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AURENDER

Digital Music Server · N Series | Product Features Reference

N300X Features

X Architecture · Dual Module Design

The N300X is a new Digital Music Server in the Aurender N Series. At its core is X Architecture, built from a Server Module and an Audio Module. Around it, an OCXO + FPGA clock whose jitter (phase noise) is reduced by Aurender's in-house technology, a replaceable SFP network module and USB galvanic isolation block, step by step, the paths by which noise could enter the audio path. The N300X was first unveiled at Vienna High-End 2026 in June 2026.

CORE TECHNOLOGY

X Architecture · Dual Module

Server CPU and Playback CPU run on two independent CPU boards, housed in the separate chassis of the Server Module and the Audio Module and linked by an SFP optical interface. By its very structure, it keeps noise generated by server processing from reaching the playback path. This is the most important technology in the N300X.

Caching Playback

Plays from a 250GB NVMe cache; the disk sleeps

OCXO + FPGA Clock

Jitter (phase noise) reduced by Aurender in-house technology, 10MHz external clock input (50Ω/75Ω)

Dual Toroidal Power

One per module, two independent linear supplies

Replaceable SFP Network Module

Network port replaceable with Gigabit or SFP; optical connection blocks network noise

USB Galvanic Isolation

Galvanically isolated USB Audio output blocks noise from reaching the DAC

Extended Connectivity

Five digital outputs, Google Cast·Bluetooth·TV ARC

Internal Reference · Guidelines for External Documents

- **Module names:** The system consists of a Server Module (internal name N300XR) and an Audio Module (internal name N300XE).
- **Price and availability:** These are set by the partner in each country, so they are not included in materials distributed by headquarters.
- **Embargo:** None. The main specifications were already made public at Vienna High-End 2026 (June 2026).
- **Roon Ready:** Write "certification in progress". Roon certification can start only after mass-production units are released and submitted to Roon, and it takes six months or more after mass production to complete.
- **Technology name:** Use X Architecture.

01 Core Technology: X Architecture and the Dual Module Design

X Architecture, Aurender's new Dual CPU Board technology, uses two independent CPU boards. The two boards are connected by an SFP optical interface, which blocks noise from the Server CPU Board from reaching the Playback CPU Board at its source. Models built on X Architecture carry an 'X' after the model name.

SERVER MODULE

Server CPU

Handles the system's complex tasks, including the user interface, network communication, streaming service processing and library management.

AUDIO MODULE

Playback CPU

Handles music playback only, in a minimal Linux environment.

The N300X is built as two chassis, a Server Module and an Audio Module, designed to minimize internal interference and preserve the integrity of the music signal. The Audio Module takes only the music data from the Server Module over an SFP optical network connection. With signal and power fully separated, sound quality is greatly improved at the USB Audio output as well as the Coaxial S/PDIF, Optical (TosLink) S/PDIF, AES/EBU and I2S outputs.

02 Caching Playback

Caching Playback is a common technology used in every Aurender source component, and the N300X has it too. Tracks to be played are first copied from the library storage to a 250GB NVMe cache and then played from the cache. Music streams arriving over the network are also stored in the cache before playback.

BENEFITS

Because the disks are not accessed during playback, they go into sleep mode. Mechanical and electrical noise from storage is kept out of the audio path, and problems such as playback delays caused by fluctuating network traffic are prevented.

03 Audio Clocking for Ultra-Precise Timing

Precision clocking is at the core of the N300X, for an accurate musical flow. In particular, jitter (phase noise), the timing error of a digital audio signal, is reduced by Aurender's in-house technology.

- **FPGA-controlled OCXO clock:** A precision OCXO clock is combined with FPGA and PLL chips, and Aurender's in-house technology reduces jitter (phase noise) to provide ultra-precise timing.
- **External master clock input:** A 10MHz external clock input (50Ω or 75Ω) is provided to raise the system's precision further.

04 Dual Toroidal Transformer Power Supply

Two toroidal transformers, one for the Server Module and one for the Audio Module, supply linear power independently, isolating the audio output signal more cleanly from noise.

05 Interface Design for Noise Isolation

Beyond separating the Server Module and the Audio Module, the N300X is designed to block noise paths at the network and USB output, where it connects to other equipment.

- **Replaceable SFP network module:** The network port can be used as 1x Gigabit or replaced with 1x SFP. With an optical SFP module and fiber cable, the unit is electrically separated from the network equipment, keeping noise from the network side out of the unit. This port is separate from the SFP optical interface that links the two modules.
- **USB galvanic isolation:** The USB Audio output is galvanically isolated, keeping noise from reaching the DAC through the USB cable.

06 Extended Connectivity and Flexibility

A wide range of digital audio interfaces suits many kinds of high-end system.

- **Digital outputs:** One each of USB Audio (Galvanically Isolated), I2S, Coaxial S/PDIF, Optical (TosLink) S/PDIF and AES/EBU. One 12V Trigger output.
- **I2S pin assignment:** Selectable in the Aurender Conductor app, for connection to a wide range of I2S-input DACs.
- **Network:** 1x Gigabit or 1x SFP Ethernet port (replaceable). Using an optical SFP module blocks network noise (see 05).

- **New connectivity:** Google Cast, Bluetooth and TV ARC (HDMI eARC), which were not available to existing N Series customers.
- **USB:** Two USB 3.0 ports.

07 Integration with Premium Streaming Services

- **In-app services in Aurender Conductor:** TIDAL, Qobuz, KuGou Hifi[1], Bugs·Melon[2]
- **External streaming:** TIDAL Connect, Spotify Connect (supports Spotify Lossless), Qobuz Connect
- **Roon Ready:** Certification in progress
- **UPnP:** Supported

[1] China and selected countries [2] Korea only

08 Powerful Hardware and an Efficient OS

- **CPU:** The Server Module and the Audio Module each run their own CPU independently.
- **Operating system:** Linux, boots in under 23 seconds
- **Cache storage:** 250GB NVMe (PCIe 3.0 x4), in the Server Module
- **Library storage:** Two 2.5-inch SSD/HDD trays (user-installed), in the Server Module

09 Specifications

Item	N300X
PHYSICAL	
Configuration	Dual-Module System (Server Module + Audio Module), X Architecture, stackable
Dimensions	350 x 83 x 355 mm (13.8 x 3.27 x 14.0 in), each module
Weight	Server Module 8.4kg / Audio Module 6.4kg / Total 14.8kg
Front Display	6.86" 1280x480 IPS LCD
Buttons / Remote	1x Power, 4x Function, 1x Output button / 1x IR Remote
TECHNICAL	
Power Consumption	Peak 45W / Play 35W / Standby 1.5W
Power Supply	2x Toroidal Transformer (one per module)
Cache Storage	250GB NVMe PCIe 3.0 x4 (Server Module)
Disk Tray	2x 2.5" Tray for SSD/HDD (Server Module)
Ethernet	1x Gigabit or 1x SFP - Replaceable (SFP for optical isolation from network noise)
Inter-Module Link	SFP optical interface
Operating System	Linux (boot time under 23 sec)
Control App	Aurender Conductor
AUDIO	
Audio Clock	High-precision Clock (OCXO + FPGA), jitter (phase noise) reduced by Aurender in-house technology
External Clock Input	10MHz (50 ohm or 75 ohm)
Input	2x USB 3.0, Google Cast, Bluetooth, HDMI eARC

Output	1x USB Audio (Galvanically Isolated), 1x Coaxial S/PDIF, 1x Optical (TosLink) S/PDIF, 1x AES/EBU, 1x I2S, 1x 12V Trigger Output
I2S Pin Assignment	Selectable in Aurender Conductor
USB Audio / I2S Formats	PCM up to 768kHz/32bit, DSD up to DSD512 (Native) / DSD256 (DoP)
S/PDIF / AES/EBU Formats	PCM up to 192kHz/24bit, DSD up to DSD64 (DoP)
DSD to PCM	Up to DSD512 via Coaxial / AES/EBU / Optical
Supported File Formats	DSD (DSF, DFF), WAV, FLAC, AIFF, ALAC, M4A, APE and others
Headphone Output	Not Available
STREAMING	
In-app Streaming	TIDAL, Qobuz, KuGou Hifi (China and selected countries), Bugs, Melon (Korea only)
External Streaming	TIDAL Connect, Spotify Connect (Lossless), Qobuz Connect, Roon Ready (certification in progress), UPnP