

USB/Network DAC/headphone amp
Made by: iFi Audio, China
Supplied by: AMR/iFi Audio (Abbingdon Global Ltd), Southport
Telephone: 01704 543 858
Web: www.ifi-audio.com
Price: £3249

AUDIO
FILE

USB DAC/HEADPHONE AMP

iFi Audio Pro iDSD Signature

Sporting a Signature nameplate, the flagship of iFi Audio's sprawling digital product range has been fine-tuned with 'audiophile' components and offboard iPower Elite PSU
Review: **Andrew Everard** Lab: **Paul Miller**

No, you're not having a flashback, but you'd be forgiven a sense of *déjà vu*, given that we reviewed the original iFi Audio Pro iDSD DAC/headphone amplifier [HFN Sep '18]. Then it sported what we thought was an ambitious £2500 price tag, and pro-audio aspirations with a range of facilities so extensive that it paid to know what you were doing when tackling its myriad options and adjustments.

Fast-forward three-and-a-half years and the flagship model from the Southport-based company now carries 'Signature' badging, glitzed-up styling, and a boost in price. The new Pro iDSD Signature is yours for £3249, or £500 more than the current £2749 of the original model.

And it's not the only 'Pro Signature' model in iFi Audio's catalogue: if you want an all-analogue headphone amp there's also the Pro iCAN Signature in a matching format and boasting a wider range of balanced headphone outputs. It sells for £2249, or £450 more than iFi Audio's standard Pro iCAN model.

A FEATURE-FEST

The new Pro iDSD Signature can still be used as a DAC, a headphone amp and even as a preamp, thanks to fixed/variable analogue outputs on both RCAs and balanced XLRs, while headphones are catered for across both balanced and unbalanced outputs. There's also the same choice of output stages – 'solid-state', 'Tube', or 'Tube+', the latter employing minimal negative feedback in an effort to sound even more 'valvey'. There's the same vast range of adjustments available via multifunctional front panel controls, as well as its dedicated app, so it's hardly surprising that iFi Audio backs up the product with not just a user manual, but also video connection guides.

RIGHT: Chip-central – iFi Audio packs an XMOS USB hub and Xilinx Spartan-6 FPGA [top, centre] feeding four Burr-Brown DSD1793 DACs [below], a motorised volume control [lower right] and J-FET/tube option analogue stage [top right]

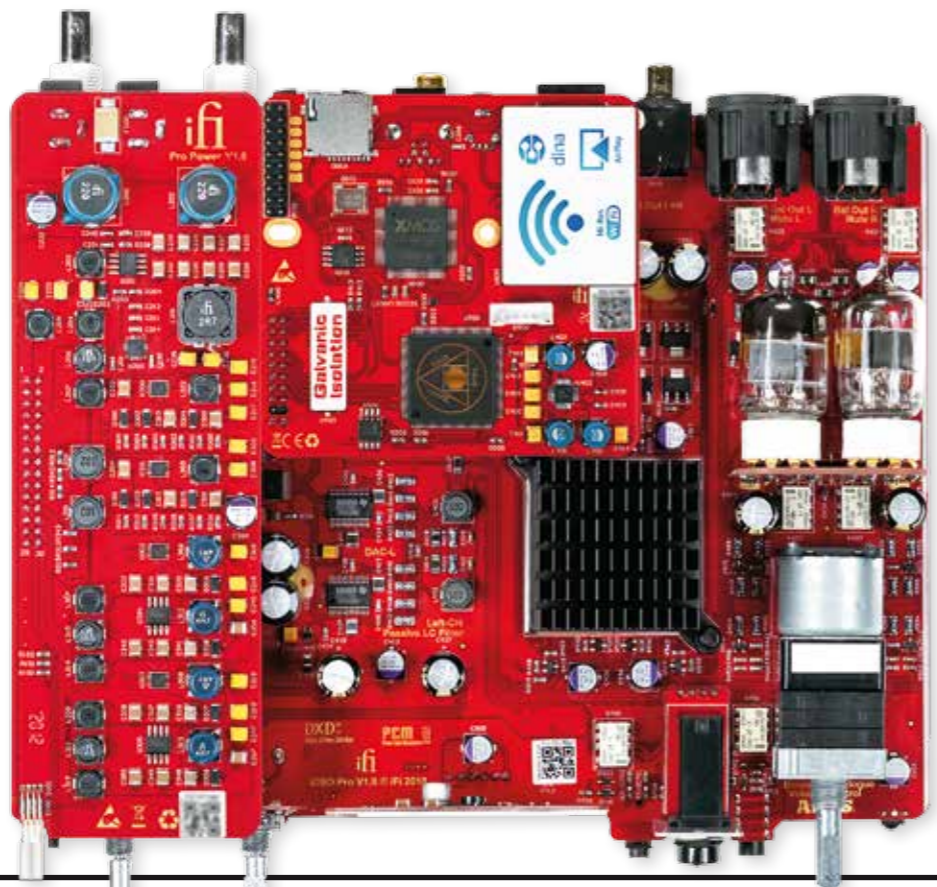
The most obvious difference, apart from all that bling, is inclusion of the company's range-topping iPower Elite power supply, clad like the main unit in aerospace-grade aluminium, and itself selling for £299. So that's more than half the price increase accounted for... The company claims this works in concert with the redesigned power supply board within the Pro iDSD Signature, which also uses upgraded components, to lower noise by either 300% or 300x, depending on which bit of the promotional material you read. The aim? A 'sonically-darker background and more punchy bass', the company says.

Also new are more precisely matched 'new old stock' General Electric 5670 valves in one of the unit's two output stages, a more comprehensive alloy-skinned remote handset [see p69], and support

for USB 1.0 audio, should you want to use this £3249 DAC/amp with your PS4 or PS5 games system. Well, someone might...

INPUTS GALORE

Otherwise much is as before, including its phenomenally wide-ranging connectivity. Not only does it have a USB-B input for computer hook-up, alongside AES/EBU and a combined optical/coaxial digital input, but it can also play music from network audio sources via Ethernet or Wi-Fi. With DLNA streaming built-in, support for services including Spotify and Tidal, plus MQA decoding for those Tidal Master files, this busy little box seemingly leaves nothing to chance. Furthermore, all the electrical inputs are galvanically-isolated and the USB section is equipped with dedicated power management.



It's also possible to play from USB drives or microSD storage cards, while the Pro iDSD Signature also accepts Apple AirPlay via its supplied Wi-Fi antenna. Finally, the unit has BNC clock inputs and outputs, should you want to sync the DAC with external digital equipment, most likely in a pro setting.

Sequestered within that casework is a stack of four interleaved DACs from Burr-Brown, permitting the unit to handle content at up to 768kHz PCM and DSD 1024. There's also buffering upstream of the DACs to suppress jitter and custom software running on an FPGA to 'remaster' music up to DSD 1024 if required [see PM's Lab Report, p69].

iFi Audio's menu of digital filters is now the stuff of legend – à la carte options including 'Bit-Perfect', 'Bit-Perfect+', 'Gibbs Transient Optimised' (said to 'add gravitas

and a new dimension'), 'Apodising' and 'Transient Aligned'. Regular readers will know what's coming next – by all means play with these to your heart's content, but you might well spend a lot of time scrutinising them when you could be enjoying music instead.

The same goes for the three output modes. It'll be a matter of personal taste whether you plump for 'solid-state', 'tube' or the almost caricature 'tube+' mode, which is clearly designed to sound

like the apocryphal valve amp. Premium audio components include an all-analogue ALPS rotary volume potentiometer, Elna Silmic capacitors and Dynacaps 'super capacitors'. And as already mentioned, the Pro iDSD Signature is built to the usual high

'The warmth and tight control is impossible not to enjoy'

ABOVE: Input and volume at either end of the fascia, plus a clear OLED, but the multiple functions of just about every control hint at the flexibility – and complexity – within

iFi Audio standards, so while it may not be what you'd call a looker, the styling is undoubtedly purposeful.

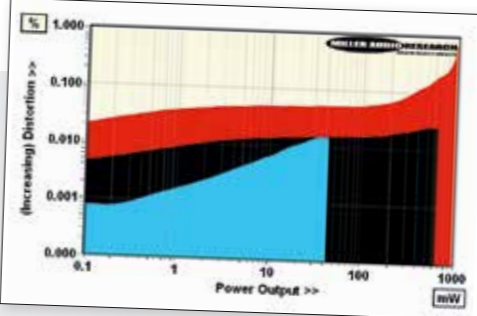
POWER APLENTY

However, whether you use the new Signature model with or without all the pre-listening fiddling, you're likely to find much to relish here: yes, the designers may have moderated the output power a little [see PM's boxout, below left], the quoted headline figure – for the balanced output – is still an impressive-looking 4000mW/16ohm. Unsurprisingly, the Pro iDSD Signature still sounds effortlessly powerful with a range of headphones, including my usual suspects from Austrian Audio, Bowers & Wilkins and Focal, while balanced listening was assessed with a pair of the still-excellent original Oppo headphones, the PM-1 [HFN Jul '14].

Even with highly commercial music, presumably not mixed for ultimate audiophile appeal, the Pro iDSD Signature drives headphones with a combination of warmth and tight control that's impossible not to enjoy, while delivering fine insight into the innermost depths of a mix. And any amplifier able to have the listener enjoying multiple passes of the title track from the 30th anniversary set of Roxette's *Joyride* album [Parlophone/Roxette Recordings 5054197 107153] is clearly doing something very right...

THE LATE SHIFT

What's more, when it came to the many curios contained on David Bowie's *Brilliant Adventure (1992-2001)* bumper 11-disc box-set [Parlophone 0190295253479], the iFi Audio/Oppo combination had me listening long into the night. I was transfixed by the sheer strangeness of his revisiting of material from the 'Laughing Gnome' era on the legendary *Toy* album. ↪



POCKET POWERHOUSE

Following our Lab Report on the original Pro iDSD [HFN Sep '18], iFi Audio has moderated the spec. for its headphone amp. The rated output is now 1575mW/16ohm (and 5.9V/600ohm) which, along with a genuine uplift in performance in this Signature version, is inching closer to its 'real world' numbers. Tested at its maximum +18dB gain setting, at full volume and with a peak 0dBfs digital input, the maximum single-ended headphone output is 5.06V or 43mW/600ohm [blue trace, inset Graph].

Unlike many DAC/headphone amps, the Signature's output is not clipped at full 0dBfs input/max volume, settling at just 0.03%/1kHz THD into 32ohm. Distortion does increase with loading, however, and principally at low bass frequencies, from 0.008% into 600ohm, to 0.08%/32ohm and 0.35%/8ohm (all at 10mW/20Hz). The moderate 2.6-3.3ohm source impedance remains, resulting in a further ~0.7dB signal loss and power output held to 655mW/32ohm [black trace] and 950mW/8ohm [red trace] beyond which the Signature is protected...

This finite source impedance may also introduce changes in tonal balance with low/variable impedance headphones – otherwise the frequency response is determined by choice of digital filter [see Lab Report, p69]. Importantly, residual noise remains very low in this model and the A-wtd S/N is 1dB wider than before at 109.5dB, so hiss and hum remains very low with sensitive headphones. PM

USB DAC/HEADPHONE AMP



ABOVE: Digital inputs are shared across a combined coax/optical socket (S/PDIF), USB-A and B sockets, AES/EBU (on XLR), micro SDHC and wired/wireless Ethernet. A multifunction BNC input also accepts external clock sync'ing. Balanced (XLR) and single-ended (RCA) analogue outputs are configurable as either fixed or variable

Highlights included the anthemic 'London Boys', to the glorious two-disc 2000 'Live At The BBC' session which really lit up the early hours with the likes of 'All The Young Dudes' and 'Starman'.

Again, that combination of wide-open insight and sheer musical clout proved addictive, although I'll admit to reverting to closed-back headphones at one point, so loud was I playing the music when it came to the smouldering then thundering finale, 'Let's Dance!' And yes, I did give it another go with the Signature in preamp mode, and got just the same big-boned but highly-detailed sound.

The warmth and generosity of the sound here is a major attraction, even in 'solid-state' guise, and while it gets a bit too lush in 'Tube+', it has the ability of making any headphones you choose sound big and impressive, but at the same time tight and clean in the low end, underpinning all the brilliance further up the frequency range.

Playing the glorious LSO/Marin Alsop live recording of Bernstein's *Candide* [LSO Live LSO0834; DSD128], the combination of iFi Audio's Signature DAC/amp and B&W's P9 Signature headphones [HFN Mar '17] proved a delight from start to finish – and boy,

LEFT: New slimline remote offers control over input, volume, digital filter, DSD remastering and display brightness



does this performance start with a bang, with the great sweep of the orchestra in the 'Overture'. Best of all, though, was the way the resolution here made every clever nuance of the dialogue and lyrics hilariously apparent, and shivered the spine with Jane Archibald's wonderful soprano voice on 'Glitter And Be Gay'.

WRAP AROUND SOUND

What's more, pull up a rug and sit on the studio floor with a recording such as the Gidon Nunes Vaz Quartet's *Ebb Tide* album – or at least that's how it sounds in this ultra-simple Sound Liaison recording [SL1050A; DXD] – and the sheer amount of detail this DAC/amp can deliver is matched only by the way it wraps the intimacy of the acoustic around the listener. In this case at least, it seems as if the performers are simply, but almost holographically, placed before you, the drums pattering and the bass and piano just set back behind the trumpet of Nunes. Simple, memorable pleasures... ☺

HI-FI NEWS VERDICT

This Signature version of iFi Audio's flagship DAC/headphone amp may look a bit much for some tastes – I think I prefer the more understated styling of the 'standard' model – but there's no denying the appeal of its rich, weighty, controlled and highly informative sound. Just don't get caught up in all those filters and adjustments because this is a headphone amplifier that's made for sitting back and enjoying.

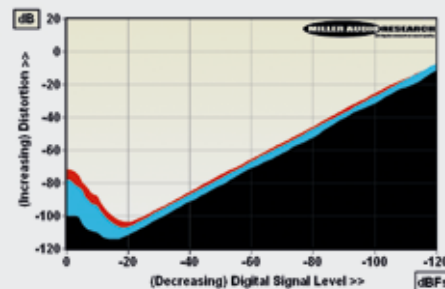
Sound Quality: 88%



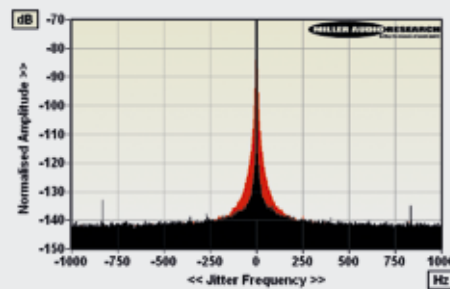
IFI AUDIO PRO IDSD SIGNATURE

The Pro iDSD Signature's 'Pro' output setting doubles the 'Hi-Fi' output from 4.5V to 9V but there's no significant improvement in the 112dB A-wtd S/N ratio. There's also a small 'bug' detected when switching to the 'Tube' or 'Tube+' output modes then back to 'solid-state'. The Tube modes fire up an internal orange LED and the GE5670 tubes, but this stays illuminated if the Pro iDSD Sig is switched back to 'solid-state' mode where THD sticks at a higher 0.003-0.037%. Only by de-powering the unit and re-booting in 'solid-state' mode does it achieve the low 0.001-0.002% distortion (falling to 0.0002% over the top 30dB of its range) recorded here [see Graph 1, below]. Live, A/B comparisons between 'solid-state' and 'tube' are meaningless as a result.

iFi Audio has deleted the minimum phase filter offered on the original DAC [HFN Sep '18] although the 'Apodising' and 'GTO' filters behave like fast and slow roll-off minimum phase types offering 65dB and 12dB stopband rejection, respectively, with responses that reach -0.1dB and -1.2dB/20kHz, -0.5dB and -2.5dB/45kHz, out to -3.5dB and -5.9dB/90kHz with 48kHz, 96kHz and 192kHz files. The 'Transient Aligned' filter with its 58dB stopband rejection and flattest response (dipping only to -3.4dB/90kHz) is a linear phase type while the 'Bit Perfect' filters offer almost no time domain ripple/distortion but suffer maximum alias distortion and the most rolled-off HF response (-3.1dB/20kHz with 48kHz files, peaking at +0.3dB/11kHz to -0.6dB/20kHz in 'Bit Perfect +' mode). Selecting the 'DSD Remaster' mode introduces extra UHF noise but the reclocking/data formatting has a positive impact on jitter, clearly reducing the system phase noise [see Graph 2, below]. PM



ABOVE: Distortion versus 24-bit digital level at 1kHz (black) and 20kHz (Solid-State, blue; Tube, red)



ABOVE: High res. zoom jitter spectrum with 48kHz/24-bit data (LPCM, red; DSD512 remaster, black)

HI-FI NEWS SPECIFICATIONS

Maximum output level / Impedance	4.50Vrms / 70ohm (balanced)
A-wtd S/N ratio (USB / Network)	112.2dB / 112.3dB
Distortion (1kHz, 0dBFS/-30dBFS)	0.0010% / 0.00035%
Distortion & Noise (20kHz, 0dBFS/-30dBFS)	0.0018% / 0.00045%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0 to -0.0dB/-0.5dB/-3.5dB
Digital jitter (48kHz / 96kHz)	30psec / 20psec
Resolution (re. -100dBFS / -110dBFS)	±0.1dB / ±0.3dB
Power consumption	11W (1W standby)
Dimensions (WHD) / Weight	220x63x213mm / 2kg