

Primare DAC 30 digital converter

By Alan Sircom

The up-market DAC market (broadly priced from about £1,500-£3,000, but centred around the £2,000 mark) is getting very contended, and for good reason. It's the point where the designer can work to a set of performance goals, rather than just build down to a price, the point where performance clearly stands above the entry level (in the majority of cases) and yet doesn't skate too far into the sort of high-end circles where sales are restricted as a result. It's the difference between 'expensive' and 'unaffordable'. April Music, Arcam, Ayre, Benchmark, Hegel, Naim and more have dogs in the fight. And now, so does Primare, with the DAC 30. Fortunately for Primare, it joins the fight with a good reach.

A full-sized converter, the DAC 30 uses the skills learned in decades of making high-grade amps and CD players. And that means paying close attention to power supplies, eschewing small switch mode power supplies for linear, but unlike many an audiophile DAC, uses a R-Core transformer instead of a toroidal, because there's a move that suggests R-Cores sound

better, especially when dealing in the digital domain. The transformer has separate windings for digital and analogue stages, which are completely physically separated from one another on different PCBs on opposite sides of the chassis.

The high-current digital power supply features a 48,800µF capacitor bank, the analogue supply has a 74,000µF capacitor bank, the sort of thing that wouldn't seem out of place in an integrated amplifier. Both of these banks are subdivided into combinations of smaller caps, because this lowers equivalent series resistance. Regulation also differs from side to side; digital relies on a Linear Technology LDO 5A chip, while the analogue side uses a two-stage regulation process; pre-regulation using the ubiquitous LM317/337 regulator chips, ▶





► then on to a high-speed discrete regulation circuit, close to the analogue side of the DAC board itself. In short, what a thorough and methodical implementation of feeding juice to all parts of the DAC should be like.

The DAC itself uses the XMOS chipset to control USB to 24 bit/192kHz precision and as this is a Class 2.0 Audio USB operation, so PC users need to load driver software, although current Mac users are fine. XMOS is the asynchronous USB connection of the moment, but that's in part because it's based on a fine implementation. Coaxial, Toslink and AES/EBU inputs are also featured, and whichever input is used, the DAC 30 routes the digital data into an SRC4392 sample rate converter chip to upsample the datastream to 24/192 precision. This means any data jitter is effectively eliminated in the sample conversion process, although notionally it also means any such jitter is effectively 'folded' into the new digital datastream. This is then fed to the Crystal CS4398 DSD DAC (although the DAC 30 does not support DSD), the chip-maker's flagship product and thence to either Primare's OpAmp-based balanced or MOSFET-driven single-ended output stages. This last represents one of the key bonuses of the DAC 30 – most DACs either uprate a single-ended signal to balanced operation, or drop balanced down to single-ended. That Primare includes different output pathways depending on type of operation makes this stand above the rest. Even the mute circuit is relay controlled, which is sound analogue engineering instead of digital jiggery pokery.

All of this ultimately sits in a heavy alloy chassis, of the kind common to all Primare equipment, and the kind that gives the brand its continued reputation among audiophiles. It also comes with a remote control, which can control the basic operation of the DAC. Because it can connect to a NAS drive via USB, perhaps a better option would be to provide some limited control over drive units connected to the DAC, in the manner of something like a Naim or Bryston, but the controls

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on the DAC are relatively basic (power, digital source) and the remote is intended for controlling a Primare system.

The company takes a reasonably pragmatic view of running in; the DAC 30 gets a lot better after one day, then better still after three or four days... and that seems to match how the DAC 30 warms up in reality. It sounds pretty good out of the box, but over the course of a weekend, it beds in nicely and sounds stable from there on in. This is greatly beneficial for those seeking weekend-long loans, as there's no 6,000 hour conditioning period.

It's similarly pragmatic when it comes to cables. If you want to spend a fortune on cables, go for it, but the DAC 30 doesn't need too much in the way of outlay to sound fine. Yes, using the likes of Crystal Absolute Dream can be easily heard, but it's not a DAC that cries out for good cabling. But ►

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- ▶ don’t mistake that for being somehow not a high-end device; this is a DAC that benefits from being in some very exalted company. It’s just one of those rare things in high-end; an unfussy product.

If its installation is pragmatic, the sound quality is anything but. There’s an almost immediate sense of grace and charm to the music, and that is quickly coupled to a powerful sense of deep, well-rounded bass. This is perhaps best demonstrated by playing Kashmir by Led Zeppelin (Japanese CD box set, stored both on WAV through a Naim UnitiServe and ALAC from the USB output of a Mac). Bonzo’s drumming takes on a mighty roar in both cases, and yet this doesn’t undermine the sweep of Robert Plant’s vocals, set apart from the instruments that can so easily dominate the mix. Move to some early motets by Dufay (O, Gemma Lux, on Harmonia Mundi) and the purity of the voices have an almost atavistic influence on the listener, especially as the baritones are firmly rooted in place.

However, the DAC 30 doesn’t suffer musical fools gladly. Signal compression and data reduction are now a function of the modern musical landscape, but the Primare is no fan of either. I’m of the opinion that the bit rate of a data reduced file can be an arbiter of ultimate quality – a reasonably unresolving system cannot parse the difference between a lossless file and a 128kbps MP3 version of the same track, where more refined systems make such differences all too clear. If that is the case, the DAC 30 is a first-class converter because it lays those differences bare; iTunes seems to have a habit of rewriting the CD-derived ALAC version of the Avett Brothers I and Love and You album with the 256kbps AAC version I bought through the online service, and you could hear the difference easily, if you listened to the change in the reverb tails.

The DAC 30 also has a limit to how much signal compression you can get away with. It still makes a fair fist of whatever you put in front of the converter, but chart material

TECHNICAL SPECIFICATIONS

Analogue outputs: 1 pair Stereo XLR and 1 pair RCA both 4,3Vrms

Digital outputs: 1 x SPDIF (RCA)

Inputs: USB-B, 3 x SPDIF (RCA) 3 x optical (TOS-link), 1 x AES/EBU (XLR)

D/A converter: Crystal DSD DAC CS4398

Output impedance: RCA 100Ohm; XLR 110Ohm

Power consumption: Standby 0,5W, Idle 50W, Operation 60W

Dimensions: 430 x 370 x 95 mm

Weight: 8.5kg

Colour options: Black or Titanium

Price: £2,000

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with a couple of decibels of dynamic range does end up sounding thin, flat and loud. Fortunately, it seems the musical world is finally pulling back from the loudness war, and the great battles for dynamic range are hopefully behind us. And if more people had digital converters this good, we would have never even had a loudness fist-fight.

It’s hard not to think of the DAC 30 in context of all the other converters at the price. It has a difficult task; to stand out, without being so different as to limit appeal. And it does just that, thanks to its grace and poise... and bass. I don’t think there is one winner at this point, just converters that are right for individual listeners. The Arcam is clean and detailed and has its sights firmly set on the highest possible resolution, possibly more than is needed from a two-grand DAC. The April Music Eximus is all about expanse and midrange. The Naim DAC is all about temporal precision and the Ayre’s leading edge accuracy all make their cases well. The Primare has the grace and the bass. For myself, I’m finding this to be perhaps the best balance of the lot.

Amid a lot of exceptional DACs at the price, the Primare DAC 30 is an exceptional DAC. The bass energy and depth, the refinement, the precision of the converter makes it a perfect addition to the pantheon of upmarket converters. This one’s a real keeper. +