

Jeff Rowland Design Group Aeris DAC

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Ever since the 1980s at the dawn of the digital revolution when an astute reviewer, our own HP, vehemently countered the claim that digital audio had succeeded in providing “perfect sound forever”, audio equipment designers have been chasing the Holy Grail of sonic achievement: to create digital devices that would equal or surpass the sound of analog, a technology that had reigned as king for decades. That promise led some to abandon their entire record collections and turntables in a quest to simplify their audio lives, but as we look back, the promise of good CD sound had fallen flat on its face during those early years. The good news is that digital technology has slowly evolved over the years, mostly due to the fact that designers now have a deeper understanding of the complex physics associated with the bitwise replication of the musical waveform. Various methods of encoding and decoding digital music have come and gone, but these small steps forward (with occasional steps backward) have ultimately resulted in digital products with reasonably good sound. We can largely invoke Moore’s Lawⁱ to explain many of these improvements where digital audio has been the side benefactor of huge R&D investments in computer technology; had it not been for the constant advances in IC chip technology, our digital devices would surely sound poorer than they do today. Evidence of these advancements can be directly attributed to the fact that today’s \$300 DACs have significantly left the \$30,000 DACs of yesteryear in the sonic dust and partially explains why most of us are hesitant to invest large dollars in digital systems that most assuredly will face obsolescence in a shockingly short period of time.

The past few years have certainly seen the rise of a great number of sonically acceptable digital products, many of them retailing at less than \$500, the better ones filling in the price range between \$2000 and \$5000, still financially attainable by most serious audio enthusiasts. Judging by the multitude of positive reviews that regale this class of products, one can logically and correctly assume that the great majority can competently provide a reasonably high level of sonic quality. My audio friends and I have spent countless hours auditioning a good number of disc players and DACs in our various systems and to prefer one product over another has been more an exercise in matching personal biases with the strengths and weaknesses of the products under consideration than pronouncing one product better sounding than another. Digital had seemingly reached a sonic plateau of sorts, one in which most competent products shared a generally similar sound, each with its own flavoring to please the particular palette of the individual listener. Is this an indication that digital has finally reached a level of maturity similar to what we’ve grown to expect from the current crop of analog products? This was a puzzling question.

And then along came the Jeff Rowland Aeris DAC.

Jeff Rowland, a man I’ve known for over 30 years, represents the epitome of the American success story. When I first met Jeff he made his living repairing professional audio products such as mixing boards and pro audio amplifiers, and I can clearly recall overhearing many of his clients remark that their repaired

products sounded better than when they were new. This avenue was where Jeff learned how NOT to design an amplifier. At the same time, he was creating various audio circuits for his do-it-yourselfer friends that were always better sounding than the boards they replaced. At this point, it was clear that Jeff enjoyed a unique talent in designing audio electronics that almost always bettered the sound of established manufacturers' products. In due time, Jeff was designing his own products under the moniker of Rowland Research, a name that eventually evolved into Jeff Rowland Design Group, now a major manufacturer of power amplifiers and preamplifiers. Jeff explains that the "group" component of his company's name reflects the fact that his products are to some extent the result of a group effort. He works with vendors versed in their fields of expertise, such as the local company that has long-time produced his amazing chassis' that give his products the look and feel of industrial elegance, as well as talented engineers versed in control circuitry who write the code that powers his sophisticated preamp ergonomics. But Jeff's products are clearly his own, and where Jeff most notably shines is with his analog designs... so I was totally caught off guard when he mentioned to me a couple of years ago that he was working on a offering his first digital product, the Aeris DAC.

A few years ago Jeff met up with a gentleman at the Munich Audio Show, Thomas Holm, a native of Denmark and a talented electrical engineer whose background and experience solidly rests in the digital sciences, particularly in the area of signal processing. After numerous discussions, it was clear to both men that a combination of their talents might result in a benchmark advancement in digital audio, and thus was born the Aeris. Jeff was eventually kind enough to loan me an Aeris prototype over an extended period, a time that resulted in a reevaluation of my beliefs regarding the efficacy of digital sound and its ability to deliver the musical goods. This led me to the purchase of a production version of the Aeris that turned out to be even better than the prototype.

Following in the tradition of Jeff's current products, the Aeris chassis is at once a stunning work of visual and industrial art. Milled from a solid block of aircraft-grade aluminum, the Aeris is built to withstand any and all physical and electrical vibrations and resonances that could upset the delicate electrical signals residing within its carved out spaces. The analog circuitry reflects Jeff's latest thinking that also appears in his line of amps and preamps. Some highlights of the technology incorporated in the Aeris DAC include:

- Transformer coupling in the input and output stage that provides galvanic isolation as well as a high degree of common mode rejection.
- The full use of surface-mount devices that reduces circuit board component interactions.
- A 6-layer circuit board to provide superior noise rejection.
- Multi-stage isolated power supply and regulation featuring separate switch-mode power supplies dedicated to both analog and digital circuitry.
- A DAC-based volume control designed to eliminate the shortfalls of traditional digital volume controls.
- Proprietary ISO-Sync ECS input circuitry utilizing an FPGA (field-programmable gate array) controlled buffer that results in an exceedingly low jitter below 10 picoseconds RMS. The FPGA algorithms were reportedly developed by a Ph.D. mathematician over a six-year period.

The above features are a small sampling of the bewildering number of analog and digital circuitry innovations incorporated into the Aeris – more technical details are available at the Jeff Rowland website at: <http://www.jeffrowlandgroup.com>.

Externally, the Aeris provides the following connections to the outside world:

- Two BNC connectors to handle SP/DIF input that accepts up to 24 bit PCM from 11 - 192 kHz sample rates. The popular coax connector is eschewed in favor of BNC due to the fact that the BNC connection guarantees that the input impedance remains stable at a nominal 75 ohms as well as allowing for cables of greater length.
- One high-performance Toslink connector that accepts up to 24 bit PCM from 11 - 192 kHz sample rates.
- One USB connector accepts up to 24 bit PCM at 44.1, 48, 88.2, and 96 kHz sample rates. The USB input is plug-and-play and does not require a special device driver.

Outputs include one pair of balanced XLRs and one pair of unbalanced RCAs. A special connector mates the external power supply, itself milled from a solid aluminum block, via the included umbilical cable. A standard IEC connector on the external supply is suitable for utilizing any high-quality AC power cord. The remote (you guessed it – milled from a solid aluminum block) mirrors all source selection and switching functions on the front panel.

Accompanied by listening companions when the Aeris saw first light in my system, we had just finished auditioning a \$5000 DAC that impressed us all, but the first few notes of music emanating from the Aeris immediately caused eyebrows to raise, and quick glances at each other confirmed a common reaction from the group, a reaction that one of my audio cohorts would describe as an OMG (“Oh My God”) moment. Through numerous sessions over the years our group’s evaluations entailed listening to short, familiar segments of musical cuts to reveal various sonic characteristics of the device under test, but with the Aeris we were listening through to the end of the pieces for the sheer joy of hearing the music as if for the first time.

To my ears, the Aeris’ magic lies in its ability to extract hidden musical details from sources that has eluded other DACs and disc players. In a way, the Aeris sounds more *analog*, with analog’s unique ability, with the best recordings, to strongly convey the emotion and musicianship of the recorded performance that seems all too rare in other digital products. Listening to familiar musical sources (and the magic exists for both optical as well as server source devices) asserts a truthfulness to the musical experience that makes one feel as if they are at once hearing the sound of the master recording, and this is no more obvious than with its decoding of Red Book CDs. Many CDs from the 80s and 90s, once considered poorly recorded with outdated sound, come alive in all their glory. Conversely, previously admired recordings that successfully demonstrated the typical strengths of digital audio (noise-free backgrounds, solid bass, superior dynamics) were revealed to be threadbare in recreating the musical life of the performance. This bodes well for audio enthusiasts who own hundreds of CDs, as a revisiting of one’s CD library can reveal gems that were once placed in archive for eventual sale or trade.

How does the Aeris accomplish this feat? As noted, the absence of uncorrelated noise contributes to a soundstage blackness that resolves complex musical textures in a stress-free presentation that allows images to appear in holographic sub-spaces within the parent air of the recording. This absence of noise allows for the rendering of nuanced musical details that enliven each image and reinforces the illusion originally captured in the recording. Voices appear with a solidity and clarity of harmonic purity that adds flesh and bone to their respective images and contributes mightily to the feeling that more information is being unearthed from the recording. Superior dynamics, both micro and macro, provide that final clue of musical authenticity. For instance, the Aeris' reproduction of the recently-released 24x192 download of Morton Gould's *Latin American Symphonette* (available from High-Definition Tape Transfers) provides thunderous crescendos, bettering my open-reel tape of this vintage Vanguard recording. The sound of picked, plucked and strummed acoustic guitar is for me a sure measure of a component's transient response and upper-treble capabilities, and the SoundLab electrostats can reproduce it better than most. A great example of this is Neil Young's wonderful 1971 recording, *Live from Massey Hall* where the unmistakable sound of his solo Martin acoustic guitar comes through with a forcefulness and harmonic purity that only a Martin can conjure up.

The sheer naturalness of the Aeris' musical interpretations makes a discussion of its rendering of highs and lows almost irrelevant – the Aeris simply allows the music to flow effortlessly, and removes evidence of a mechanical device manipulating digital bits somewhere between its inputs and outputs. First impressions are lasting, and initial impressions of other digital playback devices call attention to one or more areas of their musical presentations – some tend to emphasize the upper treble region, others a lucid midrange or forceful mid-bass, yet the Aeris seems to side-step this “shouting out” of its musical attributes. Instead of highlighting particular aspects of the audio band, it seems to illuminate the entire frequency spectrum, making it oh so easy to just sit back and become bathed in glorious music. To me, the best sounding audio products do nothing more than to remove distractions that divert your attention from the musical core of the source material; some do so by limiting the amount of information they allow to pass – these components can produce pleasant sounds but they also tend to homogenize all that pass through... indeed, these are products of great character, a positive human trait, but not necessarily a good thing when it comes to audio reproduction. The Aeris in chameleon-like fashion has little identifiable sonic character – it simply takes on whatever is present in the source material and lays it out bare for all to experience. This sonic-agnostic behavior allows for a sumptuous blooming of sonic textures from the best sources that at once convinces us that we are hearing through to the original recording, transporting us closer to its musical essence.

It should be clear by now that I am head-over-heels in love with this product, one that I believe will eventually enjoy classic status in a field of digital devices all-to-soon eclipsed by the next generation of chip technology. The Aeris goes far to demonstrate that enlightened design, meticulously implemented by one of the industry's most talented and experienced audio manufacturers can successfully deliver a product that represents a true advancement in the art of music reproduction, Moore's Law notwithstanding. Needless to say, the Aeris comes very highly recommended.

Pricing: \$9800

Website: <http://www.jeffrowlandgroup.com>

Art Tedeschi's Reference System:

SoundLab A-1 PX Full-Range Electrostatic Loudspeakers

Jeff Rowland Design Group 625 Stereo Amplifier (driven directly by the Aeris)

Sony SCD-XA5400 SACD/CD Player

SOTA Star Turntable/Eminent Technology ET II Tone arm, Rowland Strain Gauge Cartridge System (no longer available)

Interconnect and Speaker Cables by MG Audio Design

Power Cables from NVS Audio

ⁱ Moore's law is the observation that over the history of computing hardware, the number of transistors on integrated circuits doubles approximately every two years.