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AURENDER N50

& Record Review

This three-box flagship streamer/network bridge from Aurender includes a separate server, digital interface and PSU. Does this approach pay off in superior performance?
 Review: **Andrew Everard** Lab: **Paul Miller**

Three boxes, and not a DAC in sight... Aurender's flagship music server, the N50, is a £38,900 combination of Server box with display – able to play from online services, local storage on USB or NAS devices, or optional onboard storage – and a separate 'Audio' unit that offers numerous digital outputs. The third box is a screened PSU, offering separately regulated supplies to power both the Server and Audio enclosures. Its most extravagant network bridge yet, Aurender's N50 is clearly a further evolution of the earlier two-box N30SA [HFN Jul '23], and described by the Korean company as 'the most luxurious, elegant, and high-performance approach to streaming and file-based playback available'.

These three units, connected by multicore cables, are intrinsic to the operation of the N50 as a whole. You can't pick and choose – it comes as a stack, or not at all. Custom umbilicals connect the power supply to the Server and Audio boxes, with a data cable linking those two. As standard, 60cm cables are provided, with 1.5m options available should you wish to have the units on separate shelves – or indeed the Server box, which houses the N50's colour LCD display and controls, visible, and the other two hidden away.

AT YOUR SERVICE

The Server unit, based around an Intel Quad Core CPU and 480GB NVMe storage for both system and digital audio caching, has basic controls, plus inputs. The fascia is dominated by that large (1920x480) display, just over 20cm wide, with a cluster of controls (mode, play/pause, next/previous) set to one side. To the rear is the power input, two USB-A 3.0 ports

RIGHT: Inside the Server unit showing PSU filtering [left] and 'super capacitor' battery supply [centre], Intel Quad Core processor and 480GB NVMe storage [top right], and isolated Gigabit LAN module [bottom right]

for offboard storage, an Ethernet port (with multiple transformer isolation) for the in-house streaming implementation, and the data feed to the Audio box. Most important, arguably, is the filtered and galvanically isolated USB 2.0 audio output to feed an asynchronous DAC.

In addition, two drive trays are provided, secured with thumb-screws. These will

accept 2.5in drives, Aurender recommending Samsung QVO or EVO series, Western Digital, or Seagate internal SSD drives. The Audio enclosure, meanwhile, has matching power and data connections, plus two AES/

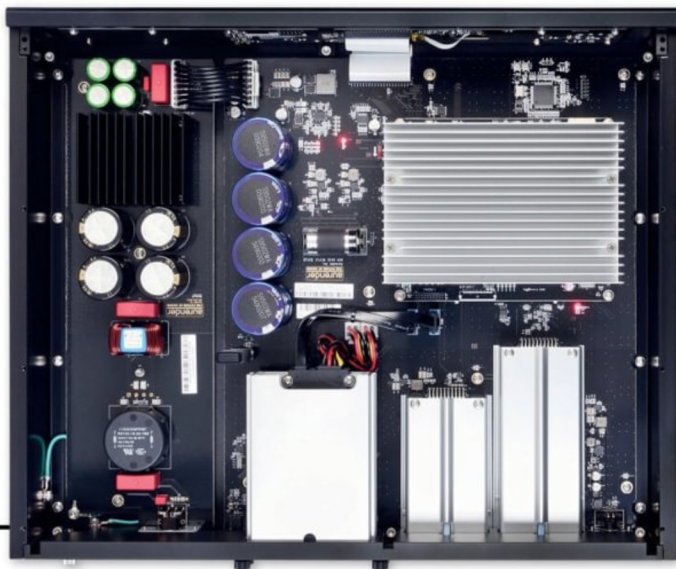
EBU digital outs – which can run together in dual-wire mode into suitable DACs up to 384kHz/32-bit and DSD 128 – and optical, coaxial and BNC outputs (192kHz/32-bit and DSD64). There's also a word clock input, for use with Aurender's MC 10 or MC20, and an I²S output, with the option of fitting an MSB Pro ISL module instead.

The partnering Power unit – all three boxes share the same black or silver alloy chassis design – houses what Aurender describes as 'two laboratory-selected, high-inductance toroidal transformers, each vacuum-encapsulated and epoxy-filled within a polished stainless-steel enclosure, ensuring maximum isolation and durability'. The power supply also uses multi-layer AC and DC filtering to, as far as possible, suppress power-line noise.

The Server employs an OCXO clock with FPGA control for ultra-low jitter [see PM's Lab Report, p47], and the three-box construction is intended to minimise interference and noise. The whole set-up is both solidly built and superbly finished, as is usual with Aurender's products.

SUPER STORE

Playback from streaming services or local storage is simple and logical via the company's excellent Conductor app [see boxout, p45], while the convenience of using the N50 as a one-box – well, three-box – storage and playback solution ☞





'The Server is dominated by a large 1920x480 display, with a cluster of controls set to one side'



LEFT: Sitting atop the Audio and PSU units, the N50 Server has a bold 8.8in/225mm colour LCD display with artwork and file info directed via the Conductor app [see boxout, below]. A menu button [top right] sits alongside play/pause and track skip. Elvis is this issue's Vinyl Icon, p104

shouldn't be underestimated. A couple of 4TB 2.5in drives to fit inside won't be cheap – budget about £1000 or so for the pair – but once installed it's simple to copy over an entire music library for fast, convenient access. In addition, the N50 provides the ability to download purchased music directly from Qobuz or Highresaudio to that internal storage.

PERFECT PICTURES

Plumbed into the *HFN* reference system [*HFN* Yearbook '25 & p41] – with the USB DAC section of the dCS Varèse stack between the N50 and amplification from CH Precision and Constellation, driving the big Wilson Audio Alexx Vfx floorstanders – Aurender's flagship swiftly set out its stall with a sound both weighty and extraordinarily vivid. Playing the 2016 remastered version of ELP's *Pictures At An Exhibition* [BMG/Manticore BMGCAT2CD3], I was taken aback by the stunning levels

of detail on offer – in decades of enjoying this live set it was as good as I have ever heard, with a simply massive sound from Carl Palmer's equally massive drumkit, and Greg Lake's bass tautly underpinning Keith Emerson's keyboard gymnastics.

Coming right up to date with the slick K-pop of supergroup BTS's *Arirang* album [BigHit Music; 44.1kHz/24-bit], there was growling bass and stunning focus from the lead vocal on 'NORMAL', all layered over the swagger of the production and the tight, clean harmonies. The soundstage filled the space between the loudspeakers to dramatic effect. Yes, it's all entirely commercial – supremely so, in fact – but it did sound rather magnificent.

Mind you, that ability was also heard to good effect with the Netherlands Radio Philharmonic Orchestra/Karina Canellakis recording of Rachmaninoff's *The Bells* [Pentatone 5187523; 192kHz/24-bit].

Presence really is a major factor with the Aurender N50, the sound being delivered without a hint of blur or confusion. The Isidore String Quartet's recording of Haydn's String Op 20 No 2 [*Adorations*; Delos DE3622] was tight and fluid, with a wide-open dynamic and a tangible sense of space around the four performers. It's a fine recording, and the N50/Varèse did it full justice, just as it did the Steven Wilson remix of the title track from Van Morrison's *Moodance* [Warner Music download]. This was like hearing the song afresh.

PLANET MERCURY

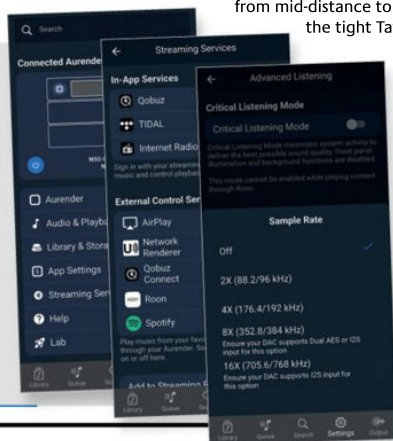
The sound was suitably mystical and atmospheric with 'The Prophet's Song' from Bob Ludwig's 40th anniversary remaster of Queen's *A Night At The Opera* [Island Japan UIGY-9513; DSD64]. The opening guitar was close and focused, while Freddie Mercury's voice drifted in from mid-distance to close-up, in front of the tight Taylor/Deacon rhythm

section. It's pompous nonsense of course, but effective, with Mercury's voice multitracking and layering in the 'Now I Know' section, before the band slams in with its lumbering riffs.

It's perhaps just as operatic as the better-known 'Bohemian Rhapsody', an old warhorse that came up fresh through Aurender's N50. ➔

CONDUCTING THE N50

Aurender's Conductor app is the key to the N50, governing both its configuration and access to stored and streamed music. It connects to native versions of Tidal, Qobuz and Spotify, plus you can control the N50 via Roon, though its Roon Ready status was, at the time of writing, awaiting final certification. The app also supports Internet radio services, and is by far the smoothest way to operate any Aurender streamer, thanks to clear graphics, logical steps and an absence of clutter. Depending on the output used, the N50 will handle PCM music files at up to 768kHz and DSD 512, while the app allows the selection of upsampling to 705.6/768kHz. Do note, however, that Aurender's 'filtered and isolated' USB output transmits LPCM and DSD data in native 'bit-perfect' guise only.



AURENDER N50

In common with Aurender's two-box flagship N30SA [HFN Jul '23], the N50 music storage/player is also a network bridge and transcoding/signal conditioning device. Other network bridges with onboard DSP include the Melco N10/2 [HFN Apr '22], Roon Nucleus Titan [HFN Jun '25] and Lumin U2x [HFN Nov '25], each with their own options. Roon's proprietary MUSE signal conditioning, with its upsampling, parametric and headphone EQ modes, is especially flexible but the N30SA and N50 feature extensive data buffering (reclocking or 'de-jittering'), emphasising delivery from a very low-noise/low-RFI source. The N50 even includes 'super capacitor' battery isolation in its server section, but does this, and all that additional separation, offer any measurable advantage?

As I've discussed many times previously, any performance uplift over PC/Mac USB sources is best inferred via third-party DACs, and AudioQuest's low-cost DragonFly [HFN Mar '14] – a USB hub-powered DAC – provides us with a good indication of incoming data integrity and noise on the +5V supply. Via the N50 there's a useful reduction in correlated jitter from 300psec to 100psec alongside a comprehensive suppression of circulating interference/noise [black spectrum, Graph 2], stretching its A-wtd S/N from 94dB to 104dB. Moreover, as we saw with the N30SE, there's also a reduction in clock phase noise – realised in the tighter 'skirt' at the base of the peak.

Again, a great improvement was realised via iFi Audio's NEO iDSD [HFN Mar '21], where its repeating $\pm 33/66/99$ Hz sidebands were attenuated from 550psec to a residual ~ 5 psec [red vs. black spectra, Graph 1] via the N50. Our reference DAC, the dCS Varèse [HFN Feb '25], with its full galvanic isolation/onboard reclocking, betrayed a marginal squeezing of residual jitter between PC/Mac and N50 'USB sources', and although the 118.1dB A-wtd S/N was unchanged there were very subtle differences in low-level noise and uncorrelated spurs. PM



ABOVE: The N50 Server [top] includes two bays for 2.5in drives, two USB-A 3.0 ports for external media, an isolated Ethernet port and a filtered/isolated USB-A 2.0 'audio' output (to 1536kHz PCM/DSD1024). A proprietary data socket connects the Server with the 'Audio' unit [bottom], which offers alternate coax (x2), optical and dual-AES digital outs. The PS output module [bottom left] is removed in this picture

The fine detailing took me deep into the mix and all that studio wizardry – for all its familiarity the track can still chill at half a century's distance, just as Brian May's guitar never loses its ability to snarl and growl from the speakers. And, yes, the *Wayne's World* headbanging moment was suitably heavy and gratifying.

THUNDERSTRUCK

Similarly, the big, bold piano that opens Supertramp's 'From Now On', from *Even In The Quietest Moments...*, now in a brand-new remaster and 192kHz/24-bit release [A&M Records download], came across both vibrant and spacious, while the album-closing 'Fool's Overture' rivalled the Queen tracks for epic scale and ambition. There's another wistful piano intro here,

building to a massive, thundering charge aided by the crisp, tight, rhythmic ability of the N50. All those sound effects and snippets of dialogue were woven through the music with excellent clarity, and the pulsing bassline sounded huge.

LEFT: While the N50 is best navigated via the app, it does come with a partnering alloy remote that covers off power, play/pause, track skip, in/out selection, display menu and volume (for Aurender DACs)



At which point PM and I vanished down a rabbit-hole, listening over and over to Tori Amos's cover of The Boomtown Rats' 'I Don't Like Mondays' from the recent remaster of her *Strange Little Girls* album [Rhino/Atlantic; 96kHz/24-bit]. We compared Tidal and Qobuz streams of the new version and the 2001 original with the download played on the N50, and then via the dCS Varèse's own streaming front-end. To my ears the N50 playing the download through the dCS DAC via USB just edged it over the Varèse's own streaming provision.

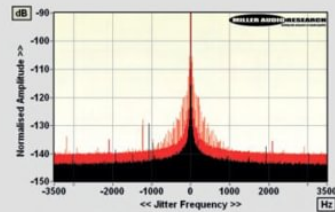
These experiments nailed the capabilities of the Aurender N50 as a top-class music source. If you want to hear streams, downloads and even your CD rips at their best, and really can't stretch to a quarter of a million (!) for the dCS Varèse, the N50 feeding a decent DAC would do very nicely indeed. ☺

HI-FI NEWS VERDICT

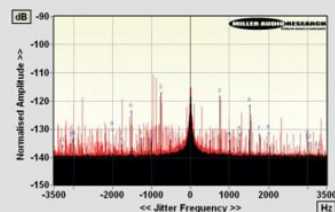
Three boxes just to drive digits into a DAC? Yes, and it works brilliantly. Combining Aurender's super-slick operating system and app, the N50 has the capacity to compel a vivid, dynamic and thrilling sound from your choice of outboard converter. Just make sure to budget the extra for internal storage, and you won't go wrong with what is an excellent keystone for a state-of-the-art digital music system.

Sound Quality: 90%

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ABOVE: 48kHz/24-bit jitter spectra from iFi Audio's NEO iDSD (via N50, black; via standard PC, red)



ABOVE: 48kHz/24-bit jitter spectra from AudioQuest's DragonFly (via N50, black w/mkr; via PC, red)

HI-FI NEWS SPECIFICATIONS

Digital inputs	Ethernet: USB-A (x2 external drives)
Digital outputs	USB-A; Coax/BNC, Optical, AES/EBU
Digital jitter (AQ DragonFly)	100psec (300psec via PC USB)
Digital jitter (iFi Audio NEO iDSD)	~ 5 psec (550psec via PC USB)
Digital jitter (dCS Varèse)	~ 3 psec (5psec via PC USB)
Power consumption	40W (3W standby)
Dimensions (WHD, ea) / Weight	430x96x353mm / 48kg (total)