



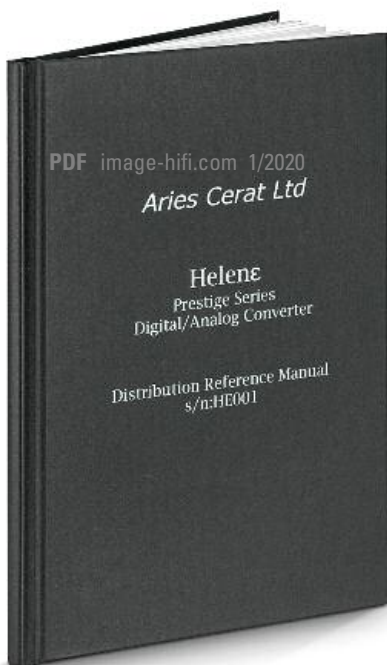




Aries Cerat Heléne DAC

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While the digital-to-analog converter chip in a normal smartphone weighs about four grams, the Aries Cerat Heléne comes in at a much heftier 30 kilograms, and yet every single gram counts. In fact, even though it's the Cyprus-based manufacturer's "smallest" model, the sound is so breathtaking that it's difficult to believe it can pack such a punch in such a small package...



A Giant

It's waiting right there at the curb in front of my apartment, inside a protective wooden shrine that's strapped onto a pallet. And although I keep trying to convince him, the delivery guy doesn't really feel like helping me take the massive package inside, even though I've pointed out that all we have to do is get it to the elevator (which, by the way, I'm thanking my lucky stars for today). So anyway, what seems like an eternity goes by before I finally get the chance to free the enormous piece of technology from its wooden temple by unscrewing countless Torx screws.

And then, it's time to connect it to my own home setup. But before we move on, it's worth mentioning that I've had some absolutely top-quality digital devices in my listening room over the past few months, so it'd be an understatement to say I think I'm well prepared. And yet when the first sound waves reach my ears, I can hardly believe the new worlds that are opening up to me: Every single sound coming from the Heléne DAC is delivered with aplomb and sonic expansiveness, building a soundstage that is completely unrivalled by anything else I've ever heard in the world of digital playback. I mean, just the bass itself: Finding a system that can combine that amount of power with sonic vibrancy and exquisite nuance is extraordinarily hard – and that's even if we limit ourselves to the best analog high-mass turntables out there, with everything and a tone arm and system to match.

In fact, the sound is so extraordinary that I spend the next few days checking out every single digital recording I can think of, astounded that I'm finally listening to an absolute degree of bass sound perfection that I'd always found to be elusive in the digital arena. In a way, the Heléne is the start of a new era. And of new questions too: That extraordinary sound quality... how is it even possible? After all, I'm not wet behind the ears and you don't have to tell me that weight does not necessarily equal performance in the high-end segment.

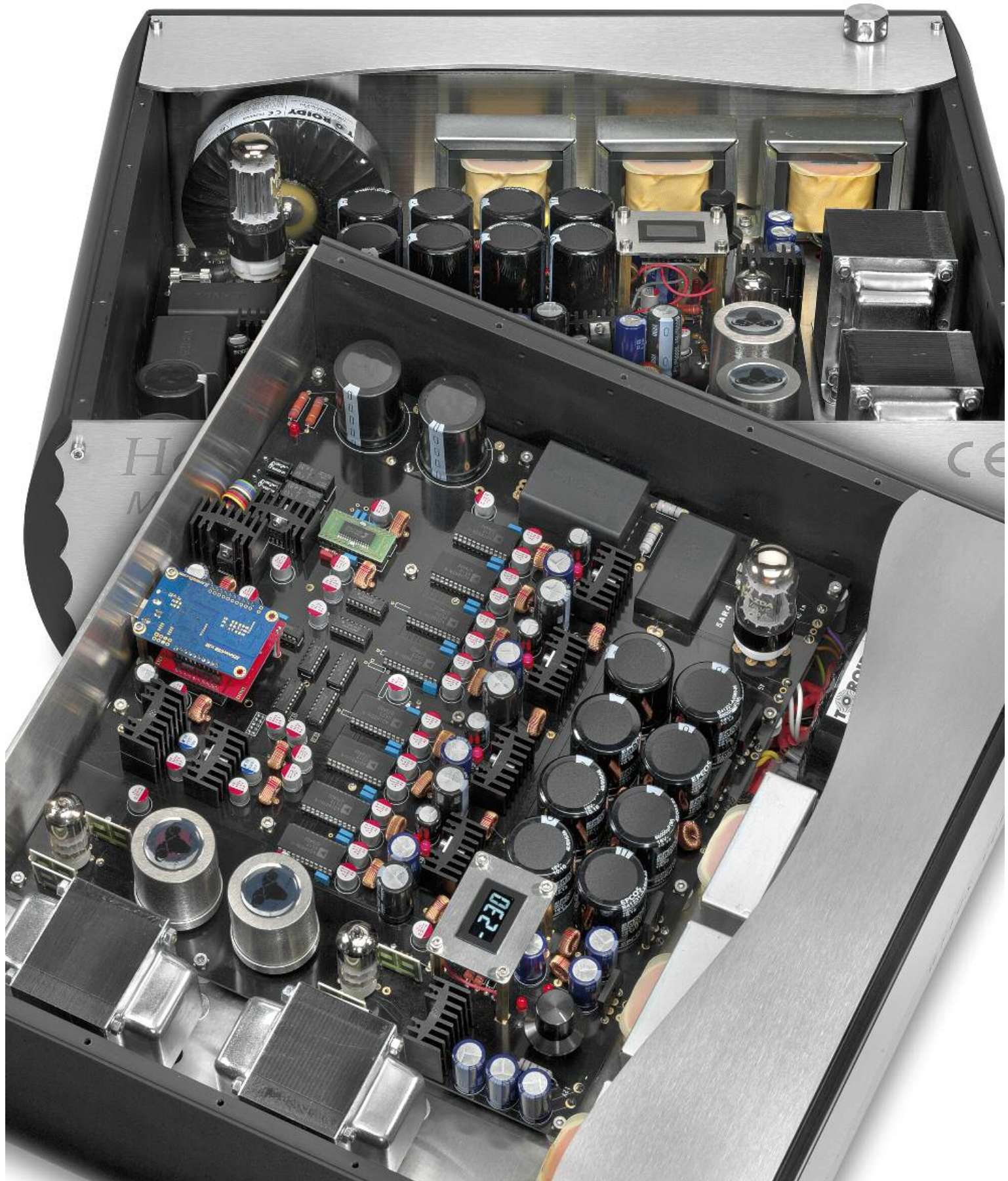
The only possible answer is that Stavros Danos, the mastermind behind Aries Cerat, must be both a diehard perfectionist and a consummate artist. And my suspicions are soon confirmed as I remove the countless hex bolts to open the somewhat iconoclastic stainless-steel-and-glass chassis and take a peek inside to satisfy my curiosity. And it is satisfied indeed! As far as I know, the Heléne DAC currently has no peers with the same kind of design on the market, with its innards consisting of three main modules: A sophisticated, full-blown tube output stage with a tube rectifier that uses select NOS vacuum tubes; a multibit DAC (R-2R ladder) in a multi-differential circuit;




and a power supply that is sized and designed for premium amps and that powers the unit's analog and digital components completely separately, of course. And to put it quite simply, not a single one of these three sections looks even remotely the way you'd expect it to in this day and age. What Stavros Danos has done here instead is an absolute marvel – an uncompromising vision for each module, all the way down to each individual capacitor and subcomponent, and anyone who appreciates circuit design and extraordinary implementations of it is sure to be left completely speechless after looking at this jewel.

As I already mentioned, the Helène is actually the smallest offering that Aries Cerat has available despite its massive weight (there's the larger Cassandra series, which has three different models and features an over-engineered power supply). However, that massive weight still means that the DAC requires proper support, and traditional hi-fi furniture, which is usually already bearing the weight of other equipment, will rarely make the cut. That's why I consider it absolutely essential to have excellent power amp stands with an isolated setup for those who really want to take full advantage of everything this exceptional converter has to offer. But back to the unit itself: It's delivered without the tubes pre-installed, and these tubes are (with duplicates in my case) instead enclosed in superb packaging together with a clothbound manual.

And for the vacuum tubes in the output stage, Stavros Danos has decided on the highly exotic Siemens E280F pentode, which was originally developed for industrial high-frequency applications, features a bandwidth that reaches far beyond the VHF range, and should last 10,000 hours. This is complemented by a GZ34 tube rectifier in the separate power supply for the analog section, which also uses NOS tubes (a Mazda GZ34 in my case) and does away with the need for tube rolling. As for the E280F, it runs in triode mode with strict channel separation and can be manually calibrated. Yup, you read that right – users can select the operating point themselves, and there's a digital meter on the board in the immediate vicinity of the tubes and a bias potentiometer that can be used for this purpose. And while the factory setting is -2.3 V, it is recommended to check this value after installing the tubes and then increase or reduce it within a range of -1.8 to 2.9 V according to your own sonic preferences. From ultra-neutral transparency to fuzzy tube warmth with supple bass reproduction: Everything is possible, although the factory setting did prove to be the ideal choice for my own personal setup and room.

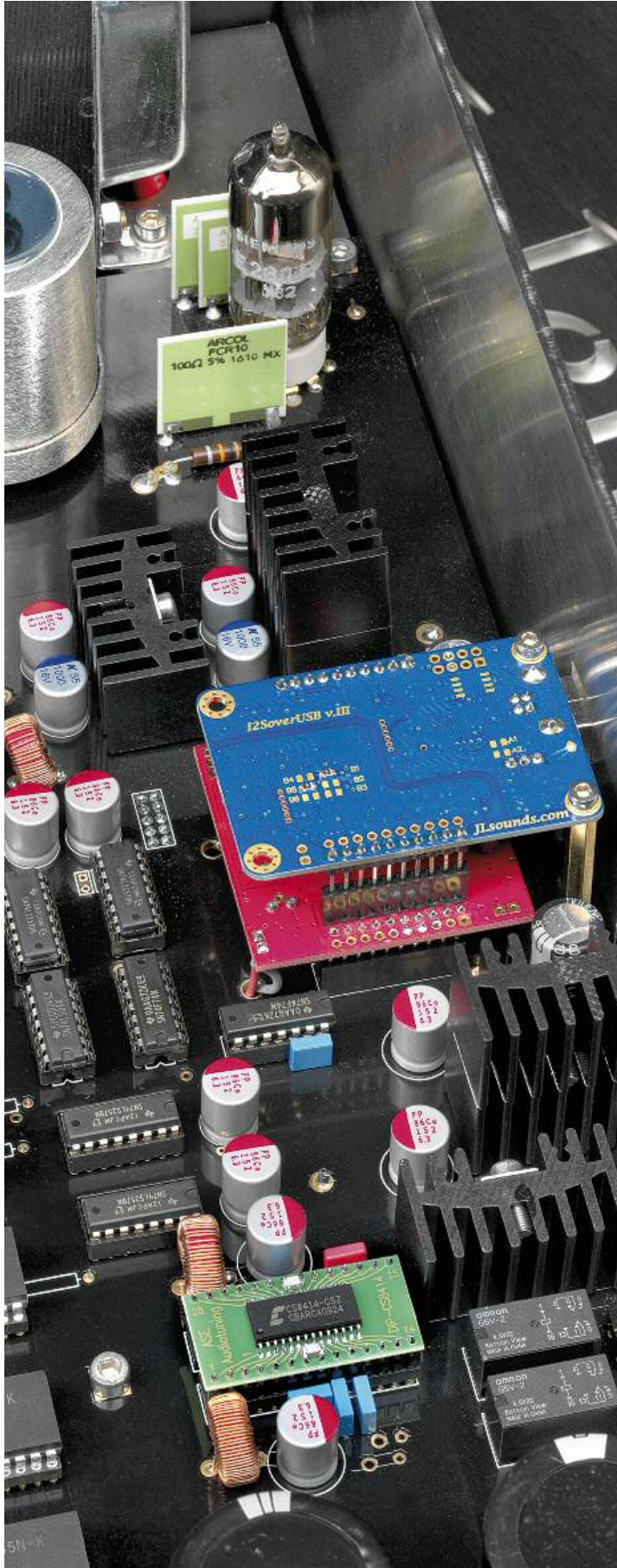




In order to limit the output impedance of the high-impedance tube output stage to 100 ohms, the unit uses specially wound, mechanically damped step-up transformers shielded with Mu-metal, ensuring that the DAC will truly be compatible with any setup. Likewise, the input side of the amplifier section features custom-wound transformers that every single digital fan should immediately recognize as a sign of something truly amazing: The Heléne's I/V (input/voltage) stage has exactly zero op-amps! Now, just like with moving coil cartridges, multibit converter modules are excellent at delivering current, but make poor voltage sources, and one of the best options for converting current to voltage is also using a transformer. In the case of the Heléne, however, this transformer also keeps the signal path as short as possible, since there are no additional components between the digital and analog tube sections.

And as though this amazing show of uncompromising engineering, vision, and imagination weren't enough, Stavros Danos takes the actual DAC's layout and knocks the whole thing out of the park: He's decided to use Analog Devices' AD1865 chips, which are prohibitively expensive nowadays due to the fact that they're only available as NOS. And not only that, but he uses the high-grade K chip model. In other words, the engineer has chosen to reject delta-sigma configurations, and for good reason: Delta-sigma DACs already have such a highly integrated design that they leave developers virtually zero latitude when it comes to implementing the chips, which partially explains the pitifully small sonic palette differences that can be achieved with them.

Enormously high-capacitance filter capacitors, together with an effective line filter, make the Heléne's AC power supply work virtually like a battery. And the exemplary design is a feast for the eyes!



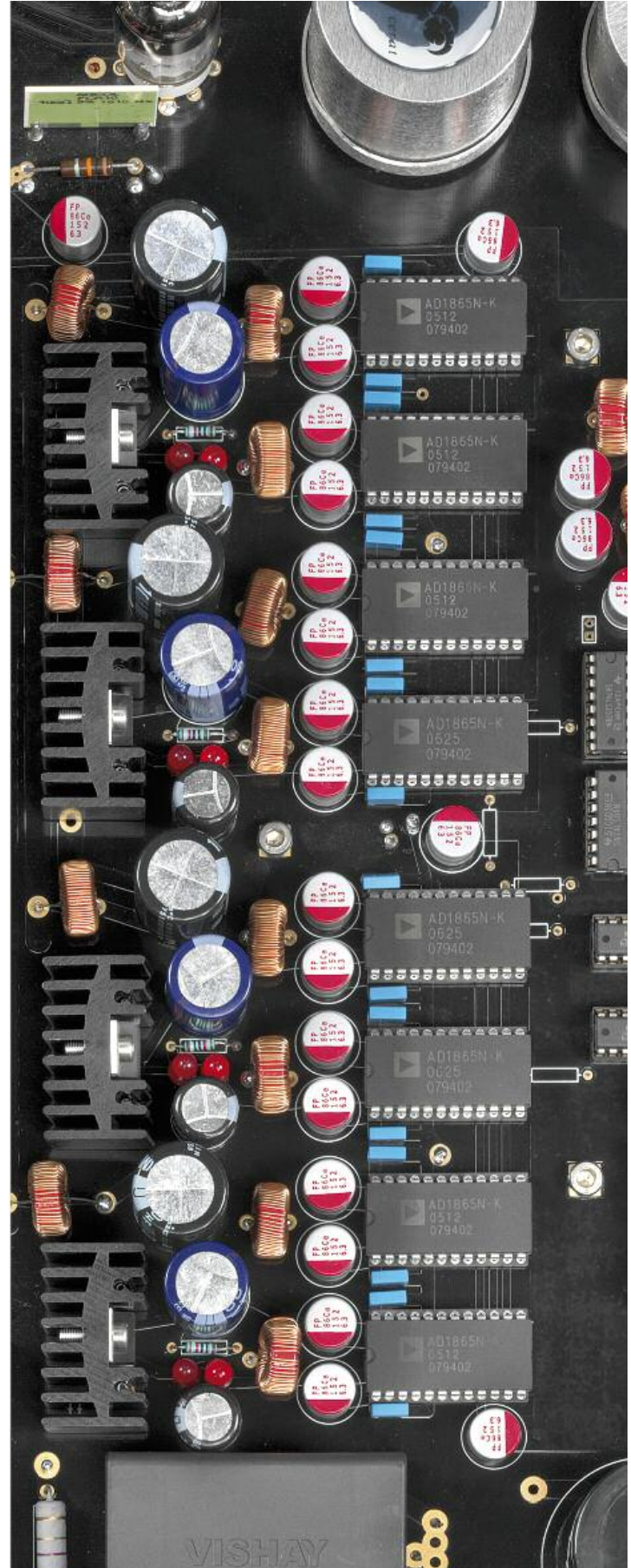
Thick E/I lamination transformers power the tube output stage with channel separation, while specially shielded step-up transformers ensure a low output impedance of 100 ohms

Needless to say, this would have never sufficed for any of the circuit layouts implemented by Stavros Danos, although it is true that integrating the multibit DAC modules into state-of-the-art digital equipment such as a CD player or a DAC requires a lot more work. And it's also worth mentioning that AD1865 chips have a legendary reputation and, together with the Philips TDA1541, are considered the apex of multibit DAC technology. But even with all that background information, let's get real here for a second: Given every single one of their sophisticated solutions, no one would have expected Aries Cerat to simply go the easy route with a simple chip implementation. In fact, the unit features a multi-differential DAC stage that features no fewer than eight of these converter chips per channel. The reason for this enormously ambitious use of parts? A significant improvement in converter monotonicity, resulting in absolutely fantastic values regarding linearity and signal-to-noise ratio due to the fact that differential circuitry features a strictly balanced layout that causes digital-to-analog conversion errors to cancel each other out.



Analog Devices AD1865 stereo converter chips also operate in a multi-differential circuit here, resulting in extraordinary converter linearity and ensuring fully balanced signal processing all the way to the XLR output connectors

But in order to make it easier to understand this, I have to dig a little deeper into the world of digital technology, so bear with me here: In multibit DAC chips, the weights of the individual bits (MSB = most significant bit; LSB = least significant bit) in a digital data word are implemented with a resistor circuit (R-2R ladder DAC). However, the accuracy of the precision resistors used is not high enough for this, which is why laser trimming is used. And even then, with this considerable complexity, it's still not possible to reduce deviations to a sufficiently low value. That's where the multi-differential circuitry comes in: The more chips that are used in parallel, the higher the accuracy.





At this point, it's worth mentioning that Stavros Danos is a purist, which is why the Helène uses absolutely zero digital data stream manipulation techniques, whether that be upsampling, oversampling, or the much-hated brick-wall filters that require a level decrease of about 60 decibels when half the sampling frequency is reached (as per the Nyquist-Shannon sampling theorem). And despite the fact that these techniques are usually considered a necessity in the digital realm, the DAC is able to reproduce perfect soundscapes without any aliasing effects or artifacts – all thanks to the extraordinary way in which the transformers in the digital section and at the output are implemented. In fact, their bandwidth ensures that high-frequency “dirt” is filtered out without any appreciable phase shifts. Needless to say, the much-feared pre-eco phenomenon is completely absent from this type of non-oversampling DAC as well, and while this does admittedly result in a slight dip in level at 20 kHz, it is more than compensated for with perfect reproduction over time.

Top: The Siemens E280F combines an extremely wide bandwidth with a very long life and, just like the GZ34 rectifier, comes from NOS



Left: Only a precious few of us have ever seen a manual bias adjustment option in a tube output stage, but seeing one in a DAC is absolutely unheard of!

Now, I do have to say that the Aries Cerat Heléne isn't particularly impressive in terms of accessories: You won't find a remote control, or any way to connect to a network, for that matter. However, it does feature three digital inputs (AES/EBU, S/PDIF, USB) in the back, as well as a knob at the top left that can be used to select them and that is characterized by well-designed clicking action that serves as feedback.

In addition, Nixie tubes, which you might remember from the era of old tuners, are used to show the selected input behind the smoked glass front panel, giving the whole thing a wonderfully elegant look! And when the S/PDIF or USB input is selected, it's also possible to choose whether to forward the pure signal or subject it to reclocking. In this case, it's important to consider that when an audio source conforms to the standard, the signal through the S/PDIF input subjected to time domain correction will sound exactly the same as the unprocessed signal, while USB and questionable S/PDIF sources may instead result in sharp and obvious differences – the only way to find out is through trial and error. Meanwhile, the analog outputs include both high-quality unbalanced cinch outputs and balanced XLR connectors, and the back of the unit features a ground lift switch that can be used to effectively deal with any ground loops. The controls and connectors are rounded off by the AC input and an ON/OFF switch that is unfortunately at the back of the unit and that can be used to activate a “soft start mode” that will go easy on the Heléne's tubes and enable its outputs after about 30 seconds with a nice and fat click from the relay.

Other equipment

Turntables: Bauer dps 3.iT, Immedia RPM-2 Tone arms: Schröder Referenz SQ, Schröder CB, Schröder DPS, Immedia RPM-2 Cartridges: Jan Allaerts MC1 B, EMT JSD 5, Ikeda Sound Lab Ikeda 9TS, Lyra Etna SL, Lyra Skala, Lyra Helikon Mono, Koetsu Urushi Vermilion, Koetsu Rosewood Signature, Kiseki Purpleheart, Ortofon SPU Royal N, Zyx Fuji XH Phono preamps: Air Tight ATE-2, Air Tight ATE-2005, Air Tight ATC-1 HQ, Cello RMM Step-up transformers: Consolidated Audio 1:20, Air Tight ATH- 2A, Air Tight ATH-3, Cotter MK II PP Preamps: Air Tight ATC-2 HQ, Air Tight ATC-1 HQ, Air Tight ATC-3 Power amps: Air Tight ATM-2, Air Tight ATM-1S, Air Tight ATM-4 Tuners: Marantz 20B, McIntosh MR 73 CD player/drive: Marantz CD-94 (modified NOS unit with passive I/V conversion and Klangfilm transformer) Reel-to-reel tape recorder: Studer A 80 1/4" Master Recorder with Cello input and output boards Headphones: Sennheiser HD 600, Grado GS1000 Loudspeakers: Quad ESL-57 (Quad Musikwiedergabe/Manfred Stein), Chartwell LS3/5A with 15 ohms (restored originals), Westlake BBSM-8 studio monitors, Geithain RL 912K active loudspeakers Cables: Stereolab Draco and Diablo LS cables, Black Cat Neo Morpheus, Black Cat Reference, LYRA PhonoPipe, Black Cat DIGIT 75 S/PDIF cable, Belden 3G2.8 power cord (with IeGO copper plugs) Accessories: Music Tools LS3/5A stands and Celestion SL700 stands



Rather than investing in showy bells and whistles, the design behind the Aries Cerat Heléne pursues a purist approach. And to be honest, the only thing I would have liked that is missing is a switch for cutting the output level by half.

But let's focus on one particular listening experience, which is when Thom Yorke's most recent album, *Anima* (XL Recordings, XL987CD, EU 2019, CD), made it into my modified Philips-CDM-1-Pro player. The moment the first song, "Traffic," came on, I was left breathless and mouth agape as I heard how the Aries Cerat squeezed every single nuance out of what is the now practically obsolete 16-bit CD format. Just the power of the synthetic bass was in a category all of its own, with Yorke's compositions avoiding simple drumbeats and instead opting for polyrhythmic works of art with layers upon layers of detail. In other words, the perfect way to mercilessly determine whether a component can weave the necessary web of sounds or whether it's limited to superficial soundscapes that don't do the underlying music justice. Well, the verdict was quickly in: The Heléne DAC was doing things that I'd only heard from analog studio-quality reel-to-reel tape recorders or high-mass turntables like the old Micro Seiki 5000 series with state-of-the-art arm equipment and highly sophisticated MC systems. The "dead" CD bass that has

disappointed so many of us before was nowhere to be found, and what I was hearing was instead a deeply musical foundation with a wonderfully dynamic response at the macro and micro levels, as well as apparently endless depth. In addition, Thom Yorke's voice moved between these complex structures as though it wanted to envelop the music as a whole, with the Heléne faithfully reproducing this with crystal clarity and absolute nuance – I was even able to hear the edits and cuts in the vocal tracks, which was only natural as I became aware of the fact that the takes had not been recorded in a single go. Overall, it became clear that the Aries Cerat was perfectly able to easily penetrate into the tiniest detail and layer of each soundscape, but without placing undue focus on the highest frequencies, as is often done by other digital "reference" equipment. Instead, the Heléne had a type of resolution that cannot be simply defined in terms of frequency, but that instead needs to be described as a combination of naturalness, aplomb, and expansiveness that faithfully reproduces all the sonic nuance and structure of every single composition, from the quietest to the loudest sections. To put it in one word: Fantastic!!!

A few days later, it was time for the baptism of fire in my studio: Recording and mixing pieces played by a small classical music ensemble. And the Heléne didn't disappoint, as I could already tell just how precisely and unequivocally the converter was guiding me when positioning the microphones and recording a number of tests. Even the tiniest issues with color were immediately perceptible, helping me find the perfect position for the main microphone. Now, having said that, it's important to clarify that the DAC is not unable to see the forest for the trees: Its inner workings remain hidden and unobtrusive without ever suppressing a detail, with the result being incredibly accurate and simultaneously free and natural renditions of music – if anyone thinks it's a “warm” tube DAC that will alter the music's color, they couldn't be more wrong. Instead, it's the perfect way to transport the listener to the essence of the music itself, as we've all experienced with the best records. And now, towards the end of my review, I can tell you that this makes it absolutely impossible for me to read or to surf the Internet while listening to music – even the tiniest distraction is unacceptable. The result is that I end up sitting in front of my speakers without doing anything but listening to the music and taking a dive into that one-of-a-kind world of vibrations and sounds that sucks you in and takes you to dizzying heights so that you can feel the adrenaline still running when the music stops. That's the Aries Cerat Heléne in a nutshell: Every technical consideration simply disappears, and what remains are soundscapes that I've rarely ever heard from digital equipment.

To put it simply, Stavros Danos has engineered an absolute wonder in the Aries Cerat Heléne – a DAC that is simply one of the best in the entire world!



Aries Cerat Heléne DAC

Operating principle: Non-oversampling DAC with tube output stage
Inputs: USB (asynchronous) up to 348 kHz/32 bits, AES/EBU, S/PDIF
Outputs: RCA, fully balanced XLR, ground lift circuit Output voltage: 10 V at 0 dBFS (full scale) Output impedance: 100 ohms Special characteristics: I/V conversion connected to passive step-up transformer, 8 Analog Devices AD1865's in multi-differential circuit (DAC chips), 2 x Siemens E280F, 1 x GZ34 (all NOS tubes) Weight: 30 kg Dimensions (W/H/D): 50/16.5/43 cm Price: 12,800 euros

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