hi-finews
OUTSTANDING
PRODUCT

Aurender W20SE

Pitched as 'the music server against which others are judged' and featuring a battery supply, 4TB SSD storage, a 1TB cache and custom upsampling, this is no idle boast
Review: **Andrew Everard** Lab: **Paul Miller**

Y ou're on somewhat shaky ground when reviewing a big-ticket music server, especially one with no onboard digital-to-analogue conversion. The scythes and flaming torches of the 'digits is digits' brigade might appear at any moment on the path up the mountain on which such devices are perched, and there's always the nagging doubt that the choice of partnering DAC will have more impact on the final sound.

What, then, to make of the £22,900 Aurender W20SE, the latest version of the Korean company's 'Flagship Caching Music Server and Streamer', as it chooses to describe it, even though it sits below the two-box N30SA, which sells for £1100 more? Available in silver or black, and heftily built at an all-up 21.2kg, the W20SE is a full-size 43cm-wide hi-fi component, initially appearing striking for what it isn't. For example, it is digital output-only, and while its large front-panel display looks like it ought to show cover art and more it is, in fact, completely text-based, leaving all the graphical stuff to the partnering Conductor control app [see boxout, p53].

MADE FOR MUSIC
Start playing with the W20SE and it soon becomes clear that Aurender's engineers, based in South Korea's capital, have come up with a very superior music server solution in a market where too many rivals betray their computer ancestry all too readily. The setup and operation of what is, after all, a complex device have been smoothed out to make it perform like something designed from the outset to play music, rather than a machine merely fettled to do so. Much of that is because, in common with other models from Aurender, the W20SE is built from scratch for its task, and uses no repurposed computer architecture or components.

The promised support package is also excellent: hit a snag and you can alert the company's tech department from the unit itself or app, after which a 24-hour response is on the cards with an Aurender engineer 'dialing into' your server. As music-playing devices become ever more complex and reliant on software, other companies in this field would do well to pursue a similar 'it just works' proposition.

So, what's new in this current 'Special Edition' version of Aurender's W20, a machine launched nearly a decade ago? In practice the 'upgrades' are so comprehensive that the W20SE should be considered as a separate model. The power supply retains the battery isolation for the digital audio circuits, using two banks of Lithium-Iron Phosphate cells (one set in use while the other is recharging), but replaces the switchmode PSU for the CPU, storage, and non-audio sections of the unit with a

linear supply [see inside picture, below]. An additional bank of these LiFePO4 batteries acts as an uninterruptible power supply (UPS) to protect the system in case of sudden power outages, and allows the W20SE to shut down safely.

THANKS FOR THE MEMORY
Aurender has also updated the server's internal drive structure. The original W20 used twin 3.5in 6TB hard drives, with a 240GB SSD to store the system data and cache music for playback, thus isolating the output from a direct connection with the storage drives. Fast forward to this SE version and the cache drive is a full 1TB SSD, handling data both from storage – internal and external – and streaming sources, while the main music storage is also on an SSD, of 4TB capacity. The W20SE can also play music from attached USB drives, or network storage.

RIGHT: Linear PSU [top left] serves the Intel Quad core-based mainboard, 4TB SSD and 1TB SSD cache for music playback. The digital outs are all LFP-battery powered [bottom left] while a UPS prevents sudden shutdown if mains AC fails

The LAN port is double-isolated, again to exclude noise, while the 'audio' USB-A output, previously part of the main board, is now a plug-in module, also for better isolation. This now handles DSD to DSD512, whereas the original had no native DSD support via USB. PCM capability via USB has also been upgraded, from the 192kHz/24-bit of the original to 768kHz/32-bit here. On its AES digital outputs, the W20SE delivers up to 384kHz/24-bit PCM using dual-wire working, and allows PCM upscaling to this level, too, which wasn't available on the W20 model. Similarly, DSD output via S/PDIF using DoP is now to DSD128, up from the old model's DSD64, while files of up to DSD512 are able to be converted to 88.2kHz or 176.4kHz, using a single-wire AES output, or 352.8kHz using the dual-wire connection. DoP output via USB is now to DSD256, rather than DSD128, and there's also MQA Core decoding built-in, whereas it used to be an extra-cost option.

The internal clocking has also been upgraded, using Oven-Controlled Crystal Oscillator technology to keep the clock source at a constant temperature for

accuracy. Nevertheless, the W20SE retains the ability to be referenced against external Word Clock or Master Clock inputs via rear-panel BNC connections [see p55].

For all these changes, that 'just works' appeal of the Aurender concept has been maintained: it's easy to load content onto the internal storage via USB or a network connection, and the W20SE simply updates itself on the fly. Previously, my habit of updating the server in PM's listening room with my latest acquisitions had been frustrated by a seemingly endless wait for re-indexing, or system 'freeze', only cured by a shutdown and reboot. With the W20SE it's been possible to play music while copying over a network from my laptop, the tracks simply appearing in the library, alongside tens of thousands of others, as soon as the process finishes.

'This banter brings out the ambience of the live event'

TAKING CONTROL
It's possible to 'drive' the Aurender W20SE using the front panel buttons and menu, though the fact there are only 'hard' controls for play/pause and two-way track skip means doing so is something of a

ABOVE: The dual 3.7in AMOLED display offers essential playback information, not album artwork. Menu and playback controls sit to the right, but the W20SE is better driven via the app

masochistic endeavour. Better to use the Conductor V3 app, and better still on an iPad as the iPhone version [pictured below] is a bit on the 'lite' side.

The app integrates Qobuz and Tidal, for the smoothest possible interaction with these subscription services. It's worth noting, however, that Aurender's digital players are only minimally Roon-capable, so you can cast music to them via AirPlay, but not enjoy full compatibility with Roon's RAAT lossless network transport. Why? Aurender says Roon is too processor-intensive, and 'our servers are intentionally designed to be minimalistic where processing is concerned. Also, Aurender playback software is custom engineered and tailored for Aurender hardware. That synergistic link between the custom software and hardware would be broken if we enabled Roon playback software'.

Connected to your DAC, ideally via USB for the widest flexibility of format handling, the W20SE belies that old belief that the choice of digital-to-analogue conversion ☞

THE CONDUCTOR
Aurender's Conductor app, available for Android and iOS, isn't just a neat way to control the W20SE. Instead it's an intrinsic part of the whole product, the current 'V3' – best used on an iPad with a decent-sized screen [smartphone app illustrated, right] – being so comprehensive that it has its own online manual, which you can read via this shortlink: *https://is.gd/0CbyXQ*. There are also video tutorials at *https://youtube.com/@aurender_inc*. As well as delivering crisp album artwork and fast access to the internal music library, plus other storage connected via USB or networking, it allows the user to set up and access Qobuz and Tidal (subject to subscriptions, of course). It also facilitates software upgrades, configuration with the attached DAC, setting up of playlists and play queues, and – should you ever need to do so manually, so well does the W20SE handle this automatically – fast rescanning of the user's library for any new additions.

Buy with confidence? Aurender's Remote Support system is super slick: using the iPad's Mail app, users can drop a note to the developers in Korea in the event a problem is encountered. The player drops into support mode so the engineers may access and 'fix' any glitches. Now that's *service*!
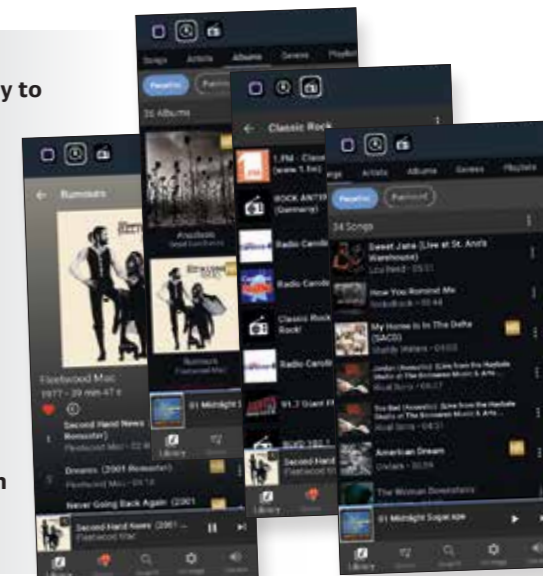
NETWORK AUDIO LIBRARY

ABOVE: An isolated Gigabit Ethernet port [lower right] is joined by two USB-A 3.0 hubs for outboard drives and an external word clock input. Outputs are on USB-A 2.0 (384kHz/32-bit; DSD512), Dual-AES (DSD128 over DoP) and coax/opt (192kHz/24-bit)

is the only determinant of sound quality in such a set-up. Indeed, as PM's Lab Report [opposite] shows, the W20SE potentially brings more to the party with lesser DACs, while also proving an excellent source with high-end converters.

As a result, the story with the sound here is not what this unit does, but what it *doesn't* do. Immediately obvious is the clarity of the sound it enables from a top-flight performer such as dCS's Vivaldi APEX [HFN Jun '22]. Bass is rich but taut and controlled, and possesses an extension and drive that's married to an openness with which even the most subtle of ambient clues are made apparent. That bombproof operation and the logic of the custom-designed Conductor V3 app is carried all the way through to an addictively enjoyable sound, whatever you choose to play.

OH VIENNA
Timothy Ridout's stunning recording of the viola arrangement of Elgar's Cello Concerto [Harmonia Mundi HMM 902618] was revealed in all its power and subtlety, from the wonderful fluidity and attack of the solo instrument to the scale and weight of the BBC Symphony Orchestra under Martyn Brabbins. For devotees of the original work, this is a remarkably illuminating experience via the Aurender W20SE/ dCS Vivaldi APEX combination.

Similarly – but somewhat differently – Rick Wakeman's live *The Other Side Of...* [Classic Media Group DVD5037X], with its solo piano versions of past keyboard excesses, had a striking combination of virtuosity and slightly scurrilous banter with the audience, the W20SE bringing out the ambience of the live event. That was also very much the case with the ever-reliable Vienna New Year's Day

Concert, here in its 2023 version under Franz Welser-Möst [Sony Classical download]. Everything from the scale and sweetness of the Vienna Phil's playing to the clapping alongside the *Radetzky-Marsch* was delivered with real vibrancy. It may be a tradition, but again the complete clarity from the Aurender W20SE delivers the sense of occasion.

SOUPED-UP SOUND
Everything this server/digital player sends to a DAC, it does so with astounding presence, leaving the rest of the playback system nowhere to hide, and that's in evidence with Mark Jenkin's score for his new film *Enys Men* [Invada Bandcamp download], with its ethereal, unsettling soundscapes. The W20SE revealed huge amounts of detail here, making the music every bit as eerie as the movie it underpins. But that doesn't mean it can't turn on the snarl when required; there's nothing polite or refined about the way it crashes out Rory Gallagher's 'Souped-Up Ford' [UMC download], with both the voice and the guitar rough, ready and delicious. ⏻

HI-FI NEWS VERDICT

Aurender's W20SE is the finest example of a high-end digital component with no sound of its own! It simply deploys its technology to deliver the best possible digital audio output to a DAC, be that from locally-stored files or online streaming services, and does so with an attractive, intuitive user-interface. All this, plus a super-slick and confidence-inspiring app, puts the W20SE at the top of the digital tree.

Sound Quality: 90%

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LAB REPORT

AURENDER W20SE

In common with the Melco N10/2 [HFN Apr '22] and Aurender's own N200 [HFN Jun '22], the W20SE music storage/player is also a transcoding/signal conditioning device. Other 'conditioning' network bridges include the Innuos Statement [HFN Jan '20], Aqua LinQ [HFN Sep '20], Grimm Audio MU1 [HFN Dec '20], Auralic Sirius G2.1 [HFN Oct '22] and Roon Nucleus+ [HFN May '18]. Like the MU1 and N200, the W20SE does not enable upsampling or DSD-to-LPCM when converting between network and S/PDIF or USB data formats – this is the preserve of the AES outputs (single AES up to 88.2kHz and dual-AES up to 384kHz). Data buffering (reclocking/'de-jittering') and delivery from a low-noise battery-powered source, with very low levels of circulating RFI, is the focus of Aurender's flagship music library.

As I've discussed in the past, any uplift in performance over PC/Mac USB sources is best inferred via third-party DACs which, here, included the Mytek Brooklyn [HFN Aug '17], iFi Audio's NEO iDSD [HFN Mar '21] and the dCS Vivaldi APEX [HFN Jun '22]. In practice the W20SE delivered its most transparent results via USB 2.0. In this instance the Brooklyn and Vivaldi provide sufficient galvanic isolation/onboard reclocking that almost no difference was measured between PC and W20SE 'USB sources' [black spectrum, Graph 2]. However, a great improvement was realised with the NEO iDSD where its repeating ±33Hz sidebands were squeezed from 550psec to a residual ~9psec [red versus black spectra, Graph 1] via the W20SE. Note, also, the ~1dB reduction in noise over Aurender's own N200 as the USB source [blue spectrum, Graph 1]. Via AES, native 48kHz streams revealed some 80psec of jitter from the dCS Vivaldi APEX [blue spectrum, Graph 2], *increasing* to 95psec with 192kHz upsampling [red spectrum, corrected for −2dBFs shift] and to 125psec with 48-to-384kHz upsampling over dual-AES. While this was unexpected, the result plays into the hands of the ubiquitous USB audio standard. **PM**
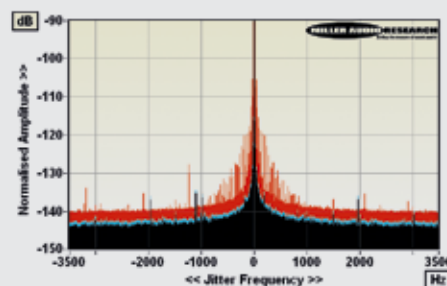
ABOVE: 48kHz/24-bit jitter spectra from iFi Audio's NEO iDSD DAC (via Aurender W20SE, black; Aurender N200 [HFN Jun '22], blue; and PC, red)
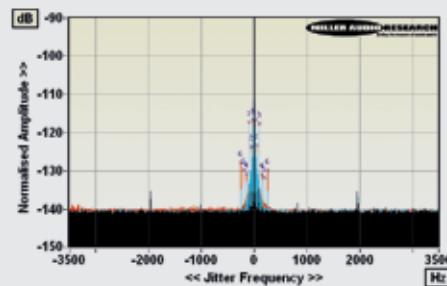
ABOVE: 48kHz/24-bit jitter spectra from W20SE/Vivaldi (via USB, black; native AES, blue; upsampled AES, red)

HI-FI NEWS SPECIFICATIONS

Digital inputs	1x Ethernet; 2x USB-A 3.0
Digital outputs	1x USB-A 2.0; 2x S/PDIF; 2xAES/EBU
Digital jitter (Mytek Brooklyn)	7psec (8psec via PC USB)
Digital jitter (iFi Audio NEO iDSD)	9psec (550psec via PC USB)
Digital jitter (dCS Vivaldi APEX)	7psec (USB)/80psec (AES)/95psec (ups)
Power consumption	22W (2W standby)
Dimensions (WHD) / **Weight**	430x127x370mm / 21kg