



The Aurender X100L - And Audio File Transport

text and images by Wojciech Pacuła, translation by Andrzej Dziadowiec

TVLogic is a Korean manufacturer of audio components and UHD (Ultra High Definition) TV monitors. It just so happens that its research department is behind creating one of the most interesting audio file transports, the W20. Milled from an aluminum billet and equipped with a SSD drive, ultraprecise Oven-Controlled Crystal Oscillator (OCXO), jitter reduction circuit based on battery-powered Field Programmable Gate Array (FPGA), as well as a fantastic iPad app for its operation, it caused quite a stir in the market that seemed to have already been divided between the major players, led by Linn, Naim, and then also Lumin.

I'm referring to this unit as a "transport" not without reason. All the above manufacturers offer complete digital music players, featuring both the section to read audio files from the media (transport) and digital-to-analog converter (DAC). Aurender approached the issue differently by concentrating on what they do best, i.e. taking care of digital signal processing and its proper transmission, and leaving D/A conversion to the others.

The W20 was and still is a very expensive piece of audio equipment, and even the cheaper S10 that was launched to the market some time later, has not changed much in this respect. Hence, the announcement of two new products, the X100L and X100S transports selling for a fraction of the cost of the W20 and S10, was met with great anticipation.



Both the X100 variants are almost, but not exactly, the same. The letter 'S' and 'L' in their name denotes the size of the hard drive used and can be deciphered as "Small" and "Large," respectively, which also translates into the enclosure length of each. The 'S' version comes equipped with a 1TB hard drive, while the 'L' features two 3TB drives for the total 6TB of disk storage space (an upgrade to 8TB is also possible). The Aurender engineers believe that disk location should be as close to the player as possible, although it is possible to use a NAS drive. An internal hard drive has also some disadvantages, however, among which the most important are additional RF noise and vibration generated by the drive while accessing the data. And vibration (along RF and mechanical noise) is a major source of distortion in the audio devices and is fought against by every possible means.

As the Aurender features a built-in hard drive, its designers had to face the problems referred to above. To reduce mechanical noise, they did not include a cooling fan and IC chips are covered with a large heat sink for a passive cooling solution. The heat sink also acts as a RF noise screen. They battled the HDD-induced vibration in two ways. The hard drives are mounted to a special support frame with rubber pads, mechanically decoupling the two. But this is only the beginning. What is more important is the use of SSD (solid-state drive) as a cache. After using the Aurender App to create a playlist by adding individual tracks (or albums), the selected audio files are copied from the HDD to SSD, the HDDs are turned off and the music is played from the SSD memory. The idea of using SSD for playback is not new and can be seen in players from Blacknote (see [HERE](#)), Bladelius (see [HERE](#)) and others. The Aurender approach, however, is to let the users keep their entire collection, mainly in the form of a high-resolution files, on the built-in storage. And DSD128 files take up a lot of disk space (up to 300 MB a few minutes is a file). Hence the need to use hard drives. Of course, it won't be long before we see equally capacious and much cheaper SSDs. I perfectly remember the year 2006 and Panasonic proudly announcing the imminent launch of a 4GB SD memory card (see [HERE](#)). Today it is next to nothing. The X100L employs a 120GB SSD as a cache drive.

Another difficulty that had to be dealt with was a large amount of RF noise affecting the quality of the output digital signal. As I said before, the W20 employed sophisticated methods of noise reduction, including a LiFePO4 (LFP) battery power supply and the manufacturer claims to use the same methods in the new players.



The Aurender X100L/S had its official premiere at CES 2014 in Las Vegas (January 7-10). The player supports bit-perfect playback of DSD files (DIFF/DSF, both DSD64 and DSD128), as well as WAV, FLAC, ALAC, APE, AIFF, M4A and other major audio formats, in native resolutions and sampling frequencies up to 32-bit and 384kHz. Its characteristic feature, in addition to an excellent and highly readable AMOLED front panel display, is a single digital audio output in the form of a USB port. This dedicated USB Audio Class 2.0 output with proprietary power circuitry is designed to eliminate audio signal noise and is carefully shielded from outside RF interference.

Why using a single USB digital output? After all, we are used to Blu-ray, DVD and CD players featuring digital outputs in the form of either optical Toslink or electrical, coaxial RCA (or BNC). Well, the reason is that the X100L is actually a specialized computer and as such it uses Universal Serial Bus for audio signal output.

Which brings us to one of the disputed points of the program—dedicated digital music player vs. computers in the same role. The issue is not straightforward and each side has strong arguments in its favor. The advantage of the computer as a digital signal source is that it can be virtually endlessly improved by upgrading the software and trying out different software players. A strong supporter of this approach is Marcin Ostapowicz, the owner of JPLAY and co-developer of the best software player I know. Another advantage of this solution is its modest price. But there are those, including myself, who find it unacceptable to have to keep fiddling with the computer instead of listening to music. The computer will always remain computer, hanging up in the least appropriate moment, having problems with drivers, doing something "under the hood" I have no influence on, and not being particularly user friendly. Audio signal processing comes at the tail end as other processes are given a much higher priority. The issue of signal clocking is the audiophile's nightmare and the computer USB output is a crying shame. For me, using the computer is a true ordeal and even though I often use it during DAC reviews, I have no heart to it. Despite the fact that Marcin keeps installing updated versions of JPLAY and maintaining it in good condition.



But the X100L is a computer, too. The thing is that it's a highly specialized computer. Anyone who's had their hands on Apple products for video or sound editing will surely know what I mean. This specialization means that the Aurender operating system (here a Linux distribution) gives priority to the processes related to operating as a digital music player. There is only a single specialized output. There is no sound or graphic card. The machine automatically and seamlessly connects to any external DAC. And its user interface is a better version of the CD player. That is what I expect of an audio component—a smooth, maintenance-free operation.

REVIEW METHODOLOGY

To obtain sound from a digital transport, it needs to be connected to a D/A converter. The transport is but a transport and that's it (see more [HERE](#)). To have a reference point, during the review the X100L was connected to several different DACs, including the DC-901 from [Accuphase](#) (which I had previously reviewed for the Polish "Audio") and the MA-1 DAC from [Meitner](#) with installed software for DSD playback. I used the former for the playback of PCM files up to 24/192, and the latter also for DSD files (DSD64). I chose the Accuphase because I had used it earlier to audition the best CD transport I know, the [CEC TLO 3.0](#) and the matching Accuphase DP-900 SACD transport. Unfortunately, the Accuphase DAC does not accept the DSD signal through the USB input, which is strange as the company promotes the SACD format. Hence the assistance from the Meitner.



The Aurender X100L is a fantastically built, solid and nice-looking unit, but it's worth placing it on an additional anti-vibration platform. The Acoustic Revive TB-38H seemed ideally suited for this purpose, and the 215mm x 83mm x 355mm player looked as if it had been custom designed for it. I hooked it up to the DAC via my trusted cable that I use during reviews, the [Acoustic Revive](#) USB 1.0SPS with a battery-powered 5V line.

I spent a considerable time to select the best possible method of comparison. I was interested in evaluating the following scenarios:

- The Aurender compared to my laptop (Windows 8, 8 GB RAM, playback of SSD 128 GB, JPLAY)
- The Aurender playback of CD rips compared to the same CDs played back on the CEC transport and my Ancient Audio Air V-edition used as a transport,
- The Aurender with hi-res files vs. CDs.

In the case of physical CD albums I auditioned both their best available releases as well as classic "plastic" CDs. I could not try out any DSD128 or DXD files, as neither the Accuphase nor the Meitner support them.



SOUND

Albums auditioned during this review

- *Opus3 DSD Showcase*, Opus3, source: Opus3, DSD64 + DSD128.
- *Opus3 DSD Showcase2*, Opus3, source: Opus3, DSD64 + DSD128.
- *SATRI Reference Recordings Vol. 2*, Bakoon Products, source: a flash memory card from Bakoon Products, FLAC 24/192.
- Bartłomiej Waszak, *Random Trip*, Nowe Nagrania, 005, CD + FLAC 24/44.1 (2012).
- Charlie Haden & Antonio Forcione, *Heartplay*, Naim Label, 24/96 FLAC, source: NaimLabel.

- Daft Punk, *Random Access Memories*, Columbia Records, FLAC 24/96 (2013).
- Daft Punk, *Random Access Memories*, Columbia Records/Sony Music Japan SICP-3817, CD (2013); reviewed [HERE](#).
- Dead Can Dance, *Anastasis*, [PIAS] Entertainment Group, PIASR311CDX, "Special Edition Hardbound Box Set", CD+USB drive 24/44.1 WAV (2012); reviewed [HERE](#).
- Depeche Mode, *Delta Machine*, Columbia Records/Sony Music Japan SICP-3783-4, FLAC 24/44.1, source: HDTracks (2013); reviewed [HERE](#) <http://www.highfidelity.pl/@muzyka-1654&lang=> .
- Diana Krall, *From This Moment On*, Verve 1705042, "Special Limited Edition", CD (2006).
- Diana Krall, *From This Moment On*, Verve, source: HDTracks FLAC 24/96 (2006/2011)
- Keith Jarrett, *The Köln Concert*, ECM, source: HDTracks, FLAC 24/96 (1975/2011).
- Keith Jarrett, *The Köln Concert*, ECM/Universal Music Company UCCE-9011, "Keith Jarrett Solo Piano Gold Collection", gold-CD (1975/2001).
- Mikołaj Bugajak, *Strange Sounds and Inconceivable Deeds*, Nowe Nagrania 001, 45 rpm LP+CD+WAV 24/44.1; reviewed [HERE](#).
- Miles Davis, *Kind of Blue*, Columbia/Legacy/Sony Music Entertainment SICP 30526, "The Original Mono Recordings", Blu-specCD2 (1959/2013); reviewed [HERE](#).
- Miles Davis, *Kind of Blue*, Columbia/Legacy/Sony Music Entertainment, source: HDTracks, "The Original Mono Recordings", FLAC 24/192.
- Miles Davis, *Kind of Blue*, Columbia/Legacy/Sony Music Entertainment, COL 480410 2, "Master Sound", Collector's Edition, Super Bit Mapping, gold-CD (1959/2005).
- Miles Davis, *Tutu*, Warner Brothers Records/HDTracks, FLAC 24/96 (1986/2010).
- Recordings from DVD-R discs added to "Net Audio" magazine.
- Persy Grainger, *Lincolnshire Posy*, Dallas Wind Symphony, Jerry Junkin (conductor), Reference Recordings, HR-117, HRx, 24/176.4 WAV, DVD-R (2009).
- Stan Getz/Joao Gilberto, *Getz/Gilberto*, Verve, source: HDTracks, FLAC 24/96 (1964/2009).

- Stan Getz/Joao Gilberto, *Getz/Gilberto*, Verve/Lasting Impression Music LIM K2HD 036, K2HD Mastering, "24 Gold Direct-from-Master Edition UDM", CD-R (1964/2009).
- The Joe Holland Quartet, *Klipsch Tape Reissues Vol. II, 1955, 57*, DSD128.
- Yes, *Close to the Edge*, Warner Music, FLAC 24/192, source: HDTracks (1972/2007).

Japanese editions are available online at CD Japan

My position regarding the question of the audio file transport vs. the CD transport was explicitly expressed in my review of the CEC TL0 3.0 (see [HERE](#)). Hence, I will not repeat myself. Let me just point out two things that I only briefly touched on: I admitted that the progress in the field of audio file playback is very rapid and that digital music players and streamers are getting increasingly better; I also emphasized the convenience that they offer. I think that in this particular category of audio components it is impossible to separate these two elements that are intertwined like twins in the same womb.

In terms of "user friendliness" or "playability", to use the term popular among computer games enthusiasts, the X100L stands out as one of the best players I know. So far, the benchmark for me was the specialized application from Linn (see [HERE](#)), which has the largest experience in this field of all audiophile manufacturers. I think that the Aurender App is at least as good and it looks prettier to boot. And it is also easier to use (not to take anything from Linn, which I greatly respect). Audio file management on the player's hard drive storage is equally enjoyable. The user's computer "sees" it as a normal HDD, so the files can be easily managed and their folder structure is retained. This is a huge plus. The player's front panel display is extremely elegant and will not grow old like other colorful and flashy displays, stuffed with information, cover art and other garbage. Thanks to the excellent remote user interface on an iPad it might even be dispensed with altogether and the Aurender could then take the form of an aluminum cube. But I understand that its current appearance makes it look nicer and you can see what you are paying for. The player gets an A in terms of user friendliness.

I would like to devote slightly more time to the description of its sound. Those who think that all computers, and the X100L is a specialized computer, "sound" the same, i.e. they churn out the same digital audio signal, provided some basic requirements are met, are mistaken. I might use even stronger words, not out of frustration but rather to shake up those, primarily IT specialists, who believe that all the fuss about digital music players is just fuss and nothing else.

The Aurender adds a distinctive edge to the sound, shaping it according to a fairly easily recognizable pattern. Its main characteristic is the saturation of lower midrange. This results in a large and dense sound. Once again, after the great Lumin player, I can hear that the dry and cold sound offered by most digital music players is primarily a hardware, rather than software, problem. What's more, the sound dynamics is excellent, which in turn shows that its flattening and reduction, characteristic of computer audio, also concerns the problem of proper playback. I am not saying that everybody needs to agree with my description of computer audio and digital music players' weaknesses, but rather encourage you to check it out yourself. However, I think that I have auditioned a broad enough range of these components to be able to speak up my mind.

I compared the Aurender's sound with that of the CD transports (as that's still my reference) in two rounds. At first, I was interested to see how the CD compares against the CD rip played back on the Aurender (CDs were securely ripped with the full version of dBpoweramp software). In the second round I pitted the CD against high-resolution audio files. While the first round of auditions concerned the same disc masters, the second one did not. I had both the same versions on CDs and hi-res files, as well as the best available CD releases and classic hi-res files.

The answer to what it had to offer was simple and enjoyable. As a matter of fact, the Aurender player did not sound like a typical audio file player and was reminiscent of what I'd heard from the Lumin. It was a dense and full sound, with palpable sources. Phantom images were shown fairly close and had a large volume. But above all that, there was softness, silkiness. The lowest bass was inferior to that from the CD transport, and so was resolution. With one exception: when the audio file was properly prepared, it was fifty-fifty. This was the case with the files from Naim and Linn. It confirmed what I had already known: both companies are real experts not only in terms of audio equipment. Daft Punk's album in hi-res files also proved to sound excellent. But with Diana Krall and albums like *Getz/Gilberto*, *The Köln Concert* and others, including Dead Can Dance music, the weakness of files was evident. It manifested itself in weaker dynamics, muffled sound and smaller soundstage.



But when the player was fed with good material, the sound was beautiful. And DSD files sounded the best. It is a real shame that they will always be a niche within the niche. Actually, it is not the format itself that is crucial, but rather the way it has been prepared. Any PCM file can be converted to DSD, which often happens. But that's a disaster. Only DSD files made directly from analog tape or from DSD recordings let the Aurender spread its wings and show softness, detail, breath and fluidity.

But on the other hand...

OPINION no. 2

text and images by Tomek Folta



In early January, when I was looking through a photo story of this year's CES in Las Vegas, I couldn't but notice the premiere of the Aurender X100L. Of course, I had already been familiar with this Korean manufacturer, but since I would not seriously consider buying a digital music player for nearly 25k USD and—compared to the flagship W20 – the specification of the less expensive S10 looked definitely inferior, I did not bother with either of them. The longer I looked at the descriptions of the X100L, however, the more I was drawn to the conclusion that in terms of its design and functionality it looked as if it was created to meet my (very specific) needs and requirements.

First, the X100L sports an internal hard drive. For me, that is a significant asset, as an NAS server means an additional (and in my opinion unnecessary) peripheral device in my system, together with another power supply as well as two additional LAN cables. What's important, the Aurender powers down the hard drive after caching the playlist onto the SSD, thus eliminating the issue of hard drive vibration and noise, which, for example, has been the problem in my Dune HD Max player. Another important feature of the Aurender is that it is a digital music transport and there are currently very few audio components of this type on the market. As an owner of a quality D/A converter, I do not want to pay for another DAC in the player. The X100L's single available digital output, a specially isolated, anti-jitter USB port, directly inherited from the flagship W20, also seems like a tailor-made solution for me, as I have long had a 1-meter top WireWorld Platinum Starlight USB cable. Besides, the manufacturer's decision to not include several digital outputs, which are available on the more expensive Aurender models, has had a positive effect on the price of the X100L.

Last but not least, an extremely important feature of the Aurender is an audiophile-friendly user interface using the iPad. Apart from the standard capabilities available in such programs, like sorting by genre, artist, composer, etc., the Aurender allows you to have five user folders with any name. All that it takes is to create and name the folders on the Aurender hard drive. It is very important to me, as from the beginning I have kept my "collection" of music files on my Dune player sorted into the following folders: "CD rips", "Metal", "HD Music", "Gerhard" (professional CD rips I have received from a friendly audio manufacturer from Austria) and "Others", and I would like to stick to that. Most of the solutions I have so far come across dump the

whole music collection into one bag, creating a complete mess. You will probably agree that the corpse painted (for Satan's glory) faces of Norwegian black metal stars featured on their album covers from the first half of the 1990s, scattered alphabetically between Stockfisch-Records samplers and Michael Jackson's discography, look quite pretentious.

In addition to the above, the Aurender App allows sorting the audio files by their sampling rate and bit depth and includes a separate "DSD" button. Creating and saving your own playlists is also very intuitive. I cannot imagine what more could I want from a music playback app. The owners of tablets running on Android and Windows will unfortunately have to factor in the additional cost of purchasing a device bearing the Apple logo, though.

While we're at Apple, here's another important piece of information—the Aurender supports AirPlay. Hence, you can easily stream music from your iPhone or iPad to your audio system, for example from YouTube. Of course, in this case the streamed audio quality is nothing to get excited about, but the feature comes very useful in many situations.



I auditioned the player in a standard furnished 30m² room, with the height of 3.90m. The room had been acoustically adapted by means of suspended ceiling made of the Ecophon Focus Dg material. The Aurender was hooked up to the Ayon Audio Stratos DAC, a special version with the 6H30DR (NOS) output tubes. In my system, the Stratos also acts as an analog preamp, driving the latest Accuphase A-70 stereo class A power amplifier. The speakers are the Dynaudio Confidence C4 ver.2 Signature, signed for me personally by Wilfried Ehrenholz. Whenever I refer to the differences between the sound of audio files and CDs, it means that I compare the Aurender X100L against my Ayon Audio CD-T transport hooked up to the Stratos in I²S mode using a LAN cable from Acoustic Revive.

I have never expected to see the orthodox audiophile world, generally not venturing beyond the confines of classical music, jazz, etc., go down on its knees before a mainstream release, as it did in 2013 before the album *Random Access*

Memories from the duo Daft Punk. Guy-Manuel de Homem-Christo and Thomas Bangalter spent over a million dollars for the recording studio, session musicians, Pro-Tools and... Bob Ludwig who mixed the album into three formats: analog, digital and DSD. The money was not wasted, though, and resulted in a musical masterpiece whose first three tracks alone can serve as an obstacle course, mercilessly exposing any shortcomings of the average audio system. On good systems, however, they will reward the listener with incredible dynamics, subsonic room-shattering bass and lots of "special effects" in the treble department (not forgetting, of course, the most important thing, the aesthetic appeal emanating from the music itself). A comparison of the 24-bit/88.2kHz file from HDtracks.com with the Japanese CD release available from CD Japan (Sony Music Japan International SICPA 3817) almost immediately showed the former's superiority. Bass extension was even deeper, with a perfect control of the huge speakers pumping the air in my sizeable listening room and without the slightest compression. Of course, it was largely due to the Accuphase A-70 power amplifier and its extremely high damping factor of 800, but without a reliable source the feat would have surely been impossible. Few people know that at the behest of Thomas Bangalter the track *Giorgio by Moroder* was recorded using three different microphones in the studio, which confirms the artist's pedantic approach to the sound. The first microphone came from the 1960s and was used to tell the story from the past (we are transported to the year 1969), the second of them, from the 1970s, was used in the fragment talking about the present, and the third contemporary model was used in Giorgio Moroder's story about the invention of the "sound of the future". The differences between the microphones were easier to pick up on the Aurender than on the CD.



The audition of DSD files revealed Aurender's biggest assets. A comparison of the DSF files from the *Opus3 DSD Showcase* compilation, whether DSD64 or DSD128 (the differences between them were easily discernible, with a nod towards the DSD128 version, of course), with their CD counterparts (*Test CD 4.1*, *Opus 3 CD19400 HDCD*, *Tiny Island*, *Opus 3 CD19804*, *Eric Bibb & Needed Time Good*

Stuff, Opus 3 CD 19603) demonstrated truly phenomenal phantom image palpability in the case of the former. Swapping the Aurender for the Ayon CD-T made the sound seem calmer and more balanced at first, which would be desirable in most cases, but here after several minutes of listening to one and the other it was the Aurender that proved to sound more natural and more friendly to the ear, making you want to stay with it for the pure listening pleasure. The way the bass and percussion were "sinking" in three-dimensional space on the track *Vaquero* Tiny Island, one of my favorite albums from the Opus 3 stable, was by far more accurate with the audio file. The highs had a proper tone color, with longer and more accurate decay. The Aurender also revealed more micro details.

Live at the Vatnajökull (Opus 3 CD 19802), featuring Mattias Wager's improvisations on the organ and Anders Åstrand's on percussion, unfortunately did not last long enough in my CD collection for this comparison. I sold the disc on the popular auction site over a decade ago, having reached the conclusion that it was an extreme example of the audiophile approach to music (sound quality 10/10, musical and artistic value 1/10) and as such did not deserve to take up space on my shelf. However, listening to the DSF file on the Aurender X100L showed me a completely new dimension to this recording. The Korean player allowed me to be easily transported in my mind to a large church, somewhere in Iceland, close to a glacier, and to feel the atmosphere of this place, as if the recording was taking place here and now. What was particularly endearing was the power of the organ and their full range extension. The trumpet that opens Ellington's track *Black Beauty* performed by Blue Five, also showed much more treble detail on the DSD file. The double bass that follows sounded very hard, but without exaggerated sharpness or edge.

A separate issue is the availability of DSD files. The biggest online service offering files of this type that I know—Acoustic Sounds—prevents purchase from Poland due to record labels' policy. Of course, for a few dollars a year you can "hide" behind a US VPN, but I have not personally tested this solution. "High Fidelity" does not take any responsibility for any legal consequences of such actions taken by readers.



What is interesting and worth noting is that in one of the rooms at this year's High End in Munich I came across the Aurender X100 as a source in a nearly million euro

audio system that included, among others, the Marten Coltrane Supreme 2 speakers, the darTZeel NHB-18NS preamplifier, the NHB-458 monoblocks from the same manufacturer and the MSB DAC IV Diamond DAC (see the photo above). It was totally unobtrusive to the eyes (and ears) that at the start of this ultra-expensive audio chain was the player that contributed only about 0.5% towards the cost of the entire system.

Is the Aurender X100L an ideal audio component? Unfortunately, I have to admit that CD rips (made with my MacBook Pro using XLD) did not sound as good on the Aurender as "real" discs did on the CD transport, but one also needs to bear in mind that my Ayon CD-T equipped with the Philips PRO-2 drive and paired with the Stratos constitute a very high shelf CD player, and a comparison with cheaper CD sources might work out in Aurender's favor.

Reading online reviews of various digital music players I repeatedly stumbled upon questions like, "and how is this player different from a PC with a software player?" Unfortunately, I will not be able to answer this question in relation to the Aurender, at least not in the way that would satisfy an IT specialist. Perhaps Wojtek will have more success with that, but I need to state it clearly that for three years of playing audio files on my Dune HD Max and MacBook Pro, and testing a variety of applications on the latter (Decibel, Amarra, Audirvana), turning off its Air-port to get rid of any potential interference, cleaning RAM of unnecessary processes in the OS X Activity Monitor before each listening session and using many other annoying in the long run operations to optimize the sound, I have never come close to the sound quality offered by the X100L. I will even say that I have been far away from it. So far, audio files sounded completely flat in my system, barely reaching the bottom end extension of my previous Dynaudio Confidence C2 speakers and never really bringing out the C4 true power. The highs were matted, the whole presentation somewhat nervous internally, and I always felt relieved after going back to the CD. The Aurender has completely changed the status quo, hence it will settle in my system for good as a source, being a worthy match for the CD transport.

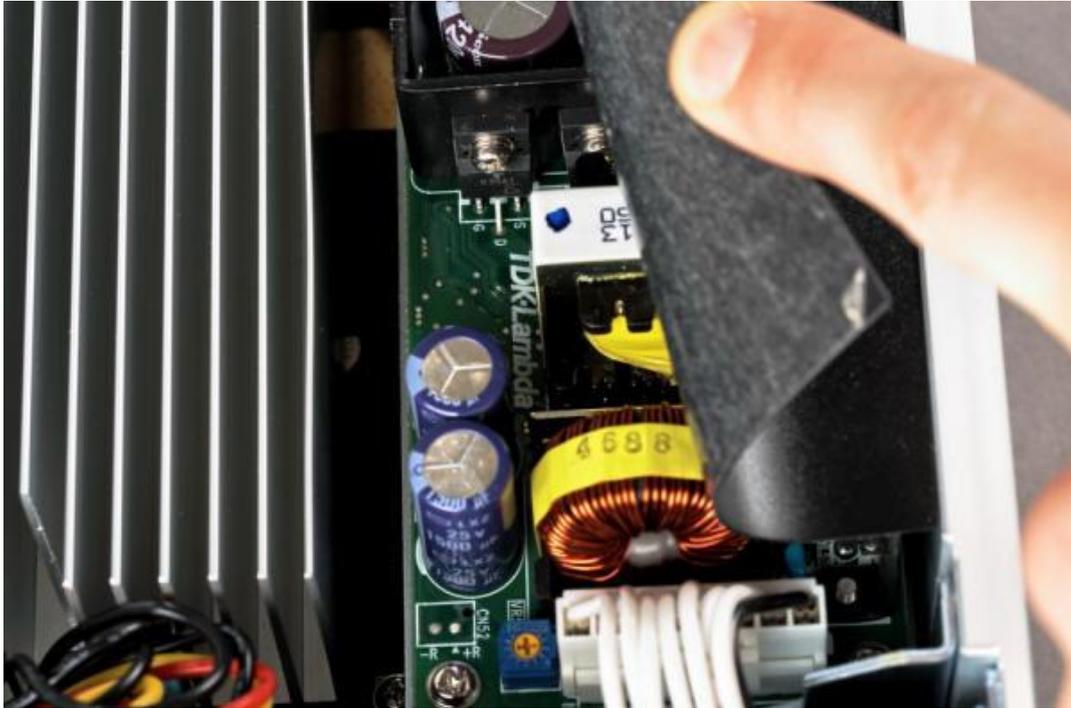
Conclusion

The Aurender is a joy to use. My attitude to computer audio is rather negative, because of its unpredictability and the need for continuous fixes and upgrades. If I were to play the audio files in my system, I would like to use a file player that is as stable as a CD player. The Aurender perfectly meets this requirement. It is small, perfectly designed and built and it offers the kind of sound that should appeal to a large group of music lovers, regardless of how much they want to spend on this type of component. I will go even further to say that the sonic structure it offers is close to my vision of the sound of high-end system components. It is soft, yet not softened; dynamic and palpable. On top of this, there is the outstanding user interface. All that remains is to choose a matching high-end DAC. It could be the Meitner that was used during the review, but it could also be the Mytek STEREO192-DSD DAC which I reviewed some time ago, or the Auralic Vega (see [HERE](#) and [HERE](#)). Each of these configurations will be great and each will bring out the main features of the X100 sound. If digital music players continue to follow that path, I will soon have to look around for something like that. The X100L is outstanding.

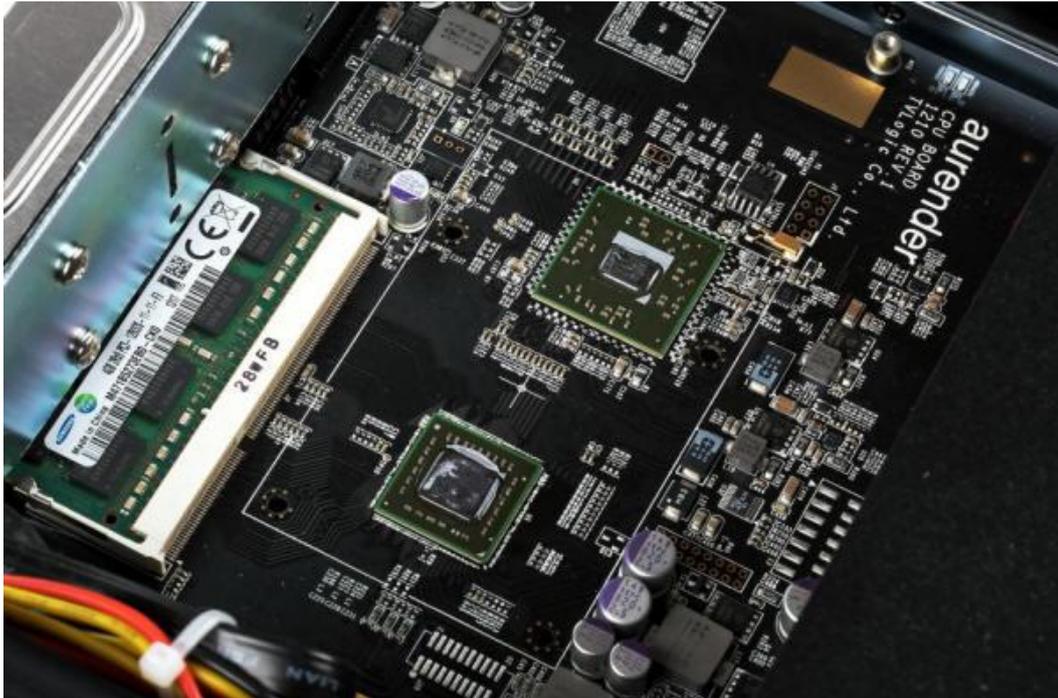
DESIGN

The X100L is housed in an elongated rectangular enclosure with a narrow front panel. It boasts a great, milky-blue AMOLED display screen and four operating buttons. There is also a standby button. The rear panel sports the most important dedicated USB Audio Class 2.0 output. There is also an Ethernet port to connect the player to the home network in order to operate it from an iPad, as well as two USB data ports to plug in USB memory devices. The audio files can be copied to the

Aurender's hard drives from a computer connected to the Aurender music server via the Ethernet (LAN) connection. The users can create their own folders or accept default ones—the computer "sees" the X100L built-in drive like a normal HDD. The enclosure is made of thick, nicely finished aluminum panels, and the sides of aluminum extrusions that look like heat sinks. The machine sits on three great-looking isolation feet.



Inside, the Aurender looks like a player from Linn, in that it resembles a specialized computer. The main board houses microprocessors and auxiliary circuits, covered with a large heat sink. A single 4GB DDR3 RAM module is seated in the memory slot on the main board. The hard drives are connected via eSATA cables. The hard drives are mounted to the metal frame and decoupled from it with rubber washers. The 120GB Samsung SSD is mounted behind and parallel to the front panel. The main board also houses output circuitry, with specialized anti-jitter circuits powered from the battery. Above, near the rear panel, there is a 100W switching power supply.



The player can be operated from the front panel buttons, but it is tedious and unrewarding. The X100L is designed to be remotely controlled from an iPad, using the excellent Aurender App. This is one of the best user interfaces I have come across. No computer software player, even the coolest, comes close to it.

Technical Specification (according to the manufacturer)

- User Software: Aurender App for iPad/iPad Mini
- Supported Audio Formats:
- DSD: DSF, DFF/2.8MHz (DSD64), 5.6MHz (DSD128)

- PCM: WAV, FLAC, AIFF, ALAC, APE, MP4 up to 32-bit/384 kHz
- Storage Memory: 120GB SSD + 6TB HDD
- Digital Audio Outputs: 1 dedicated USB Audio Class 2.0
- Digital I/O: 1 Gigabit LAN, 2 x USB 2.0
- Finish: silver
- Dimensions: 215 mm x 83 mm x 355 mm (Aurender X100L)
- Weight: 7.5 kg

Price (in Poland): **15,900 PLN**

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