

Simaudio Moon 891 Streaming Preamplifier

The term “integrated product” can mean many things in the audio industry. In browsing through the North Collection of components on Simaudio’s website, you will find several integrated products differentiated by number-based identifiers, each positioned opposite its functional counterpart. The 641 integrated amplifier (\$11,000, all prices in USD) and matching 681 streaming DAC (\$12,000) are the most wallet-friendly products in the North Collection. The 700 series, comprising the 761 power amplifier (\$14,000) and 791 streaming preamplifier (\$16,000), delivers a step up in performance and complexity. The flagships are the 861 power amplifier (\$22,000) and 891 streaming preamplifier (\$25,000), the latter of which is the subject of this review.



Before sitting down to assess the Moon 891’s performance, I had to decide on an overall approach, because the 891 is a very flexible component—it can function as an analog preamplifier, a digital preamplifier, a DAC, a streamer, and a phono stage. After some thought, I settled on performing a four-way comparison using one track, “Love Letters,” from Diana Krall’s 2001 album *The Look of Love*. I have this album on CD (Verve 314589846-2), SACD (Verve 314589597-2), DVD-A (Verve B0001604-19), and vinyl (Verve, 602547377074). A while back I ripped all the digital versions to my Intel NUC music server. Streaming these digital files (using the Moon MiND app and later Roon) meant I

could perform a near-perfect apples-to-apples comparison highlighting how the 891 performed across most of its internal and external inputs. Moreover, this approach provided a perfect platform for comparing the sonic performance of the Moon 891 with my reference components.

The techy bits

First, let's dig into how the Moon 891 is made, with the help of an analogy from the automotive world. Recently, Bugatti announced a successor to their legendary Chiron sports coupe, the Tourbillon. Powered by a naturally aspirated 8.3-liter V16 engine supplemented by three electric motors, the Tourbillon produces 1776 horsepower and carries a starting price of \$4.6 million. As one of Bugatti's press releases touted, the Tourbillon is entirely absent of plastic; everything is as you see it. Same with Simaudio's 52-pound Moon 891. Measuring 5.5"H × 19"W × 17.7"D, the chassis is milled from a single piece of aluminum, and is mostly fabricated in-house. Dominique Poupart, Simaudio's product director, told me that some parts, such as the front panel, are milled in-house but anodized by a long-standing Canadian supplier. Other than the internal circuitry, I could find no plastic on the 891 itself. There is a layer of plastic applied to the base of the BRM-1 remote control—which, by the way, is an ergonomic masterpiece. But that layer has a purpose: to prevent marring of whatever surface the remote is sitting on.



The front of the Moon 891 is clean in its industrial design, yet intuitively ergonomic. In the center of the front panel, a 5" screen crisply displays source, volume, album art, and menu information regardless of the brightness level in the room, and I appreciated the

selectable background graphic. Special care was taken while designing and manufacturing the screen, Poupart told me. It sits directly behind an optical bonding layer, which is said to improve visibility when the display is viewed through an outer layer such as acrylic or glass. The Moon 891 uses the latter due to its significantly greater resistance to scratching. To the right of the screen lie two flush-mounted buttons: one labeled Setup, the other labeled OK, for making menu selections. Further to the right is a large aluminum volume knob that creeps into the far-right aluminum cheek of the front facia. To the left of the screen are four more flush-mounted buttons, oriented in a square. One is for entering and exiting standby mode, one is for engaging and disengaging the mute function, and two are for cycling through inputs. Both sides are adorned with thick, heavy heat sinks that span the depth of the chassis and are sculpted to match the polished aluminum corner posts. Spin the Moon 891 around 180 degrees, and you will find a well-laid-out array of digital inputs—HDMI ARC, AES-EBU (XLR), two coaxial S/PDIF (RCA), and two optical S/PDIF (TosLink)—centered in the rear panel's upper half. To their right are a 12V trigger output, a USB Type-B port for connecting a computer, a USB Type-A port for connecting an external drive loaded with music files, and a pair of stacked ethernet ports.



From left to right on the lower half of the rear panel are a pair of phono inputs (RCA) that can be configured for use with MM or MC cartridges, a pair of balanced line-level inputs (XLR), a pair of unbalanced line-level inputs (RCA), a pair of balanced outputs (XLR), and a pair of unbalanced outputs (RCA). To the right of these is another pair of female XLR inputs to attach Simaudio's optional 820S external power supply, and, finally, an IEC power cord inlet and the master power switch. While poking through the menus, I discovered that any of the analog inputs can be set to function as a Home Theater Bypass input, and the phono input can be repurposed as a second line-level input.

Popping the weighty top panel off for a peek, I immediately noticed the large black aluminum enclosure adorned by a plaque with the letters MHP (Moon Hybrid Power).

This MHP module is shared with the Moon 791, but the 891 benefits from additional circuitry fed by multiple supplemental voltage regulators, many serving the MDE-3 digital module. Featuring a linear power-regulation circuit that keeps the voltage rails highly stable within the analog path, with several outputs serving the analog and digital circuitry independently, the 891 is said to be insensitive to AC mains voltage fluctuations.

The MDE-3 digital engine is unique to the Moon 891. Capable of decoding all currently available PCM, DSD, and MQA data streams, the 891 uses a hot-rodded version of the MDE-2 digital engine found in the Moon 791. The MDE-3 utilizes a state-of-the-art precision femtosecond clock to correct timing variations (jitter) on the incoming digital stream. The system fully re-clocks the signal using an in-house-programmed 32-bit FPGA (Field-Programmable Gate Array) that is said to reduce jitter well below the threshold of audibility.



Whereas the 791's MDE-2 digital engine uses a single DAC chipset, the MDE-3 uses two, and they are of higher quality than the chipset used in the 791. Also, the 891's DAC chips are calibrated to achieve an incredibly tight match between the two channels. The DAC architecture is fully balanced, employing eight monaural DAC outputs per channel, summed for lower noise and distortion. As Poupart explained, the analog section of the DAC is unique for Simaudio in that it "sums the output current of eight DACs using semiconductors having higher current capability for the utmost reproduction fidelity."

The analog, phono stage, and digital circuitry all float on something Simaudio calls their Moon Damping Base, or MDB. The MDB was explicitly designed to suppress parasitic vibrations that cause microphonics in the audio circuitry. When I prompted Poupart to dive into this for me, he noted that the MDB is comprised of a thick aluminum base (for a higher moment of inertia and lower resonance), a gel-based suspension that dissipates vibrations as heat, and a thermal phase-change compound between the analog circuit board and the supporting aluminum base. This creates an optimal audio electronics

foundation with isothermal heat-dissipation properties and microphonic effect annihilation. While installing the Moon 891, I noticed that the MDB can be physically felt when plugging cables into any analog input or output; the entire analog output panel moves as if mounted directly on a gel pack.

Another critical technology is the M-RAY2 electronic-gain volume controller, located directly in front of the MHP module. Used only in the 891, the M-RAY2 is the most precise and transparent volume control Simaudio has ever designed, according to Poupart. The “Ray” part of the name refers to the circuit’s R-2R network array. The resistance-free front panel rotary knob (also milled from aluminum) operates an optical encoder, providing precise control of up to 620 independent steps of silky-smooth adjustment. Here’s how it works: the encoder tells the main microcontroller the desired volume level. Then, that microcontroller changes the volume by manipulating a sequence of ultra-high-performance analog switches that define which resistor the signal will go through.



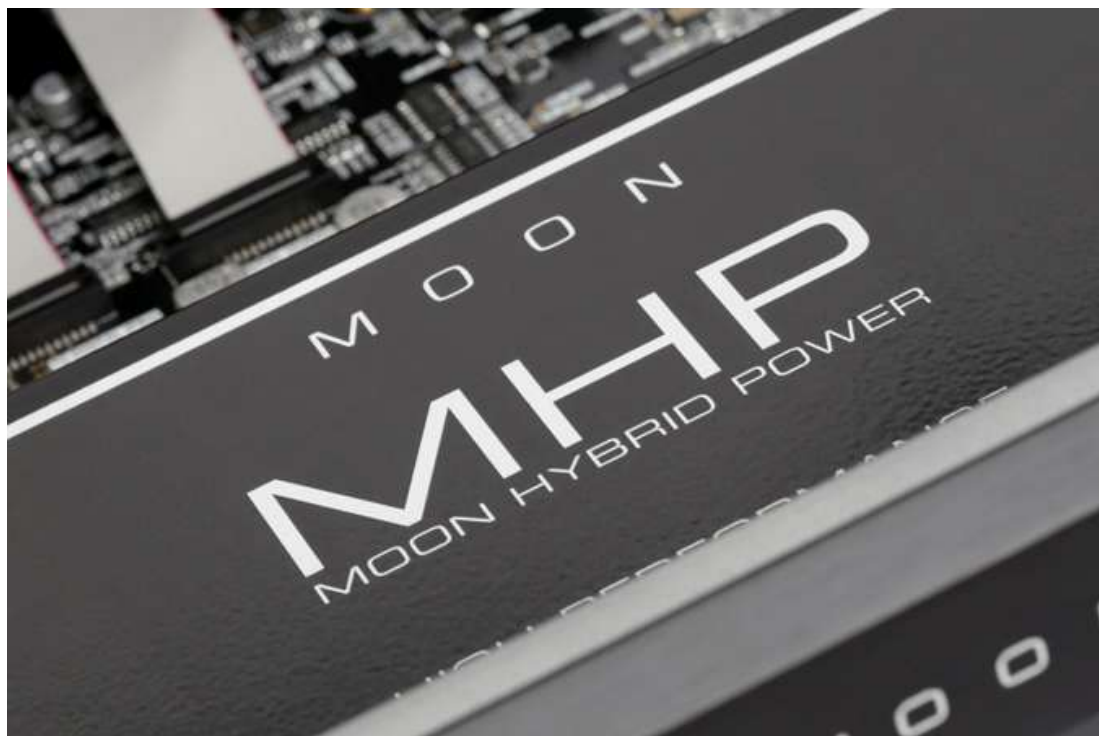
Poupart provided additional detail: “The resistors are 0.1%-tolerance thin-film precision resistors, and the signal path is as direct as possible by not diverting the audio signal anywhere outside its ‘natural’ path. There is less than 0.1dB difference between channels at any given volume setting, and there are two modes within which the volume controller can operate.”

In the default mode, there are 140 steps: 1dB steps between volume 0 and 20 and 0.5dB steps between volume 20 and 80. According to Poupart, this was done to address customer feedback that the 0.1dB steps on the volume controls in previous models were

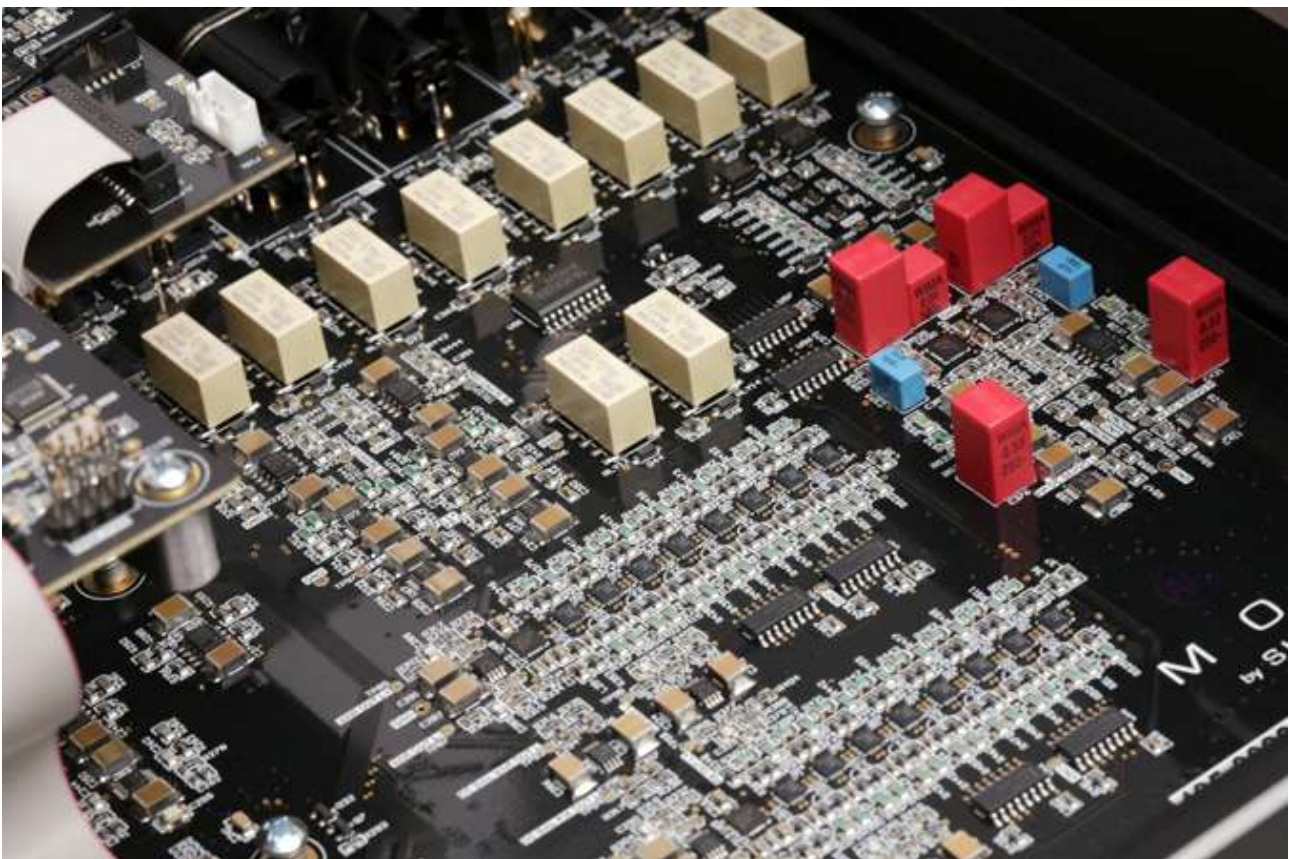
sometimes too small—users wanted to be able to reach a desired volume level more quickly. Users who want to adjust volume in 0.1dB steps can enable that option in the settings menu. The settings in the volume-control setup menu are duplicated by the BRM-1 remote—which is quite possibly the best remote I have ever used. As silky in operation as the volume dial on the 891's front panel, the remote dial is a bit sensitive, but once you get the hang of it, volume, source selection, and power functions are literally a touch away. I also appreciated how all text and labels are tilted just off-center so that when you pick the BRM-1 up and hold it naturally, the OLED readout and function labels point directly forward. Clever. The final technical component I need to touch on is the onboard phono stage. Other than a few fundamental elements shared with the Moon 791, the phono circuitry is unique to the 891. On both the 791 and 891, Simaudio was unable to borrow components from their standalone phono stages because they had less room to work with inside the 791 and 891's chassis. Furthermore, the new phono stage had to be configurable using a digital menu, not switches. Information was limited, but I sussed out that the new phono stage employs dedicated circuitry using high-quality close-tolerance parts and is powered by dedicated voltage regulators. In the 891, this circuitry resides on and benefits from the MDB, giving it a slight performance edge over the 791.

Standing alone in a crowd

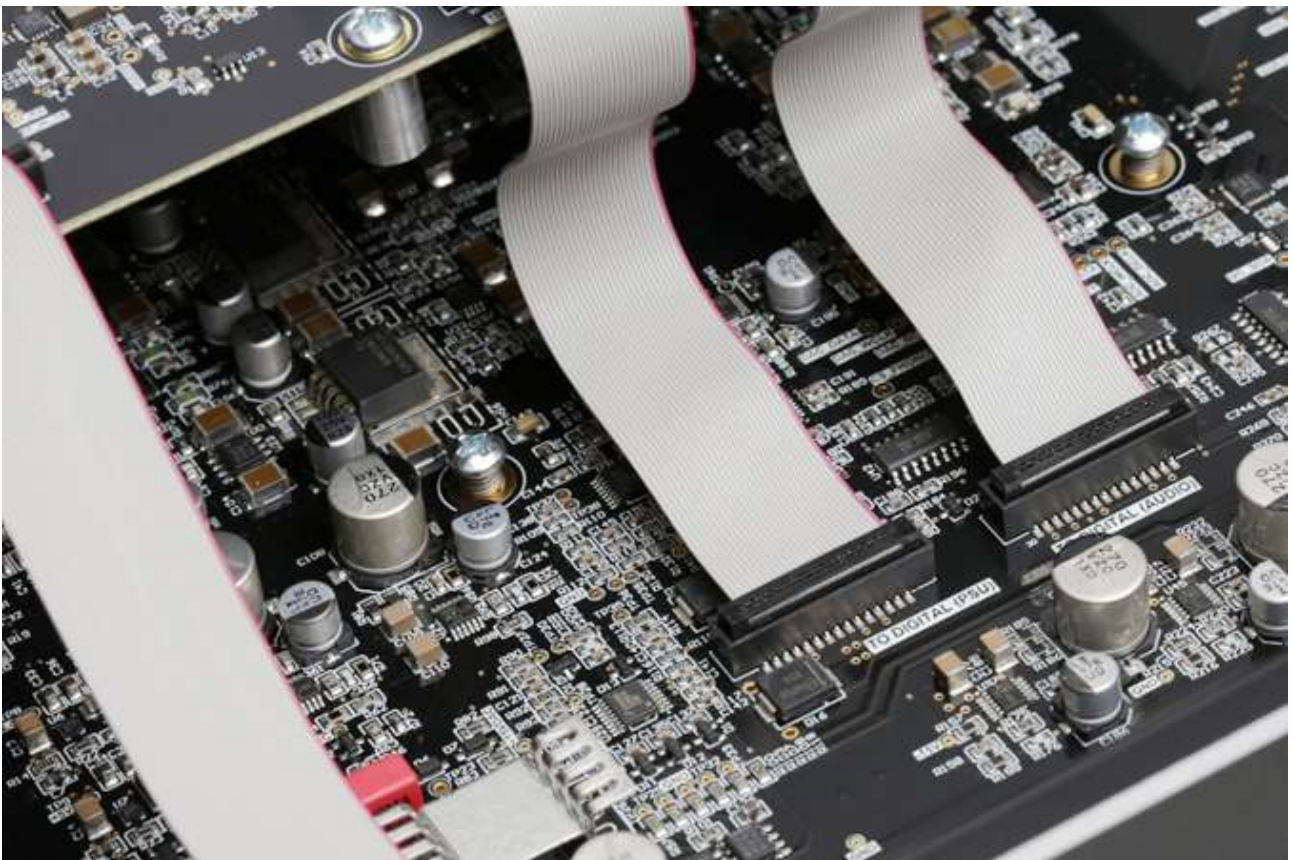
I connected the Moon 891 to my Classé Delta Mono power amplifiers (\$10,999 each), Shunyata Research Denali 6000/S v2 power conditioner (\$6000), network router, and Project RPM 10 Carbon turntable (\$6499, including Sumiko Starling cartridge). I used Kimber Kable Select KS1116 balanced interconnects to connect the 891 to my Classé monoblocks, which were connected to my Paradigm Persona 7F loudspeakers (\$13,499 each) using Kimber Kable KS6063 speaker cables.



Now I was ready to rock—except for one important detail: enabling the 891's MiND streamer to play music from my music library. Because the MiND streaming module does not come with onboard server software, I needed to download a copy of Asset UPnP to my NUC, and use that to tell the MiND where my music library resided. That task accomplished, I used my iPad Pro to operate the MiND app and listened to my 24-bit/96kHz copy of "Love Letters" a few times. Compared to Simaudio's previous flagship DAC, the Moon 780D (discontinued; \$15,000 when available)—which I reviewed in April 2016—and its successor, the 780D v2 (discontinued; \$18,000 when available)—which I spent the summer with while reviewing Simaudio's superlative Moon 888 monoblocks (\$118,000/pair)—the Moon 891 immediately sounded different. Without even a hint of background noise, I heard deeper into this and other recordings than I recall ever experiencing with either the 780D or 780D v2. The 891 also exhibited a sense of ease through its warmer presentation, which I had not heard from any Simaudio product prior. I would not describe the Moon 891's sound as relaxed, but it was certainly relaxing to listen to, and that is not an adjective I would have been comfortable using to describe the 780D or 780D v2. The Moon 891 did not shy away from communicating the disparate characteristics of Red Book, 24/96, and DSD64 versions of "Love Letters." The 16/44.1 version, ripped from the CD, sounded slightly brittle and more vivid than its higher-resolution counterparts. I enjoyed the depth and resoluteness of Christian McBride's bass. Krall's vocals popped on center stage with a sense of focus and air that put a grin on my face. Space between instruments was well implied, and I could have easily listened to the entire album without issue but for one flaw: Russell Malone's electric guitar was not as precisely drawn as the other elements on this recording. It sounded a bit bloated and thus out of balance with everything else on stage.



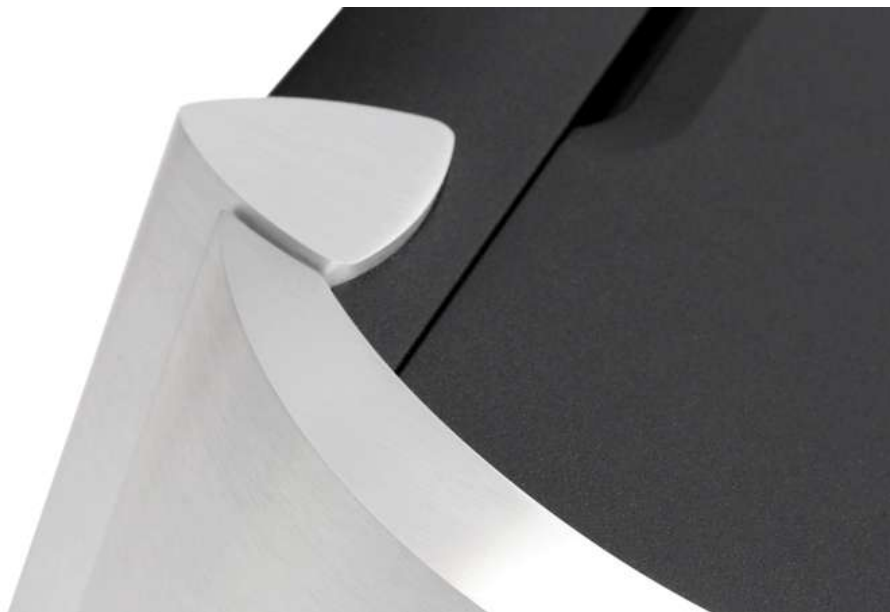
The DSD64 version, ripped from the SACD, sounded warmer. Notes from Krall's piano, full of tonal color, lingered in the air with a delicacy that I immensely enjoyed. Conversely, Peter Erskine's brushes of the cymbals were not quite as well delineated as I would have liked, but were a wisp clearer than on the Red Book version. Malone's guitar, again, sounded just a bit too lush, lacking the definition it needed to make the leap from good to real. Krall's vocals, however, imaged beautifully at center stage, floating in space with just the right amount of body and dimension to imply she was in the room. Switching over to the 24/96 FLAC file, which I'd ripped from the DVD-A release of the album, the instruments and vocals presented with most of the lushness, warmth, and fluidity I experienced with the DSD file, again allowing music to flow effortlessly, but were now drawn with enough image specificity to sound live in my room. Christian McBride's double bass had density, depth, and body without becoming overbearing, and I could hear Peter Erskine's brush bristles touching the cymbals more clearly. The 24/96 version of this track nailed the body, scale, and resolution of each instrument and nuance here, and the 891's inherent transparency let me easily hear and appreciate the faults and merits of each different recording. I evaluated the phono stage next, and I commend Simaudio for implementing such an intuitive, easy-to-use setup menu. There are settings for gain (40, 54, 60, and 66dB), capacitance (0, 100, and 470pF), and impedance (10 ohms, 100 ohms, 1k ohm, and 47k ohms), plus an adjustable offset of up to 10dB, which I loved, as you can effectively add gain without adding much noise. RIAA and IEC EQ curve options are also available. My only gripe is that you cannot access the menu through the remote to make on-the-fly changes from the listening position.



At first listen, the sound from the LP was akin to what I experienced while listening to the DSD64 file, but with some subtle differences. While slightly less palpable, McBride's bass no longer sounded mildly bloated. Instead, his plucks of the strings seemed more textured and balanced. When hunting for micro-level details, I could not hear Erskine's brushes on the cymbals quite as readily as I could from the 24/96 file. Still, there was enough transparency to discern the sound of a brush sliding on brass more clearly than I heard from the Red Book or DSD64 file. Shifting my focus to Krall's vocals, image specificity was simply riveting. I felt closer to Krall on stage. I could hear the breath beneath her voice, the decay following it, and the dynamic inflections intended throughout the track more easily than I could from any of the digital files. On point and par were Krall's piano notes, sounding buttery, effortless, and dynamic, as their positioning on stage and in the air convincingly defined the outer boundaries of the right-center stage.

Head-to-head

So far, I had peeled back the proverbial layers of the Moon 891, using it as an all-in-one digital and analog front end—just as Simaudio intends. But I couldn't help but wonder how the Moon 891 would stack up against a trio of dedicated components. Having just evaluated the 891's phono stage, I connected my Parasound JC3+ phono stage (\$2499) to the 891's balanced inputs, balanced the gain using a digital sound meter, and performed an ear-to-tweeter test listening for noise. The 891's phono stage was a whisper quieter. After listening to "Love Letters" and a few other tracks, it was clear that the JC3+ was the more flamboyant phono stage, producing louder, punchier, yet equally refined-sounding bass complemented by a neutral, transparent, yet sophisticated presentation.



By contrast, the Moon 891 drew fuller images, but with the same-sized brush. Both phono stages dug deep into Krall's "Love Letters" to communicate the subtle intricacies of Erskine's cymbals, the decays of Krall's voice, and the spatial nuances hinting at the boundaries of the soundstage. Piano

notes through the JC3+ were cast more vividly with more dynamic inflection, but the 891 reproduced Krall's playing with greater warmth, fluidity, and delicacy, which I preferred.

My next test was to compare how all three versions of “Love Letters” sounded using the MiND app to select tracks, compared to Roon, and I heard no differences whatsoever. Because I am used to Roon and find its editorial content helpful, I used Roon for the remainder of this review. I then connected my reference T+A MP 3100 HV SACD player/streaming DAC (\$22,275) to the 891 using a pair of Kimber Kable Select KS1116 balanced interconnects and dove into some direct A/B comparisons.



Cueing up the 24/96 FLAC version of “Love Letters” highlighted two key differences. First, when used just as an analog preamp, the Moon 891 is utterly transparent. Subsequently, I realized that the Moon’s and the T+A’s DACs sound very different. Through the 891’s streaming module and DAC, instruments and vocals exhibited body and dimension, but compared to the T+A, lacked a bit of sizzle. The T+A MP 3100 HV painted more holographic images within a larger soundstage, while placing those objects closer to me. Bass performance was nearly indistinguishable. I say “nearly” because the 891 sounded ever so slightly more controlled in the bottom end, with deep notes able to be felt in my chair just a wisp more than from the T+A. Focusing on the orchestra, the MP 3100 HV added a bit of scale but didn’t quite lock down instruments with the same precision I heard through the 891. The same observation rang true with Krall’s vocals. Through the 891, Krall sounded as if she was two to three rows further back on the stage, yet was drawn more sharply. Malone’s electric guitar lost a fraction of tonal color through the 891. Additionally, the T+A presented Erskine’s brushes of the cymbals and Krall’s piano through a clearer lens, perhaps because it positioned these elements closer to me, which I enjoyed.

My final comparison was to bring my Audio Research Reference 6SE preamplifier (\$19,500) into the fold and perform a full-on preamplifier/DAC comparison by tethering my Classé monoblocks to each system, again using my Paradigm Persona 7F loudspeakers. I listened to the 24/96 version of “Love Letters” back-to-back, first through the Moon 891, and then through my AR preamp and T+A SACD player/streaming DAC, both using Roon. The differences were immediately apparent. The 891 was significantly quieter. In fact, the Moon 891 is the quietest preamplifier I have ever evaluated. With the Reference 6SE in the loop, there was unavoidable tube noise subtly muddying the noise floor.



Throughout “Love Letters,” soundstage dimensionality was similar on both systems, but the air and sense of atmosphere that my reference equipment imbued surpassed that offered by the 891, and by no small margin. Conversely, the control imposed by the 891 when drawing out Christian McBride’s bass notes was even more apparent. Russell Malone’s fluid guitar notes at the beginning of the track sounded similar through both systems—rich, silky, and dense—with the only difference being a slight expansion of scale favoring my reference components, whose combined price (\$41,775) is significantly higher than the 891’s. The portrayal of Krall’s vocals was a toss-up, with my reference system better communicating spatial nuances, soundstage dimension, tonal color, and a sense of liveliness. But the 891 excelled at chiseling images in space with more density and body, supplemented by a sense of focus and ease that had me toggling back and forth longer than I’d care to admit, figuring out which one I preferred.

Summing up

This review reminded me of the importance of perspective. The Moon 891 proved to be a captivating performer across all inputs. It is built like a tank, is almost ergonomically perfect, offers a plethora of digital and analog inputs, and comes equipped with a proprietary streaming platform and an onboard phono stage that can hold its own against dedicated options costing south of \$5000. It took comparing the Moon 891 to a set of standalone components that together cost significantly more to hint at any shortcomings—and therein lies the importance of perspective. The Moon 891 was designed to replace such products while costing thousands less, saving space, and reducing cable count and component clutter. When measured using those metrics, Simaudio's Moon 891 streaming preamplifier is a triumph. Highly recommended.

. . . Aron Garrecht