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TOWER OF POWER!

AURALiC GETS SIRIUS WITH ITS NEW UPSAMPLER FOR THE G2 RANGE



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AURALiC SIRIUS G2 Universal Upsampling Processor

by Alan Sircom

We've blown more than a few column inches on AURALiC's G2 system, and for good reason; the ARIES G2 Wireless Streaming Transporter, VEGA G2 Streaming DAC and LEO GX Master Reference Clock work together to deliver one of the finest streamed digital sounds you can get, irrespective of price. The system is completed, however, in the AURALiC SIRIUS G2 Universal Upsampling Processor.

The nature of the SIRIUS G2 does create a bit of a conundrum for the reviewer. Do you review it as the last part in the big AURALiC jigsaw, as a standalone upsampler for equally high-grade systems, or both in and out of AURALiC's matching products. I went predominantly for context rather than comparison, but in reality what applies in the AURALiC stack holds equally well elsewhere. So, it sits in the now four-tier stack of AURALiC – with the ARIES G2 at the head of the table, the VEGA G2 connecting the whole caboodle to the next device in the chain, and the LEO GX and now the SIRIUS G2 making each component give its best possible performance in that system.

Of course, this means a lot of potential ways to configure the system, as you will be looking at something like an Ethernet connection on every box, and inputs like coax or USB on three out of the four boxes. Which goes where for the best sound? The reality is there is a lot of redundancy or upgradability (depending on viewpoint) here. Taking the slow route to full AURALiCOSITY, you will likely start with the VEGA G2 DAC, amassing all your source components to play them through that device on its own. From here, most will likely go with the ARIES G2. This Streaming Transporter acts as a bridge product, collecting all the digital inputs in one dedicated place and controlled by the Lightning DS app. Just one Lightning Link cable connects all those sources to the DAC, and instead of taking some kind of proprietary route to create this high-speed digital connection, the company uses HDMI connectors (even if the connection itself is not run as part of the HDMI protocols). This makes adding in the additional products a breeze; the next in line is the SIRIUS G2 tested here, which requires a single Lightning DS connection to hook all three devices together, and then the LEO GX requires three cables to link all four devices together. ▶



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▶ This relative simplicity of connection between the devices (once explained) not only makes sense, but works out cheaper than many of its rivals. A full dCS Vivaldi stack – for example – requires five AES/EBU and five BNC connectors; twice as many connectors and twice as many types of connector. While you can still spend big on cables in the AURALiC stack, the company has taken a shine to AudioQuest’s Diamond HDMI. Depending on whether you use them for the digital audio pathway only or both digital and clock pathways, that’s anywhere between £2,000-£5,000 on inter-AURALiC cabling, which compares favourably with the £35,000+ worth of Transparent XL cables used in many dCS Vivaldi demonstrations. Granted, the four-box dCS includes a CD/SACD transport, and the comparisons begin to run out of puff when comparing hardware as well as connections, but it is worth noting that the commonly-used connections for the dCS Vivaldi (commonly top-end Nordost and Transparent) routinely cost more than the AURALiC stack and all its own cables!

The SIRIUS G2 itself is substantially built, and relies on AURALiC’s digital smarts as well as its best modules to make it a step up on run-of-the-mill devices.

Some of the more outlandish products in this sector act like beachheads; they force you to change direction. You start out with one brand of DAC, but pretty soon the sheer weight

of electronics means the DAC you started with gets the boot. The AURALiC concept – although more than good enough to make such changes extremely valid – is different; instead of forcing you to view everything digital through an AURALiC-shaped filter, the SIRIUS G2 simply brings out the best in your existing products. Granted, its abilities gently coax you into exploring more in the AURALiC line, but the idea here is that you already made an informed decision buying that good DAC and streamer and you don’t need to remake that decision in the light of an upsampler, no matter how good. In fairness, I suspect those who have already gone far down one of the many alternate rabbit holes (CH Precision, Chord Electronics, dCS, Esoteric, Wadax, etc) will have a matching upsampling and clock solution, or have one in their sights, but it’s good to keep the options open.

A new and key term in the AURALiC SIRIUS G2 is ‘Universal’. The AURALiC-based pathway that uses HDMI cables to run Lightning communications between the devices is fine, but it’s an AURALiC-only gig; you don’t get the upsampling benefits if you use another brand’s devices. If you aren’t using AURALiC components, the SIRIUS G2 is still entirely relevant. It includes inputs and outputs for S/PDIF coaxial and optical, AES/EBU 110v balanced XLR connectors, and one USB in and two out. There is also a single RJ45 ▶



“Your humble 16/44 LPCM files get given upsampling power-ups like a boss.”

► network connector. How this works is as a go-between, connecting between your source and your digital converter, neither of which need to be made by AURALiC. This doesn't just have an advantage to network streaming; so-called 'legacy' devices get buffed up by the SIRIUS G2 too. Connect it between a CD player and a DAC, and suddenly your humble 16/44 LPCM files get given upsampling power-ups like a boss.

More importantly, how you configure the SIRIUS G2 should depend on what kind of DAC you are using. For example, R2R (a.k.a. ladder) DACs respond best to signals that have the highest possible PCM sampling rate, and the SIRIUS G2 will convert the incoming signal to 32bit, 352.8kHz, by-passing the internal interpolation and filtering, regardless of whether the incoming signal is a PCM or DSD-flavoured datastream. On the other hand, the SIRIUS G2 can upsample PCM data to DSD for a Sigma-Delta DAC, but depending on the chip, this need not be the highest sampling frequency. In both cases, the SIRIUS G2 delivers an upsampled datastream with crazily low distortion and noise floor levels. This is one of the secrets of why the SIRIUS G2 is so useful in a system; feeding a Sigma-Delta DAC the appropriate higher bit rate DSD signal allows the chip to operate at a higher frequency, reducing modulation noise, but this only works if the upstream signal is of sufficiently low noise. With THD+N figures when upsampling PCM to DSD as low as -158dB, the SIRIUS G2 feed, it means distortion figures at or lower than those generated by the DAC's own chipset.

Internally, SIRIUS G2's hardware is controlled by AURALiC's own TESLA G1 platform (used throughout AURALiC's product line). This is met by what the company calls the Proteus G2 Co-Processing Platform, which comprises 512MB of DDR3 memory and custom code on a Xilinx FPGA chip, which delivers 740 DSP slices across more than 200,000 logic blocks. Factor in three power supplies, a flexible filter, dual galvanic isolation and femto clocks, all



in AURALiC's own Unity chassis used in across the G2/GX range, and it becomes clear why the AURALiC ARIES G2 is no simple upsampler.

I used the SIRIUS G2 with both a Melco N10 and a Naim UnitiCore as streaming front-ends, using the USB output from the Melco and the S/PDIF BNC digital output of the Naim. I output these to both the AURALiC VEGA G2 DAC and direct into the digital inputs of a Devialet Expert 240 and an old Wadia 121 Decoding Computer on its last legs. I also used it in the full AURALiC stack as described previously. Unfortunately, AURALiC came in as the Totaldac d1 went back, so I didn't have a ladder DAC to play with.

In fact, the choice of DAC was immaterial, the improvements were universal, and compelling. They were universal in terms of music choice and in terms of decoders. It made music uniformly more analogue sounding; not in a 'fake LP' way, it just made music sound more visceral and real, with greater solidity, image separation, soundstage width, depth and even height and even more coherence, both in terms of frequency and timing. I mildly preferred keeping DSD as DSD and PCM as PCM, however. ►

“To get the best from the SIRIUS G2 does involve some fairly complex app-wrangling.”

► Using SIRIUS G2 in a system means playing more music. That's something of an audio reviewer cliché, but here it holds because music sounds more harmonious through the SIRIUS G2. Whatever the genre and wherever the source. I found a lot of good in boosting ripped CDs to higher-rate PCM. Whether it was beautifully-recorded audiophile fluff (*River: The Joni Letters* by Herbie Hancock on Verve) or angular Polish nu jazz '1958' from the eponymous *Skalpel* album [Ninja Tune], the sound was just more approachable and understandable. Or, in the case of the title track of *Conditions of My Parole* by Puscifer [Puscifer Entertainment, via Tidal], more direct and frightening.

The traditional digital brightness and thinness that people associate with streaming begins to go away here. Interestingly, the more components you build into the AURALiC G2 stack, the more those criticisms of streaming became outdated and unfair. The graunch of guitars in the Puscifer track showed this in stark relief; the tone of the track takes on a truly malevolent disposition here, something it rarely does through Tidal.

Is there a downside? Sonically, I don't think so. However, to get the best from the SIRIUS G2 does involve some fairly complex app-wrangling, matching the upsampler to your DAC's performance and if you get technofear terms like 'Parallelize Sigma-Delta Modulator' might send chills along your heatsinks. Everything is explained in multiple places, however, but you might feel the need to hand setting up over to an expert. That being said, it's not complexity for its own sake, but digital matchmaking... almost like Tinder for DACs.

The above highlights aspects of the full AURALiC stack that don't quite unwrap at first thought, but unwrap a whole lot faster with the SIRIUS G2 in situ. When you hear this system, you almost automatically place it in the same standing as the likes of Esoteric, CH Precision and their ilk. At first, you do this simply because there are four boxes staring back at you, rather than just one. Then you hear what it does and the full stack meets the same criteria, even though the cost of all four AURALiC boxes is considerably less than its peer group. OK, very close investigation shows where the top systems are better, if only fractionally better. But upsetting the apple-cart is not the point; this four-box system goes toe-to-toe with some

TECHNICAL SPECIFICATIONS

Type: Streaming Upsampler

Input channel: Lightning Link (Up to 384K/32bit, DSD512), USB Audio (Up to 384K/32bit, DSD512), AES/EBU (Up to 192K/24bit, DoP DSD64), Coaxial (Up to 192K/24Bit, DoP DSD64), TOSLINK (Up to 192K/24Bit, DoP DSD64)

Output channel: Lightning Link (Up to 384K/32bit, DSD512), 2x USB Host (Up to 384K/32bit, DSD512), AES/EBU (Up to 192K/24Bit, DoP DSD64), Coaxial (Up to 192K/24Bit, DoP DSD64), TOSLINK (Up to 192K/24Bit, DoP DSD64)

Sampling rate: PCM in 44.1K - 384K (16 to 32Bit), DSD64 - DSD 512 (Both 44x and 48x)

THD+N: <-150dB (Upsampling to any PCM or DSD64)

THD+N: <-155dB (Upsampling to DSD128-DSD512)

THD+N: <-130dB (Downsampling to 44.1K/48K) Digital

Dimensions WxHxD: 340 x 80 x 320mm

Weight: 7kg

PRICE: £5,499

Manufacturer: AURALiC LIMITED

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Distributor: Auralic Europe

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of the gods of modern digital audio and not only doesn't come away bruised, but gives them a bit of a bruising too.

All of which means the SIRIUS G2 gets a real seal of approval. Whether used to start, finish, or flesh out an AURALiC stack or simply to buff another brand's DAC, it works and works surprisingly well. If you are sceptical (rather than a cynic) and take a listen, what it does to a digital signal is surprising in a good way. What's more, I've tried hard to hear where there is a downside to this kind of upsampling and for the most part I'm still trying. While the SIRIUS G2 shows listeners why AURALiC is so good by virtue of doing an exceptionally good job, it doesn't force you into an AURALiC-shaped future. That being said, if you have a very good DAC and hear what the SIRIUS G2 does for it, don't be surprised if you start asking questions about those other boxes in the line-up. +