppo PM-1s. Personally, I judge qualities of coherency and timing accuracy by asking two straightforward questions. First, do the upper harmonics and overtones of instrumental and human voices sound like a natural and well-integrated extension of the fundamentals of those voices, or do they sound disembodied or 'disconnected'? Second, do transient events have a naturally quick, clear, and incisive attack with realistic decays, or do they sound overwrought, as if artificial 'edge-enhancements' have been applied? The iFi answers both questions in a clear, sharply-focused, yet appropriately musical way that fosters long-term listener satisfaction.

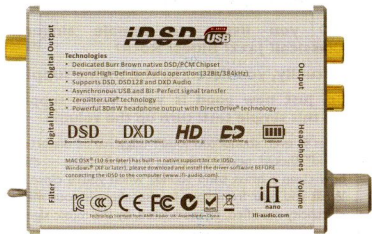
Consider, for example, the Nano iDSD's performance as it drives the NuForce Primo 8s on Keith Greeninger, Chris Kee & Brain's song "Close to the Soul T2" (*Blue Coast* ▶



► *Special Event 21*, DSD128). On this track Greenger's vocals range from a whisper on up to full song and back down again, depending upon the requirements of the lyrics, and the iFi helps the NuForce 'phones capture every subtle shift in emphasis and inflection along the way. What is more, the iFi helps the 'phones tap deep reservoirs of low-level sonic information, giving the harmonics of Greenger's voice and of his gently strummed acoustic guitar their due, while also retrieving reverberant and spatial cues as the voice and guitar interact with the acoustics of the recording space. Finally, the accompaniment from an acoustic bass is heard with appropriate weight, warmth, and a soaring, richly-textured growl. Throughout, the iFi enables the NuForce to deliver a finely focused and simply masterful rendition of the recording, in the process giving a great example of a high-end audio system that could fit easily in a listener's pocket or handbag.

No less impressive is the Nano iDSD's performance through Oppo's full-size PM-1 planar magnetic headphones on the Gordon Getty "Overture to the opera 'Plump Jack', for Orchestra" from *Orchestral Works* by Gordon Getty [Marriner/Academy of Saint Martin in The Fields, Pentatone]. This enjoyable yet demanding test track presents a roughly 12 minute-long orchestral obstacle course for any DAC, amp, or headphone to negotiate—a test made all the more challenging by the abrupt musical 'mood swings' the music presents. As an example, listen to the transitions you will hear between the 6:00-minute and 9:20-minute marks in the track. During that brief span the music swings through melancholic and pensive moods, into lighter and more wryly humorous passages, on through to a section where we hear loud, low frequency percussion statements offset against ferocious brass section outbursts. Throughout, the Nano iDSD faithfully captures not only the distinctive textures, timbres, and dynamics of each section, but also their overall feel. In my notes I wrote, "The PM-1 shows just how articulate and nuanced the Nano iDSD's mids and highs really are, and also how soulful, punchy, and well-defined its low-end can be."

In sum, when paired with appropriately revealing, accurate, and high-sensitivity transducers, the affordable Nano iDSD DAC/amp provides an amazingly versatile and sonically sophisticated high-end solution. The only caveat is that, for best results, you must avoid asking the iFi to drive 'phones whose power demands exceed the Nano iDSD's output capabilities. Just keep that one rule in mind and you will be in for a serious sonic treat, and one that comes at a 'cheap thrills' price. But, should you require additional clout, flip back a few pages, to iFi's Nano iCAN... +



TECHNICAL SPECIFICATIONS

Type: Battery/USB-powered, portable high-resolution DAC and headphone amplifier

Digital Inputs: High-speed Asynchronous USB 2.0 (32-bit, 384 kHz)

Formats supported: PCM from 44.1 to 384 kHz, 16 to 3-bit; DXD (352.8 or 384kHz, 24-bit); DSD (2.8, 3.1, 5.6, 6.2 MHz)

Digital Outputs: S/PDIF (coaxial RCA)

Analogue Outputs: 3.5mm mini-jack headphone output, stereo analogue (variable level, via dual RCA jacks)

Power: Depending on start-up conventions followed, the Nano iDSD can be either USB-powered or battery powered

Battery capacity: 1400 mAh

Headphone amplifier output: 130mW

Dimensions (H x W x D): 28 x 67 x 106mm

Weight: 167g

Price: £165

Manufacturer Information: iFi

URL: www.ifi-audio.com

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Tel: +44(0)1900 601954

IsoTek EVO3 Elite power cords

by Nicholas Ripley

IsoTek gets power. Every product the company makes is designed to improve the performance of audio equipment by addressing the power somehow. So, it should be logical that IsoTek is the go-to company for power cords. The current range has a 'good, better, best' approach, and the EVO3 Elite tested here represents the 'better' cable in the three-strong range. The brand has been moving from its previous GII range to EVO3, and in power cord terms, this means a seven-core, silver-plated, 6N, oxygen-free copper cable, with each conductor shielded from its compatriots and the outside world by a Teflon FEP dielectric and a cotton filler. These are then wrapped in mylar, further shielded by an earthed oxygen-free copper shield, then jacketed in an outer sleeve of dark yellow/gold PVC. IsoTek's own 24ct gold plated IEC socket is used at the product end, but Furutech plugs are used for UK wall sockets. The result is a thick, but not inflexible, power cable. I received four cables in all, enough to completely power up my system.

Why EVO3 Elite won me over initially had nothing to do with the cable. I've noticed that my system sound frequently 'goes off the boil'. Sometimes it sounds wonderful, sometimes it doesn't. Through a process

of elimination, I found it is directly related to whether I am listening to music by plugging my laptop into the system. If I'm playing LP or a SACD, with no PC in the system, it sounds fine. Even if I'm not listening to computer audio, simply plugging that PC into the same distribution block as the system compromises the sound. I'm faced with three options; buy a newer preamp (I like the one I already have), stop using the computer, or find a way the system can come to terms with 21st Century audio sources. EVO3 Elite facilitates that last option. I can now use my system with or without a computer in the mix without it sounding poor.

In direct sonic terms, when not considering PC deployment, IsoTek's EVO3 Elite also polishes the sound of a component. I played 'Shadows of Time' by Dutilleux [*Correspondences*, DG], a structurally dense piece of modern classical music, and the sound had greater depth and solidity, the treble became less strident and the bass more forceful, but more importantly – and this sounds off – it was as if the music was standing straighter. The more EVO3 Elite I put in the system, the more these effects helped liberate the music and conversely, when you take them out, the hitherto fine sound of the system became that little bit smaller and more tarnished. Impressive stuff. +

TECHNICAL SPECIFICATIONS

IsoTek EVO3 Elite power cord: £325/2m.
£85 per additional metre

Manufactured by: IsoTek Systems
URL: www.isoteksystems.co.uk

Distributed by: Sound Foundations
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