



Aurender N100H music server/streamer review

John H. Darko 29.09.2015

For the entry-level digital audiophile the appeal of a consumer grade PC serving double-duty as music server/streamer/player AND handler of everyday tasks is compelling. The option of later re-deployment as media server or straight-up office workhorse only underscores its utility and, therefore, value. However, such machines weren't designed with optimal digital audio playback in mind. They have a tendency to pollute a downstream DAC with electrical noise. Noise that often makes digital playback sound not quite right. In my experience, the biggest contributor to an undesirable sound in a digital audio playback chain is treble glare. It can be exceedingly difficult to pinpoint and when present, listeners often complain that music sounds uptight, rigid, anaemic or emotionally distant.

Case in point: Apple's MacMini. US\$499 nets a base level unit with 4Gb of RAM and a 500Gb HDD for music storage – rather modest by 2015 standards. On the software side, iTunes comes pre-installed whilst cloud streaming apps can be installed directly from the App Store at no extra charge. Easy, right?

Not so fast.

Once up and running with a Mac Mini, we soon eye a swanky USB cable and/or USB-S/PDIF converter to re-clock and (partially) electrically isolate the source computer from the downstream DAC. With both come the promise of improved sound quality. AudioQuest and WireWorld (among others) offer US\$100 USB cables but better still is the Curious USB cable for US\$340 which, to these ears, even trumps Light Harmonic's \$uper deluxe LightSpeed offering.



USB-converter? Class leaders like the [Audiophilleo2](#) and DAC-double [Resonessence Labs Concero](#) sell for US\$579 and US\$599 respectively. Now our Mac Mini-fronted system budget tips the US\$1K marker.

A few bucks could be saved by tackling the USB output's EMI and signal integrity with an Uptone Regen (US\$175), [Schiit Wyrd](#) (US\$99) or [AudioQuest JitterBug](#) (US\$49) – or a combination of at least two of the three.

Then comes a specialist music player that casts solo-iTunes' as comparatively limp and lifeless. [Audirvana+ 2.0](#) sells for US\$74, [PureMusic](#) US\$130, [JRiver](#) MC US\$70 and Amarra US\$35/US\$99. Time limited demo versions are available from each coder's website.

The total spend on a MacMini and its audiophile-approve accoutrements now pushes our wallet close to US\$2000. And that's just the beginning.

Time passes as we begin to move beyond novice territory. We've all heard of the benefits of audio playback from an SSD – the absence of moving parts theoretically translates to lower electrical noise and its audible byproduct, our old friend treble glare.

Optioning an SSD at time of ordering the Mac Mini halves internal storage space to 256Gb but adds US\$200 to its sticker price. An aftermarket installation will cost more.



What about improving the power supply? Swapping out the MacMini's internalised stock SMPS for a linear equivalent potentially deals noise and glare a further blow. The catch? Modifications of this nature require careful and invasive surgery for which the Apple unit must either be shipped to and from a specialist practitioner – as per Your Final System – or meet with the dining room table treatment proposed by [CLONES Audio's Power Station](#), which sells for just south of a grand.

Paul McGowan of PS Audio [reported favourably](#) on improvements wrought by [Your Final System's](#) Mac Mini mods. "*These changes made a heck of an improvement.*", says McGowan.

I can neither confirm nor deny their efficacy but there's no doubting their expense: US\$1895 for the PS-12m Linear power supply and US\$650 for the internal Power Filter mod.

Our total spend now threatens US\$3K. And you may ask yourself: "*How did I get here?*"

My point: it's all easy to find oneself attracted to the Mac Mini's seemingly modest initial outlay and double utility only to discover post-purchase that big bucks can be (and are!) required to bring its digital audio performance up to par.

Is the Mac-to-DAC front end a false economy? One could easily make a case in the affirmative.

Last year I pitted a tricked-out 2010 MacMini against the AURALiC Aries (US\$1599) and found the Apple box wanting sonically. I have since confirmed this finding thrice over.

This begs the question: why bother with the Mac Mini and its appendages at all when a similarly-priced turn-key solution can best 'em on sonics right out of the gate?



I now own the optical-drive-free 2014 Mac Mini to which I have applied a slew of USB-improving toys. Schiit's Wyrd and AudioQuest's JitterBug are frequently run in parallel with – or instead of – the Resonessence Labs Concero HD USB reclocker. However, the biggest leap forward for the Mac Mini for this user has come by way of the Curious USB cable used in tandem with the Uptone Regen. From this pairing I get the single most satisfying results, both tonally and with the curtailment of – you guessed it – treble glare.

I like big BUTS and I cannot lie. Not one single combination of Mac Mini and peripheral devices has so far bested the sound of Aurender's N100H; a digital audio streamer/server that comes pre-loaded with: 1) audiophile-approved 120Gb solid state hard drive (for cached playback); 2) custom 35 Watt linear power supply; 3) low noise USB output. Check one, check two, check three.

Chatting to Aurender's Harry Lee at the Munich High-End Show in May served as a reminder of how attitudes towards digital audio repositories still vary from one territory to the next. Despite the rise in

popularity of lossless streaming services, multi-TB local storage – according to Lee – remains crucial to Asian markets where large libraries afford their owners serious bragging rights.

At its CES 2015 launch the N100 was intended as streamer first and foremost. Its role as a server was secondary concern. User-supplied drives could be connected to a pair of rear-facing USB ports for anyone wanting to keep it local. But by Munich, Lee had caved to market pressure and specified internal storage too. H is for HDD: 2TB of internal real-estate at your disposal for anything PCM plus single- and double-rate DSD.

From a follow-up email Q&A with Mr Lee.

Me: *Music played from the internal HDD it buffered into the SSD before playback by MPD, right?*

HL: Yes.

Me: *What about music streamed from an attached USB drive? Does that get buffered into the SSD first?*

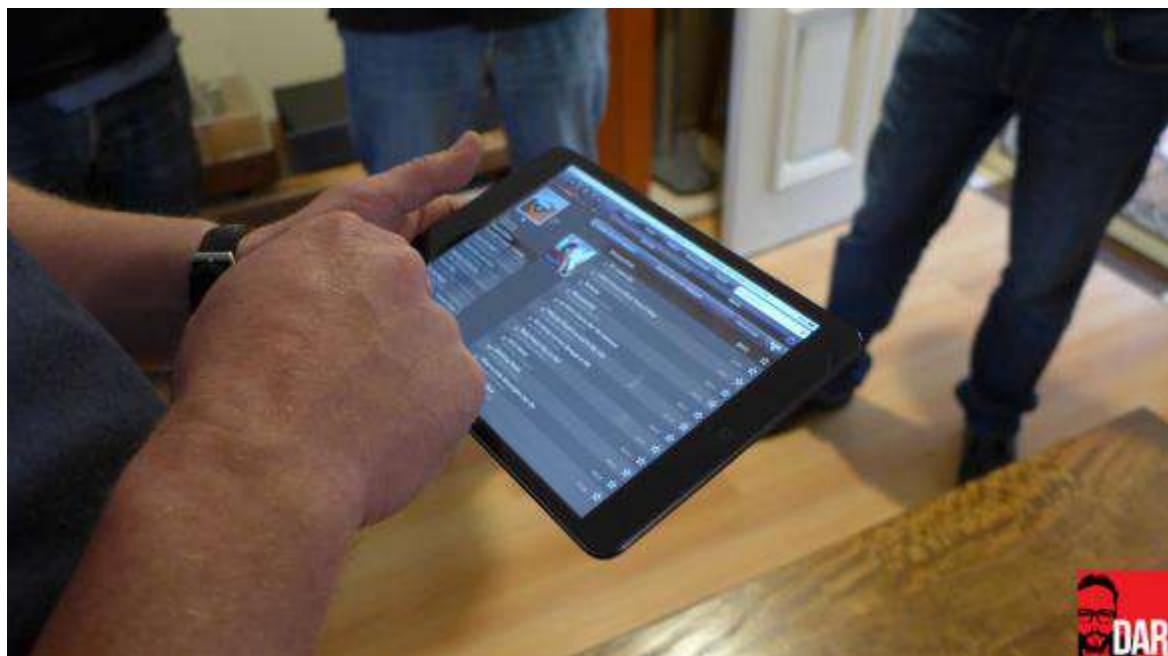
HL: Yes, it is cached to SSD.

Me: *Finally – what about UPnP sources on the LAN? And what about Tidal? Do they see SSD buffering?*

HL: *Music from a NAS is cached to SSD too but we do not use UPnP as you have mentioned. We use NAS as a simple file server. On Tidal, we do not cache to SSD but we buffer to the RAM and we buffer the whole song. You can play the song from Tidal and wait for a while, pull out the LAN cable from the Aurender and you will still hear the entire song. Caching to SSD is considered offline play and for that there are rules to follow. We have not implemented them yet. When we do, Tidal songs will be cached to the SSD.*

Ignoring my review unit's internal drive for the first few weeks, I ran it as network streamer, pulling content from network attached storage devices and the cloud, before treating it as a traditional file server in the home stretch.

More spec-age: 4Gb RAM; iPad control via the Conductor app (iOS and 'Lite' Android beta); headless Linux operating system; MPD library organiser and player; Gigabit Ethernet connectivity; multi-coloured AMOLED display; all boxed up in a brushed aluminium case that connotes cool understatement. Check four through eleven.



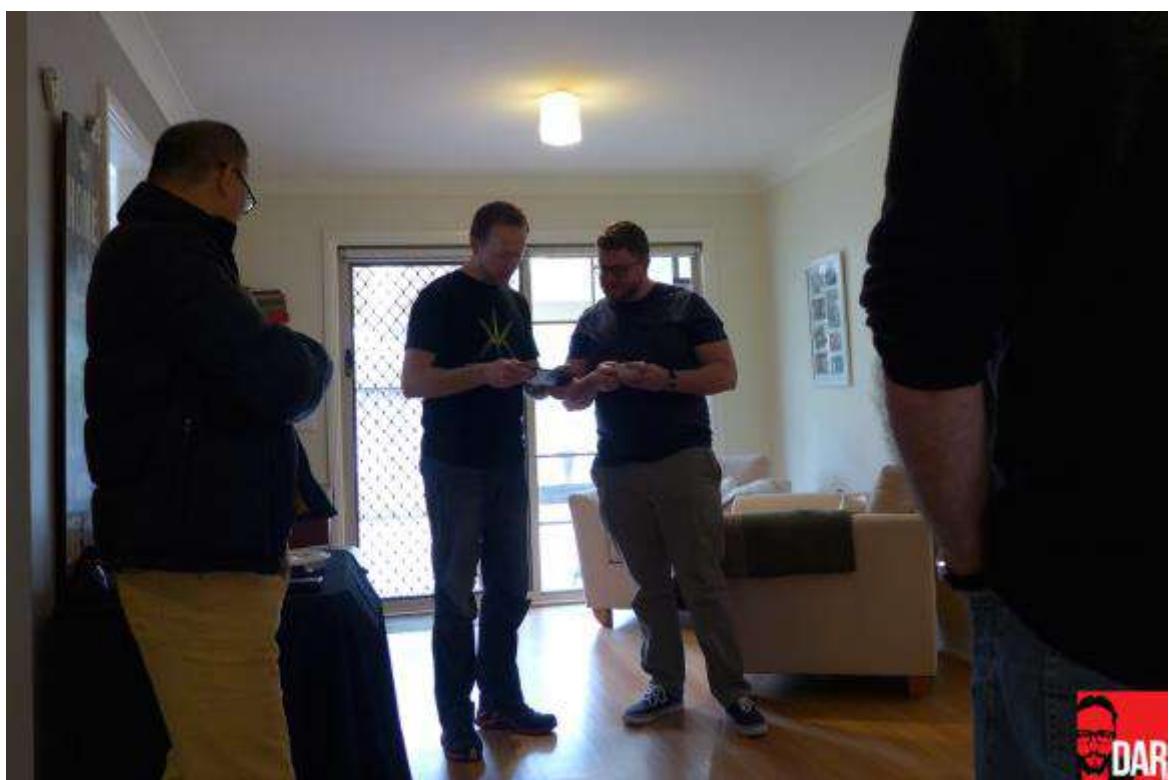
All internal boards are designed in house – there's nothing off-the-shelf about here – and the USB output has been designed to keep electrical noise emissions as low as possible so as not to disturb the DAC's internal clocks. The latter is no doubt why the Aurender solution displays deeper tonal

saturation and fatter, better textured basslines than its Cupertino-designed rival. Apple care not about EMI/RFI beyond legislative compliance.

Emerging from its box, the Aurender is a two-hand lift and beautifully finished. Fully engraved brand naming means the N100H has considerably less of Antipodes Audio's homebrew PC vibe whose top-shelf DX (US\$6500) remains this commentators pick of the bunch when assessed on sonics alone. The DX has an uncanny knack of wiping away that last hint of glare affixed to the lip of cymbals and hi-hats when listening via the N100H. This vanishingly small delta is what separates the N100H from more-than-twice-as-expensive competition on sonics.

The Antipodes also has the disc-ripping advantage. There's no optical drive to be found on the Aurender.

But stay focussed dear reader because the Aurender unit is MUCH closer to the DX's audible prowess than it is a tricked-out Mac Mini. On price it is much closer to the Apple and its add-ons. Stateside MSRP of the N100H is pegged at US\$2699 for the N100H. Forego the letter H and a 2TB internal drive to save US\$200.



Krispy Audio's Cameron Pope shows off the Aurender Conductor app at the 2015 'Krispy's Ultimate Noise Therapy' listening event.

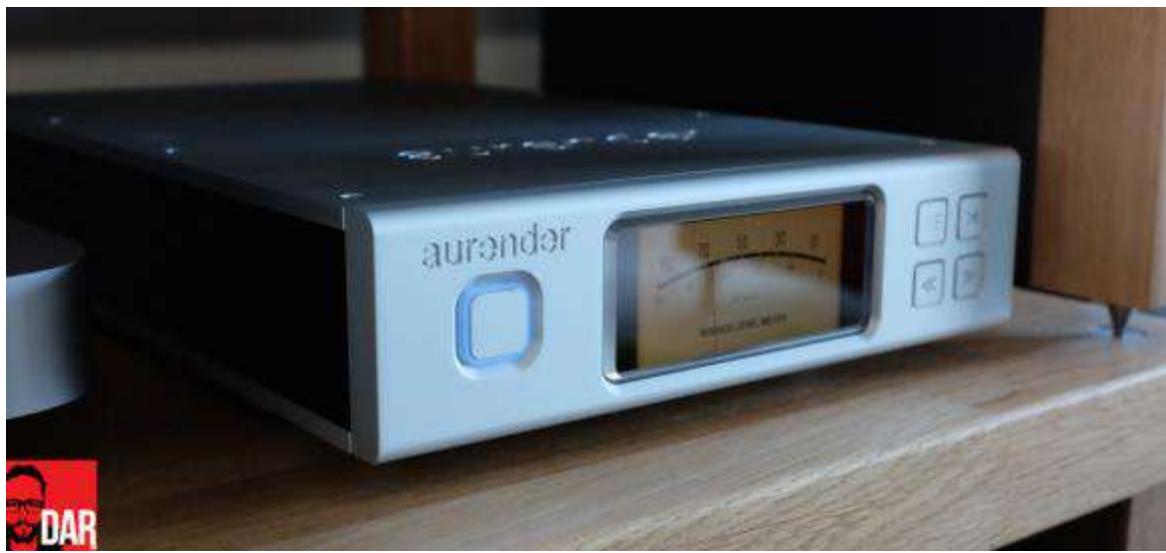
It doesn't take a genius bar operator to see that the sharpest value offering (by far) comes from South Korea.

Anyone bugged by Audirvana+ and co.'s insistence on settings panel DAC nomination each and every time a DAC is re/connected will really dig the Aurender's mouse-less, keyboard-less control. The user need only look to the N100H's display for confirmation of Ethernet hook-up (no WiFi here) and DAC connection. Startup and shut down routines are also tracked by the Aurender's AMOLED display.

Hot-swap-ability satisfies this reviewer's thirst for a more graceful ebb and flow when conducting A/B sessions. The N100H instantly recognised both Aqua La Voce and multi-bit Schiit Gungnir, even when yo-yo-ing between the two – no reboot required.

Even better: a quad of front panel buttons allow for hands-on interaction: play/pause, previous/next and the ability to cycle through a several display modes, two of which I'll single out here:

1. 'Now playing'. Being able to ascertain artist and song specifics without consulting iDevice is a feature difficult to live without once you've become accustomed to its presence. With an N100H serving tunes at your next social gathering, no listener has to puncture the conversation with "Who is this again, Barry?" This thankfully includes Tidal/WiMP stream info but I saw only file names displayed when playing back from a NAS.2.
2. Digital VU meters. Show me an audiophile who's not a sucker for a VU meter and I'll take him for a ride through Brigadoon on my gold-plated Unicorn.



The N100H is eminently more user friendly than the Antipodes whose web-based configuration panel is fine for the majority of users but (I think) has the potential to put off the more technologically challenged. Pulling up the Antipodes' settings page via a web browser is the only way to confirm DAC recognition, conduct back-ups and install updates.

For N100H configuration we take to Aurender's rather smart Conductor app. Users are advised that an iPad is all but mandatory until the Android version's limited feature set is expanded. We hit the app's cog wheel to access screens for Tidal/WiMP login, networked storage nomination, firmware updates, library refreshing and display config.

Users of AURALiC's Lightning DS app (for the Aries), Orange Squeeze and iPeng (with Antipodes units) will know that cloud and hard drive sources cannot be mixed at any one time; it's either one or the other. Moreover, Antipodes' Squeezebox Server back-end requires the IckStream plugin for Tidal, the setup of which isn't a cakewalk.

Music playback comes via a live playlist which can be added to or subtracted from on the fly. Crucially, the Conductor app cares not about a file's location – plug login credentials for Tidal/WiMP into the settings page and you're free to move between local and cloud content. Such source agnosticism means alternating between songs from Tidal/WiMP and home-based drives is seamless. Only the Tidal logo attached to each cloud streamed tune gives the game away. Minor niggle here: locating Tidal/WiMP content within the Conductor app isn't easy first time out. Click 'Aurender'.



Users running up against a more serious technical hurdle (as I did) can call upon the assistance of Aurender's tech support service from within the Conductor app itself. Unable to copy files to the server's internal drive I lodged a support ticket. An email response arrived within three hours of raising the alarm. A long press of play on the N100H's front panel displayed the diagnostic data necessary for remote login and fix.

I'll admit to feeling somewhat anxious about this review pulling me away from Roon. As a stepping stone I first moved from Roon to Audirvana+ where Tidal gets zero look in. Roon might offer the ultimate in library experience but it falls short of Audirvana+ on sound quality, coming off slightly flat and less involving by comparison. This mirrors my findings in comparing the Aurender to a Mac Mini kitted with bells and whistles. The N100H is more resolving and emotionally engaging; it makes me want to listen for longer.

The Aurender N100H also has the edge on the AURALiC Aries on both build quality and ultimate usability. Front panel control is of genuine value, particularly to those moving over to computer-based audio from a CD player or those needing to quick access to pause before answering the phone

The Aurender also pips the AURALiC piece to the post on sound quality. But only just. The N100H is a little meatier with acoustic mass – not that the Aries is skeletal by any stretch. Such deltas couldn't – and shouldn't – be described as huge. In trying to nail 'em down I was reminded of the John Cleese's waiter tempting the gluttonous Monsieur Creosote with an after dinner mint in Monty Python's Meaning Of Life. "It's only wafer thin, Sir".



I'd also add that the audible amelioration brought by switching from the Chinese streamer (that doubles as a server) to the South Korean server (that doubles as a streamer) moves in lockstep with an increase in physical mass, build quality and – perhaps most crucially to the consumer – price. Even though an extra grand is required for the Aurender ya get what ya pay for. But let's bring things back full circle. The Aurender N100H sounds superior to a tricked-out MacMini which in turn bests a MacBook Air (proving that an SSD ain't everything). In Aurender land, the need for corrective accessories doesn't weigh anyway near as heavily. The likes of the Uptone Regen and/or AudioQuest still bring improvements but of minor magnitude. Up in smoke goes the need for audiophile software player and USB-converter. The point is: they aren't mandatory – the N100H sounds terrific out of the box. And there's Roon. Less three dimensional of soundstage and supple with dynamics that Audirvana+. That's a tricky situation to reconcile. For the listener demanding the best of both worlds – Roon's peerless library skinning and interface AND Audirvana+'s superior sound – Apple hardware cannot help. But Aurender can. Roon Endpoint functionality is reportedly just around the corner for the N100H. In the meantime, one can fire Roon at the Aurender's in-built Airplay service. For this fella, that means the Mac Mini will eventually run Roon Server only. It then matters not how electrically noisy the Apple unit. Aurender's low noise USB circuitry will be interfacing with the downstream DAC instead. The iPad will run both Aurender's Conductor app and Roon Remote, thus providing the best of every possible combination of local, network and cloud music supply. Aurender's N100H stylishly sidesteps the hit-and-miss, bit-by-bit world of PC/Mac improvement whilst simultaneously obviating the need for a separate music server or NAS. It's a self-contained solution encased in a box that shows Aurender's keen eye for sleek industrial design which, let's face it, is sorely lacking at the affordable end of the audiophile music server segment (and even in some high end solutions). **The N100H's handsome looks, hands-on control and virtual VU meters will kick goal after goal for the silent majority who care about the icing as much as the cake. That the N100H arrives with more than enough potential and flexibility to satisfy both newcomers and experienced 'philes alike – not to mention the unmissable fact you have to spend a good deal more money to better it – means the only appropriate way to wrap this commentary is with a bow: DAR-KO award.**

