AURALiC'S LEO GX MAKES VEGA G2 SING!

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WORLD EXCLUSIVE LINN'S NEW SELEKT DSM IS DIGITAL STREAMING REBORN!

AURALiC VEGA G2 streaming DAC with LEO GX clock

by Jason Kennedy

It can't be many years since AURALiC's first cute and curvy ARIES streamer appeared on the market, but since that time the company has created some very interesting digital audio products and last year unveiled its most ambitious range to date, G2. Thus far the range consists of the ARIES G2 network streamer and VEGA G2 streamer/DAC/preamplifier, at launch it looked as though the LEO GX clock would join the G2 range but it has taken the GX suffix. This suggests the LEO moves beyond the G2 series to future G ranges, although there is no backwards compatibility between LEO and the original G1 models.

In an interview with AURALiC CEO Xuanqian Wang published in Issue 162, the Editor asked "Which G series product surprised you by its performance and why?", Wang sidestepped this in a way by saying that his company has developed mathematical modelling that has been incorporated into their R&D processes in order to avoid any 'surprises', but rather to be able to design them in such a way that the outcome is predictable. AURALiC use measurement and "attentive listening" but feel that this is not a solid enough basis for efficient R&D. I suspect that the speed of progress that the company has achieved may well come down to this factor.

The existence of two streamers in the G2 range is unusual but does mean that those who already have a decent DAC need not spend money on another one, although adding an ARIES G2 streaming transport with Lightning Link improves performance further and has an optional internal hard drive for music storage. Nevertheless, if you don't have a reasonably up to date digital to analogue converter, the one-box streamer/DAC is the best way to go. By eliminating a digital connection you reduce the potential for bringing high frequency noise into the sensitive circuitry of the converter and that has to be a good thing. The VEGA G2 (originally tested in issue 156) inhabits AURALiC's rather tasty Unity chassis, which is machined from aluminium billet so as to provide a low resonance case that shields the circuits from external interference; it forms all but the base of the box and looks and feels very solid indeed. AURALiC shows that it understands the enemies of high resolution by using springs in the feet of G2 components; this isolates the case from all but the lowest frequencies and if it got the maths right – and 'getting the maths right' seems to be an AURALiC speciality – that means down to 2Hz or thereabouts.

AURALiC keeps electrical interference out with galvanic isolation between the processing platform that deals with incoming signals and the DAC. Clocking is provided by dual 72fs femto clocks with their own low noise power supply and a temperature regulated case. The converter itself is a customised version of a Sabre DAC that is good for PCM up to 32-bit/384kHz and DSD512 which, while not the highest numbers claimed, are at the limit of the majority of converters. The higher sample rates can only be accepted via USB and AURALiC's Lightning Link a proprietary HDMI based connection that joins multiple AURALiC G series components and allows them to work in synchrony. Inputs extend to more familiar digital connections including AES/EBU and both the electrical and optical forms of S/PDIF, so it pretty much caters for all sources except actual HDMI ones like the TV. It can also accept a single analogue input so long as it's single-ended because, unlike many DACs with a volume control on the chip, there is an actual preamp section on the Vega G2. Here AURALiC has gone to considerable lengths to provide an uncompromising volume control by using coil latched relays which are said to remain passive once volume level has been set. You can change the level with the knob on the box or with the Lightning DS control app. Analogue output connections come in the usual balanced and single-ended flavours.

Lightning DS is one of AURALiC's USPs; it looks great thanks to clear graphics and decently sized album art and, so long as your iPad isn't an antique, works really nicely as well. This is where you set up the VEGA G2; you can do pretty much everything you need to, which is handy because there's slightly more set up required than with a Naim or Linn. The data from your music library needs to be imported into the streamer, which a case of picking the server or NAS that it's stored on from the list that appears and Lightning DS then goes through the titles so it can display them properly. You can also access Tidal and Qobuz from Lightning DS, the latter

Photograph courtesy of 'My-HiEnd.com' Taiwan

"When the LEO GX is connected to a VEGA G2, it takes over all the clocking functions within the DAC."

being a relatively rare but welcome feature especially if your musical tastes are broader than those catered for by Tidal. The only drawback with Lightning DS is that it's iOS only; there are third party apps for Android, however.

While everything is shown on the app, a lot of information is also displayed on the four inch high resolution screen, including album artwork, volume level, and track title... but there is no way of pausing playback without the app, unless you use the 'any remote control' option with the smart-IR control function in the system menu.

The LEO GX features the same Unity chassis and looks just like the VEGA G2 except for the absence of a control knob and two headphone outputs. It is naturally a bit plainer on the back as well with connections for a network cable, Lightning Link, and the Master Clock output on a threaded coaxial connector. All the interesting stuff resides within the black anodised box where two temperature-controlled rubidium atomic clocks have their own stress compensated, cut crystal oscillators that provide very high signal frequencies for the incoming sample rates. In an effort to minimise noise within the circuit AURALiC use optical isolation between the processor and the clock in much the same way as the control system is galvanically isolated from the signal in the VEGA G2. LEO GX has twin linear power supplies and according to AURALiC is so accurate that traditional measurement methods are unable to detect any errors in its performance, and the company had to resort to Allan deviation, which measures tiny phase shifts to detect clocking errors.

When the LEO GX is connected to a VEGA G2, it takes over all clocking functions within the DAC in what AURALiC calls a 'direct-to-DAC' design. It seems a pity to bypass those on-board femto clocks, but the best amount of clocks in any digital audio system is 'one'. The cable provided for the signal is a military grade device with a 60GHz bandwidth and is supplied with a performance report and a spanner to tighten the tiny connecting nut, so these things must matter.

Used alone as a streamer and a DAC the VEGA G2 is a very nice piece of kit that is extremely revealing of the ▶

"What LEO GX does is not something I've encountered with digital audio before: it makes the sound 'pop' out of the loudspeakers!"

incoming source thanks in part to the way that the Sabre DAC chip has been engineered to work without PLL (phase lock loop) in the traditional way but rather to operate independently of the source frequency. Its dual femto clocks providing a solid basis for all of the processing and conversion it does. You can choose between various filter settings and I found that 'smooth' sounded best; it is pretty well the most relaxed of the bunch, but this is not what you would term a smooth DAC. It is a leave-no-stone unturned searcher after the musical truth! Give it a grungy digital signal and you'll get a grungy analogue output. Most of the listening was done with the Innuos Zenith SE server, an ATC P2 power amplifier and PMC Fact8 speakers, but I also tried some alternatives including the CAAS and Longdog Audio P6 monoblocks, which both seemed slightly better suited to the VEGA G2. I contrasted its analogue preamplification capabilities with my long-suffering Townshend Allegri TVC which, while slightly more open and timely, revealed the VEGA G2 to be surprisingly capable with good openness and dynamics especially for a multifunction device. It reflects recording quality extremely well; Herbie Hancock's version of 'It Ain't Necessarily So' [*Gershwin's World*, Verve] was smooth and taut with just the right amount of spring in its step. Timing is one of the Vega's strong-points, so maybe there's something in bypassing PLL after all. The drumwork on Alfa Mist's 'Keep On' [*Antiphon*, Pink Bird] seemed just about perfect with lovely snap and just the right amount of leading edge attack and very natural decay. The kick drum on another track [Billy Gibbons and the BFGs, 'Concord'] was much more juicy, but it also kicked like a mule.

Imaging is also very strong with plenty of depth on a wide variety of recordings, the cymbal work on the Hancock track for instance being placed in the room with great definition and solidity. It's a lot easier to make low notes sound like they are in the room than higher ones because the room reinforces them, three-dimensional high notes are a sign of a well thought out converter. Most importantly the VEGA G2 is a musically coherent and engaging piece of kit, and with a source of the Zenith SE's calibre it draws you into the performance regardless of the musical style. I was particularly charmed by Jean-Efflam Bavouzet's Haydn piano sonatas [*Piano Sonatas Vol 1*, Chandos], the seeming effortless speed of his spirited playing being entrancing in this converter's hands.

I didn't quite know what to expect when adding the LEO GX to the VEGA G2, but it's price meant that expectations were high. What LEO GX does is not something I've encountered with digital audio before: it makes the sound 'pop' out of the loudspeakers. Instruments like drums, and tabla in particular, become so vivid and palpable in the room that it's frankly uncanny. It brings a presence and solidity to everything you play, making it more real and convincing than you have any right to expect with reproduced audio. It also seems to enhance dynamics, not in a loudness sense but with an increase in contrast between loud and quiet notes, so there's a perceived increase in dynamic range.

It also brings more energy to the presentation, driving rhythmic tracks along with gusto and pushing the music into the room with a rare physicality. With a good recording this is quite a sublime experience. Michael Wollny's *Wartburg* album [ACT] is superbly reproduced and washes over you much like the live experience. I particularly like the strength of percussive instruments and the muscularity of the double bass. John Lurie's voice on 'I'm a Doggy' [Marvin Pontiac's *Greatest Hits*, Northern Spy] is so tactile and the interplay of his musicians feels like it's happening in front of you. Then there's the blues harp playing, which is nothing short of brilliant.

This tangibility is partly achieved because backgrounds are so dark, which provides very strong contrast for the instruments and voices. This effect was no less palpable when I switched to Bowers & Wilkins 702 floorstanders; these have more 'meaty' bass than the PMCs and home in on the visceral qualities of the material really well as a result. They too reveal the sense that sound pops into the room and creates a strong image with lots of detail. I love the depth and scale it finds in 'Keep On', a recording that revels in this degree of transparency thanks no doubt to its analogue roots.

We've already covered the AURALiC VEGA G2 at length, but it's great to have a second opinion confirm the first. Adding the LEO GX, however, puts VEGA G2 in another league, in particular when it comes to imaging. It creates a sense of presence that is very rare with reproduced audio of any kind which, coming as it does from a self-confessed, fully paid up member of the analogue nut club, is high praise indeed. +

TECHNICAL SPECIFICATIONS

VEGA G2

Type: Solid-state network streamer, DAC, digital preamplifier
Analogue Inputs: One (via RCA jacks)
Digital Inputs: One coaxial S/PDIF (via RCA jack), one TOSLink, one AES/EBU, one USB B, Lighning Link, RJ45 Gigabit Ethernet
DAC Resolution/ PCM from 44.1kHz to 384kHz in 32Bit, DSD64, DSD128, DSD256, DSD512
Supported Digital Formats: AAC, AIFF, ALAC, APE, DFF, DSF, FLAC, MP3, OGG, WAV, WV and WMA
Music services/Wi-Fi inputs: Tidal, Qobuz
Analogue Outputs: One stereo balanced (via XLR connectors), one stereo unbalanced (via RCA jacks)
Digital Outputs: None
Frequency Response: Not specified
Distortion (THD + Noise): <0.00015%, balanced <0.00012%
User Interface: 5inch display (on main unit), Lightning DS application software for iOS
Dimensions (H×W×D): 84 × 338 × 300mm
Weight: 7.8kg
Price: £5,499

LEO GX

Type: Temperature-controlled Rubidium atomic clock
Supported sample rates:
PCM: 44.1KHz to 384KHz in 32Bit
DSD: DSD64(2.8224MHz), DSD128(5.6448MHz), DSD256(11.2896MHz)
Frequency: 90.3168MHz (44.1KHz) | 98.3040MHz (48KHz)
Output Level: 3.3V CMOS (Direct-to-DAC Design)
Oscillator: Temperature-controlled SC cut crystal
Dimensions (H×W×D): 84 × 338 × 300mm
Weight: 8.1kg
Price: £7,499

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