Innuos ZEN Next-Gen music server

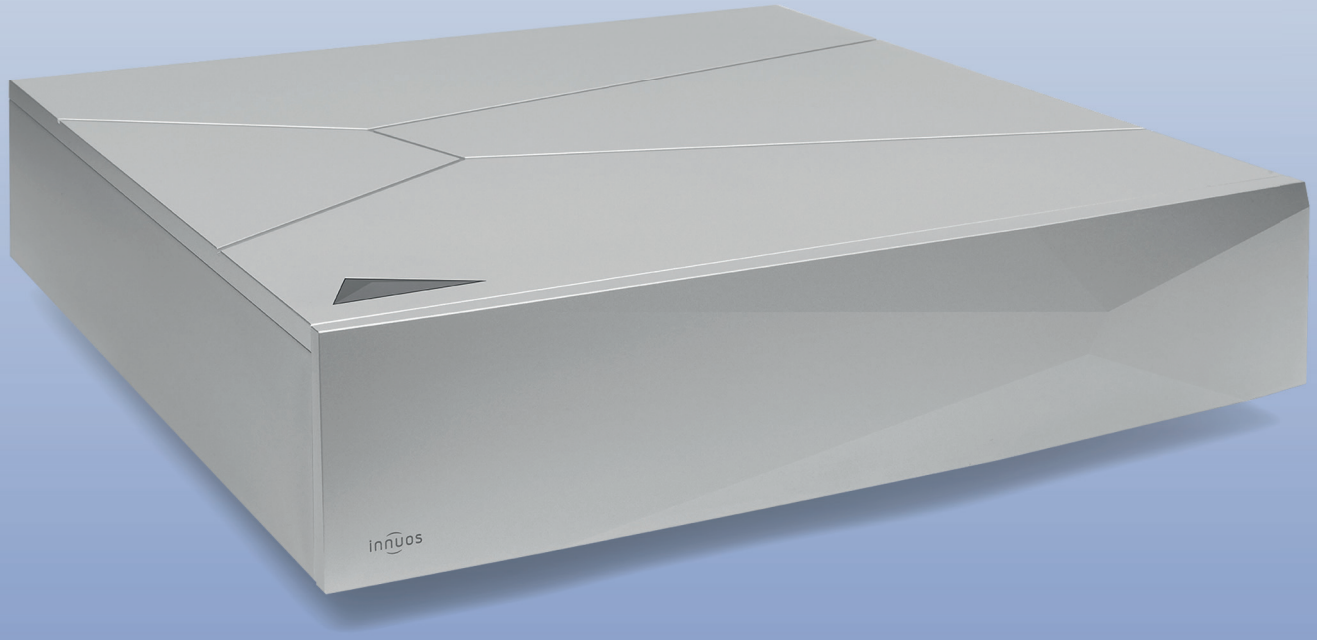
Alan Sircom

The Innuos ZEN has been a cornerstone of the brand's servers for many years. Now in Mk3 form, this server, which offers 1TB, 2TB, or 4TB of hard disk drive capacity, strikes an ideal balance between performance and economy. The ZENith Mk3 serves as the 'performance' option, while the ZENmini Mk3 represents the 'economy' entry point into Innuos music serving. Towering above these is the Statement Next-Gen. However, the apple cart was entirely upended at the Munich High End 2024 with the introduction of the new ZEN Next-Gen server.

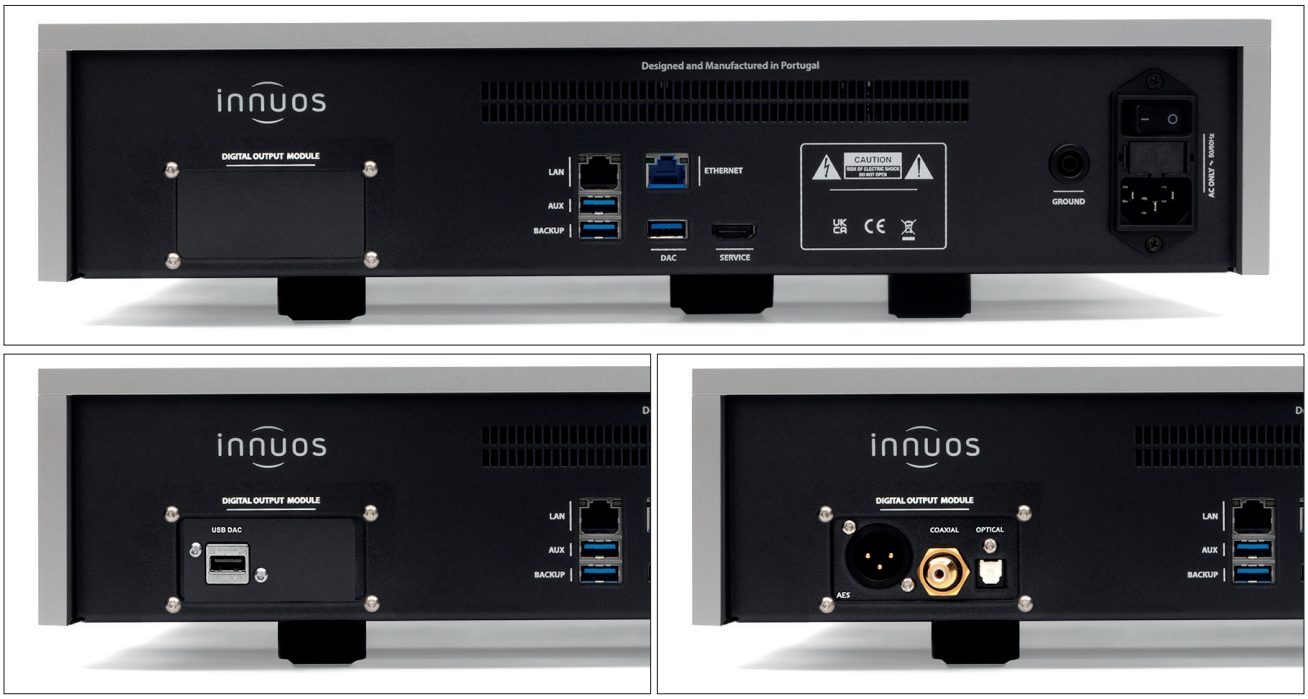
Let's quickly address the big and straightforward question: No! The ZEN Next-Gen is not replacing the ZEN Mk3, and the original ZEN line will continue. This question looms large in people's minds because the base model of the ZEN Next-Gen costs three times as much as the most expensive ZEN Mk3, and adding SSD storage and internal board options can bring the Next-Gen's price up to over five times that of the Mk3. Hearing of the new ZEN Next-Gen, owners of the original ZEN range are understandably concerned that their next Innuos server could be significantly out of reach, but fortunately, their fears are unfounded.

All Change!

Other than the ZEN name and the fact that both feature a black or silver aluminium chassis, nearly everything has been up for consideration in Innuos' Next-Gen project. Perhaps the most significant change is the introduction of a new 'PreciseAudio' custom mainboard. This Intel Core I3 based four-core (with four virtual cores) board with 16GB of industrial-grade DDR4 RAM has components »



> Innuos now exercises complete low-level control over the mainboard, allowing it to configure individual clocks and hardware protocols optimised for audio performance.



» removed, but it incorporates custom regulators specifically selected to enhance sound quality. Innuos now exercises complete low-level control over the mainboard, allowing it to configure individual clocks and hardware protocols optimised for audio performance. Given that a surprising number of servers are built around an off-the-shelf PC motherboard with 'minimal' changes to the components on that board, this alone puts the ZEN Next-Gen into the top tier of dedicated music servers.

The PreciseAudio board has a secondary bonus, but one that significantly improves performance. The Innuos-developed Sense 3 Operating System's kernel now runs in real time, drastically reducing operating latency. This lets the ZEN Next-Gen allocate specific audio processes to dedicated processor cores. Translating from Modern Geek, this means interruptions are minimised. This is not so much about finding files quicker but rather ensuring audio processing does not get interrupted which adds latency and power noise. Latency is also improved by the use of custom Gallium-Nitride-based regulators Innuos specified for the system. This lowering of latency provides faster power to the processor.

Unable to resist a motoring analogy, Innuos claim this is akin to driving through a city and getting green traffic lights at every crossroad! Of course, Innuos isn't based in London where that would increase speed to nearly 3mph!

Storage Options

Another big change is the switch from Hard Disk Drives to Solid State Drives, both for on-board music storage and a dedicated SSD to store the Sense 3 OS. This last has power loss protection in the (hopefully unlikely) event of a power cut. This is a pragmatic decision as well as a practical one; the less the drive holding the operating system is likely to go 'bang!' under worst-case situations, the less chance repairs are needed in the field. No one wants to end up with an expensive metal brick, and power loss protection reduces the chances of that happening.

The storage for music files is also well accommodated. A new Extensible Storage Management (XSM) feature in Sense allows users to seamlessly add M.2 storage via a slot at the bottom of the system. Alongside the internal storage, this creates a single storage volume of up to 16TB (you can add an additional 8TB of external SSD under the XSM system). This means there's no need to worry about free space on each individual drive unless you are storing the entire canon of Western music in high resolution. The new system is also more robust; if one of the drives fails, only the contents of that drive are affected, and backup can restore files specifically from that drive. It's possible to extend storage even further with Network Attached Storage, though this may exhibit greater latency than the onboard options. »

> The ZEN Next-Gen platform introduces an upgrade path, should you wish to take your ZEN Next-Gen to ZENith Next-Gen status.

Mad for Modules!

Unlike the existing ZEN range, the ZEN Next-Gen can be supplied with optional output board modules. This provides several advantages to the Next-Gen owner, allowing you to tailor the ZEN Next-Gen precisely to your needs. Therefore, if you are connecting to a DAC that only supports traditional digital connections, there is an S/PDIF board with optical, coaxial, and AES connectors. Alternatively, there is a USB version or even a configurable I^2S option. This prevents the need to purchase and operate unused digital inputs and, as they are retrofittable, enables the ZEN Next-Gen to adapt to your system and remain future-proof.

Speaking of future-proofing… the ZEN Next-Gen platform introduces an upgrade path, should you wish to take your ZEN Next-Gen to ZENith Next-Gen status. The inherently modular nature of the new ZEN Next-Gen platform means upgrading is easy. It also means your ZEN Next-Gen goes back to Innuos to become enZENithified. But the option is there.

Making the new ZEN Next-Gen so inherently modular means the chassis also needed to come under a lot of scrutiny. The nature of this new platform allows this degree of change and upgrade to Next-Gen models, which means it's now a 10mm thick CNC-milled affair with custom vibration damping in the transformer platform. It also has a chassis grounding connection.

CD To Go

The ZEN Next-Gen omits one notable feature: the CD slot. Although it can easily rip CDs to storage, it requires an aftermarket CD drive to do so. The reason for this omission is twofold: the significance of CDs as a one-time musical data carrier has diminished in the West. Those who rip discs have largely done so already, and downloading files has replaced the practice of ripping new discs. Another significant reason is the harsh reality that disc drives are becoming increasingly difficult to find. Innuos has stocks of drives for its existing ranges (both for new sales and to repair current products), but adding extra lines of servers to its range depletes those stocks.

Numerous manufacturers of CD players and servers have discovered this the hard way; they launch their new products into the market, only to find the transport mechanism is declared 'End of Life', leaving the new product without any CD or SACD playback option. This is particularly harsh for products sold in China and Japan, where CD sales remain strong. Unfortunately, the reality of producing magneto-optical transport mechanisms becomes increasingly uneconomic each year. The ZEN Next-Gen's lack of a disc draw reflects a reckoning with that harsh economic reality.

ZEN vs ZEN

In requesting an Innuos ZEN Next-Gen, it seemed like an obvious comparison to include a ZEN Mk3. It's also worth comparing it to my Innuos Statement Next-Gen. There's one thing all three have in common; they take a few days to come on song from cold. Fortunately, this isn't one of those 500-hour run-in times, but letting it sit for two days before you listen critically makes a lot of sense.

The other thing they have in common; they deserve good up- and downstream components. Don't sacrifice your Innuos ZEN's potential performance (either) with a Netgear switch and some low-cost CAT5 Ethernet cables. Sure, the PhoenixNet switch from Innuos is an obvious choice, but even something like a decent network filter helps.

In hindsight, the ZEN vs ZEN title bout was unfair. The ZEN Mk3 put on a good show, but the ZEN Next-Gen thoroughly trounced it. There was so much more information available from the Next-Gen it made the ZEN Mk3 sound soft and rounded. It's interface and track access times seemed glacial. The strange thing is if you listen to the ZEN Mk3 on its own, it's an excellent server. And it's damn fast even by today's standards. But when you switch over to the ZEN Next-Gen, the flaws in performance and operation become all too apparent.

The speed of the Next-Gen will be the initial attraction, even though it sounds so much better. If you go back to the Mk3 after playing with the Next-Gen, you end up mashing cover art on the Innuos app and wondering why it's taking so long.

One of the frustrating parts of audio reviewing is spending hours setting up two devices and days running them in, only to discover that the differences between them are so apparent that the listening test takes about a minute. That was the case here. I played one track on the ZEN Mk3, played the introduction again to lodge that in my brain, swapped the ZEN Mk3 for the ZEN Next-Gen, played the opening bars of that track, and swore a bit. The track was 'Ghost Hardware' by Burial [*Untrue*, Hyperdub]. Nothing sums up a grimy winter in London better than this track. It sounded great on the ZEN Mk3, right up to the moment I played it on the ZEN Next-Gen, and suddenly those broken beats and glitchy sounds snapped into focus. The rhythm

> I think this is more of a 'now' sound... which was perhaps why I played a few Taylor Swift tracks through the ZEN Next-Gen.

» was tighter, it sounded more hypnotic and actually made me want to sit on the top deck of a big red bus in the wet, staring into the bleakness outside. The sound was cleaner, more precise, more energetic and dynamic. It just got everything right.

Subsequent tracks covering everything from ABBA to Zappa only confirmed what had taken a few seconds to hear. The ZEN Mk3 went back in the box.

Making a Statement

The challenge match between Statement Next-Gen and ZEN Next-Gen was more interesting. Now, we had a fight on our hands! They trade blows and are very well-matched. It says something positive about the ZEN Next-Gen in that it's 'well-matched' against a long-standing benchmark of mine and my 'personal use' server of choice. But this was more of a slugging match.

The two did not perform identically. Their sonic signatures were very different, but both were equally valid. The Statement has an expansive, lithe, and almost fluid sound. It produces a big soundstage and effortless dynamic shading. It's not over-smoothed or warm, but it has space and grace to spare. Playing jazz or orchestral music through the Statement Next-Gen is a sublime experience, and one that is only bettered by throwing car-sized sums at a music server.

There's that rhythm again helping the ZEN Next-Gen in the clinches. I've long believed the advantage of the Statement Next-Gen lies in its ability to be both expansive and detailed (for the traditional audiophile) while also being rhythmically tight (for the Naim user or similar). Nevertheless, the ZEN Next-Gen certainly had the upper hand in the rhythm stakes. Going back to that Burial track – by way of ZZ Top's 'La Grange' [*Tres Hombres*, London] – the beat was more defined and crisper, with more precise leading-edge speed. I don't use the term 'Pace, Rhythm and Timing' or 'PRaT' too often, in part because it was overused by UK enthusiasts and also because so few products have it. In computer audio, 'PRaT' is an almost forgotten term, but the ZEN Next-Gen has 'PRaT'. It times. It doesn't trade much of that grace found in the Statement; I think this is more of a 'now!' sound… which was perhaps why I played a few Taylor Swift tracks through the ZEN Next-Gen.

The World Beyond Innuos

Comparisons are fine, but where does the ZEN Next-Gen sit outside Innuos-world? This is an easy question to answer because it stands very tall indeed. Like the Statement Next-Gen, it stands above its rivals at its price and continues to do so until you get into the super-high end of music servers. And, unless you like your music quite soft and a little saccharine, there's not a lot to say against it. Innuos has hit it out of the park again! +

Technical specifications

Type: Music Server

Audio Outputs: Digital Output: USB (Up to 32bit/768KHz, Up to DSD256 via DoP, Up to DSD512 via Native DSD), 1 x Digital Output Module: PhoenixUSB, PhoenixI2S, AES/Coaxial/Optical S/PDIF (Sold Separately), Auxiliary Ethernet Port for Streamer or NAS

Connectivity: Ethernet: 2 x LAN RJ45 Bridged Gigabit Ethernet (LAN, Aux), USB: 3 x USB 3.2 Gen2 (Backup/Import, Aux, DAC), Chassis Ground: 4mm 'Speaker plug' port

Ripping: External USB-connected CD ripper required.

Ripper Formats: FLAC (compression level 0), WAV. Playback

Audio Formats: WAC, AIFF, FLAC, ALAC, AAC, MP3, MQA

Sample Rates: 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz, 352.8kHz, 384kHz, 768kHz. DSD over PCM (DoP) up to DSD256. Native DSD up to DSD512 (on selected DACs)

Bit Depths: 16bit, 24bit, 32bit

Web Interface: Modern Web Browsers from iOS, Android, Windows and OS X

Mobile: Innuos Sense App for iOS/Android/Kindle Fire

Storage: 3D TLC SSD for OS. [Optional] 1 x PCIe NVMe SSD – 2TB / 4TB / 8TB (Factory fitted), [Optional] 1 x m.2 NVMe SSD (User or factory fitted)

Processor: Intel Core i3 (4 x Physical Cores + 4 x Virtual Cores)

Memory: 16GB DDR4 Industrial-Grade RAM

UPnP/DLNA: AssetUPnP

Streaming Services: Qobuz, Tidal, Deezer, HighResAudio, Internet Radio

Finish: Black or Silver

Dimensions (WxHxD): 42x10.5x36.5cm

Weight: 12.7kg

Price: from £9,000, $12,000, €9,500

Manufacturer Innuos

www.innuos.com +351 308 800 826

UK distributor Innuos

www.innuos.com +44(0)2475 200 210