

Primare NP30

Swedish A/V specialist Primare has produced a network music player/DAC with inputs for other digital sources – including asynchronous USB for direct playback from a PC

Review: **John Bamford** Lab: **Paul Miller**

As discussed in our review of the Krell Connect network media player [*HFN* Mar '14], streaming digital music across a home network is now a mature technology capable of satisfying even demanding audiophiles who insist on seamless operability and playback of high resolution audio. Indeed, in a properly configured system and with a carefully maintained music library, browsing through one's album collection – by artist, album title, genre, etc – using a tablet or smartphone, and controlling playback from anywhere in the home, has become a prerequisite in many music lovers' homes. Wading through shelves of LPs and CDs seems so last century!

CHIC STYLING

Swedish specialist manufacturer Primare prides itself on creating audio components designed not only to satisfy critical listeners for whom fine sound quality is an overriding purchasing criteria, but also products that will look good in today's living spaces and are easy to operate. Yes, they're minimalist – but think 'Scandinavian chic' rather than hair-shirt minimalism.

Moreover, with the ubiquity of computer audio and portable music playback very much in mind, when setting out to develop its £2000 I32 integrated amplifier a few years ago (and sibling PRE32 preamp) Primare designed in an expansion slot for an optional media streaming and DAC board dubbed MM30, which can be inserted after removing a blanking plate on the amplifier's rear panel. The I32 integrated, with its partnering CD32 CD player, won a prestigious EISA award for best two-channel system 2011-12, and a Red Dot design award too.

That optional MM30 'media board' PCB costs £1250 and forms the heart of this

standalone £2000 NP30 network media player/DAC. It's based around a UPnP/DLNA network streaming module from German supplier Audivo [see boxout] which can be seen in our internal shot of the NP30 below. The NP30's feature set is the same as that found on the MM30 module. Playback of music files up to 192kHz/24-bit is supported via wired Ethernet LAN, with gapless playback of segued tracks, along with internet radio using the familiar vTuner platform.

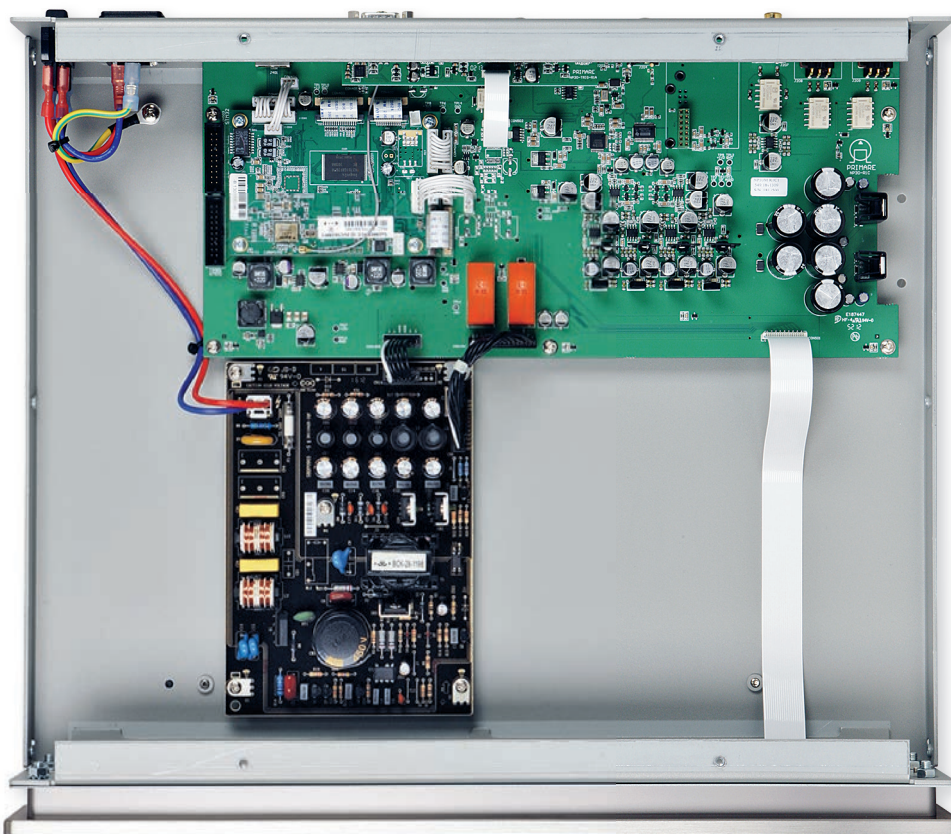
Wi-Fi connectivity is also included, but via WLAN you're restricted to CD/DAT-quality file playback at best, with a maximum resolution of 48kHz/16-bit. The NP30 also functions as a DAC for additional digital sources in a system. It sports four S/PDIF inputs (three Toslink; one RCA), an asynchronous USB-B input, and a further

USB-A socket at the rear for playback from a FAT32-formatted memory stick. This socket is also compatible with iDevices.

A FREE APP AVAILABLE

Housed in Primare's familiar heavyweight steel chassis supported on three isolation feet and with a brushed aluminium fascia, the NP30 looks almost identical to the firm's excellent DAC30 [*HFN* Feb '13]. Indeed, its nomenclature might suggest the NP30 is a DAC30 with additional streaming functionality, but since both products cost precisely £2k this is not so.

The DAC30 employs Crystal's CS4398 Delta-Sigma DAC, Burr-Brown SRC4392 digital interface receiver/sample-rate converter operating at 192kHz, and a linear power supply with an R-core transformer. The NP30 uses the same



RIGHT: Multiple switchmode supplies feed six regulated PSUs for the analogue stages and three for the digital sections. The (green) daughter board is the SeDMP3 embedded audio streaming module from Audivo



SRC4392, but with a Burr-Brown PCM1792 DAC and employs multiple switchmode supplies. And it lacks the DAC30's AES/EBU (XLR) digital input.

Of course, the NP30 is designed primarily to be a streamer – but you might want to push in data directly from a computer. So Primare uses the well-established XMOS microprocessor interface for the NP30's asynchronous USB input. USB Audio Class 1.0 functionality (data up to 96kHz/24-bit) is a straightforward matter of plug and play with all computers, while USB Audio Class 2.0 (higher data rates) is also natively supported for Mac OS-X. Drivers need to be downloaded from Primare's website and installed on PCs running Windows OS (XP SP2 and later). All of the NP30's inputs are compatible with data up to 192kHz/24-bit, while a coaxial (RCA) digital output at the rear works as a 'full HD' pass-through.

Pressing the button on the right of the fascia scrolls through the NP30's inputs, a single row of LEDs confirming the selected input, LAN connectivity and data lock. The USB-B input is labelled 'PC', the USB-A input 'Media'. Inputs and volume up/down can also be governed by the supplied

C24 IR handset (a new system remote for controlling pretty much any Primare component). This model is available separately for just £30.

Primare has developed a free app to control its 'connected' components using an iOS or Android device, the iOS version supporting Voice Over functionality for visually impaired users. Any standard UPnP application can, of course, be used to browse your media server and play files via the NP30, but you really need Primare's app to configure the NP30 and to access features such as input switching, volume control, etc. With it you can individually name digital inputs to match your sources and manage internet radio stations as lists of favourites.

Once I had the NP30 up and running, and the Primare App installed on my iPhone, the first thing I did was check for any firmware updates. In the app this is under Settings>Device Settings>Firmware. And, sure enough, I found one. Choosing to update via the internet (rather than a USB stick) and hitting the Start Update icon set the process in action. It took less than a couple of minutes, the NP30 automatically re-booting in the process. Everything

'Space Revolver showed it could dig deeply into the sounds'

ABOVE: Available in black as well as a titanium finish, the NP30's aluminium front panel simply has two buttons for standby on/off and source selection with accompanying input LED

worked seamlessly – and I found Primare's app wholly intuitive to use and entirely glitch-free in operation. It supports album art and also shows the bitrate, file format and sampling frequency of the file played.

HARD TO DIFFERENTIATE...

If you'd asked me a couple of years ago whether I prefer to push music files from a computer directly into a DAC or to use a network player – a 'streamer' – to pull files via my home network, I'd have said categorically that pushing into a DAC always sounded better.

All too often I've found that streaming tends to rob good quality recordings of their vitality and dynamic contrast. Transients' leading edges are softened and image specificity can become blurred. Not so with Primare's NP30, which sounded every bit as good when streaming as when used as a standalone DAC.

I spent many hours repeatedly A-B'ing tracks but could discern little or no difference in sound quality between the two playback methods. Whether this is due to the NP30's employment of Audivo's SeDMP3 module or, more pertinently, Primare's implementation of it, is anybody's guess – but music files rendered by the NP30's network client certainly sounded very fine indeed. It served up a commendably wide and deep soundstage when playing top quality recordings, while maintaining clear delineation of instruments and voices.

Malcolm Arnold's joyous *A Sussex Overture* with the composer conducting the London Philharmonic Orchestra [Arnold *Overtures* – Reference Recordings RR-48CD] sounded generously proportioned and convincingly three-dimensional. The NP30's sonic and musical delivery appeared effortless during the performance's climactic dynamic swings, with wall-to-wall soundstaging and precise focus. ➞

AUDIOVO PLATFORM

Under the bonnet of Primare's NP30 sits an SeDMP3 'EMAS' (Embedded Module for Audio Streaming) from German supplier Audivo. The company was founded by Erich Böhm, an electro-acoustics and cybernetics engineer who was responsible for the Pontis brand of MP3 players nearly two decades ago. Audivo specialises in network technologies, offering product manufacturers solutions from design to EMC testing and mass production, as well as bespoke hardware and software implementations. Its SeDMP3 UPnP/DLNA EMAS does not include a display, rather it's intended to be controlled via a control app. Says Primare's MD Lars Pedersen: 'We now have a long working relationship with Audivo. This gives us the possibility to engineer a special adaption of the module tailored specifically for our design implementation. In the NP30 we employ the same Burr-Brown DACs as featured on our MM30 plug-in module because it's a good DAC at its price point, but in the NP30 there's an additional buffer stage in the output. And since the NP30 is a standalone product with dedicated power supply and output stage, it inevitably sounds a little better than our MM30 plug-in module.'

NETWORK AUDIO PLAYER



ABOVE: Four S/PDIF inputs and one output, asynchronous USB-B plus an iDevice-compatible USB-A input, trigger, external IR and RS232 – with XLR/RCA outputs

Percussive crashes were handled well, if sounding rather softer, more 'polite', than they did true to life, while massed strings were delicately articulated with a pleasing sense of space around the performers and sections of the orchestra.

CALM UNDER PRESSURE

Similarly in 'Julsång' from the Proprius label's audiophile favourite *Cantate Domino* [88.2kHz/24-bit download, HDtracks] the swell of Oscar's Motet Choir in the chorus was glorious, the voices depicted as a mass of individual sounds rather than a congealed morass. The organ energising the acoustic space of the recording venue was palpable, everything appearing well controlled with seamless top-to-bottom balance and neutrality.

The NP30 did sound perceptibly softer and even slightly opaque when streaming via WLAN. I thought the image specificity less tangible and perceived a less finely-etched, rather 'sizzling' treble quality when using a wireless connection. Anyway, as the NP30's Wi-Fi functionality is limited to 48kHz/16-bit, most audiophiles of today's computer age will resolutely remain hard-wired.

Moving from a supremely natural sounding recording made in 1976 with a couple of excellent microphones and a Revox A77 to something altogether manufactured using a multi-track mixing desk almost a quarter of a century later, I challenged the NP30 to play 'Chicken Farmer Song' by Swedish prog-rockers The Flower Kings, from the band's 2000 album *Space Revolver* [Inside Out Music IOMCD 062]. It confirmed my impression of the NP30's apparent calmness under pressure and showed its ability to dig deeply into densely populated collages. The multiple layers of

guitars, swirling synthesizers and intricately woven vocal tracks were surprisingly well depicted given the 'thickening' compression during the song's more ambitious passages. The pumping rhythm section of Jonas Reingold and Hasse Bruniussön underpinned the whirlwind proceedings most admirably, helping to make sense of what can all too easily become a cacophonous wall of sound.

The NP30's bass isn't as powerful or quite as extended as I recall experiencing from Primare's DAC30, nevertheless its bottom octaves still provided a strong foundation for musical structures. Moreover you'll likely need speakers capable of shaking your house foundations to notice that the NP30 doesn't deliver the last ounce of bass detail and visceral slam.

Overall I found the NP30's sound to have been skilfully balanced, its gentle softening at frequency extremes imbuing the NP30 with a touch of 'golden glow' that made even low-bitrate internet radio tolerably listenable. When rendering lossless CD-quality (and better) recordings the NP30 proved that a well-implemented network player is more than capable of audiophile-quality music replay. ☺

HI-FI NEWS VERDICT

Given that it's a 192kHz/24-bit D-to-A converter as well as a hi-res-capable network media player, and is housed in Primare's classy steel and aluminium casework, the NP30 offers fine value. Primare's control app is also first rate. It's a different sounding animal to the company's DAC30 – slightly 'softer' and less ballsy in the bass – but notably easy-going and always comfortable and mellifluous. A great all-rounder.

Sound Quality: 80%

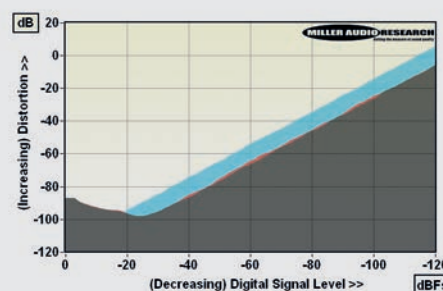


LAB REPORT

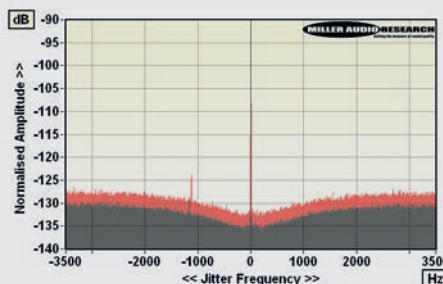
PRIMARE NP30

While appearances, and the product name, might suggest otherwise the technical performance of Primare's NP30 is not a foil for its superior DAC30 outboard converter [HFN Feb '13]. While the latter was itself inspired by the BD32 universal disc player with its Crystal CS4398-based, phase-inverting analogue output, the NP30 uses a Burr-Brown PCM1792 DAC to feed a phase-positive balanced output of just 2.07V (the DAC30 offers 4.3V). The NP30's overall S/N ratio is necessarily reduced, although perfectly acceptable, at 108dB although distortion climbs over the top 30dB of its dynamic range from 0.0005% to 0.005% at 1kHz and 0.0008% to 0.0028% at 20kHz [see Graph 1, below]. Because this is determined by the DAC/analogue stage, there is precious little difference in THD trends between any of the S/PDIF, USB or network audio inputs. The same is true of digital jitter, even via the wired ethernet connection thanks to the proven performance of the Audio SeDMP3 embedded network solution chosen by Primare [$<20\mu\text{sec}$ at all sample rates, all inputs – see Graph 2, below].

The frequency responses are more obviously tailored by sample rate than was measured via the DAC30, to the tune of $-0.39\text{dB}/20\text{kHz}$ (44.1/48kHz), $-2.7\text{dB}/45\text{kHz}$ (96kHz) and $-13.7\text{dB}/90\text{kHz}$ (192kHz) while channel separation is encouragingly $>105\text{dB}$ (20Hz-20kHz). The 137ohm output impedance is also a little higher than the DAC30's 97ohm (balanced XLR outputs). Readers may view comprehensive QC Suite test reports for the S/PDIF, USB and network audio performance of Primare's NP30 by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Distortion versus 24-bit/48kHz digital signal level over a 120dB range at 1kHz (black, S/PDIF; red, USB/Network) and 20kHz (blue, USB/Network)



ABOVE: 24-bit/48kHz jitter spectra over S/PDIF (black) and Ethernet/USB (red) connections

HI-FI NEWS SPECIFICATIONS

Maximum output level (Balanced)	2.07Vrms at 137ohm
A-wtd S/N ratio (S/PDIF / USB)	108.2dB / 107.9dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.005% / 0.00053%
Dist. & Noise (20kHz, 0dBfs/-30dBfs)	0.0028% / 0.0008%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0dB to -0.4dB/-2.7dB/-14dB
Digital jitter (S/PDIF / USB / network)	$<10\mu\text{sec}$ / $<10\mu\text{sec}$ / $<20\mu\text{sec}$
Resolution @ -100dB	$\pm 0.3\text{dB}$
Power consumption	13W (1W standby)
Dimensions (WHD) / Weight	430x95x370mm / 8.5kg