

the absolute sound
BUYER'S GUIDE TO
ELECTRONICS

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believe what you hear



In addition to being fully digital, having flexible upgrade modules and RoomPerfect™ room correction technology, the integrated stereo amplifier TDAI-2170 has left critics and listeners astounded.



the absolute sound

BUYER'S GUIDE TO

ELECTRONICS

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From the Editor

Welcome to the 2015 Buyer's Guide to Electronics!

Herein the editors at *The Absolute Sound* offer you our most comprehensive online guide to electronics yet. Not only do we deliver a **full roundup of the most recent and intriguing TAS reviews of amplifiers and preamplifiers** (twenty of them!); we also offer a host of **new article features**, such as an informative essay on what to listen for when choosing electronics for your system, excerpted from the latest (fifth) edition of Robert Harley's classic *Complete Guide to High-End Audio*.

In addition to an extensive array of electronics reviews and Robert Harley's "What to Listen for When Choosing a Power Amplifier," you'll find:

- **On the Horizon:** New gear hot off the presses.
- **Sneak Previews:** Brand-new electronics about to be reviewed in TAS.
- **A behind-the-scenes profile** of legendary solid-state innovator/guru Nelson Pass by Robert Harley.
- **Our Top Picks:** TAS reviewers select favorite electronics across a range of categories and prices.

Whether you're new to the high-end scene or a seasoned vet, we think you'll find this guide an invaluable resource to help with your purchasing decisions—and (hopefully) a fun read.

Happy reading—and listening!

Julie Mullins, Editor

"... many yards closer to the goal of live music making recreated... a 'must hear' for anyone searching for the ultimate in valve amplifiers."



VAC Phi 200 stereo/mono amplifier
(shown with optional glass cage)

"... an extraordinary ability to resolve detail like no amplifier/s I have heard before... bass command that is up there with the best solid state amplifiers I've experienced, along with the liquidity, transparency and beauty associated with the very best valve amplifiers..."

- Rafael Todes, Violinist, Allegri Quartet, HiFi World, September 2013



Valve Amplification Company
www.vac-amps.com telephone 941-952-9695
We build the world's finest audio instruments

On the Horizon

Neil Gader

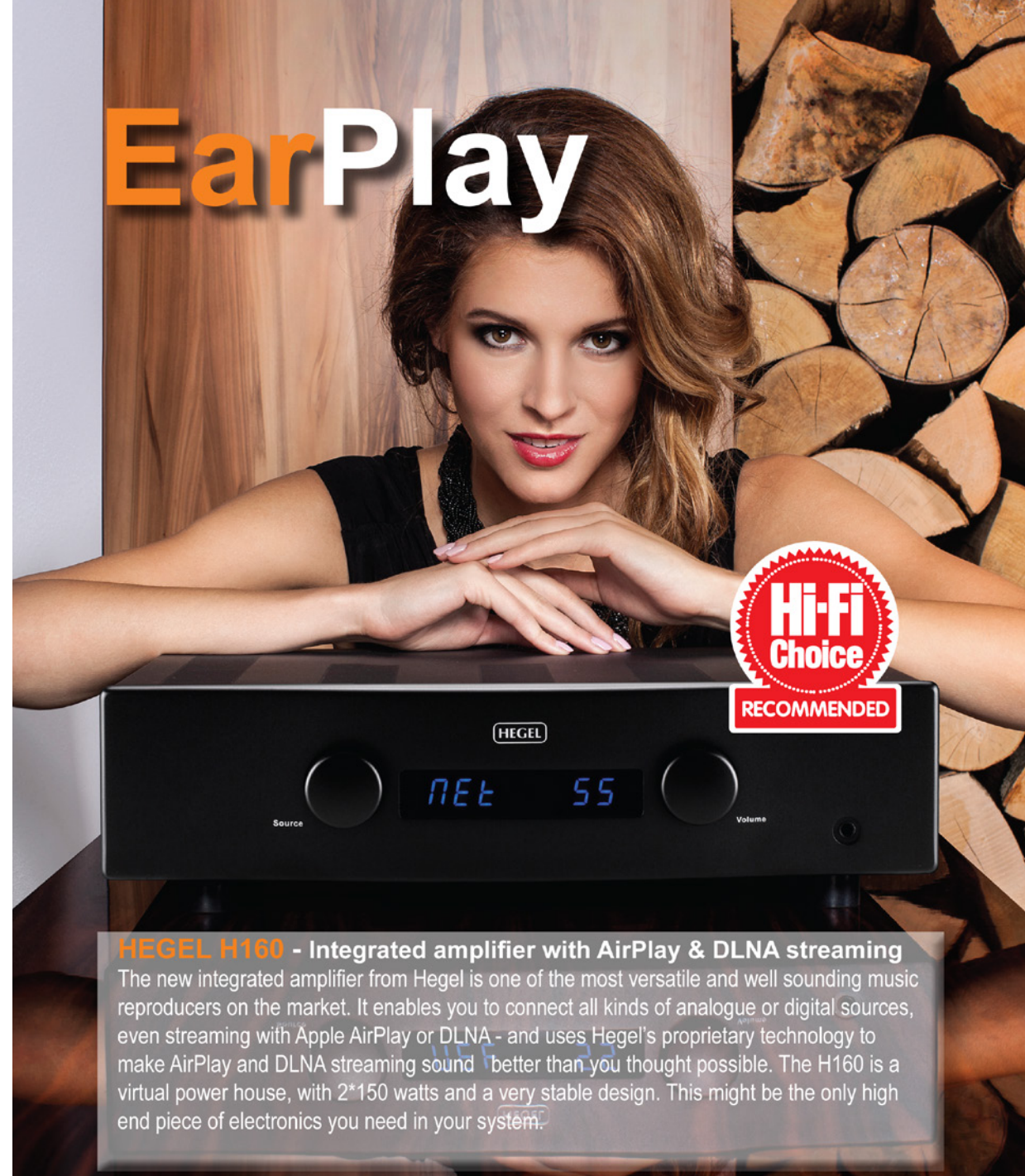


Aesthetix Metis Linestage

The Metis linestage uses proprietary Aesthetix Coupling Modules (ACMs) in place of traditional coupling capacitors to produce a constant output impedance across all audio frequencies, resulting in a soundstage with incredible added depth, dimension, and resolution. The Metis chassis is designed around a suspended inner core that, when set on a flat surface, physically decouples from the main chassis. The power supply is housed in this inner core creating an “invisible” separate power-supply chassis (ISPS). This innovative design reaps the sonic benefits of a separate power supply without the disadvantages of cost, size, and heat. Metis uses four tubes (two per channel in a true dual-mono configuration), is fully balanced, has zero feedback, and offers a discrete switched resistor volume control. The user interface features a glowing panel of LEDs with logic board control, allowing access to an array of features and functions.

Price (estimated): \$25,000. Available Q4 2015. musicalsurroundings.com

EarPlay



HEGEL H160 - Integrated amplifier with AirPlay & DLNA streaming

The new integrated amplifier from Hegel is one of the most versatile and well sounding music reproducers on the market. It enables you to connect all kinds of analogue or digital sources, even streaming with Apple AirPlay or DLNA - and uses Hegel's proprietary technology to make AirPlay and DLNA streaming sound better than you thought possible. The H160 is a virtual power house, with 2*150 watts and a very stable design. This might be the only high end piece of electronics you need in your system.

HEGEL
MUSIC SYSTEMS

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Phone: 413-224-2480
usa@hegel.com
www.hegel.com





Creek Evo 100A Integrated

Diminutive in size, dramatic and powerful in sound, Creek's new 100Wpc Evolution 100A offers exceptional performance and engaging ergonomics. The soft-touch backlit buttons and OLED (Organic Light Emitting Diode) display represent quality and detail rarely seen in this price class. Includes optional tone controls, A and B speaker outputs, direct amp-in option, and the ability to add a phono, DAC, or AM/FM tuner module internally. Simply put, the Evolution 100A is the most sophisticated and reasonably priced amplifier Creek has ever made.

Accessories: RUBY DAC Module, priced at \$599, contains two SPDIF inputs 24-bit/192kHz, two TosLink 24-bit/192kHz, one (each) USB 24-bit/96kHz, Bluetooth, and FM tuner; Sequel Phono Board, priced at \$200, with 40dB of gain, or for \$250, with 48dB of gain; AMBIT Tuner Module AM/FM RDS Tuner Module, \$250.

Price: \$2195. musichallaudio.com



MBL Noble Line

At this year's CES in Las Vegas, MBL introduced its highly anticipated, redesigned Noble Line to an international audience. These new designs feature state-of-the-art sound quality, unique user-friendly controls, diverse technical innovations combined with groundbreaking features. The Noble line also offers various digital inputs up to 24-bit/192kHz including DSD; a second generation of MBL's "L.A.S.A." amplifier technology (MBL LASA 2.0); an MBL SmartLink that allows communication not only between MBL electronics but also with external automation control systems; the capability of using iPhone/iPod/iPad as input sources, jitter free up to 24 bits and 192 kHz The new MBL Noble Line comprises a CD/DSD DAC (N31), a stereo power amplifier (N21), an integrated amplifier (N51), and will later extend to a preamplifier (N11) and mono power amplifier (N15). All components will be available in several different color combinations, with prices ranging from \$18,000 up to \$26,000. The first devices are targeted to hit the market by Q4 2015.

Price range: \$18,000-\$26,000.
mbl-northamerica.com



McIntosh C22 Preamp and MC75 Amplifier

Originally issued in the 1960s, the reintroduced C22 maintains the retro-cool design of the original but has been updated to modern standards. Electromagnetic input switching provides reliable, noiseless, and distortion-free operation. Distortion levels of all types are less than 0.08 percent, allowing music to be presented with (nearly) complete transparency and accuracy. A total of ten inputs include two balanced and six unbalanced, along with mc and mm phono input sections with selectable resistance and capacitive loading. Outputs include one set of balanced and three sets of unbalanced connections. Bass and treble controls with a bypass feature are included. Also reintroduced is the MC75 mono vacuum tube power amplifier that delivers modern performance standards in a classic design. Its large, oversized power transformer provides unusually high power and dynamic response from a single pair of KT88 output tubes. On tap is 75W into 2-, 4- or 8-ohm speakers with less than 0.5 percent distortion.

Price: C22, \$6000; MC75, \$3750/each.
mcintosh.com



NAD C 510 Direct Digital Preamp/DAC

Unlike a traditional analog preamp, the C 510 Direct Digital Preamp/DAC does not produce any noise or distortion that can obscure detail and limit performance. By executing preamp functions such as volume and source selection within the digital domain, the C 510 shortens the signal path and opens up new system possibilities. The C 510 includes connectivity for a wide variety of digital sources including an asynchronous USB Type B port for direct connection; plus, it supports sampling rates of up to 24-bit/192kHz. Also included are three SPDIF inputs—all 24/192 capable—in optical, coaxial, and AES/EBU formats. The analog output operates in true balanced mode driven by a Class A-biased operational amplifier. Both balanced XLR and single-ended outputs are provided, as well. Built using the incredible processing power and precision of NAD's proprietary Direct Digital architecture, the C 510 ushers in a new era of affordability for state-of-the-art performance.

Price: \$1299. nadelectronics.com



Parasound Halo Integrated/DAC

The all-new, dual-mono, 160Wpc (8 ohms) Halo is based on the circuitry of the P5 preamp and John Curl's top-notch circuit topology found in the A21 and A23 amps—combined with the larger power supply of the A21. The Halo Integrated uses the latest-generation ESS Sabre32 Reference DAC (ES9018K2M) for decoding PCM up to 32-bit/384kHz and DSD, and includes a full complement of digital inputs including asynchronous USB 2.0. There's also an mm/mc phono input with three load settings, subwoofer inputs, and output with variable low- and high-pass crossovers—in short, the Halo comes fully equipped. Cosmetics include new badging, heavy metal end caps, and a nifty backlit remote.

Price: \$2500. parasound.com



Primare 60 Series

Primare's most revealing products to date, the 60 Series, is the culmination of three decades of experience producing components of exemplary quality and performance. The PRE60 is a supremely sophisticated system control center. Thanks to Primare's careful attention to every detail, whether the source is analog or digital the sound is unfailingly accurate and convincing. The OLED display, system remote, and Primare app allow for effortless system management, while Bluetooth wireless technology further adds to the ease of exploring, sharing, and enjoying music from enabled mobile devices. The A60 reference amplifier employs Primare's groundbreaking, proprietary UFPD (Ultra Fast Power Device) amplification modules in a true balanced configuration, powered by an equally unique power supply utilizing Primare's Active PFC (Power Factor Correction) technology for unparalleled power and precision. Entirely designed and hand-built in Sweden.

Price: PRE60, \$10,000; A 60, \$10,000. vanaltd.com



MLife.

THE ULTIMATE INTEGRATED AMPLIFIER, NETWORKED.

IT WAS ONLY A MATTER OF TIME until Dan D'Agostino combined legendary Momentum engineering with today's most advanced wireless audio capability. The Momentum Lifestyle MLife integrated amp with built-in streaming delivers an authoritative 200 watts per channel, using identical amplifier and ultra-analog preamplifier circuits as the acclaimed Momentum integrated. MLife's 24-bit/192 kHz D-to-A converter, wired/wireless interface and 5-inch LCD metadata display take the wireless music experience to another level, with the convenience of D'Agostino's iOS and Android app for smartphones and tablets. MLife brings you power, musicality and the world of lossless streaming without compromise.

Stream at a higher level.

www.dandagostino.com | 480.575.3069



Pass Labs INT-60 and INT-250 Integrated Amps
Based on Pass Labs' lauded INT-30A, the new 60Wpc INT-60 integrated amplifier (pictured) provides wattage with a finesse and delicacy that surpass its predecessor, working best with speakers of 87dB sensitivity or greater. It features the same power supply and output stages, along with the iconic glowing meter, found in Pass Labs' Point 8 amplifiers. The new model features Direct Access buttons for its four inputs on the faceplate, a digital-level display, plus a volume control knob and mute button. The back panel has four line-level inputs, a line-level output, and two pairs of Furutech speaker binding posts. The new INT-250 ups the wattage from the INT-150's 150 watts to 250 watts per channel. The INT-250 is optimized for greater versatility with speaker loads of 86dB sensitivity or less. Like the INT-60, the INT-250 features the same power supply and output stages, along with the iconic glowing meter, found on Pass Labs' Point 8 amplifiers. It too features four line-level inputs, a line-level output, and two pairs of Furutech speaker binding posts.

Price: INT-60, \$9000; INT-250, \$12,000.
passlabs.com



PS Audio BHK Signature 250 and 300 Amplifiers

The BHK Signature 250 and 300 amplifiers are the first products in PS Audio's 42-year history to include vacuum tubes—and, it turns out, they are the crowning achievements of designer Bascom King's 50-year career. King has designed electronics for Infinity, Conrad-Johnson, and Constellation, among others, and is also well known as a reviewer. The Signature amps feature fully balanced circuitry with a triode front end followed by all-MOSFET circuitry. These 80-pound amplifiers feature oversized power transformers, passive components selected by ear, and through-hole construction. The stereo Signature 250 produces 250Wpc into 8 ohms and 400Wpc into 4 ohms, while the mono Signature 300 produces 300Wpc into 8 ohms and 500Wpc into 4 ohms—and its current capacity is double that of the stereo 250 version. Both are manufactured in the U.S. of A. at PS Audio's factory in Boulder, Colorado.

Price: BHK Signature 250 stereo, \$7499; BHK Signature 300 mono, \$7499/each.
psaudio.com

With inspiration anything is possible.



Inspiration Series | Preamp 1.0 | Stereo 1.0



constellation

www.constellationaudio.com



Rogue Audio RP-5 Preamp

Rogue Audio's all-new RP-5 preamplifier is pure tube and extraordinarily high-tech, and also happens to be Rogue's first preamplifier based on its groundbreaking new RP-X platform. Utilizing four 12AU7 tubes in a mu-follower configuration, the computer-optimized circuitry boasts outstanding sonics in addition to industry-leading technical specs. The feature-rich design includes both a tube-based headphone amp and an mm/mc phonostage with user-adjustable gain and loading. The RP-5 also features a VFD display that provides input, volume, and L/R balance information. A high-quality, ten-button remote control offers volume, balance, on/off, input select, a processor loop, and mute and mono functions. Two other versions will follow by mid-Spring including the smaller RP-3 (\$2500) and the fully balanced flagship RP-7 estimated to price out between \$4500 and \$5000.

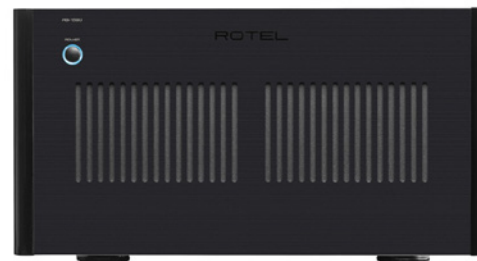
Price: \$3500. rogueaudio.com



Rotel RC-1590 Preamp

The new RC-1590 preamp is anchored by separate Rotel custom-built toroidal transformers for its analog and digital circuits, and has individual, reference-grade analog and digital regulator circuits with custom-made slit-foil capacitors. The analog inputs boast very-low-noise circuitry, and include a high-performance phonostage that supports both moving magnet and moving coil. Digital inputs are fully isolated and feature a precision AKM 34-bit/768kHz digital-to-analog converter (DAC) that supports PCM and DSD decoding. The RC-1590 also offers extensive connectivity. The analog connections include a pair of balanced XLR inputs, two sets of XLR outputs, and three sets of single-ended RCA inputs, plus a pair of buffered subwoofer outputs. Digital inputs include three coax and three optical PCM, plus a front-panel USB for iOS devices and a rear-panel PC-USB that supports up to 24-bit/192kHz and DSD signals, along with an internal aptX Bluetooth receiver. A full-function remote control is also included.

Price: \$1749. rotel.com



Rotel RB-1590 Stereo Power Amplifier

Rotel's new Class AB stereo power amplifier is a powerhouse rated at 350 watts per channel into 8 ohms, both channels driven. The impressive capabilities of this amp begin with a solid foundation consisting of massive, twin toroidal transformers custom-made by Rotel. These transformers are just part of a rock-solid power supply that includes eight special, British-made BHC capacitors—known for their low loss and quick response times—designed to improve high-energy signal transients and dynamic bass performance. The circuit topography is a true monoblock design. Features include XLR-balanced and RCA input connections, two pairs of 5-way speaker binding posts, a 12-volt trigger control, thermal protection circuitry, over-current and over-voltage protection, a dual-stage power-on relay to reduce surge current and extend longevity, plus a detachable IEC power cord.

Price: \$2999. rotel.com



VTL TL-2.5i Preamp

Launched at CES 2015, the improved version of the VTL TL-2.5 preamp is now available. Designated the TL-2.5i, it updates both the linestage and the phonostage with audiophile-grade parts, resulting in improved resolution and greater harmonic richness, speed, and dynamics—all hallmarks of the VTL sound. In addition, a gain switch with settings of 8 and 12dB has been added to allow for proper matching to high output sources and to accommodate phonostages. The optional internal phonostage was also redesigned to take advantage of the hybrid JFET stage derived from VTL's premium models. Highly user-adjustable, the phonostage can be optimized with low-gain mc cartridges by adding internal load and gain settings. (Load settings range from 100 ohms to 47k ohms, and gain settings are 62dB and 56dB.) The TL-2.5i includes six line inputs, two pairs of outputs, plus a remote volume control with mute.

Price: \$3000 linestage only; \$4000 with phonostage. vtl.com



Sneak Previews



NuPrime DAC-10H (\$1795) and ST-10 (\$1595)

The NuPrime DAC-10H and ST-10 represent a fourth generation of proprietary technology in preamplifier and power amplifier design. When NuForce was sold to Optoma, NuPrime was given exclusive license to NuForce's Reference LE technologies. The DAC-10H and ST-10 are the first NuPrime components to expand upon NuForce Reference's legacy.

The DAC-10H preamp accepts both analog and digital inputs and has balanced, unbalanced, and headphone outputs. The volume control uses a thin-film switched resistor ladder network with 99 steps in 0.5dB increments. Built around the Sabre32 reference ES9018 DAC chip, the DAC-10H supports PCM up to 384kHz and DSD 128.

The ST-10 power amplifier is rated at 150 watts per side into 8 ohms, and it delivers a 20dB lower noise floor than the NuForce V3 amplifier. The ST-10 also has a new linear power supply with a toroidal transformer and a signal path that avoids the use of cross-linked capacitors.

Steven Stone

PS Audio Sprout (\$799)

Call it love at first sight. Simply put, I adored this little integrated amp from PS Audio straight out of the box. From its wonderfully compact size—slightly larger than a chunky paperback bestseller—to the look and feel of its smooth, wood-paneled top and its (dare I say it?) *convenience*, it's a winner. Whether you're after digital or analog, you'll discover big-amp sound in a neat, little package. But don't let the Sprout's clean, sleek design and simplicity belie its robust solid-state guts. This 50Wpc amp features a high-end, 192/24 fully asynchronous DAC and offers an analog input selector for all inputs, including USB, analog, and coaxial. It also serves as an analog preamp (with passive eq, moving-magnet phonostage) and a low-output impedance headphone amplifier.

The pair of silver knobs on the front strikes the perfect balance between vintage classicism and straightforward ergonomics. One is for volume control, and the other for selecting vinyl, analog, digital, or Bluetooth. No touchscreens here.

I was in such a hurry to hear the thing, I'll admit I went with Bluetooth first. The initial tracks I played were from an old Red Book CD rip of Calexico's *The Black Light*, played via my iPhone's native music app, and I was astonished by the detail and fullness of the sound. And I wasn't even using near-reference-quality speakers.

Hats off to this Boulder, Colorado, firm—makers of outstanding amplifiers (and other components) that most any music lover or audiophile would surely enjoy. **Julie Mullins**





VAC Statement Line Preamplifier (\$75,000), Statement Phono Preamplifier (\$80,000), 450iQ Monoblock Amplifiers (\$120,000/pr.)

Fairly recently I got my greedy little hands on one of the crown jewels of glass audio. Kevin Hayes, than whom no one in this industry is a nicer or more talented guy, left his top-of-the-line tube gear in my home for an extended listen! This fabulous-looking VAC entourage includes Kevin's KT88-powered, dual-chassis (separate power supply) 450iQ monoblock power amplifiers; his 12AX7/6922-powered, dual-chassis (ditto) Statement Phono preamplifier; and his 8416-powered, dual-chassis (double ditto) Statement Line pre-amplifier.

I will have a great deal to say about the innards (and outers) of the VAC Statement electronics when I formally review them in the fall. But for the time being, understand that this beautifully engineered and exquisitely manufactured trio sits right at the top of the tube electronics pyramid. And yet the odd thing is that, in certain key ways, it doesn't sound all that traditionally "tubey." Yes, of course, it has what you would expect from tubes in the way of beautiful tone color from top to bottom. But it also has what you wouldn't expect (or wouldn't expect to this extent): speed, grip, and definition, particularly in the bottom octaves.

Here's the thing. I came to the VAC Statement electronics from Soulution's fabulous solid-state gear, so I was expecting the usual gains in midband texture and timbre (though I knew these improvements would not be as marked as they once might've been, thanks to the newfound and very lifelike bloom and color, and simply outstanding low-level resolution, of the Soulution

amp and preamp), as well as the usual losses in the bass (particularly given that the Soulution 711 amplifier and 721 preamplifier have the most powerfully lifelike low end I've ever heard from a hi-fi component).

While I cannot honestly say that the VAC Statement trio has quite the depth-charge extension, power, and precision of the Soulution combo, it came so much closer than I expected to that paradigm that I was genuinely shocked. I was also shocked by its overall transient speed, which is quite competitive with the finest solid-state.

It's not as if the VAC sounds like transistors; it doesn't. It's richer (almost opulent), more voluminous, and dimensional. At the same time it doesn't sound like, oh, ARC or c-j or VTL tubes, either—all of which have their own sets of sterling virtues. If anything, VAC bears a sonic resemblance to Lamm Industries' superb ML3 SET amplifier, in that it's got that kind of triode density of tone color and presence without the usual marked penalties in bandwidth, speed of attack, and bass-range control.

I'm not entirely sure, at this point, how Kevin has achieved such remarkable sound from old-standby KT88s and 6922s and 8416s. But I am sure that the sound is remarkable, as any of you who've already heard this VAC gear at shows can doubtlessly attest. Clearly, VAC's Statement electronics are worthy of highest recommendation, and also eminently worthy of audition, whether you're a tube fan or a solid-state one.

Jonathan Valin

Nelson Pass: Four Decades of Innovation

Robert Harley



I recently had the great privilege of spending a couple of days with Nelson Pass at his home on the Northern California coast. Unlike most meetings between an audio writer and a manufacturer, this one came with no agenda. It was simply a chance for me to spend some time with a legendary amplifier designer. I'd never met Nelson before—he is somewhat reclu-

sive and no longer attends shows—but during my time with him I discovered a man who, despite his great success and stature, is utterly without pretense or ego (rare in the high-end audio industry), who possesses a deeply inquisitive mind, who is extremely generous with his time and knowledge, and whose creativity has only blossomed with the passing years.

It is impossible to overstate Pass' contribution to the high end. His 41-year (and counting) career is distinguished by many brilliant and innovative amplifier designs, any one of which would have secured his place in the hi-fi pantheon. Consider that Pass' first commercial product was the landmark Threshold 800A in 1975, an amplifier that did the seemingly impossible:

significantly increase the efficiency of Class A operation by employing a novel "sliding bias" system. The 800A was also pioneering in its use of 48 output transistors in a triple-series/triple-parallel output stage. After that opening act, Pass went on to design the first amplifier with cascode operation from input to output (Threshold CAS-1 and CAS-2), and shortly thereafter the

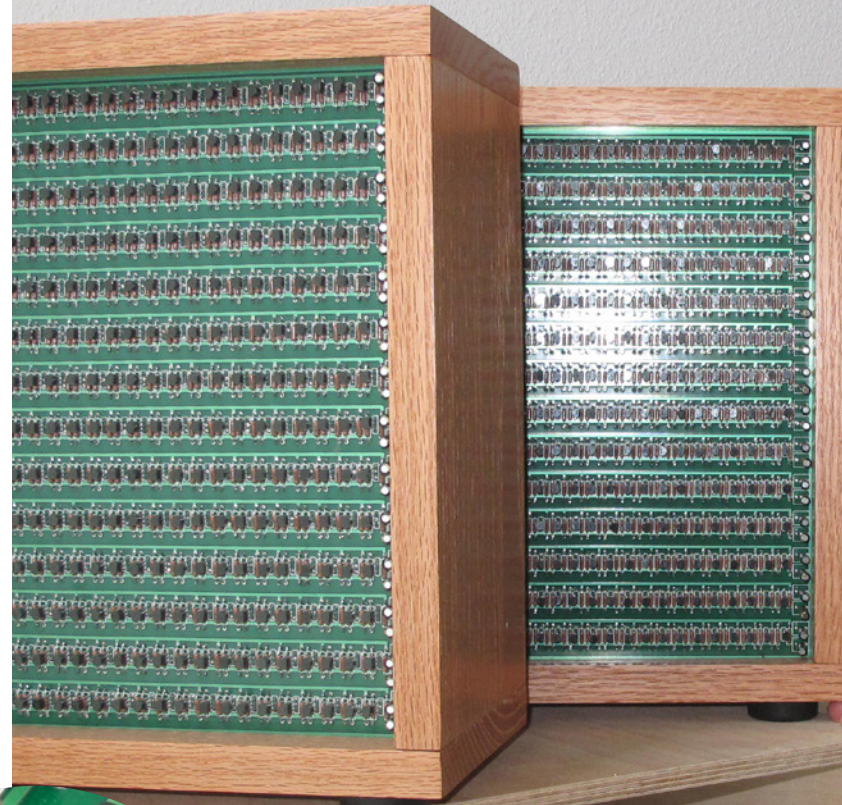
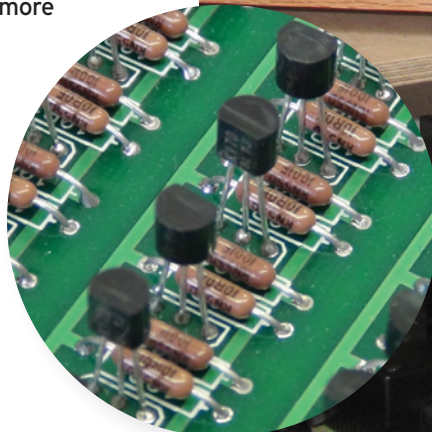
Nelson Pass: Four Decades of Innovation

landmark Threshold Stasis 1. Pass' creativity in exploring new amplifier topologies continued (in a new and unexpected direction) with the Pass Labs ALEPH Series of amplifiers beginning in 1991. The ALEPH amps were in production for 14 years. His Super-Symmetry circuit (1998) broke new ground in reducing noise and distortion. Today, the Pass Labs ".8" Series and Xs amplifiers continue to push the envelope in power-amplifier design. I can think of no other electronics designer with such a rich legacy.

Nelson Pass has structured Pass Laboratories so that he's not involved in the business side of the company, giving him the freedom to focus exclusively on devising new circuit topologies. He's set up a fully equipped design laboratory and a separate listening room in his home. Nelson is a student of the history of solid-state amplifier design, and this knowledge informs his work. His lab is stocked with rare transistors, many of them of historical importance. Despite the four decades between his groundbreaking Threshold 800A and Pass Laboratories' Xs, he's still passionately driven to discover new designs that advance the state of the art.

Since many of the amplifier circuits he's currently interested in exploring aren't appropriate for Pass Labs, Nelson started a new company called First Watt. The First Watt amplifiers are ultra-minimalist Class A, employ little or no feedback, and have relatively low power (5Wpc to 25Wpc). He took the name from TAS reviewer Dick Olsher's now-famous dictum: "If the first watt doesn't sound good, why would you want 199 more of them?"

Nelson and I spent a morning listening to different projects, with his describing the circuits and how the design choices affected the sound. It was absolutely fascinating. We also listened to several First Watt amplifiers and monitored their output power on an oscilloscope. At satisfying playback volumes, the amplifiers never exceeded 5W. On some music, a realistic level was achieved with the amplifiers producing less



The Beast with a Thousand JFETs.



Nelson Pass: Four Decades of Innovation

than 1W. Nelson's speakers are fairly sensitive at 95dB, but not in the horn-sensitivity region of 100+dB. Frankly, I was shocked by how little power was required for adequate playback volume. By the way, Nelson hand-builds each First Watt amplifier himself; the company is literally a one-man operation. Given the success of Pass Labs, hand-making very small runs of minimalist amplifiers is clearly a labor of love.

To give you an idea of how creative this man is, consider "The Beast With a Thousand JFETs," a one-off amplifier Pass just *had* to build. Nelson had been using a particularly great-sounding Toshiba small-signal JFET in amplifier input stages, and wished that output transistors had such low distortion. In a wild stroke of imagination he designed and built a power amplifier with 2352 of these JFETs operating in parallel for about 70W into 2 ohms. He named it "The Beast with a Thousand JFETs" as an homage to horror filmmaker Roger Corman, whom Pass is

a fan of. (Corman made a film called *The Beast with a Million Eyes*.) The amplifier has zero commercial potential, but it just begged to be made. Incidentally, in the photo on the previous page, you're seeing just half of two mono amps; the other side of each chassis is packed with an equal number of transistors. In his article describing the amplifier on the First Watt website, Nelson writes, "Besides the fun of the craziness of such an amplifier, what's the point? The point is to build a simple amplifier with exquisitely good raw performance and see what it sounds like."

The two photos that opened this story speak volumes about Nelson Pass. Nearly 40 years, much critical acclaim, seven granted patents, and great commercial success have transpired between these pictures, but Nelson today remains the same brilliant designer he was then, passionately pursuing ever more innovative ways of amplifying audio signals. *tas*



What to Listen for When Choosing a Power Amplifier

Robert Harley

*Excerpted and adapted from The Complete Guide to High-End Audio (fifth edition).
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How can you tell if the power amplifier you're considering will work well with your loudspeakers? Simple: Borrow the amplifier from your dealer for the weekend and listen to it. This is the best way not only to assess its musical qualities, but to determine how well it drives your loudspeakers. In addition, listening to the power amplifier at home will let you hear if the product's sonic signature complements the sound of the rest of your system. The next best choice is if the dealer sells the same loudspeakers you own, and allows you to audition the combination in the store. If neither of these options is practical, consider bringing your loudspeakers into the store for a final audition.

All the sonic and musical characteristics for evaluating audio products apply to power amplifiers. However, some sonic characteristics are more influenced by the power amplifier than by other components.

The first thing to listen for is whether the amplifier is driving the loudspeakers adequately. Weak bass is a sure indication that the amplifier is underpowered for a particular pair of speakers. If the bass is soggy, slow, or lacks punch, the amplifier probably isn't up to the job of driving your loudspeakers. Other telltale signs that the amplifier is running out of current include loss of dynamic impact, a sense of strain on musical peaks, hardening of timbre,

The Complete Guide to High-End Audio

Fifth Edition

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The Absolute Sound

Book Excerpt: What to Listen for When Choosing a Power Amplifier

reduced pace and rhythm, and soundstage collapse or congestion. Let's look at each of these individually.

First, play the system at a moderate volume. Select music with a wide dynamic range—either full orchestral music with a loud climax accompanied by bass drum, or music with a powerful rhythmic drive from bass guitar and kick drum working together.

Audiophile recordings typically have much wider dynamic ranges than general-release discs, making them a better source for evaluation. Music that has been highly compressed to play over the radio through a 3" car speaker will tell you less about what the system is doing dynamically.

After you've become used to the sound at a moderate level, increase the volume—you want to push the amplifier to find its limits. Does the bass seem to give out when you turn it up, or does the amplifier keep on delivering? Listen to the dynamic impact of kick drum on a recording with lots of bottom-end punch. It should maintain its tightness, punch, quickness, and depth at high volume. If it starts to sound soggy, slow, or loses its power, you've gone past the point at which the amplifier can operate comfortably. After a while, you can get a feel for when the amplifier gets into trouble. Is the sound strained on peaks, or effortless?

NOTE: When performing this experiment, be sure not to overdrive your loudspeakers. Turn down the volume at the first sign of loudspeaker overload (distortion or a popping sound).

Compare the amplifier's sound at high and low volumes. Listen for brass instruments becoming hard and edgy at high volumes. See if

the soundstage degenerates into a confused mess during climaxes. Does the bass drum lose its power and impact? An excellent power amplifier operating near its maximum power capability will preserve the senses of space, depth, and focus, while maintaining liquid instrumental timbres. Moreover, adequate power will produce a sense of ease; lack of power often creates listener fatigue. Music is much more enjoyable through a power amplifier with plenty of reserve power.

All the problems I've just described are largely the result of the amplifier running out of current. Just where this happens is a function of the amplifier's output power, its ability to deliver current into the loudspeaker, the loudspeaker's sensitivity and impedance, the room size, and how loudly you expect your hi-fi system to play. Even when not pushed to its maximum output, a more powerful amplifier will often have a greater sense of ease, grace, and dynamics than a less powerful amplifier.

Assuming that the power amplifier can drive your loudspeakers, let's evaluate its musical characteristics. First, listen for its overall perspective. Determine if its sound is forward or laidback, then decide if the amplifier is too "up-front" or too recessed for your system or tastes. A forward perspective seems to put you in Row C of the concert hall; a laid-back perspective puts you in Row W. Forwardness gives the impression of presence and immediacy, but can quickly become fatiguing. A sound that's too laid-back is less exciting and compelling. If the amplifier's overall perspective isn't right, whatever else it does well may not matter.

Next, listen for brightness, hardness, treble

grain, and treble etch. If you feel a sense of relief when the volume is turned down, you can be pretty sure that the treble is at fault. Listen to midrange timbres, particularly of voices and the violin, piano, and flute. Midrange textures should be sweet and liquid, and devoid of grain, hardness, or a glassy edge. Many power amplifiers—particularly inexpensive solid-state models—make the treble dry, forward, and unpleasant. If you hear even a hint of these characteristics in a few hours' listening, rest assured that they will grow only more annoying over time. Many moderately priced amplifiers don't add these unmusical characteristics—keep shopping.

Power amplifiers vary greatly in their ability to throw a convincing soundstage. With naturally miked recordings, the soundstage should be deep, transparent, and focused, the loudspeakers and listening room seeming to disappear. Instruments should hang in space within the recorded acoustic. The sound should provide a transparent, picture-window view into the music. If the sound is flat, veiled, or homogenized, you haven't found the right amplifier.

Bass performance is also largely influenced by the power amplifier. It should sound taut, deep, quick, dynamic, and effortless. The music should be propelled forward, involving your body in its rhythmic drive. Kick drum should have depth, power, and a feeling of suddenness. The bass guitar and kick drum should provide a tight, solid, and powerful musical foundation.

The best way to find out which power amplifiers sound good and are well made is to confer with a trusted dealer and read product reviews in reputable high-end magazines.

Responsibly written reviews can save you from spending time and trouble on unworthy contenders, and point you toward products that offer promise. Thorough reviews will also include insightful commentary on an amplifier's technical performance. If the amplifier has technical characteristics that make its use with a particular type of loudspeaker questionable or unsuitable, the review will reveal this fact. A review's technical section may state that, "Although the XYZ power amplifier sounded terrific with the Dominator 1 loudspeakers, its high output impedance and limited current delivery make it a poor choice with low-sensitivity loudspeakers (below 86dB/W/m), or those with an impedance below 5 ohms." This kind of commentary can point you toward the best amplifiers for your loudspeakers.

In short, read lots of product reviews before drawing up a list of candidates to audition. Restrict candidates to those that fall within your budget, and take the few contenders home for an evening's listen. And don't be in a hurry to buy the first amplifier you audition—listen to several before choosing. Your effort and patience will be rewarded with a more musical amplifier, and one better suited to your system. TAS

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Featured Review



Lyngdorf Audio TDAI-2170 Digital Integrated Amplifier and DSP Room Correction

The Way of the Future

Robert E. Greene

Ever since the advent of CD in the early 1980s, when digital audio became the common method of providing music to consumers, the possibility of using digital as more than a passive substitute for analog in a small part of the audio chain—as more than a sort of stop-gap way to get the audio signal from the mixing board output to the preamp input with analog portions of the chain on either side—has been in the offing. From the beginning, there was the option of converting the signal to digital as early as possible. In addition there was the visionary thought that one could keep the signal digital all the way to the loudspeakers—to drive them directly with a digital signal. The part analog/part digital chain was always at best a compromise. In the end, the natural aim was digital all the way.

In addition, there was also the possibility of making changes in the signal to improve the final result, not just in the mastering of the recordings but also in the correction of speakers and their interaction with the room around them.

Peter Lyngdorf and his companies—originally TacT, and today Steinway Lyngdorf and Lyngdorf Audio—have played an important, one might well say central, role in these visionary developments for twenty years. The original TacT room-correction system of the early 1990s and its refinements later on were among the first successful devices for the correc-

Lyngdorf Audio TDAI-2170 Integrated Amplifier and DSP Room Correction

tion of the interaction between speakers and the rooms around them. Then came the TacT Millennium amplifier (my TAS review is on-line), which was truly a landmark on the way to the Digital Age. At this point, Peter Lyngdorf started Steinway Lyngdorf in association with the celebrated piano manufacturer, and began a systematic effort to use digital technology to make the best possible audio system. This was a price-no-object effort and the first products were very expensive, though there was a small system that was both extraordinarily good and also at least plausible in price (review in TAS, Issue 219). Indeed as audiophile prices go nowadays, it was and is something of a bargain for what it offers sonically.

In any case, part of Peter Lyngdorf's vision was that as the Steinway Lyngdorf aim-for-the-stars products clarified the technology, it would become possible to offer the same benefits to audiophiles who do not have unlimited financial resources. This is the kind of "trickle-down" economics that can work!

The Lyngdorf Audio TDAI-2170 integrated amplifier/DAC is one of the fruits of this overall program. And an extraordinary device it is.

WHAT IT DOES

The short answer would be: Everything that an integrated amplifier that accepts digital inputs could do, with correction of the room/speaker interface included. Everything, that is, except function as a phono preamp or keep an analog input at line-level analog for longer than it takes to convert it to digital. This is pre-eminently a digital device. The whole idea is that keeping everything digital all the way through is the way

to go. This is not to suggest that the unit does not do a nice job of handling analog inputs. It does do a good job, sounding superb in this context, and I do not think that anyone listening to its being used as an analog linestage and amplifier would say instantly: "Well, it is nice enough but it sounds digital." It does not. Still, if you think for some unknown reason that analog is white magic and digital is the work of the Devil, then you will have to summon up some impartiality to discover that you are kidding yourself.

In any case, the Lyngdorf, as I shall call it now and hereafter, is philosophically intended for digital. And it will accept every kind of digital input extant. You can find details on the website link below. (Listing everything the Lyngdorf can do feature by feature would be an easy way to fill up my word count, as it's all available on-line—and since there is a lot of it—I am not going into it all in this review, though I shall list a bit of the specifications at the end.)

One might suppose it would be impractical to make a direct-digital-drive output stage work with all the different kinds of digital streams there are. And one would be right. Everything is converted to the same standard for output, namely pulse width modulation at 390kHz. If this disturbs you, again a little impartial listening ought to solve your problem. The Lyngdorf does not sound digital in any negative sense.

Where it does sound digital is in its clarity and background silence. The method of controlling volume is to adjust the power supply voltage. This means that the intrinsic digital signal-to-noise ratio of 110dB is independent of volume setting. The proverbial and much sought after black background is very much in evidence here.

ROOM CORRECTION AND VOICING CONTROLS

The glories of the Lyngdorf are two-fold: the digital amplification and the RoomPerfect room-correction system. Let me discuss RoomPerfect first. This is an automated system. One measures the speakers' behavior in the room—a microphone is supplied and there is an easy "walk through" menu to follow, with instructions appearing on a small screen—and the system decides what correction to apply.

The system is very much plug and (pretty soon) play. The user does not have to have any particular experience with room-correction systems nor make too many decisions. And the result is very good—a definite improvement—even if one does not do everything absolutely ideally, "everything" in this case referring to the choices of where to put the microphone for successive measurements. Bass smoothness is improved, channel matching is much better in the frequencies affected most by the room, and stereo imaging as well as the presentation of the original recorded acoustics are significantly better. This is all what should happen with a room-correction system, and happen it does. It is hard to imagine that people won't like this and like it a lot.

RoomPerfect operates not just by measuring at the listening position. After one has done a listening position measurement, one is then instructed to move the microphone to some quite different position and measure once more. Then yet another position. (The owner's manual offers suggestions as to where one might place the mike each time, but except for the first measurement at the listening position, there are free choices.) The idea is that the system begins

to accumulate what is called on screen "room knowledge." After each measurement, an update percentage figure for "room knowledge" is shown on the screen and somewhere in the 90% range one can stop.

This is impressive if somewhat magical in appearance, since no explanation is offered of exactly what room knowledge might be. Also, even if one achieves a high percentage of measurements, the exact result in the final correction may be slightly different for different paths to that room knowledge, for different choices of microphone position along the way.

The system generates two corrections: "local" and "global." (Interestingly, these are the words mathematicians use for the two kinds of differential geometry—local is for what happens right around a point, global for what happens overall.) The local setting is optimal for the listener at the first measurement position. The global makes the sound good over a larger area around that position, at the price of not making it quite so nearly perfect at the one chosen spot for the first measurement.

It is a bit of a black box system—it does not show you any measurement results, and one can only judge by listening or measuring with an external measurement system once the correction is applied. But there are indirect ways to control things, if not to know exactly in advance what their effects will be. For example, if one does all the measurements right around the listening position, then one can get something more like what a single-point measurement correction system would generate. Or one can measure over a larger area, or over the whole room (as is recommended). There is a lot of

Lyngdorf Audio TDAI-2170 Integrated Amplifier and DSP Room Correction

experimenting one can do.

The system does not attempt to change the basic sound of the speaker and it does successively less as frequency rises. The goal is not so much to change your speaker to some abstract ideal of speaker-dom—one is supposed to like the speakers one bought!—but rather to change the sound so that the speaker sounds as it would if the room and the speaker's interaction with it were ideal. Hence “room perfect”—the room interaction is perfect, the speaker remains whatever it was.

This seems like a sensible approach. And the results are gratifying, as noted. But they do vary somewhat with how the measuring is done so you may want to experiment quite a bit. Moreover, if you are the kind of person who really wants micro-control and micro-information, you might want to add an external measuring system and perhaps an outboard digital EQ to make small changes in the sound of your speaker itself, not just in its relationship to the room. If you use a computer as a music source, you can, of course, use EQ programs in your computer, of which many are available at nominal cost. I might mention here that on occasion RoomPerfect made some (measurable as well as audible) changes—a push up of the mids here or there for example—that seemed to me to have no particular reason, though the results were not overall displeasing.

It is not easy to make a truly automatic room-correction system, since the psychoacoustics of how one hears sound in rooms is very complex. One could argue that the idea that there is a perfect adjustment is not really well founded in the first place, given the complexity of the situation (the ear hears first arrivals strongly

but also hears later arrivals, and a single signal correction cannot deal with the two or more items independently). RoomPerfect is a good system with reasonable goals in this context, one of the best ones available.

Moreover, the system has another degree of freedom so to speak. Once you have done the correction—or indeed, even if you do not do the correction but just bypass RoomPerfect—there are “voicing curves” that are user selectable. These include Neutral, Music 1, Music 2, Relaxed, Soft, Open, Open Air (these latter two cut bass, where as the former all reduce treble in one way or another), and various other settings. These are all very useful not only in getting one's speakers to sound what one considers ideal, but also in adjusting things according to recordings. The general shape of the equalization applied is shown on the little screen in the front of the TDAI. The specifics—exact turnover points, number of dB—is left up in the air (I could not find it on Lyngdorf Audio's website, either). For what it is worth, I ran a few quick before-and-after measurements. The things that look small on the screen measured a couple of dB more or less, and the things that look a good bit larger (e.g., Movie) are on the order of 5dB shifts.

It is a regrettable and often ignored truth about recordings that they are not often balanced ideally. Microphones tend to be peaky, and in the past were so to an extreme; in addition, the microphones are placed too close almost always, and generally the sound of actual acoustic music in a suitable venue is seldom achieved exactly. The “voicings” of the Lyngdorf are conveniently chosen to make it possible to improve recordings effectively. However different this

may be from traditional warts-and-all audiophilia, it is still well worth having. And, of course, the supposed truth of most non-adjustable and non-corrected systems is largely illusory in any case. (Look at largish collections of in-room response curves from magazines or elsewhere, and the truth will shine out at you that measuring one that is really good without DSP correction is a rare event, though not unheard of.)

In addition, the voicing curves will be an educational experience for people who have not worked at all with EQ (which rather amazingly seems to be the majority of audiophiles—talk about going into the ring with one hand tied behind your back). You will find the sound of your system surprisingly variable, since overall frequency balance is the dominant determiner of what a system sounds like. (Once you get into this, you will be amazed to find how much of audio reviews is actually commentary on exactly such “voicings” as built into the equipment under review, just not described as such explicitly. “Those who cannot recognize frequency response are doomed to review it,” to paraphrase Santayana.)

THE AMPLIFICATION PART

The amplification part of the Lyngdorf is an unalloyed triumph. Let me get this off my chest right away. Now I know that there are people who are skeptical of digital amplification even for digital signal inputs. And I am in the slightly embarrassing position of having expressed in the past the view that analog electronics have gotten so good that they are no longer a central issue. But that, of course, does not mean that they are all exactly alike!

In fact, what is wrong with analog amplifiers is that they vary. The point is that analog circuitry is by nature full of things that matter. Parts-quality matters. Connecting wires matter. Putting “bricks” on top to cancel electromagnetic fields matters. Vibration isolation matters. Even power cords can matter. (This is a sign that something is wrong with the design, that the power cord should matter, and often enough something apparently is wrong.)

SPECS & PRICING

Type: Two-channel digital integrated amplifier with RoomPerfect room-correction system; pulse width modulation output; 390kHz switching rate; level adjusted by control of power supply voltage	(up to 19 kHz/24-bit plus DSD64/DSD128) and one output /CEC & ARC compatible; streaming USB input module (up to 384kHz/32-bit and DXD/DSD64/DSD128); high-end analog input module (three single-ended, one balanced)
Power output: 85Wpc, 8 ohms; 170Wpc, 4 ohms	Dimensions: 17 3/4 " x 4" x 14 1/4"
Output filter: Second order, 50kHz	Weight: 17.6 lbs.
Inputs: Two analog, single-ended, two coaxial digital (up to 192kHz/24-bit) four optical digital (up to 96kHz/24-bit)	Price: approx. \$3999 depending on choice of optional modules
Outputs: One coaxial digital (96kHz/24-bit), one single ended analog	LYNGDORF AUDIO Ulvevej 28 DK-7800 Skive, Denmark
Optional modules: HDMI modules with four inputs	sales@lyngdorf.com lyngdorf.com

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Lyngdorf Audio TDAI-2170 Integrated Amplifier and DSP Room Correction

Lyngdorf's thought at Steinway Lyngdorf and its descendants was to rationalize all this, to approach every issue so thoroughly that everything would be clearly explained and made predictable. Digital, of course, is the key to this. Correctly executed digital is above all predictable. But making digital that is correctly executed is not so easy to do.

However, the Lyngdorf TDAI-2170 does precisely that, or so it seems to me. One finds nothing really to fault, and the sound gives the combined impression of delicacy and solidity that is characteristic of real music. The impression of reality is enhanced by the extremely silent background. Music emerges without any apparent electronic artifice.

At this point, it would be traditional to start describing how I heard this that or the other thing on some recording or another, telling about details discovered, felicities revealed, and so on. It would be easy to do this. My old standby recordings, familiar, perhaps all too familiar, to long-time TAS readers did indeed sound extraordinarily good. But the real point here is that I found myself completely convinced that what I was hearing were the recordings as they really are. This is not an easy point to establish in description. People are accustomed to explicit description of new and better things heard. But my feeling was rather one of correctness, of lack of electronic additions of any kind, of a quietness and control and lack of splashiness (for lack of a better word) that was providing the speakers with an input that was truly representative of the recordings.

This point is worth expanding upon. It is a universal observation that perfection in

apparently simple things is always of the highest difficulty and artistically of the highest significance as well. There is a school of thought in audio that suggests simple circuitry will achieve the corresponding audio goal of complete naturalness. But this is an illusion. Just as it takes a greatly sophisticated pianist to play Schumann's *Scenes from Childhood* with perfectly natural simplicity, the corresponding audio goal is attained here not by simple-minded circuits expensively executed (which always end up with a sonic signature of their own) but by very sophisticated digital circuitry, where one comes through to the other side of perfect simplicity and naturalness. It may seem like a paradox, but it is the reality of the situation.

Some years ago, when the TacT Millennium first came out, I was present at Peter Lyngdorf's CES exhibit when some other manufacturer came by to invite him to come to his exhibit where they were showing a speaker design based on modifying a DALI speaker (DALI is a Lyngdorf company). Lyngdorf declined at first—eventually he relented out of politeness—on the grounds that he no longer liked “listening to electronics.” This seemingly peculiar view becomes quite comprehensible in listening to the Lyngdorf TDAI-2170. It is in literal terms electronic with a vengeance. But the outcome, the final result, is that one feels that there are no electronics there at all.

I would not want to suggest that analog electronics cannot get close to this goal as well. The Sanders Magtech, with its carefully regulated power supply, has a similar non-electronic character—if its input does. But analog electronics, no matter how superb, are

Golden Ear Award Winner

The Lyngdorf is an unusual device—what should we even call it? It is in effect a whole system except source components and speakers in one elegantly styled, not especially large box. It accepts every kind of input around, digital or analog (except no phonostage), including USB, and amplifies digitally, with volume control included. And it offers a built-in room correction system with supplied microphone of a very sophisticated sort (“RoomPerfect” is the trademark name of the system). Analog electronics can offer extremely high-quality sound, but doing everything right digitally opens up a new world of penalty-free signal processing. The RoomPerfect system does a remarkable job of smoothing out and neutralizing what the room is doing to degrade the sound of your speakers, and once you have heard how RoomPerfect fixes this up, you won't want to go back to the uncorrected sound. With rare exceptions, all speaker/room combinations need the help that RoomPerfect provides. Moreover, the TDAI2170 has a number of cannily chosen “target curves” with which one can adjust the balance of material not ideally recorded—or just tailor the sound of your system to your own tastes. The whole TDAI 2170 device is sonically impeccable. The amplification in particular has an extraordinarily silent background, a sense of being “non-electronic,” and an ability to provide direct access to the source material. The operation of the TDAI 2170, including the room correction setup, which needs to be done only once, couldn't be easier. Moderate price, compact size, convenience, flexibility, and truly remarkable sound are all right there at the touch of a few buttons.



subject to the vagaries of wires and analog devices further up the chain and so on. The Lyngdorf is free of all that. Nothing happens except numbers until the final conversion to drive the speakers. And the result is in effect no electronics at all.

It remains true that the most obvious difficulties with audio are acoustical, and for all that can be accomplished with DSP correction, the largest difficulty is acoustical—the interaction between room and speaker and the behavior of the speaker itself. The RoomPerfect system deals with this issue convincingly though one should still arrange to have as acoustically good a listening room as one can. And to a surprising extent, one hears through all the acoustical issues, fundamental though they are, to the non-electronic nature of the Lyngdorf



TDAI-2170. One really understands why Peter Lyngdorf said that he is no longer willing to listen to electronics. I think the Lyngdorf TDAI-2170 represents the way of the future. And it not only is here now; it is even affordable. The TDAI-2170 is a sonic and practical triumph. **tas**



NAD D 3020 Integrated Amp

Reinventing a Classic

Neil Gader

In NAD lore, “3020” are hallowed numerals. The long-ago integrated amplifier that bore that designation might have been a barebones affair, but it marked a departure from the budget norm when it first debuted in 1980. Built solidly, without extraneous signal-robbing bells and whistles, the 3020 offered musical truth in its tonal balance, lack of coloration, and dynamism in spite of its conservative 20Wpc specification. Music lovers responded en masse; more than one million 3020s have been sold—an astounding number for a high-end product.

Now, the 3020 is back with a “D” prefix for clarification. A capital “D.” As compared with the all-analog original, the new D 3020 is a digital animal designed primarily for computer/USB sources. Power output is a solid 30Wpc thanks to NAD’s ultra-compact Class D topology. True to NAD tradition the amp’s power rating is deceptive in that it can output bursts up to 100W (into 4 ohms) during dynamic peaks. In digital connectivity, it offers aptX Bluetooth music streaming—an efficient alternative to Wi-Fi—plus a USB input that plays back computer-based music in up to 24-bit/96kHz resolution, and operates in asynchronous mode to ensure low jitter.

Nothing can prepare you for just how compact the D 3020 is when you first encounter it up close and personal. Truly a design for our times, it’s improbably small and portable with a vertical form factor that lends it the visual profile of a network router. And I hasten to add, por-

table enough to be drafted into service as a headphone amp. Note that where space requires, it can also be positioned horizontally.

A top-panel touch control powers the D 3020 on, and the vertical front panel of inputs and volume indicators blinks to life for a few seconds. The gradations of the large volume control are indicated in 20dB numerical steps, the display fading or intensifying as the user makes changes. The look is nifty but I didn’t get much of a sense of precision as I navigated up and down—only a rough idea of where the volume was actually set.

The back panel hosts a trio of digital inputs which includes USB, SPDIF, and TosLink plus a subwoofer output and a single, lonely analog input. Additionally there’s a bass-equalization toggle and a multi-purpose auxiliary input that can be used either as a headphone jack from a MacBook Pro or, with the supplied TosLink mini-adaptor,

as an extra optical input. In a nod toward energy efficiency, when the amp doesn’t sense a signal for about fifteen minutes it reverts back to a 0.5W standby mode.

Operationally I’ve only got a couple of nitpicks. The lack of a mute button seems a weird oversight. Also the iPod-style IR remote is all flat-black, including the navigation buttons. The only way to see what you’re doing is to angle the remote so that it catches a glint of light to illuminate the markers. Most of us will memorize the six key buttons (on/off, volume +/-, and source select arrows), but really!

Sourcing my hard-drive-based music collection via USB was a snap; however, I was more impressed by how easy it was to get Bluetooth (BT) up and running—an area where I’ve occasionally run into snags in the past. Here, I simply selected Bluetooth from my Mac’s System Preferences and made certain BT sharing was selected within the Sharing submenu. This made

EQUIPMENT REVIEW - NAD D 3020 Integrated Amp



the D 3020 discoverable as a device. A simple click to connect and, after opening iTunes, I was instantly listening to one of my own “stations” on iTunes Radio. While the sonics of Bluetooth are more geared to convenience than to our inner audio connoisseur, I’d be lying if I didn’t admit that it sounded darn good—not as open and dynamically sophisticated as the high-res USB connection but far better than I remembered from previous BT experiences.

Speaking of sonic performance, the D 3020 for all its humble appearance is pure NAD. It’s firmly midrange-centered in its balance and never over-reaches in the sense of growing shrill on top or tubby on the bottom. Yes, it’s lighter in overall sound due to some bottom-octave attenuation, but the D3020 retains an essential presence, a midrange integrity, that sculpts the body of a performance and makes it live in the listening space. It also maintains a solid grip in the midbass, resolving Lee Sklar’s mellow bass

lines with good pace and precision during James Taylor’s “Fire and Rain” [Warner]. Its response softens and loses definition only slightly when confronted with hard-charging electric bass pulses or the double-kick-drum rhythm figures flying off the feet of Metallica’s Lars Ulrich.

Vocals tended to sound a bit dry at times, an issue that affected female singers a little more than male ones. But multiple vocal images were generally very good. For example, during Jackson Browne’s “Colors of the Sun” [Asylum] the D 3020 reproduced a significant amount of the detail and interplay between the vocals of Browne and Don Henley.

While the specs and form factor of the D3020 suggest that it is ideally suited for desktop duty, I wanted to throw a wrench in the gears by giving the NAD a real shake-down with a highly esteemed compact loudspeaker, the Franco Serblin Accordo, a two-way compact of impeccable craftsmanship and provenance, and one of the

last speakers authored by Serblin, who passed on in 2013. At 87dB the Accordo’s a medium-sensitivity loudspeaker with midrange and top-end response that are truly world-class. The D3020 never hiccupped at the challenge.

One of the liveliest recordings I have is the electrifying Jacques Loussier Trio playing The Best of Play Bach—a smile-inducing collection of jazz/classical bon-bons. The D 3020 handled the dynamics and harmonic and ambient density of this recording quite faithfully. There was some dynamic constriction and low-frequency pitch instability at moments, but overall performance from a sub-\$1k 30Wpc amp has rarely been more impressive. And I admired the grip of this amp once again when confronted with the midbass tom-toms during Blood, Sweat & Tears’ “More and More” [Columbia]. Though piano timbre during “Sometimes in Winter” was a little cool, there was still a suggestion of the felt on the hammers damping the strings.

Perhaps the biggest surprise I encountered during my listening sessions was the quality and smoothness of the amp’s top end. This was a region where the Accordo tweeter would easily expose deficiencies, but the D 3020 met the challenge. As I listened to pianist Janne Mertanen play the Chopin Nocturnes [Alba], transient speed and harmonic openness were truly enthralling. Although there was a little bit of a ceiling over the performance—at least compared with pricier, wider-band amps that operate with more dynamic headroom—the D 3020 had little else to apologize for.

Although I’m an infrequent headphone user, whenever I don my AKG K501 cans (still terrific after all these years) I am always impressed by

the gorgeous midrange tonality and intimacy these 120-ohm ‘phones produce. As a headphone amp, the D 3020 does its job noiselessly and is musically satisfying. The tonal characteristics that make it so appealing with conventional loudspeakers translate fully to the more intimate world of earspeakers. Frankly I haven’t ever appreciated headphone listening as much I did during the time I spent with the D 3020.

If computer audio is your primary source for music, and Blue Tooth capability is a must, then the D 3020 makes a compelling argument. The other argument is, hello, its price tag of \$499, making it by most standards a small miracle of packaging and portability, and with few exceptions a delight to use and listen to. Too small for you? NAD has you covered with a bigger cousin in the new D 7050—a streaming integrated with more power, advanced topologies, plus Air-Play wireless at \$999. For many, however, the D 3020 will be just what the digital doctor ordered. Faithful to the original 3020 but totally dialed in to our times. **tas**

SPECS & PRICING

Power output: 30Wpc into 8 ohms	NAD ELECTRONICS INTL
Inputs: Three digital (USB, SPDIF, TosLink); one analog	633 Granite Court Pickering, Ontario Canada, L1W 3K1 (905) 831-6555 nadelectronics.com
Dimensions: 2.3" x 7.5" x 8.7"	
Weight: 4.6 lbs.	
Price: \$499	

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Micromega MyAmp DAC/Integrated Amplifier

Small Footprint, Big Performance

Neil Gader

Some clichés in the high-end die hard. One of the oldest chestnuts says that size matters. It's the notion that one's status as an audiophile is somehow tied to the weight and girth of your components, your sagging equipment racks, and the thick ropes of cabling that feed each product. There was a time when I was guilty of falling for this nonsense, as well. After all, as an audio writer I've gotten pretty used to receiving some pretty intimidating components. We all know them, and in some sense are still seduced by their presence—those big amps and preamps, glowering, un-liftable hunks of metal laden with aggressive displays of exposed heat sinks sharp enough to shave truffles.

However, a funny thing has happened. Two funny things actually. First, computer-audio playback has revolutionized high-resolution listening, from the living room to the desktop. This has coincided with a renaissance in “personal” listening—that is, *headphones*, in-ear, over-the-ear, closed-back, or open-back, take your pick. The upshot is that the “bigger-is-better” cliché has been unceremoniously turned on its, well... ear. Today it's hip to be small. It's relevant and credible and high-res. In fact a tiny footprint has almost become a mantra, particularly among younger audiophiles.

Micromega has been in on this trend for some time now. The French company has been a purveyor of full-scale electronics and streamers as well as the “My Range” of modest mighty-mites like the MyGroov and MyZic and TAS' 2012 Product Of The Year, the MyDac. Inevitably, an amp would appear to fill the void, so please welcome MyAmp. More than an integrated amplifier, MyAmp is a complete digital hub with wireless streaming, analog and digital source switching, and a headphone amplifier. Impossibly little, it's the teacup poodle of DAC/integrated amps. At a mere 5.5-inch square it also leaves plenty of room on the desk for a nice pair of speakers. I can literally palm it and fit it in our Volvo's glovebox. Try that with your Soulution 701. MyAmp is enclosed in an all-business, textured ABS casing—translation, plastic. What? You were expecting the CNC-machined aluminum of a Rowland? Calm down. Micromega chose ABS for its non-conductive properties and lack of eddy currents.

More important are features like the healthy output—30Wpc into 8 ohms, which commendably doubles into 4 ohms. The unit's small size

suggests that the amplifier is based on Class D switching modules, but the amp is actually a Class AB design. The efficiency comes from a newly devised and highly unusual “LLC” power supply that reportedly delivers more power, tighter regulation, and a lower impedance than a conventional supply. Another factor in the unit's small size is the unusual forced-convection cooling system in which the power supply and amplifier output stage are cooled with a magnetic-levitation fan (no bearings) moving air through a tunnel. A thermal protection system shuts down the unit if it overheats, and also continually adjusts the fan speed.

The back-to-basics front panel houses a bevy of teeny buttons for source selection, plus a headphone mini-plug socket. Volume is indicated by a red-lit ladder display. Micromega states that the control is good to 256 steps in 0.5dB increments, but the indicator is so vague that it's virtually impossible to make precision, repeatable adjustments. Numerals would have been better. The DAC is the ESS Sabre Hyperstream DAC, the same chip found in many expensive units. Source switching is via FET-buffered relays—impressive in a \$649 product. The coaxial digital input is transformer coupled, and the USB input employs an isolation circuit to keep the computer's noise out of MyAmp.

Jam-packed is the only way to describe the back panel. It hosts three analog inputs plus three digital, a 96kHz/24-bit USB, and 192kHz/24-bit optical and coaxial/SPDIF inputs. There's also a direct analog output, a sub output, and full-sized multiway speaker posts. The three-pin 10-amp cord is removable. The MyAmp streams conventional audio via the hugely popular Bluetooth aptX module, an efficient and more

EQUIPMENT REVIEW - Micromega MyAmp

user-friendly (I've found) alternative to WiFi. This particular codec is also popular because it minimizes latency while improving bandwidth. Throw distance is always a consideration with Bluetooth, and depending on your home you can't really figure much more than twenty to thirty feet from the transmitting smart device. Pairing Bluetooth devices with the MyAmp was a breeze, and up to eight devices could join up. However, remember that when streaming from a device like an iPad/iPhone you'll need to disable any audio e-mail and push notifications as these bleeps, burps, and buzzes will temporarily mute the volume of the music. Of course, you can also connect a USB cable between your computer and MyAmp. Overall, MyAmp is designed to be an affordable, single-box solution for music lovers on a budget.

The MyAmp exemplifies what high-end audio should be about—solid sonics blended with flexibility and adaptation. It can spend the day in the desktop environment, and then just as easily be reassigned for small system duties in a den or cozy family room. In fact, in my small room, the MyAmp handily drove the expressive Epos K1 loudspeakers, the foot-tall two-way reflex compacts I reviewed in Issue 148. Although the Epos is nominally a 4-ohm speaker that's rated at 88dB sensitivity, the Micromega seems to have plenty of power to drive it, even when subjected to the kind of evil hijinks that I put every review sample through. It impressively preserved the key strengths of the K1 including its open full-throated midrange, general poise under dynamic pressure, and solid imaging. Sonically I couldn't extract anything bad from the MyAmp, save that it was a bit sub-

tractive in the most benign sense. For example, the airiness riding atop Norah Jones' cover of "Cold, Cold Heart" was nicely preserved, if slightly shaded. Only the deeper bass pulses or power of orchestral percussion seemed slightly diminished in output and transient impact. For larger room applications, however, you'll likely want a solid 8-ohm speaker with higher sensitivity in the 90dB+ range. And there are plenty of them out there.

The MyAmp assumes an even greater comfort level with headphones. Of the models I had on hand it especially favored the higher-sensitivity models like the Cardas EM5813 (32-ohm/104dB), Audio-Technica ANC7b (300-ohm/109dB), and the B&W P3 (34-ohm/111dB). A few short minutes with one of these and MyAmp led me to understand why they call it personal listening.



on top and just a little speed-bumping of transients. Mind you, there are limits to the Micromega's transparency and dynamic slam. Sound staging is not epic, and imaging lacks the sort of pinpoint focus that locks each instrument down within an acoustic space. Quick aside: My personal pair of AKG K501s are cans of notoriously low sensitivity (120-ohm and 94dB) and they couldn't be driven effectively by the MyAmp—a reminder that headphone/amp matchups matter. Remember that Micromega makes a matching dedicated headphone amplifier (MyZic) for difficult-to-drive headphones.

The whole point of entry level is to pare away the extraneous and cut to the chase—performance. In this sense, the MyAmp flat out gets down to business. It's not alone, however, in this tough segment—it goes right up against the NAD D 3020 (Issue 239), an equally excellent competitor with comparable sonics, better looks, and the edge on price. But the Micromega offers more inputs and overall flexibility. The MyAmp is confirmation that *serious* comes in all sizes. It's a desktop dynamo to be reckoned with. tas

SPECS & PRICING

Power Output: 30Wpc into 8 ohms
Inputs: Three analog, three digital
Dimensions: 5.5" x 5.5" x 3"
Price: \$649

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Arcam FMJ A19 and airDAC

Dynamic Duo

Spencer Holbert



Though integrated amplifiers have been around a long time, they are often mixed bags. Some models try to do too many things at once, losing focus on what we listen for first—sound quality. Whether you are looking to purchase your first real hi-fi component or an affordable option for a second system, the Arcam FMJ A19 integrated amplifier delivers real high-end sound quality, without the high-end price.

Functionality and Sound

Though the A19's design is understated—downright minimalist, actually—don't let its lackluster exterior fool you. The A19 borrows heavily from its bigger and more expensive siblings, with features like a toroidal transformer for its 50W Class AB output stage and the same volume control as top-tier FMJ models. With seven single-ended inputs, the A19 makes plenty of room for those with lots of sources—enough for two turntables, two DACs, a tuner, and your dad's old tape deck. Even if you don't need all of them today, those extra inputs may come in handy down the road. Because of the resurgence in vinyl, Arcam has upgraded the A19's built-in phonostage to better reflect current listening preferences. The remote is a basic design, with the ability to control every feature except for a few user preferences that are adjusted via several button-combinations on the front panel. Despite some quirks that I will discuss later, overall this integrated offers everything you need for a mere \$999.

Now for the real meat—sound quality. Using components that I am very familiar with, I

tried to determine exactly what the A19 does or does not bring to the listening room. After level-matching the A19, I was actually shocked to hear significant differences between the Arcam and several other integrations of similar specifications. The A19 is incredibly quiet compared to many components. Even when I turned the volume all the way up there was no audible hiss coming from the speakers; so you don't need to worry about distortion and noise with this amp. I hate to be the one who brings up THD, because as we all know this is by no means a measure of sound quality, but the A19 has a harmonic distortion rating of 0.003% at eighty-percent power—and that's low.

Listening to Ludovico Einaudi's "Experience" from *In a Time Lapse* (CD and vinyl), I heard a smooth high end that never sounded overly bright or grainy. The A19 was convincingly realistic on Einaudi's piano, and when the violins—arguably the most difficult instrument to accurately reproduce—joined in with their unusually sonorous solemnity, I felt like I was listening to a genuine high-fidelity product (even though Arcam doesn't like to be associated with a "hi-fi" sound). So far so good.

I played the track several more times, then shifted my attention to the soundstage, which was on-par with what you would expect in this price range: generally wide, sufficiently detailed, with overall tight imaging (though somewhat misplaced locations compared to ultra-high-end systems). Soundstage depth was less deep compared to those more expensive systems, but nevertheless was plenty deep to satisfy all but the most demanding. What makes *In a Time Lapse* great for soundstage testing is that it was recorded in an Italian

EQUIPMENT REVIEW - Arcam FMJ A19 and airDAC

monastery with sound quality in mind, so it's very easy to tell when something is amiss. On "Experience," a harp placed behind and to the left of the piano is gently plucked amid the increasingly energetic violins. The Arcam A19 had sufficient resolving capabilities to allow the distant harp to be heard, though don't expect extreme soundstage depth with this—or any—integrated in this price range.

Maybe I'm being a little too tough on the A19's lack of soundstage depth. After all, imaging was fairly tight and was for the most part reasonably well executed. No "I'm there!" moments occurred, but nothing was egregiously wrong—complex soundstages are a difficult thing to resolve on such a tight budget. Then another thing announced itself: the slightly tubby bass. Low-end damping ability was a little lacking with the 4-ohm Endeavor E3 floorstanders. Yet, when compared to similarly priced integrations, low-end handling was equal to or slightly better, so no worries here.

I don't want you to give you the wrong impression of the A19 by pointing out these things—they are meant to give you a realistic idea of what a \$999 integrated amp can accomplish. With regard to sound quality, \$999 buys you a musical, involving presentation with above-price-point performance in imaging. At 50W into 8 ohms and 90W into 4 ohms, the Arcam has plenty of power to rock out with most dynamic speakers, and its build-quality is solid. Really, it feels like a tank.

Overall, the A19 is an integrated that I would want to own at this price point. In fact, a hi-fi newcomer friend of mine purchased it after a weekend of listening—that's how much he

liked it. Just know that "best-sound-ever" claims can't be firmly rooted in the sub-\$1500 category; this integrated will help hook you on high end, but it won't be the end-all, which is exactly what you want when you're starting out—something that's so good you want even more.

British Quirks

The A19 has a few quirks that can be misconstrued as design flaws by those unfamiliar with the new British energy-consumption standards, so don't panic if you come across them out of the box. I generally leave new components on 24/7 during the first week or so, but this proved problematic with the A19 due to the integrated's auto-shutoff function. The first time this happened to me, it took a little while to figure out what had gone awry. I went in my listening room to find the A19 in standby, and pressing the power button and volume controls on the remote didn't seem to wake it up. I assumed the integrated just needed to be cycled, so I turned it off and back on, and had the same issue. It turns out that

if you power off the unit via the front-panel power button, the A19 defaults to standby, supposedly in case of power outages. Finally, I turned the volume knob on the unit and presto—it came alive again. The solution is to press the "Aux" and "Balance" buttons simultaneously to adjust this feature, and disable auto-standby altogether.

Arcam airDAC

Along with the Arcam FMJ A19, I also received Arcam's latest foray into networked DACs, the Arcam airDAC (\$699). I consider myself pretty computer-savvy, so I found setup was straightforward. But if you've never fiddled with a wired or wireless computer network in your house, the airDAC is going to throw some curveballs. The manual stated that it was possible to set up the airDAC wirelessly and provided an IP address to do so, yet I couldn't connect without first using a direct-wired connection between my laptop and the DAC. Like I said, this is nothing new for people who have set up a home network, but if you have a desktop computer and no network, you will

need to connect the computer and airDAC directly via Ethernet cable in order to adjust initial settings.

After the airDAC was set up, it was pretty smooth sailing. Using the free Arcam SongBook+ app for iPad, the airDAC found my RAID drive and other network-attached hard drives. The airDAC automatically indexed music from the hard drives, though it didn't distinguish between hard-drive partitions and displayed duplicate songs—a minor detail. The

SPECS & PRICING

Arcam FMJ A19	DAC chip: TI PCM5102
Inputs: Six line-level RCA, one moving-magnet phono input, one 3.5mm	Frequency response: 10Hz-20kHz +/-0.1dB
Outputs: Record out, preamp out	S/N Ratio: 106dB
Power: 50W into 8 ohms; 90W into 4 ohms	Output level: 2.15V RMS
S/N ratio: 105dB	Sample rate: Up to 96kHz/24-bit
Frequency response: 20Hz-20kHz +/-0.2dB	Dimensions: 7.5" x 4.75" x 1.75"
Dimensions: 17" x 11" x 3"	Weight: 2.5 lbs.
Weight: 19 lbs.	Price: \$699
Price: \$999	
Arcam airDAC	ARCAM
Inputs: TosLink, digital coax, network UPnP (Ethernet), AirPlay	The West Wing
Outputs: RCA, digital coax	Stirling House
	Waterbeach
	Cambridge CB25 9PB
	UK
	arcam.co.uk

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EQUIPMENT REVIEW - Arcam FMJ A19 and airDAC

app is extremely fast, though it is a “light” version and doesn’t display album artwork while scrolling through artist or album lists.

The airDAC features four input methods: TosLink, digital coax, Network Attached Storage (NAS) management, and Apple AirPlay. The first three methods worked just fine, sounded great, and provided everything you would expect from a networked DAC in this price range. The airDAC was about ninety percent of the sound capability of standard (non-networked) component DACs of similar pricing, which was more than I expected. The Apple AirPlay

feature was, well, underwhelming. It’s limited to 16/48 (Apple’s fault, not Arcam’s), which is something I can live with, but there was a major delay between streaming from my laptop and the airDAC. When I hit Pause, almost three seconds went by before the song would pause. When I attempted to stream Netflix movies, the video and sound were so out of synch that I switched back to some Bluetooth speakers after only thirty seconds. This lag persisted even after I restarted both my computer and the airDAC and checked my settings. I have gigabit routers and switches in my network, and such lags have never been an issue with other devices. The point is, forget the Apple AirPlay and stick with the other inputs.

But the airDAC has one huge advantage over the competition: Music streaming from a NAS drive. With the airDAC, gone is the need to have a noisy computer or a finicky Mac Mini in your listening room. Simply transfer your music to an external NAS drive, plug it into the airDAC via Ethernet, and you’re done. For \$699 plus a NAS drive (roughly \$100-\$200 depending on size), you get a music server and DAC that can be controlled from your smartphone or tablet, and that’s huge. The airDAC can build playlists from multiple drives, stream everything seamlessly and with great sound quality, and it’s a bargain. Unfortunately, the UPnP network streaming is limited to 96kHz/24-bit, but most people looking for an affordable music-server solution will be just fine with the airDAC’s capabilities. For those of you who have amassed an enormous number of digital music downloads, like I have, the airDAC will satisfy your music-management needs. **tas**



Audio by Van Alstine Vision Adjustable Phono Preamplifier



The AVA Vision Phono Preamplifier is a brand new direct-coupled, split passive EQ solid-state phono preamp with high-current buffered output circuits to handle long cables, complex tape loops, and other difficult loads.

The AVA Vision Phono Preamplifier is suitable for any normal output phono cartridge or low

output moving coil cartridge. It comes packaged in our rock solid 7" wide x 5" deep x 2.5" high chassis. It has gold plated phono inputs, gold plated line outputs, and two ten-position DIP switches to accommodate any phono cartridge. Connect the Vision Phono Preamplifier to your line preamplifier or receiver and enjoy records all over again.

NuPrime IDA-16 Integrated Amplifier/DAC

Next Generation

Vade Forrester



NuForce made quite a splash when it entered the high-end arena several years ago, particularly with its switching amplifiers. The company then gradually expanded its product range downward to include \$100 DACs and \$500 integrated amplifiers. However, NuForce co-founder Jason Lim wanted to focus on the upper end of the market; thus, with the backing of the OEM factory, he has formed a new company, called NuPrime, to design, build, and market upper-end products that are consistent with the company's original mission.

The IDA-16 integrated amplifier reviewed here is a good example of this shift. At \$2600 the IDA-16 represents the high value for which NuForce is known, but allows for more ambitious design and implementation than sub-\$1000 integrations. For your \$2600 you get a 200Wpc unit with a built-in DAC that will play just about everything digital on the market today. The IDA-16's price is still reasonable by high-end-audio standards; in fact, depending on its sonics, NuPrime's integrated could be an outright bargain. My job in this review is to find out if that's the case.

EQUIPMENT REVIEW - NuPrime IDA-16 Integrated Amplifier/DAC

I would describe the IDA-16 as a *modern* integrated amplifier. By that I mean it integrates the electronics most audiophiles use today: a DAC, preamp or control center, and a power amp. So all you need besides the IDA-16 is a source. (Well, OK, you need speakers and cables, too.) The DAC plays just about any computer-file format of interest to audiophiles, with five digital inputs—one asynchronous USB and four SPDIF (two on RCA coax, two on TosLink). In case a user has an analog source (like a phono system or a tape deck) there's also a line-level analog input.

I see this type of component as the future of integrated amps; except for very high-end DACs, there's no reason why DAC circuitry can't be housed within an integrated amp or preamp chassis. Think of it as functionally similar to one of the Devialet amp/DAC combinations without the ultra-high price.

All the IDA-16 has to offer is packaged in a sleek black chassis with your choice of black or silver front and side panels. If I tell you the amplifier weighs 16 pounds and produces its 200Wpc with 93% efficiency, you'll probably guess the output section is a Class D switching amplifier, and you'll be right.

First a few details about the IDA-16's circuit. It is based on a "self-oscillating circuit" to generate the pulse-width modulation (PWM) signal that turns the output transistors on and off. The switching frequency is a very high 600kHz, about double the speed of most Class D amplifiers. In this regard, the new switching output stage is an advance over those used in the original NuForce amplifiers. The power supply is a switched-mode type. Together with

a Cross-Matrix Array (CMA) capacitor bank, the power supply can deliver very high current to the output stage on demand. (The switching power supply in David Berning's ZH-230 tube amplifier showed me how fast such power supplies can furnish real-world current, and how important that is to reproducing the flow and dynamics of music.) Equally interesting is the precision volume control, which uses a switched-resistor arrangement wherein only a single resistor is in the circuit at each of the control's 99 positions (divided into 0.5dB increments). The internal DAC uses the popular ESS9018 Sabre chip, while XMOS input chips are used for the USB input. OPA2134 chips are used in the analog section. Very low noise JFETs are used in the input section.

The built-in DAC is quite special, too. It plays PCM at sampling rates up to 384kHz and DSD256 (11.2MHz sampling rate). Although DSD256 is mostly a curiosity at this point, several companies now offer commercial DSD256 releases, and doubtlessly other companies will soon follow suit. (I just hope DSD doesn't degenerate into a numbers game.)

Although at first glance, it looks like the IDA-16 is devoid of controls, there are actually six small, unobtrusive buttons on its front panel. The three buttons on the left side are used to select the input and turn the amplifier on and off. Under the buttons is a display showing which input is selected. On the right side of the amplifier are buttons which raise and lower the volume level and mute the output. A display under these buttons shows a numeric volume level as well as information about the input. For example, on a DSD256 file the input

displays "d11.2," where "d" means a DSD file is being played, and "11.2" means the sampling rate is 11.2MHz. On the black review sample I received, these buttons were almost invisible. Fortunately, all the controls on the front panel are duplicated on the remote, which has much larger buttons that are easier to operate and are clearly labeled. The remote is a black metal tube eight inches long with a hexagonal cross section. The silver buttons tend to rattle a bit, not that that's a drawback.

On the rear panel are five digital inputs and one analog input. Outputs consist of five-way binding posts for speakers, one set of RCA jacks for subwoofers, and a TosLink digital output. A standard IEC jack provides AC power input. There's also a voltage-selector switch for the AC power. With plenty of space between the jacks, cables shouldn't be crowded.

The impedance of the IDA-16's analog input is greater than 1M ohm, while the line-out output impedance is less than 100 ohms. So virtually any source equipment can drive the IDA-16, and the line-out should work with virtually any powered subwoofer or external amplifier. The manual comes on a USB flash drive, along with USB drivers for Windows computers. Of course, if you use a SPDIF input, no driver is needed, but SPDIF has limited maximum sampling rates, if that matters to you. The SPDIF input only accepts PCM files; for DSD playback, you have to use the USB input.

Setting Up And Using The IDA-16

The amplifier fit easily on my equipment rack, taking up an entire shelf. I used it to drive KEF LS50 speakers. The LS50s' sensitivity

is specified at 85dB, so they need a powerful amplifier to perform at their best. I normally use a subwoofer in a 2.1-configuration to extend the bottom end of the KEFs, but since I needed to assess the amplifier's lower octaves, I disabled the subwoofer for the review. (Otherwise, I'd be listening to the subwoofer's internal amplifier in the low end.) For actual use, I'd connect the analog output jacks to the subwoofer.

As a source I used my HP laptop computer running the J. River Media Center Version 20

SPECS & PRICING

Amplifier Section	SPDIF sampling rates:
Power output: 200Wpc into 8 ohms	44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
THD+N: 0.004%	Bit resolution: 16-24 bits
Peak output power: 400W	
Frequency response: 10Hz-80kHz	NUPRIME AUDIO, INC.
Dimensions: 17" x 1.97" x 15"	1712 Pioneer Ave, Suite 1817
Weight: 16 lbs.	Cheyenne, WY 82001
Price: \$2600	(702) 997-2191
	nuprimeaudio.com
DAC Section	HEAP AUDIO (U.S. Distributor)
USB sampling rates: 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz, 352.8kHz, 384kHz, and DSD 2.8MHz, 5.6MHz, 11.2MHz	709 Plaza Drive, Suite 2-179
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EQUIPMENT REVIEW - NuPrime IDA-16 Integrated Amplifier/DAC

server program. Since my laptop runs Windows 7, I had to install the Windows driver so it would work with the IDA-16's DAC. I used a Paul Pang TZ YUN Red II USB cable to connect the laptop to the IDA-16's USB input, and Audience Au-24 e speaker cables between the IDA-16 and the KEFs. Since the power cable NuPrime supplied with this integrated looked as if a lot of thought had gone into its design, I stuck with it for the AC power connection.

The 13-page owner's manual, a PDF file on an included USB flash drive, was very well-written, with lots of illustrations. You'll appreciate the brevity of the manual if you decide to print it out. I wish more manuals were like this.

The Windows driver installed easily, and set up in J. River with no hassle. Unlike some Windows drivers I've used, the IDA-16 driver never crashed during use. NuPrime recommended 100-150 hour break-in time, so I gave the IDA-16 at least 200 hours of break-in before listening critically. Right out of the box, the IDA-16 sounded OK, but somewhat lifeless; however, after break-in it sounded a bit more dynamic, and the treble, which had been disappointing in some switching amplifiers I'd tried, became delicate and detailed.

The IDA-16 lived up to its claim of near-silence. The old ear-to-the-speaker-driver test produced—nothing. Nada. Zip. Total silence. And the control buttons produced no pops or clicks when operated, either on the front panel or on the remote. I could blather on about music “emerging from the blackest background ever,” but I won't, although it did. Even the on/off button produced no clicks or pops.

When I changed the volume, the display



changed to show a relative (0-100) volume level, then switched back to the sampling rate. The display was big enough to read from my listening seat about ten feet from the amplifier. When I muted the IDA-16, the volume display blinked. When I turned muting off, the volume started at a low level and gradually increased to the original level, so I wasn't blasted out of my chair. That's a cool touch.

Sound

Switching amplifiers have come a long way. NuPrime brags about the IDA-16's bass

performance, and although the LS50s don't have extended bass response, what I heard was a punchy, powerful low end. A couple of times, I felt compelled to check to be sure the subwoofer was off, so deep and powerful was the bass. Some switching amplifiers I've heard have had high frequencies that were a bit discontinuous—i. e., they sounded different than the midrange—but the IDA-16's highs were smooth, continuous, and detailed. They were also very extended. I wouldn't call them bright, because they weren't peaky; but they were a defining characteristic of the IDA-16's sound.

Since the IDA-16 plays DSD256 files, I had to try the unit with one of them. So I cued up the only DSD256 I had available, *Howard Hanson/An American Romantic*, from High Definition Tape Transfers (highdeftapetransfers.com). On the first selection, “Nymphs And Satyr Ballet Suite,” performed by the Rochester Chamber Orchestra with David Fetler conducting, the recording of this attractive tonal music showed very well developed instrumental harmonics and punchy dynamics. If the notion of 20th century American music sounds scary, fear not; this music is well-crafted and (to my ears) actually pretty.

EQUIPMENT REVIEW - NuPrime IDA-16 Integrated Amplifier/DAC

Turning to more familiar material, I cued up Jordi Savall and his band's *La Folia 1490-1701* (44.1/16 AIF, ripped from Alia Vox AFA 9805), specifically the first cut "Folia Rodrigo Martinez." The first thing that stood out was the bass power and impact the IDA-16 coaxed out of the small KEF speakers. Although the KEFs can't reproduce the mid-20Hz frequencies on this cut, they still went surprisingly deep, and I felt the impact as the bass drum was struck. On the other end of the frequency spectrum, the IDA-16 reproduced the high frequencies with plenty of transient detail so that the very active percussion instruments were very clearly reproduced. In the midrange, Savall's viola da gamba lacked a smidgen of the detail present in the recording. The soundstage was quite wide, with instruments realistically distributed between the speakers.

On to The Tallis Scholars' *Allegri's Miserere & Palestrina's Missa Papae Marcelli* (96/24 FLAC, Gimell), where the first cut "Miserere" sounded unusually pure and free from distortion. While the soundstage was slightly narrower than usual, the depth was realistic. On this choral recording, a main group is at the front of the stage, while a smaller solo group is some distance behind it. Through the IDA-16, the solo group sounded appropriately distant. Sometimes room echoes from the solo group are smeared and incoherent, but the IDA-16 pretty well nailed the reverberation that surrounds the solo group's sound. The tenor soloist's voice in the main group was also free from the glassiness I sometimes hear.

On guitarist Alex de Grassi's album *Special Event 19* (DSD64/DFF, Blue Coast Records),

the cut "Shenandoah" sounded unstrained and pure. Perhaps I've heard the leading-edge transients of de Grassi's guitar defined a little better on much more expensive systems, but it was a close call.

Shelby Lynne's album *Just a Little Lovin'* (DSD64/DSF, Acoustic Sounds) starts off with the eponymous track recorded with plenty of deep bass. (Once again, the IDA-16 extracted surprising low end from the KEFs on this track; I hardly missed the contribution usually made by the subwoofer. OK, maybe I missed it a little.) Lynne's voice was rich and resonant, as usual.

I love Claude Debussy's orchestral music, but one of my favorite Debussy orchestral pieces, *Petite Suite*, was actually orchestrated from Debussy's piano work by someone else, a gentleman named Henri Busser. To see how the IDA-16 performed with orchestral music, I used a recent download of Debussy's complete orchestral music played by the Orchestre National de L'O.R.T.F. under the direction of Jean Martinon (96/24 AIF, HDTracks). In the second movement of *Petite Suite*, the bubbly "Menuet," the IDA-16 captured the woodwinds with fine detail and harmonic accuracy, and the music sprang forth with infectious spirit. It's no wonder this piece has been in heavy rotation here recently.

Comparison

I used a \$2995 Belles Soloist 1 integrated amplifier to drive the KEF speakers for comparison. Although rated at "only" 125 watts/channel, in power the Class AB Belles amplifier has more than adequate power. It doesn't have a built-in DAC, so I had to use an external DAC.

It didn't seem fair to use my normal \$5995 DAC for the comparison, so I used the amazing iFi nano iDSD DAC/headphone amplifier, which is designed to plug into a computer's USB output. You might think it's equally unfair to use a \$189 DAC for comparison, but it's the only DAC in my collection that plays DSD256 files—my other, more expensive DACs are limited to DSD128 playback, if they play DSD at all.

Through the Belles amplifier/iFi DAC combination, the *Howard Hanson/An American Romantic* album sounded forceful, with well-defined macro- and micro-dynamics. The Belles/iFi's high frequencies were slightly less pronounced than the IDA-16, which made the mids and midbass frequencies slightly more prominent. I never thought the Belles/iFi combination lacked highs, but the IDA-16's highs were slightly more elevated.

"Folia Rodrigo Martinez" exhibited the same frequency balance as the Hanson album, with the Belles/iFi providing more detail and texture in the reproduction of the viola da gamba. The differences were slight, but observing them is what reviewers do for a living. The IDA-16 produced deeper bass than the Belles/iFi combination; with the IDA-16, I could feel more impact when percussionist Pedro Estevan whacked the bass drum.

On the "Miserere" track, the IDA-16 sounded slightly purer, with less distortion than the Belles/iFi combination. As a result, the IDA-16 produced a more believable sense of depth between the main choral group and the distant solo group.

On *Just a Little Lovin'* the Belles/iFi combination's midbass was a tiny bit more

prominent than the IDA-16's. If that seems to contradict the findings from "Folia Rodrigo Martinez," where I found the IDA-16's bass deeper, keep in mind that the low frequencies in "Folia Rodrigo Martinez" are deeper than those in *Just a Little Lovin'*. Lynne's voice was just as buttery smooth with the Belles/iFi combo as with the IDA-16.

Bottom Line

I wouldn't go so far as to call \$2350 cheap, but for a 200Wpc integrated amplifier, it's on the *reasonable* end of the high-end price spectrum. And when you consider the NuPrime IDA-16 has an advanced DAC built in, which will play virtually any digital recording available today, it's an even better value. Of course, if it didn't sound good, it wouldn't be a good value, no matter how low the price was, but it sounds excellent. I've picked a few nits about its performance, but in context these were quite minor. Plus the unit looks good, too; I wouldn't be ashamed to put it on a shelf next to the fanciest component. Remote controls don't always get the attention they deserve, but the IDA-16's remote is very easy to use, with enough flexibility to operate the amplifier without offering a plethora of confusing options.

The NuPrime IDA-16 DAC/amplifier along with the KEF LS50 speakers made a system that, if you'll pardon a tired reviewer cliché, punched far above its weight. So to return to the question left open in the first paragraph: Yes, the NuPrime IDA-16 DAC/amplifier can indeed be called a bargain. Highly recommended. TAS



Hegel H160 Integrated Amplifier

Quick, Watson, The (Phonograph) Needle!

Jacob Heilbrunn

In Arthur Conan Doyle's short story "A Scandal in Bohemia," Sherlock Holmes receives a note explaining that a gentleman wishes to visit that evening to consult him about an urgent matter. "This is indeed a mystery," Dr. Watson says. "What do you imagine that it means?" Holmes responds, "I have no data yet. It is a capital mistake to theorise before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts."

It's an observation whose force came home to me as I listened to the Hegel H160 integrated amplifier. At \$3500 (about the same price as some of the power cables in my system), it would be easy to assume that the Hegel H160 would badly compromise the sound of my pricey Wilson Alexandria XLF loudspeakers. But it didn't. The Hegel, like a lot of reasonably price gear on the market, provides a potent reminder that nothing can be a bigger mistake than to theorize before you've actually heard a piece of gear, allowing your presuppositions to, as

Holmes quite rightly puts it, fit the facts to your theory, rather than approaching new audio gear in a spirit of impartial inquiry.

Much as with the remarkable Jadis DA88S integrated amplifier—whose price, by the way, was recently reduced, perhaps as a result of the strong U.S. dollar—I recently reviewed in TAS, I was quite smitten by the Hegel, but in a very different way. Where the Jadis floored me with its superb dynamics and color saturation of timbres, the Hegel brings a different set of strengths to the table, and at an even lower price point. I couldn't help thinking as I listened to it that the Hegel H160 had no business sounding this pristine, neutral, commanding, and, above all else, unobtrusive. Auditioning it helped me to appreciate why earlier Hegel units have regularly received such positive notices in TAS, particularly from my esteemed colleague Kirk Midtskog. I'm almost tempted to say that, in the true Hegelian spirit, it achieves an enticing synthesis of sound, combining precise imaging with an extremely relaxed and byssine sound.

Hegel itself places a premium on the technology that it calls SoundEngine to reduce distortion in its equipment. It's not clear to me exactly what "SoundEngine" means, and Hegel itself is rather coy about the technology, though the company does emphasize that SoundEngine doesn't employ any global negative feedback. Instead, Hegel talks about a "local error"-canceling system in the audio stages that is supposed to produce a purer sound.

Certainly, the company has kept the unit itself pretty simple. On the front panel there are two knobs, one on the left side to select the source, the other on the right to control the

volume. Most of the action takes place on the rear of the unit, where you'll find a variety of digital and analog inputs—as well a set of balanced inputs. The H160 also has the ability to stream music wirelessly.

Why did I use the word "unobtrusive" to describe the Hegel? This might sound like a case of damning with faint praise, but it isn't. The overall presentation was unobtrusive in the sense that, while there was plenty of grip, there was also a relaxed sense of musical flow. Nothing sounded etched, forced, compressed, or grainy—this last a trait I strongly associate with gear at this price point from an earlier age. Believe me: If there were some nasties this integrated amplifier produced, they would've come through loud and clear with the likes of the dCS Vivaldi at the front end and the Wilsons at the back (with Nordost Odin speaker cables in between). Now you might say the rest of this system constituted overkill, but it also allowed me to hear, to the fullest extent possible, what the Hegel was capable of. Which is a lot.

On a disc that's been in frequent rotation in my system, the inimitable Leonard Cohen's *Popular Problems*, I was instantly and favorably impressed by the capacious size of the soundstage that the Hegel produced. Cohen's gravelly voice was accurately rendered, with each syllable clearly enunciated even as cymbal hits clearly resonated in the background. There was no foreshortening of the soundstage here. There was no smearing, no blurring, pretty much no nothing to disturb the illusion that Cohen had decided to pop by for an afternoon in my listening room.

Another thing that has to be said is that, while the Hegel likes to play music, it isn't play-

EQUIPMENT REVIEW - Hegel H160 Integrated Amplifier

ing around. Which is to say that its bass definition is stellar. On the Cohen cut “You Got Me Singin’,” for example, the thump and precision of the bass lines were emphatic and linear, as they should have been.

At the same time, the Hegel skillfully unraveled more complicated musical passages with aplomb. In this regard, it performed very well indeed on the SACD *From the Imperial Court*, which consists of Renaissance music composed by Spanish and Flemish polyphonists for the House of Hapsburg. This Harmonia Mundi disc is exceedingly well-recorded (no surprise there!); still, there was no doubting that the Hegel did a marvelous job of separating individual voices as well as capturing dynamic distinctions with great fidelity. I was particularly impressed by the luminously reproduced pianissimos in the treble on the song “Magnificat primi toni,” composed by Nicolas Gombert. The Hegel offered a sense that the sound was as-

cending into the ether with ease and delicacy.

That sense of delicacy also came through on one of my favorite recordings, *Doc Cheatham and Nicholas Payton* [Verve]. On the cut “How Deep Is The Ocean?” many of the virtues of the Hegel were immediately on display. The trumpets never became pinched or abrasive; rather, the blat of the sound was lifelike, and the articulation, particularly the way Cheatham likes to slur, bend, and twist notes, was very apparent. Nor was there any wiggle room on pitch definition. At the outset of “Jeepers Creepers,” for example, the Hegel 160 nailed the opening trumpet flourish, which emerged with a bang.

The clarity of the Hegel also meant that it captured the rhythmic drive of the Cheatham/Payton ensemble with estimable fidelity. There was a jaunty quality to the music, an ability to clearly reproduce the interplay among the instrumentalists, that endowed the entire album with a real sense of drama. You could clearly

sense the emotional buildup on the song “Stardust,” (which the liner notes indicate Cheatham liked to call “Stardust Rhapsody”). On “Save It Pretty Mama,” the sonority of Jack Meheu’s clarinet was hauntingly plangent.

What all this suggests is that the Hegel was getting superlative microdynamics that create the illusion—for that, after all, is what we’re talking about—of a live performance, where you’re drawn emotionally into the music enough to suspend disbelief. That is what the Hegel H160 did for me. As a trumpet player myself, I became engrossed by each trumpeter’s of technique, tone, and, at bottom, imagination.

Let me say clearly that I’m not suggesting that this beauty offers performance on par with the big boys at five or ten times its price. The Ypsilon SET 100 Ultimate amplifiers, particularly after extensive upgrades performed by Demetris Baklavas in March, ascend into the empyrean sphere of musical reproduction. The Boulder 2050 amplifiers, which clock in at close to \$100,000, are also in a different sphere.

What I am saying, however, is that it’s not like I was discombobulated by the sound upon inserting the Hegel. Quite the contrary. The quality of the Hegel’s reproduction of music was most impressive, particularly when you take into account that it is, by high-end standards, a real value.

If you’re looking for an integrated amplifier that doesn’t reside in the Himalayan region of audio pricing, then the Hegel fully deserves an audition. To be sure, tube-lovers would be better advised to consider something like the Jadis. But the Hegel offers superbly linear,

coherent, and engrossing musical playback. It doesn’t take a Sherlock Holmes to detect that this is a very special piece of equipment. **tas**

SPECS & PRICING

Power output: 150Wpc into 8 ohms, 250Wpc into 4 ohms	Weight: 42 lbs. (shipping)
Frequency response: 5Hz-100kHz	Price: \$3500
Signal-to-noise ratio: More than 100dB	Hegel Music Systems, USA
Crosstalk: Less than -100dB	(413) 224-2480
Distortion: 0.005% @ 50W, 8 ohms, 1kHz	hegel.com
Damping factor: More than 1000 (main power output stage)	ASSOCIATED EQUIPMENT
Analog inputs: One balanced (XLR), one unbalanced (RCA), one home theatre	Continuum Caliburn with two Cobra tonearms, Lyra Atlas and Miyajima Zero mono cartridges, dCS Vivaldi CD/SACD playback system, Wilson Alexandria XLF loudspeakers and Hammer of Thor subwoofers, Stillpoints Ultra 5 and Ultra SS footers, Nordost Odin, Transparent Opus, and Audience cabling and power cords.
Analog outputs: One fixed line level (RCA), one variable line level (RCA)	
Digital inputs: One coaxial, three optical, one USB, one Ethernet (RJ45)	
Headphone output: 6.3mm jack (front)	
Dimensions: 16.93" x 4.7" x 16.15"	

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Devialet 200/400 Integrated Amplifier/ Streaming DAC The Future Has Arrived

Robert Harley

Photography by Dennis Burnett



EQUIPMENT REVIEW - Devialet 200/400 Integrated Amplifier/Streaming DAC

To call the Devialet 200 a technologically advanced audio component is like saying Miles Davis played the trumpet. In fact, there's no single product-category description that can encompass the 200's myriad functions and capabilities, nor is there a precedent for the 200's feature set. The Devialet 200 offers a host of customization and upgrade abilities that have never before incorporated into an audio component. Rather than thinking of the Devialet in terms of traditional component categories, it's more useful to consider it as a general-purpose multi-function hardware platform controlled by software.

That hardware platform includes a 200Wpc integrated amplifier with a DAC, phono input, wireless streamer, A/D converter (with LP-ripping capability), and subwoofer crossover. The 200's inputs can be configured to fit into just about any system. Don't have a turntable but have two analog line sources? No problem. The analog inputs can be configured as line inputs. Conversely, those same input jacks can become phono inputs, complete with adjustable gain and cartridge loading (impedance and capacitance). With a new technology called Speaker Active Matching (SAM), the 200's output signal can be optimized for your particular loudspeakers.

To give you an idea of this product's flexibility: My Devialet 200 review sample was shipped to me as the 170Wpc model 170. A software update turned it into the 200Wpc model 200. You can even convert the 200Wpc stereo model 200 into a 400W monoblock with the addition of

a second model 200—which also doubles the number of inputs. This configuration is sold by Devialet as the model 400—which as we'll see does much more than increase the output power.

The 200's appearance is as radical as the technology inside. About the size and shape of a laptop computer, the chrome-plated aluminum case can be mounted flat against a wall. Only one button, an on/off switch, adorns the front panel (if you can call it that). You interact with the 200 through a square remote control with four small buttons and a huge volume knob. Alternately, you can control the 200 with an app on your tablet or mobile device. The app's graphic display mimics the remote's large round volume control, which you "turn" with a swipe of your finger.

Configuring the 200 is quite simple. A page on Devialet's website shows the 200's rear panel with the configurable components highlighted. Clicking on, for example, the RCA input jacks brings up a screen that allows you to select between line and phono; and, if you choose phono, the cartridge gain and loading become selectable. Other phono options include mono or stereo, selectable equalization curves, and channel balance. A digital-out jack can be changed into an analog line-out jack, with or without high- or low-pass filtering, with selectable crossover frequency and slope. The signal appearing at the binding posts can be high- or low-pass filtered, again with selectable frequency and slope. These filtering functions are ideal for systems with a subwoofer; the signal driving the speakers is high-pass filtered, and the line-out signal driving the sub is low-pass filtered.

Devialet 200/400 Integrated Amplifier/Streaming DAC



EQUIPMENT REVIEW - Devialet 200/400 Integrated Amplifier/Streaming DAC

Once you've virtually configured your 200 on the website, you download the configuration file to an SD card. You then insert the SD card in the 200's rear panel, and in a few seconds the 200 has morphed into an audio product with the parameters you've specified. Because the 200 is essentially a digital platform, analog inputs, including phono signals, are digitized. You can select a sample rate of 96 or 192kHz in the A/D converter. The digitized signal, from any input, appears at a digital-out jack (RCA). You could use this function to digitize and archive a library of LPs, for example.

With the 200's unique capabilities, it's easy to overlook the core technology upon which not just the 200, but the entire company behind it, is based.

I created two SD cards, one with a full-range configuration for driving the Magico Q7s and another with the high-pass and low-pass filters engaged for the Raidho X-1s and a pair of JL Audio e-112 subwoofers (review forthcoming). Similarly, you could create multiple SD cards with different cartridge loadings, for example, and simply swap cards rather than go through the entire configuration process for each adjustment. I found only one drawback to this approach; it's much easier to experiment with different subwoofer crossover frequencies by turning a knob on the JL Audio subwoofer than by changing the setting on Devialet's website, saving the configuration file, and updating the 200.

Digital inputs include USB, AES/EBU, TosLink, and SPDIF coaxial. You can also wirelessly stream audio at up to 24-bit/192kHz via Devialet's AIR Universal Streamer app on your tablet, computer, or smartphone. Wireless connection between the computer music server and the 200 has a theoretical advantage over USB, largely by isolating the computer's noise from the 200. The AIR app provides asynchronous connection between your computer and the 200; the signal is buffered, and then processed to reduce jitter. You can also stream music files to the 200 via the 200's Ethernet connection.

With the 200's unique capabilities, it's easy to overlook the core technology upon which not just the 200, but the entire company behind it, is based. As described in the sidebar, Devialet arose from a project to create an amplifier output stage that combined a Class A voltage amplifier with a Class D current amplifier. The goal was to realize the sound quality of a Class A circuit with the efficiency of Class D. This topology, called ADH (Analog Digital Hybrid), is what makes it possible to produce a 200Wpc integrated amplifier in a chassis a little bigger than a laptop computer. The power supply is also a power-factor corrected switch-mode type, further saving space and weight. In operation, the 200 runs hotter than a pure Class D design.

The signal path from DACs (Burr-Brown PCM1792) to speaker terminals is just 4" long. In most multi-bit DACs, the DAC's current output is converted to a voltage by an op-amp, or in rare cases, by a discrete circuit. The Devialet takes a different approach; a passive current-to-voltage converter that employs a single

very-high-quality resistor housed within a temperature-stable environment. This removes an active gain stage from the signal path. The circuitry inside the chassis is modular, allowing hardware upgrades as well as software updates. Unusually, the Class D output stage doesn't require a large filter (an inductor and a capacitor) to smooth the switching output stage's stair-step waveform and switching noise. The 200's specs are quite impressive, to say the least: THD+N is a very low 0.001% at full power, the signal-to-noise ratio is 130dB, and output impedance is an ultra-low 0.001 ohms.

In daily use, the Devialet 200 is a joy. The unit is very simple to operate, and I loved the remote control's huge, solid-feeling volume knob—much more satisfying than pushing tiny plastic buttons. The top panel (front panel if you mount the 200 flat against a wall) has a small round window that illuminates to show the selected input, volume setting, and other parameters. This display can also show a wide range of technical detail, from the network settings to the heatsink temperature. Bass and treble controls are also provided, accessible from the remote control. Three of the remote control's buttons can be configured to perform whatever functions you want, including source selection, SAM on/off, polarity inversion, tone controls, and more. The 200's advanced technology, unprecedented feature set, and sophisticated capabilities are wrapped in an extremely elegant and livable package.

A few other notes. Devialet offers a "Companion" model 200 that lacks a remote control and Ethernet/WiFi streamer for those systems with two model 200s operating in mono. The

Companion is \$7995. The Companion is bundled with the model 200 and sold as the model 400. You can also upgrade a 200 by adding a Companion and turning it into the 400. Devialet also offers the model 120, a lower-powered (120Wpc) version for \$6495 that's based on the same architecture. The 120 cannot, however, be converted to mono operation, and it has only a moving-coil input that lacks the cartridge loading functions of the 200. The top of the line is the \$29,995 model 800, which, as its model number suggests, is rated at 800Wpc.

LISTENING

The Devialet 200/400 saw time driving the Magico Q7s, the tiny Raidho X-1 monitors, and

SPECS & PRICING

Power output: 170Wpc into 8 ohms, 200Wpc into 6 ohms (model 200); 340W into 6 ohms, 400W into 8 ohms (model 400)	stereo or dual mono, selectable filter, fixed or variable level
Digital inputs: AES/EBU, coaxial SPDIF (RCA), TosLink, USB, Ethernet, WiFi	Dimensions: 15" x 15" x 1.57"
Digital output: SPDIF (RCA)	Weight: 13 lbs.
Analog inputs: Two line or phono (software selectable)	Price: \$9650
Analog outputs: One	

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EQUIPMENT REVIEW - Devialet 200/400 Integrated Amplifier/Streaming DAC



the X-1s augmented with a pair of JL Audio e-112 subwoofers. In this last configuration, I programmed the 200's speaker outputs with a high-pass filter at 80Hz, fourth-order slopes, and one of the line outputs low-pass filtered, also at 80Hz, fourth-order. The latter fed the powered JL Audio subwoofer.

Before getting to the sound, I'll comment on my experience with the wireless streaming feature. After installing the Devialet AIR app on my MacBook Pro, I was able to compare the 200's sound when decoding a wireless stream against the MacBook Pro's USB output. Wireless streaming has theoretical advantages over USB, largely by virtue of physically decoupling the computer's noise from the 200's DAC and audio circuitry. When I performed this comparison, I was surprised by how much better the wireless streaming sounded than USB (even with a state-of-the-art USB cable). The music had more ease and refinement, with smoother midrange and treble textures. The downside, however, was that the 200 would sometimes lose lock with the MacBook Pro, producing the disconcerting effect of the music going suddenly silent in the middle of a piece—*musicus interruptus*. Moreover, when I tried to stream 176.4kHz/24-bit files the sound was distorted. These problems are not a shortcoming of the 200, but of my WiFi network. Be aware that you must have a fast and robust WiFi network to take full advantage of the 200's wireless streaming capabilities. This means replacing the router supplied by your Internet service provider; stock routers designed for e-mail and surfing the Internet are not adequate for the data demands of audio streaming.

Now the sound. The Devialet 200 was shocking in some respects—the clarity, transparency, dynamic impact, and bass authority were simply sensational for any amplifier, never mind an amplifier of the 200's size and price. The overall presentation was big (dynamically and spatially), robust, muscular, and authoritative. Taking iron-fisted control over the Magico Q7's woofers, the 200 reproduced that almost physical “purring” quality of a Fender bass guitar to a “t.” The bass wasn't just full-bodied, it was richly textured and finely nuanced as well. The 200's effortless authority and wide dynamics really showcased virtuoso bass performances, such as Ray Brown's playing on *Soular Energy* (96/24 download) or his contribution to Bill Evans' *Quintessence* (Analogue Productions 45rpm LP). The bass drum impacts on *The Firebird* (Reference Recordings 176.4/24) were hard-hitting, nearly lifting me out of my seat. This quality of bass and dynamic agility in an under-\$10k integrated amplifier is remarkable. Incidentally, four Stillpoints Ultra SS isolation devices under the 200 further improved the 200's already superb bottom-end definition.

The Devialet 200's other salient quality was an open, transparent, and dimensional rendering. In the ability to conjure the illusion of instruments in space, each surrounded by a halo of air, the 200 was in the territory of expensive separates. The track “You're Driving Me Crazy” by Dick Hyman on the Reference Recordings HRx Sampler (176.4/24) is a great yardstick for assessing a component's ability to present a natural and open soundstage, as well as its ability to keep each instrument's tonal and spatial characteristics intact within the larger

EQUIPMENT REVIEW - Devialet 200/400 Integrated Amplifier/Streaming DAC

SPEAKER ACTIVE MATCHING

A unique, and recently added, feature of Devialet products is Speaker Active Matching (SAM). This technology adapts the amplifier to the specific electroacoustic behavior of a particular loudspeaker. SAM operates in the time domain, computing what the amplitude of each audio sample should be to ensure that the acoustic output from the loudspeaker is an exact image of the incoming audio signal, including correction of the phase rotation at the speaker's low-frequency cutoff. In this way, SAM extends the speaker's low-frequency cutoff point without equalization. SAM also includes two protection mechanisms, one that prevents excessive and potentially damaging diaphragm excursion, and a second protection that limits the cumulative RMS power to a level that the speaker's voice coil can withstand.

Devialet must measure a loudspeaker to create a model in DSP of that speaker's behavior, characterizing it with more than 60 metrics. When that model of a particular loudspeaker is loaded into a Devialet amplifier, one of the amplifier's three Analog Devices SHARC DSP chips modifies the signal driving the amplifier. This signal processing occurs only below 150Hz.

Note that SAM doesn't attempt to correct speaker- or room-induced frequency-response variations, as do full-blown DSP room-correction processors. As with all the other configuration options, SAM involves choosing your loudspeaker on the Devialet website, downloading the file for your particular loudspeaker to an SD card, and updating the 200's software. As of this writing, Devialet has provided matching for 150 loudspeakers, but is adding more models monthly.

I was hoping to hear SAM with the Magico Q7, but Devialet has not yet created a DSP file for the Q7. So Audio Plus Services, the U.S. distributor for Devialet, sent me a pair of Devialet's Athom stand-mount two-ways that are sold as part of Devialet's Ensemble system. I configured one of the remote-control buttons to turn SAM on and off, and a second button to allow me to adjust the degree of SAM with the remote's knob.

SAM's audibility varied greatly with the program material. Engaging SAM tightened up the bottom octaves by removing a bit of bloat, overhang, and "slowness," while simultaneously extending the very low bass. This had the effect of placing greater emphasis on the kick drum as well as making bass lines clearer and cleaner. The degree of this improvement wasn't profound in the way that some DSP room-corrections systems can be, but on much music SAM rendered a worthwhile enhancement. The presentation was less "thick" in the bass, with greater pitch definition and dynamic agility. Again, the degree of difference varied greatly with the recording; on some music I was hard pressed to hear any change. With other music SAM produced a greater sense of rhythmic drive. I suspect that SAM's audibility will vary not just with the music, but with the loudspeaker as well.

Overall, SAM offers a real improvement. Best of all, the recently introduced SAM upgrade is free to all Devialet owners—and just another example of the power of an audio system that's really a software-updatable platform.

whole. The 200 didn't homogenize this track (as many components do to some degree), not did it foreshorten the tremendous soundstage depth and sense of live "air" around the performers.

The tonal balance seemed a little forward and incisive in the upper midrange and treble. On strings, solo or massed, the 200 tended to emphasize the upper harmonics of the strings rather than the instruments' bodies. Cymbals were more prominent in the mix than through my reference amplifiers, and vocals had a touch of sibilance. On the plus side, this character fostered a sense of presence and immediacy, with an almost tangible quality to the midrange. The 200 didn't gloss over recordings that are bright and hard in the treble—Donald Fagan's otherwise stunning *Morph the Cat* in 96/24, for example. Yet on a smooth recording such as Duke Ellington's *Duke's Big 4*, Joe Pass' guitar was reproduced with a stunning sense of the instrument existing in my listening room. Here's where the 200's tone controls came in handy; a 1-2dB treble cut took the edge off with just a slight loss of top-end openness and extension.

Transients were whip-fast, with percussion and other impulsive sounds taking on life and energy. In fact, "energy" is a good word to describe the 200; between the robust dynamics, incisive tonal balance, and razor-sharp transients, the 200 presented music with a lively, upbeat quality. The Devialet's character is at the opposite end of the sonic spectrum from the classic tube-amplifier sound. If you're looking for a relaxed, laid-back, and forgiving presentation, the 200 probably isn't for you. As

always, loudspeaker matching is crucial.

Turning to the phono performance, I configured one of the Devialet's inputs to accept phono signals, and set the gain and cartridge loading for the Air Tight PC-1 Supreme cartridge. The sound was very much like the sound through the digital inputs, with the characteristic bottom-end punch, wide dynamics, and surprisingly three-dimensional soundstage. I thought, however, that the Devialet added a bit of sheen to the treble, heard as a slightly thinner sound to strings, cymbals that came a little closer to the fore, and a hint of sibilance on vocals.

I next converted my two stereo review samples to mono operation. This conversion process is quite simple: Create a new configuration file for each 200 on the website, load it into each 200; run one coaxial cable between them; and the two amplifiers now operate in tandem from the remote control. Even the displays on each unit are updated, changing from "Devialet 200" to "Devialet 400." As great as the 200 was in bottom-end definition, weight, dynamic impact, and control, it was even better when running a pair of 200's in monoblock mode. No one would listen to a single 200 and want more from the bass (I didn't, and I'd been listening to the incomparable \$155k Soulution 701s), but adding a second 200 rendered a surprising increase in bottom-end punch and bass authority. Even more surprising was the increase in clarity, resolution, and transparency, and, in particular, the improvement in treble quality in mono operation. The tendency toward treble incisiveness described earlier disappeared in mono operation, something that I wasn't expecting. In

EQUIPMENT REVIEW - Devialet 200/400 Integrated Amplifier/Streaming DAC

mono, the upper-mids became more liquid in texture, and the treble was decidedly gentler, more refined and nuanced, and smoother. Why this should be I have no idea, but the difference was unmistakable. I would have thought that connecting a second 200 via a coaxial SPDIF link would have degraded the treble performance because of the jitter added by SPDIF. In addition to the greater midrange liquidity and smoother treble, the mono pair also exhibited finer resolution, not so much of low-level details but of the ability to separate individual instruments from the whole. Whatever was happening, in mono mode the pair of 200s offered stunning performance. Even under the unforgiving microscope of the Magico Q7s, the pair of Devialets sounded like much, much, more expensive electronics. This level of dynamic verve, bass authority, clarity, and resolution is unprecedented at this price, in my experience.

Just to check myself, at the end of the auditioning I switched

back to the Berkeley Alpha USB and Alpha DAC reference digital front end, Soultion 725 preamp, and 701 monoblocks, a roughly \$230k combination (which I had not heard for about two weeks). This juxtaposition only reinforced just how great a pair of Devialet 200s sound, and what an amazing value they represent. A mono pair is significantly better sounding in all respects than a single stereo unit.

CONCLUSION

The Devialet 200 is one remarkable component; its hybrid Class A/D amplifier, innovative software-controlled architecture, advanced features, and genre-bending shape and operation are unique. But the 200 is more than a just technological wonder—its sound quality is in many ways superb. The 200's bass authority, dynamic impact, soundstage transparency and dimensionality, and transient speed far exceed expectations for an under-\$10k integrated amplifier/wireless streaming DAC. The upper-mids and treble are a bit on the incisive side, a character that can be tamed with the 200's tone controls or ideal loudspeaker matching.

This outstanding performance was catapulted into another realm by running a pair of 200s in mono. The monoblock 200s not only improved upon the best qualities heard in stereo operation, but more significantly, ameliorated my reservations about the treble. Surprisingly, mono operation rendered a more refined presentation by virtue of the greater midrange liquidity and a significantly smoother and more relaxed high end.

The Devialet 200/400 is, by a wide margin, the most advanced, flexible, and technically sophisticated audio product I've reviewed. It may look like a lifestyle product, but underneath the 200/400 is a serious piece of audiophile hardware. It's a compelling package that just happens to sound great, too. *tas.*



FROM TEST BENCH TO MAJOR GLOBAL BRAND

Devialet's business development has been as innovative as its audio circuits. It's not by accident that the company sprang from nowhere to become a major worldwide brand.

Devialet's story begins with a Nortel Networks engineer named Pierre-Emmanuel Calmel who set an intellectual challenge for himself—to merge a Class A amplifier with a Class D amplifier. His vision was to create an amplifier with the sound quality of a Class A design and the efficiency of Class D. Calmel began working on the circuit in 2003 in his spare time, not with the intention of founding a company or of even building a product for sale, but rather to satisfy his curiosity. Encouraged by the circuit's performance, he applied for, and was granted, a patent on the topology in 2004. With patent in hand, Calmel quit his day job to build a prototype amplifier based on the hybrid Class A/Class D circuit (which he called ADH, for Analog Digital Hybrid).

If Calmel followed the traditional high-end approach to launching a business, he would have built a few units, taken them to a show, handled the marketing and manufacturing himself, and hoped to be able to hire a couple of employees down the line. Rather, Calmel joined with three partners (Quentin Sannie, Emmanuel Nardin, and Manuel De La Fuente) who had respective expertise in engineering, manufacturing, finance, business, and marketing. (Each became a shareholder in the enterprise.) With 4 million euros in funding, Devialet brought to market the D-Premier, the first commercial product to feature the ADH technology and software-upgradable platform. Devialet's sales exploded, and the company quickly expanded. In 2012 the company received an additional investment of 50 million euros from the holding company that owns Louis Vuitton. Devialet used the investment to fund R&D, an expansion of its manufacturing capability (all the products are built in France), and to open an extremely successful Apple-like retail store in Paris. Devialet now employs 100, forty of whom are engineers; the company has annual sales of more than \$12 million; and its products are distributed in 60 countries.



Rowland Continuum S2 Integrated Amp

Giving Separates a Spanking

Neil Gader

The Continuum S2 integrated amplifier from the Jeff Rowland Design Group represents the latest chapter in the iconic brand's pursuit of the state of the art, in this instance within the more rigid confines of a "single-box" integrated amplifier. Unlike a great artist working on a smaller canvas, confinement is not how I would describe the picture that Rowland has created here. This 400Wpc, fully balanced Class D design is an exemplar of refinement and scope for an electronic segment that has seen an explosion in popularity in recent years. In a conversation at CES, Jeff Rowland posited some reasons for the current trend toward integrated amplifiers. Simplicity for one—busy audiophiles searching for the performance of separates but disenchanted with their size and complexity. There's also real-estate downsizing among empty-nesters. Condo living, however lavish, is vastly more conducive to smaller-footprint solutions. Compared with separates, premium integrated amps make for a better fit in a wider variety of applications.

Visually, the Continuum S2 is pure Rowland. The vault-like chassis is precision machined from aircraft-grade 6160-T6 aluminum, well known for its low resonance and structural rigidity. Set off by the optical elegance of Rowland's trademark prismatic faceplate is an in-line series of small pushbuttons and indicator lamps for input selection, bypass, polarity re-

versal, and mute. A large, legible display accompanied by a volume wheel is offset to the right of center. The striated and matte-finished aluminum top and side panels are affixed via robust Allen bolts. Don't go looking for massive external heatsinks or vents—the Continuum S2 circuits run cool, and are so efficient that the chassis can be completely sealed for high RF and EMI isolation. The back panel provides analog connectivity in the form of a pair (each) of balanced and RCA inputs, plus a pair of unity-gain inputs that can be converted via internal jumpers to a set of normal inputs. A set of balanced and unbalanced outputs is provided, as well. Cardas' excellent clamping binding posts ensure a tight connection for speaker cables.

The nicely weighted volume control incorporates a noiseless optical encoder, has an excellent tactile feel, and is speed-sensitive to user input. Level adjustments occur over a nearly 100dB range and can be implemented at two speeds—rapid turns adjust the volume in 1.5dB steps, while normal spins are for ultra-fine 0.5dB changes. In contrast, the plastic remote control is more of an afterthought than an extravagance. But it's usable and ably handles basic functions. (You might slip it into a drawer before giving your audiophile friends a tour of the Continuum S2.)

The Continuum S2 lineage is based on the topology of Rowland's Capri 2 preamplifier. This circuitry is housed on one side of a four-layer circuit board to allow for continuous, unbroken, low-impedance ground and power-supply distribution planes. Signal path lengths have been minimized. Input circuitry is transformer coupled, which virtually eliminates ground loop noise and RFI/EMI, while also ensuring identi-

EQUIPMENT REVIEW - Rowland Continuum S2 Integrated Amp

cal overall gain with all inputs. All resistors are of the 0.1% thin-film type, for extremely low thermal noise. The power amp section uses an ultra-high-efficiency power-conversion module. Sourced from Pascal of Denmark, it yields 400 watts per channel into 8 ohms, doubling into 4 ohms, with a peak current of 21 amps. A regulated, high-speed, low-noise, auto-ranging switch-mode power supply accepts all world-wide mains voltages. The role of the Continuum S2 can be expanded beyond its traditional linestage function via a pair of optional plug-in cards, specifically a phono card and a 192/24-bit DAC card. Choose wisely, however, as interior space dictates that only one of these can be installed at a time. The DAC card accepts SPDIF in sample rates up to 192kHz and bit depths of up to 24 bits. For the phonostage there are three gain and loading options to accommodate moving-magnet, moving-coil, and high-output moving-coil cartridges. Although installation is best left to the dealer, it's easy to drop in either card. Take the phono card, for example: Simply remove the six Allen bolts and the bottom plate of the Continuum, select the load (100 ohm, 400 ohm, 47k ohm) and gain (40, 50, 60dB) settings on the left- and right-channel modules, remove jumpers, and then slip each one onto the waiting pins of Input One. A small bolt secures the modules onto the input board.

Tonal neutrality prevails in modern solid-state amplification and in much of the contemporary tube world. The Continuum S2 is no exception. In tonality and fidelity to the source, the S2 is a down-the-middle straight-shooter. Treble performance is lucid, with just a hint of

dryness but absolutely no grain. Strings sing; brass is a mixture of lightning-bolt transients and honey-gold bloom. Soundstage width and depth are the only areas that seemed under-represented by the Continuum, which is solid here but not transcendent. Still and all, the S2 reproduces music with an overarching clarity and definition whereby images seem to physically pop from within the soundspace—a characteristic that I noted time and again as I listened to the plucked harp and chamber ensemble that introduce Audra McDonald's "Lay Down Your Head" from *How Glory Goes* [None-such]. This Rowland separates out low-level information and defines the surrounding acoustic in a manner so convincing that even Felix Unger would drop his Swiffer in admiration.

A key S2 attribute is the dark silent backgrounds that the Rowland confers on acoustic recordings. There's a complete absence of electronic hash—no veiling and no sense that a fine layer of dust needs to be brushed away from an acoustic image. The benefits that this lower noise brings are finer gradations of micro-dynamics and greater contrasts in tonal color and richness. The Rowland serves up a symphony orchestra with neat-freak orderliness, every instrument placed just so, but also with the ability to hone in on each instrumentalist without losing connectedness across the soundstage.

Lower mids and bass reproduction are superb in pitch and timbre. Bassoon, cello, and contrabass are darkly burnished, harmonically ripe, and pitched with tuning-fork precision. Bass control is as tight as the proverbial drum, and only as loose as a loudspeaker allows it to be. While the S2 doesn't quite have

the imposing, saturnine weight of big monoblocks, there is little sense of any attenuation of dynamic energy. I repeatedly listened to the orchestral kettledrums from Copland's *Fanfare for the Common Man* and the rhythmic beat from Mick Fleetwood's drumkit on Fleetwood Mac's *Rumours*, and in both instances bass was tightly controlled, punchy, and absolutely pitch perfect.


The performance of the S2's internal DAC is very, very good across the board, and will likely satisfy all but the most finicky digital devotees. Throughout Peter Gabriel's *New Blood*—a collection of orchestral versions of the singer's classic hits—the Continuum teased out low-level details with ease, from the large-scale and spookily immersive atmospherics of "Don't Give Up" to the harmonic sustain of the triangle motif on the tender "Mercy Street." Equally compelling were the delicate metallic ring and sustain of the distant mandolin played during John Gorka's "Let Them In" [AIX Records]. Of course there are an infinite number of pricier outboard DAC options from third parties, but keeping sources under one roof, so to speak, is what makes integrated amplification so appealing in the first place.

However, the last thing I expected was that the performance of the phonostage would catch me on my heels. Perhaps the analog audio gods were smiling on me, but shortly after I plugged in the phono card the Julie London classic 1958 Liberty Records LP, *Julie Is Her Name, Volume II*, arrived from Analogue Productions. It was the first record that the Continuum S2 phonostage saw. As I listened to "Blue Moon," I heard that this early stereo disc had all the hallmarks

of the day—from the reassuring tape hiss to the widely panned guitar and standup bass, and, of course, the seductive, satiny, "come hither" vocals of Ms London. It made an interesting contrast to Boxstar Records' remastering of the earlier (1955) original mono release, *Julie Is Her Name*, which featured the astounding guitar fills and flourishes of the legendary Barney Kessel. Like all good mono LPs, especially those remastered by great engineers like Bernie Grundman, songs such as "Cry Me a River" and "I'm in the Mood For Love" sonically transcend the supposed limitations of the monaural medium and embody the dimensional aspects and image focus that we presume only stereo can capture. Listening to Holly Cole's "Frank's Theme"—a spare piano and harmonica piece—image specificity on a stunningly realistic and engrossing level emerged from the soft acoustic pockets on stage. While the S2's pho-

SPECS & PRICING

Power: 400Wpc into 8 ohms, 800Wpc into 4 ohms	x 15"
Inputs: Two pair balanced (XLR), two pair unbalanced (RCA), one pair unbalanced (RCA) unity gain (bypass)	Weight: 35 lbs.
Output: One pair balanced (XLR), one pair unbalanced (RCA)	Price: \$9500 (\$350, phono; \$450, DAC)
Dimension: 5.3" x 15.5"	JEFF ROWLAND DESIGN GROUP 2911 N. Prospect St. Colorado Springs, CO 80907 (719) 473-1181 jeffrowlandgroup.com

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EQUIPMENT REVIEW - Rowland Continuum S2 Integrated Amp



nostage can't match the tonal density, three-dimensionality, and micro-dynamic nuance of a near-reference-level standalone unit like the Parasound JC 3+, it is still pretty darn good. And like the DAC option, it is a genuine bargain.

Perhaps the most striking statement the Continuum S2 makes pertains to the overall musicality of Class D amplifiers. Just a few years ago, the argument asserted in these very pages was that Class D wasn't ready for prime time—the primary gripe being that it lacked extension, air, and transparency on top. True enough then, but that argument has been firmly laid to rest by a component like the Continuum S2. I asked Jeff Rowland what had changed. He replied that Class D is only

as good as its implementation and integration within a greater amplification strategy—just as the engine in a Formula 1 car is only as powerful as the chassis, suspension, drive train, and transmission allow it to be. Rowland, a man whose knowledge about electronics is matched by few others in the high end, still feels that much of the Class D debate is like complaining about the first Prius while standing next to the Tesla P85D. You have to just get in and drive it. In the case of the Continuum S2, I couldn't agree more. It's elegant, poised, powerful, and a pleasure to experience. High fidelity just doesn't get much better than this. **tbs**

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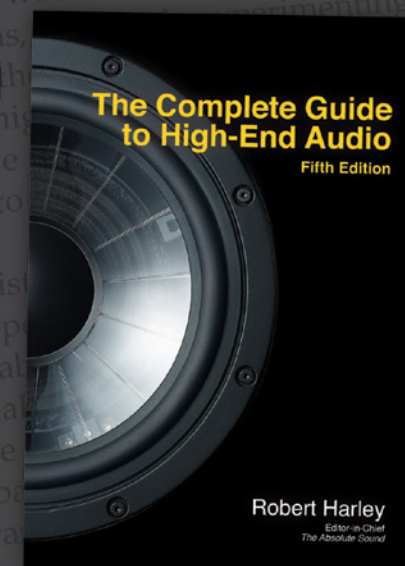
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Jadis DA88S MkII Integrated Amplifier

Magnifique!

By Jacob Heidbrunn
Photography by Donnie Burnett



EQUIPMENT REVIEW - Jadis DA88S MkII Integrated Amplifier



Sure, Jadis is a storied brand known for its hand-wound transformers, and it has more than a few audiophile worshippers. But I must confess that I was a mite skeptical about whether this integrated amp could really deliver the goods. My reservations went along something like these lines: Integrated amp, not separates; fairly inexpensive, as high-end audio products go; a mere 60 watts of output power; a lightweight; and so on. Skepticism, in other words, abounded. Still I was determined to give this piece of Gallic electronics a fair shake. So I plugged in a CD featuring the British trumpeter John Wallace performing Gabrieli and hit play on the dCS Vivaldi.

Every preconception that I had was laid waste within a few seconds as I listened to an integrated amplifier that wasn't merely good—it was

spectacular. I knew that the Wilson XLF loudspeakers are fairly easy to drive, but the Jadis demonstrated a dynamic alacrity and vividness and prowess—a *puissance*, to use the wonderful French term—that placed it in the very top echelon of audio equipment regardless of price. There was no syrupy sound here—just superb dimensionality, iron grip, and unrelenting drive. The jump factor of the Jadis is off the charts. Put otherwise, it sounds as stunning as it looks.

One of the reasons that the DA88S looks so striking, apart from its metal work, is that it displays its input and output tubes so prominently. The version that I received was loaded for bear with the imposing KT120 tube, a more prodigious version of the venerable 6550, that has come on strong in recent years. The input tubes are 12ax7 and 12au7s. The 12ax7 is often considered to be somewhat dark in sound, but I heard no hint of this in the Jadis. The unit is simplicity itself to operate. All that is required



Jadis DA88S MkII Integrated Amplifier

EQUIPMENT REVIEW - Jadis DA88S MkII Integrated Amplifier

to get it up and running is to unscrew the bolts holding down a black protective cage and insert the tubes. The owner's manual states that you should always keep the cage on, but I didn't. It's visually more pleasurable to see the glowing tubes without a barrier.

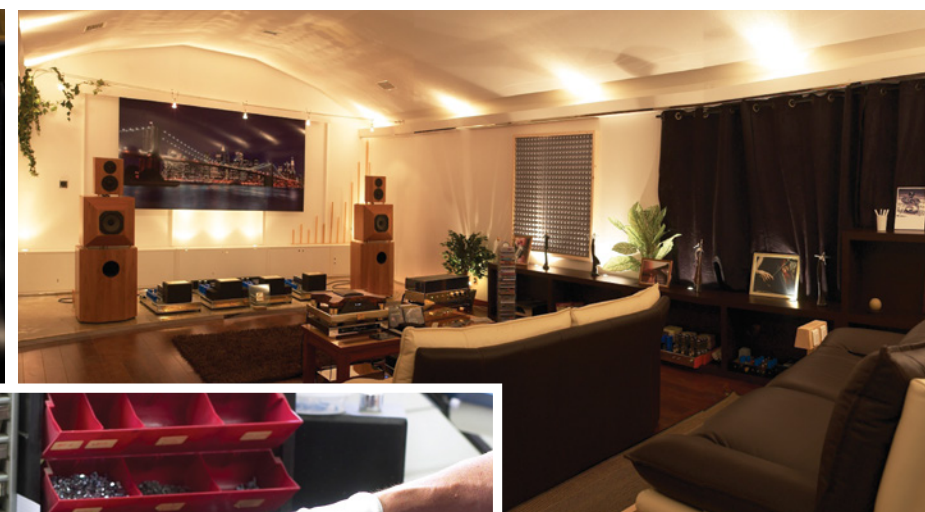
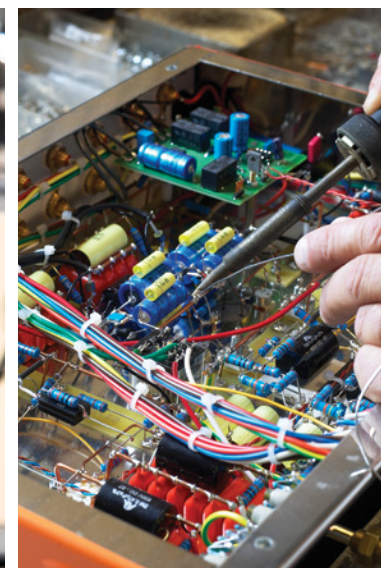
As far as the tubes are concerned, the Jadis requires no further user intervention. The unit is self-biasing. Its only other controls are a volume knob, an input selector, and (gasp!) a balance control, something that many audiophiles frown on but that my friend and fellow TAS reviewer Anthony Cordesman considers a vital part of an audio system, because of room anomalies (not to mention that it's pretty much impossible to get a phono cartridge to output precisely the same voltage from each channel). Measure it and you're more than likely to find a discrepancy, however minute. I should also state upfront that, though I've seen reports of reliability problems with Jadis equipment in the past, there were absolutely no hiccups in my system. It truly was plug 'n' play, though you're better off waiting at least an hour for the tubes to warm up fully to attain everything that this unit has to offer.

One of the first things you notice about a revealing system is a sense of flow—a sense of the almost microscopic nuances that transform a musical passage from rote reproduction into a singing line. On a Carlos Kleiber live recording of the Vienna Philharmonic performing Strauss waltzes in the Musikverein, this once more came vividly home to me. Probably no orchestra in the world has this sense of pacing more in its bones than the Vienna players. The Jadis delivered those tiny details with truly stupe-



fying fidelity, at a level that I would hitherto never have credited to an integrated amplifier. On the venerable *Radetzky* March, for example, the crispness of the trumpets, the precision of the cymbals, and the sheer exuberance of the waltz were fully realized by the Jadis. The Jadis discriminated between the *pianissimo* and *fortissimo* passages with sovereign ease. It was hard not to be swept along by the martial zest of the whole thing, particularly when you could hear the audience enthusiastically clapping in the background.

The firecracker speed of the amplifier was fully on display in the waltzes. I never really got over it. Consider the aforementioned John Wallace CD. What was so striking about it, apart from the tremendous presence of the brass choirs, was the wonderful tonal fidelity with which the Jadis captured the rapid antiphonal



Clockwise from top left of this page: Jadis components are built with point-to-point wiring and hand-soldering. The company winds its own transformers. The Jadis listening room. Applying the final touches.

EQUIPMENT REVIEW - Jadis DA88S MkII Integrated Amplifier

effects. On a number of passages in Gabrieli's Sonata XVIII the brass players are engaging in what's known as double-tonguing. It is a way of deploying the tongue behind the teeth to interrupt the airflow as rapidly as possible, allowing gifted brass performers to play much more quickly. Done right it can even have a machine gun-like effect. Suffice it to say, that the Jadis nailed such passages. There was no hint of blurring, smearing, or elision. This quality also endowed accented notes with a crystal-clear, explosive pop when the trumpeters were performing particularly dramatic passages.

Why am I emphasizing this? Simple. The common rap on tube gear is that while it may capture harmonic richness, it tends to round off notes and sound a little sluggish. Not here. My sense is that the Jadis' dynamism allows it to transcend such shortcomings. On the Christian McBride Trio's album *Out Here*, for example, the Jadis delivered every cymbal swish with great clarity while maintaining the bass and piano in proper proportion. Which leads to another fundamental asset of the Jadis—its soundstaging. Whether it's an orchestra or a jazz trio, I was consistently impressed by the ease with which the performers could be located in space. I'm a sucker for soundstaging and don't agree with those reviewers who pooh-pooh the claim that pinpoint imaging doesn't exist in real life—a defensive assertion that auditors of Magnepan loudspeakers sometimes make (a recent example being my TAS colleague Don Saltzman's review of the 20.7 loudspeaker). In my view, instrumental images are precisely focused in life. Go listen to a symphony, close your eyes, and you'll know darn well exactly where that

trumpet is located. What's more you'll be able to hear the relative positions of all the instruments vis-à-vis each other. No amount of huffing and puffing about dynamic driver loudspeakers providing an artificially precise form of imaging is going to convince me otherwise.

Another myth that the Jadis helps to dispel, particularly remarkable in light of its fairly low power rating, is that tube amplifiers can't properly reproduce bass. While the Jadis does not produce the very deepest notes, it excels at delivering prodigious and harmonically rich bass that has a propulsive quality. The sumptuousness of the Jadis, the drive, has to be heard to be believed—and frankly, until now I would have disbelieved anyone who claimed that a 60-watt integrated amplifier could output this kind of power in the nether regions. It isn't simply or merely that the Jadis has punch, though it has that in spades (Christian McBride's bass plucks are so defined, nimble, and robust that you can pretty much see his fingers moving in space). It's that the bass has a rolling quality to it, one that suffuses a listening space. Here the virtues of tubes come to the fore, as the decays seem to linger on forever. This quality endows the piano for example with a grandeur and resolve that are transfixing. On Leonard Cohen's new album *Popular Problems*, for instance, the piano chords have resounding sustain. Ditto for the drum whacks on the sublime "Big Noise From Winnetka" from the CD *Count Basie Remembered* from the New York Allstars. Everything that makes the Jadis such a standout is present on this cut—the drums situated way in back, the granular level of detail, and the seemingly unlimited crescendos. Rimshots simply have to be

heard to be believed.

Does the Jadis have a higher noise floor than solid-state units? Sure it does. But its tonal saturation means that you really shouldn't be missing any details, at least not in my experience. Like the best tube amplifiers, the DA88S seems to add a little extra dollop to the notes, literally amplifying, for lack of a better word, the tiny details that do so much to add a sense of verisimilitude to a stereo system. Consider a recent Harmonia Mundi CD by the Freiburg baroque orchestra, one of the best in the world, featuring Andreas Staier playing Carl Philipp Emanuel Bach's harpsichord concertos. It's quite a filigreed recording, not the blockbuster type that you might hear with a full-out Beethoven or Mahler symphony. The Jadis deftly laid out the orchestra, layer after layer. I had no sense that any details were being obscured or lost. Quite the contrary.

If I've dwelled on the speed and power of the Jadis, it's because this unit does such a convincing job of banishing many of the prejudices and reservations that a number of audiophiles harbor about tubed equipment. I could start picking nits—the sound is not quite as grainless or ethereal as the vastly more expensive Ypsilon gear in my listening room—but that would be totally beside the point. This integrated amplifier will more than likely prompt you to abandon any lingering snobbish thoughts you might be harboring about equipment that isn't stratospherically priced. It offers great performance for any amount of money, delivering the whole package—a coherent, thoroughly thought-out sound. Indeed, as you might expect from its previous efforts, the Jadis has a beautiful tone

color, a limpidity, a gracefulness, and tenderness. But what makes the DA88S so distinctive is that it builds on these traditional strengths to offer an amplifier that is so palpably powerful, vivid, and authoritative that listening to it can become an utterly engrossing experience. So it was for me.

SPECS & PRICING

Tube complement:	ASSOCIATED EQUIPMENT
Eight power tubes, two ECC83/12AX7, three ECC82/12AU7	Continuum Caliburn turntable with two Cobra tonearms, Lyra Atlas and Miyajima Zero mono cartridges, dCS Vivaldi CD/SACD playback system, Ypsilon PST-100, MK II (silver) preamplifier, Ypsilon SET 100 Ultimate and Balanced Audio Technology Rex II monoblock amplifiers, Transparent Opus and Nordost Valhalla 2 cabling, Stillpoints Ultra 5 isolation footers and Audio Desk Systeme Vinyl Cleaner
Bandwidth:	
10Hz to 29kHz	
Power:	
60W Class A	
Inputs:	
Five	
Outputs:	
Line, two speaker (for bi-wiring)	
Dimensions:	
50 x 40 x 22cm	
Weight:	
40 kg	
Price:	
\$14,495	
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EQUIPMENT REVIEW - Jadis DA88S MkII Integrated Amplifier

A Chat with JC Calmettes, Chief Designer of Jadis

What are the sonic differences between your pure Class A amplifiers and your more powerful AB ones?

The pure Class A amplifiers are subtler; they reproduce music with a sense of clarity closer to the real thing. (Class A amps also provide lower, but better power.) Our most powerful Class A amp, the JA200 third generation, puts out 160W per channel. It is a monoblock design with outboard power supplies and a total of four chassis.

On the other hand, Class AB amplifiers have a different philosophy: They remain very detailed, but focus more on the punch and energy of music. They reproduce music with a lot of vitality. The PA100 is an excellent example; it provides 150Wpc but on one stereo chassis.

When power or space is an issue, Class AB is the better choice.

The sound of your new amplifiers retains the sweetness of earlier models, but adds considerable dynamic heft and drive. Have you improved the output transformers, and if so how?

Several factors explain these changes, some relating to how certain components—such as transformers, capacitors, and tubes—have evolved and improved over time.

Today's output transformers, for instance, use a newer, more sophisticated, higher-precision transformer-winding process. There have been substantial improvements in the purity and quality of the copper wire used, as well. Isolation, which is also another very important aspect, has also been substantially improved. As you know, perfection is hidden in the details. In short, today's transformers deliver more pure current with a lower noise floor.

There are, of course, some proprietary trade secrets we cannot discuss, so we always tell people to listen to hear what is different and unique about our sound. But what we can say is that the Jadis products sold today now use our third-generation transformers—oversized, encased in a special resin to guarantee extremely low noise and thermal stability, and capable of handling 2500 watts before saturation.

The capacitors?

We work with Philips (today owned by Vishay), the company that has supplied us for over twenty years. It makes capacitors especially to our specifications, and stamped with our brand name. Over the years, capacitor technology has improved—capacity has increased while size has decreased. The dielectric chemicals are also better, making these components more neutral sounding. Similar improvements have been made in resistor technology.

The tubes?

In the 1980s and the 1990s, the quality of vacuum tubes was poor. During that period of time, we had to send back about 40 percent of our stock because it wasn't good enough for our amplifiers. Lately, as interest in tube electronics has increased, we've noticed a parallel improvement in tube quality. Today's tubes are more reliable; moreover, the development of new tubes, such as the KT120 or the KT150, brings with it fresh and interesting possibilities for amplifier design.

We've also replaced our tube testing tools with newer ones that offer more detailed and reliable results. This allows us to provide even better-matched tubes than in the past. It is important to note that the tubes are first tested and matched, then burned-in for 100 hours, and then tested a second time. This ensures absolute reliability and guarantees that the end user will be able to enjoy an amplifier with perfect stability and get the best possible sound from the moment he first powers up the unit.



EQUIPMENT REVIEW - Jadis DA88S MkII Integrated Amplifier

A Chat with JC Calmettes, Chief Designer of Jadis

Has your manufacturing process changed?

Yes, the manufacturing process at Jadis has changed in several important ways, but the hand-crafting has not. Jadis electronics are literally hand-built and hand-soldered, wire by wire and part by part, by the most experienced and skilled craftsmen in the business—and these craftsmen have the absolute highest regard for excellence and a genuine passion for sound. Their absolute no-compromise approach has a positive impact on sonics, reliability, and product life.

Where are you located?

Jadis is located close to Toulouse, a city known for its state-of-the-art aerospace concerns. Our company benefits from the expertise of these local, high-quality manufacturers, as we acquire several vitally important, best-in-class components from them.

And your passion for “real music?”

We believe that there is a special magic to “the Jadis sound,” and that our sound is the sound of real music. While we use and produce some of the most advanced components in the world, we also rely on extensive listening tests. We always strive for the best presentation possible, and I think over the years we have become more experienced and better able to design products that come closer to that goal.

Your integrated amplifier employs the KT120 tube. Why do you feel it is superior to the 6550 and KT88?

We do like the KT120 particularly, for several reasons. The most important is this tube's overall reliability in a Class A amplifier. Also, KT120s deliver a more powerful sound. Although we definitely prefer the KT120, we think tube choices are more a matter of taste than anything else; therefore, our units are built to accept a wide variety of tubes, and customers can use the ones they like most.

Jadis has a reputation for evoking the passion of music. Jadis fans tend to have a religious devotion to their equipment. Where does your passion for music come from and how do you try to translate it into sonic reproduction?

Since the founding of Jadis 32 years ago, we have grown up surrounded by music and electronics. I think each team member transmits his love and passion for music and quality reproduction to everybody else, and there is a spirit on the team that's greater than the sum of its individual parts.

We think music's main purpose is to transmit emotion through listening. At Jadis, what we try to do is to give the music lover the opportunity to experience that emotional magic by faithfully reproducing all the subtleties hidden in the song. When you listen to a Jadis, the contrabass' strings have length; they are not just points in the soundstage. The piano is much more than a box filled with strings. Reproducing all these musical shades and details

is vitally important to allowing the music lover to feel that he is actually listening to a live performance while enjoying his favorite music at home.

If you've followed Jadis over the years you probably already know we are very careful in selecting the components used in our equipment. It's only after extended listening sessions that we select the combination of parts that we believe best allows us to create the illusion that we are present at a musical performance—and allows us to feel the full emotion of that performance as intended by the artist. It's not an easy thing to achieve, but that is our aim.

Jadis was a well-known brand in the U.S. but has not enjoyed as big a presence in recent years. How do you plan to return it to prominence?

We have released new models such as the JA120 (balanced or unbalanced), the I50, the PA100, and the PRE1 (balanced or unbalanced). The I50 uses the new KT150 tubes and includes a digital input allowing our customers to enjoy music from popular digital sources.

The I35, which replaced the DA30, is a more affordable model that the U.S. audio press has praised. We hope it will bring the Jadis magic to more U.S. customers.

We've also taken notice of a global trend: More and more customers want quality equipment that does not take up as much space in their homes. We have addressed this by offering a larger selection of integrated amplifiers, as well as updating our most popular amplifier, the DA7 (Defy7), which is now the PA100.

All Jadis products from the smallest to largest feature premium components, point-to-point wiring, and handmade output and power transformers. We are working to get this message out to U.S. consumers: No matter which Jadis model you select, you will enjoy a very finely crafted product for many years to come.

Thanks to our new U.S. distributor Bluebird Music, Jadis is much more visible in the North American market than in the past. Our products are being demonstrated at the CES, Newport Beach, Vancouver, Montreal, and New York audio shows this year. Another important development is the reliable, high-quality customer-support system Bluebird Music has put into place in partnership with us. As a result, customers in the U.S. can once again be assured of first-rate support.

We hope these initiatives will help U.S. consumers once again become as enthusiastic towards Jadis as our other customers around the world are. tas

We've also taken notice of a global trend: More and more customers want quality equipment that does not take up as much space in their homes.



Preamps & Power Amps

Rotel RCD-1570, RC-1570 P7, and RB-1552 Mk II

Rotel Returns to its Roots

Alan Taffel

Once upon a time, the audio forces of America, Britain, and Japan combined to create a company called Rotel. And it was good. Long before others, Rotel demonstrated that high-end sound need not come at a high-end price. First came a now-legendary CD player costing a mere \$400 that outperformed units ten times its price. Following that, the company birthed electronics of all stripes: amplifiers both power- and pre-, as well as splendid DACs. Rarely did Rotel set a foot astray.

Then, quite suddenly, a change occurred. Rotel devotees noticed that new products were less often stereo and more often of an unfamiliar (and unwanted) breed called “home theater.” If that wasn’t disconcerting enough, the company’s lauded Class AB amps were mostly relegated to Class MIA, replaced by wansounding units aptly dubbed Class D. “Where,” the faithful cried, “is the Rotel *d’antan*?”

Well, the wait was long, but our old friend appears to be back. Just take a look at this shiny new stack—there isn’t a home-theater or Class D model in it. Ah, but does it live up to Rotel’s “giant killer” reputation from the days of yore? Let us see.

Rotel’s new stack consists of three components that—aesthetically and functionally—were obviously designed to be deployed in tandem. First in line is the Wolfson DAC-powered RCD-1570 CD player. This slot-loaded player has both single-ended and balanced analog outs, as well as a digital output. The latter feature somewhat future-proofs the player, as it can still

be used as a CD transport in the event its owner buys a higher-end outboard DAC (maybe the RDD-1580). There are also RS-232C and Rotel Link connections for external control.

Next in line is the RC-1570 stereo preamplifier, a fully featured unit with four analog inputs, an additional balanced analog in, and even a moving-magnet phonostage. But that’s not all: The RC-1570 is equally adept with digital sources, for which there are two coax and two optical inputs, plus two USB inputs (one on the front panel and one on the back). For these, the preamp is graced with the same Wolfson DAC as the CD player, and supports resolutions up to 192/24. With all these inputs and the built-in DAC, the RC-1570 can serve neatly as a versatile control point for a modern audio system.

Finally, meet the RB-1552 Mk II 120Wpc Class AB stereo power amplifier. The amp boasts the sort of holistic design and careful parts selection that have distinguished Rotel’s best amps through the ages.



EQUIPMENT REVIEW - Rotel RCD-1570, RC-1570 P7, and RB-1552 Mk II

Capacitors, for example, are of the slit-foil variety. Further, the unit is essentially a dual-monoblock design, with separate left and right rectification. The RB-1552 Mk II accepts both single-ended and balanced connections (the balanced sound way better). In keeping with the versatility theme, the amp has two sets of stereo amps for driving two sets of speakers. And for those whose speakers require a little more oomph, such as Maggie owners, Rotel makes a more powerful (\$600 more expensive) 200Wpc version, the RB-1582 Mk II.

Stacked, these components look purposeful (especially in black), yet elegant (especially in silver) in the reassuring form-follows-function Rotel manner. Their looks will raise the pulse of any Rotel aficionado. Pricewise, too, this gear certainly promises a return to the Rotel of old. Each component is a mere \$999. In today's audio world, that's a major bargain—assuming the Rotel stack truly delivers high-end sound.

The sonic question for components in this price range is *not* whether they can produce a fool-you facsimile of the real thing. Unfortunately, barring a technological revolution, they can't. The more pertinent question, then, is whether they get enough sonic elements right—and whether those strengths are not overly compromised by the inevitable trade-offs—to convey music engagingly. “Engaging” is a word we high-enders use as shorthand for the cumulative effect of a multitude of sonic factors, but I believe that chief among these are the elements that most directly impact musical expressivity. Specifically, I look for good timing, tonality, and dynamics.

Timing not only gives music forward mo-

tion; its subtle variations contribute greatly to emotional expression. Proper tonality has myriad benefits. Composers carefully choose their orchestration to convey emotional content through instrumental colors. The contrast between those colors is essential to enabling listeners to follow interleaving melodic lines. And obviously the tonal inflections of, say, a singer's voice is a primary conveyor of emotional intent. Finally, without dynamics we would lose the subtle sweep that defines a melodic line, as well as the grand sweep of an orchestral movement or entire piece.

Of course, there are many other sonic attributes that we associate with high-end sound, like resolution, speed, spatiality, imaging, and frequency extension. There is no doubt that these add to the engagement factor—but engagement can occur without them. In contrast, the troika of timing, tonality, and dynamics is essential.

I hope I do not appear to be “dumbing down” my standards for affordable gear. The essential sonic elements I have described are not easy to come by! I regularly hear products—even expensive ones—that fail in one or more of these areas. So finding affordable gear that gets them all right is a find indeed. The new Rotel stack, I am happy to report, gets them all right.

Listen, for instance, to the Praga CD of Dvorák *Serenades from Bohemia*. If the timing isn't just so, these octets stall faster than a Jag XKE. If the timbres aren't spot on, instrumental lines become blurred, and if micro-dynamics aren't fully captured, the interplay between musicians and the *lilt* of the music is lost. But through the Rotel stack, all of these elements are fully pres-

ent. Strings are properly rich, bass is weighty, and the piano possesses a lovely round tone. Microdynamics and tiny tempo variations come through clearly, allowing the listener to hear the give and take among the players. Strings may be a touch more strident than would be ideal, but that is a small trade-off—and small trade-offs are precisely what we hope for in affordable components.

This is all great news, but there is icing on this cake because the Rotel stack makes very few apologies even in *non*-essential categories. Point the laser to Mary Guathier's “Falling Out of Love” from *Mercy Now* and you will be amazed at not only the grittiness of her voice, but also the broad soundstage, well-placed images, and the rock-solid bass—all of which suck you right into her slithery world. Similarly, on the terrific Analogue Productions hybrid disc of Dave Brubeck's *Time Out*, the Rotels not only get the infectious timing and tonal characteristics of the instruments right; their tinkling top piano notes are also airily unrestrained. Again, this last element is not essential to fully digging the music here, but it goes a long way toward hinting at that “real” quality we high-enders seek.

The sound only gets better with high-resolution digital sources. With such material, the RC-1570 exhibits a level of purity that is a skosh higher than it attains when handling the RCD-1570's analog output. With high-res digital sources, instruments and singers step farther forward from a quieter background, adding to the drama of the listening experience. Apparently, Rotel has not lost its touch with DACs.

Modestly priced audio products may not be able to produce the “absolute sound,” but the

best of them can fully deliver the heart of the high end. Rotel's 1570/1552 stack falls decisively into this category, forming an incredibly affordable, versatile system that conveys all the music you could want—and more—with very few trade-offs. Rotel is back, my friends. And it is good. *tas*

SPECS & PRICING

RCD-1570 CD Player Outputs: One pair RCA; one pair XLR; one coax digital RCA Dimensions: 17" x 4" x 12 5/8" Weight: 14.7 lbs. Price: \$999	RB-1552 Mk II Stereo Power Amplifier Power output: 120Wpc into 8 ohms S/N ratio: >120dB Frequency response: 4Hz-100kHz Inputs: One pair balanced (XLR); one pair single-ended (RCA) Outputs: Two pairs per channel of binding posts Power consumption: 400W Dimensions: 17" x 5.25" x 13.4" Weight: 31.6 lbs. Price: \$999
RC-1570 Preamplifier/DAC Inputs: Four RCA; one mm phono RCA; one XLR; two coax digital; two optical; two USB S/N ratio: 110dB (line); 80dB (phono) Frequency response: 10Hz-95kHz +/-3dB Dimensions: 17" x 4" x 12 5/8" Weight: 16 lbs. Price: \$999	ROTEL OF AMERICA 54 Concord St. North Reading, MA 01864 (978) 664-3820 rotel.com

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NuForce MCP-18 Multichannel Analog Preamplifier

Transparency at a Budget Price

Steven Stone



Back in the mid-Nineties, I was still in the throes of home-theater madness and wrote: “Very soon, stereo will be only an output setting on your multichannel system.” Obviously, I was wrong. But many audiophiles do require a system that can serve for both home-theater multichannel playback and two-channel music. The majority of dual-system buyers opt for a digitally enabled multichannel receiver or preamp/processor, but some would prefer a more analog way to reproduce their analog sources than a digital preamp. NuForce has a solution: the MCP-18 multichannel analog preamp. It was designed to handle both multi- and two-channel analog sources in the most sonically unobtrusive manner possible. It is basically a source-selector and gain-adjustment device whose signal path has been optimized to obtain maximum transparency and minimum coloration. Priced at \$995, the MCP-18 offers audiophiles a budget high-sound-quality alternative to multichannel digital pre/pros, while still retaining a system’s multichannel capabilities.

Technology and Ergonomics

The MCP-18 looks very much like NuForce’s companion model, the AVP-18 A/V processor. Both have a rhomboid-shaped front panel whose sides and top slant inward. For front-panel controls, the MCP-18 has two good-sized knobs on either side of a centrally located LED display panel. The MCP-18 has two sets of

single-ended RCA 7.1 inputs, one pair of two-channel balanced XLR inputs, and two pairs of two-channel single-ended RCA stereo inputs. Outputs for the MCP-18 include one set of 7.1 single-ended RCA and one set of 7.1 balanced XLR connections. Both sets of outputs are simultaneously active.

Although the MCP-18 supports 7.1 channels, the main right and left front channels have a slightly different signal path than the rear, side, center, and subwoofer channels. According to NuForce’s Casey Ng, “What we wanted to do with the MCP-18 was to have it first and foremost serve as a superb two-channel preamp. We borrowed heavily from our P20 and HAP-100 designs. The front left and right channels use a digitally controlled, discrete-resistor-ladder circuit. This uniquely implemented resistor ladder is in the feedback loop of the high-performance op-amp circuit so as to have minimal impact on the signal chain.”

All of the MCP-18’s channels use silver contact relays for input selection to maintain signal integrity, but only the front two channels employ a resistor-ladder volume control. The other six channels use a combination monolithic switch/input selector and AGC (Automatic Gain Control) volume control. After the volume controls and linestage section, the signal goes through a single-ended-to-balanced conversion circuit (a phase-splitter) that generates the balanced signal.

When I asked Casey Ng about the MCP-18’s circuitry, he told me: “Basically, there is no ‘secret sauce’ in the MCP-18. The only secret is that our NuForce HAP-100 and MCP-18 are the world’s lowest-cost high-performance preamps that offer a stepped attenuator. Our own P20 is

EQUIPMENT REVIEW - NuForce MCP-18 Multichannel Analog Preamplifier

\$5k and was originally intended to be the best-priced high-end preamp with a stepped attenuator. The MCP-18 has a very similar circuit and performance.”

The individual output level or trim of each channel of the MCP-18 can be adjusted independently via either its front panel or a credit-card-sized remote. The MCP-18 remote can also select inputs, adjust the overall volume, mute the signal, and turn the MCP-18 on and off. One control you won’t find on the remote is a left/right channel balance adjustment, but you can use the individual trim settings to achieve the same results.

The Setup

I used the MCP-18 as both a two-channel and multichannel preamp in my desktop and in my room-based systems. Depending on your front speakers’ capabilities, the MCP-18’s “purist” design and ergonomics may require some re-jiggering of your setup. Obviously, the MCP-18 was designed for use in a 5.1 or 7.1 multichannel system. If you have a player with multichannel analog outputs, such as the Oppo BDP-103, you merely hook up its outputs to one of the MCP-18’s two multichannel input sets, select it, and you get 5.1 or 7.1 (depending on your system’s capabilities).

With multichannel sources your source device will use its own built-in crossover system to send low-frequency information to the subwoofer and spare the front channels from low-bass duties. With two-channel sources, the MCP-18 gives you two channels of output. But what if you have a system that uses smaller front right and left speakers with limited low-frequency ca-

pabilities? With two-channel stereo sources, the MCP-18 sends the full frequency signal to your two front channels without any crossover to route bass into your subwoofers.

If you want to use your subwoofer with two-channel material you will have to do some extra work. You will need to set up a way to route your two-channel music through a crossover so that the bass will go to the subwoofer. Most subwoofers have low-pass/high-pass crossovers built into them that you could use—merely run the line-level output from the MCP-18 into your subwoofer and then use its built-in crossover. But the disadvantage of this arrangement is that when you go to a multichannel source that already has crossed-over low frequencies to a 1 subwoofer circuit, the sound will have too much bass. To go from multichannel to two-channel and back requires changing the circuit path if you want to use your subwoofers for both two-channel and multichannel material.

Many subwoofers have multiple selectable inputs. This allows you to have one input coming from the MCP-18’s sub output as well as a second input—a stereo pair coming from the MCP-18’s front left and right output, connected simultaneously to your subwoofer. The front left and right stereo feed will go through the subwoofer’s internal crossover and then to your power amplifier. When you want to listen to two-channel sources you’ll employ the subwoofer’s crossover. But when you listen to multichannel sources you’ll go directly from the sub output to your subwoofer. To accomplish this you will need to disconnect the stereo feeds from the subwoofer and connect them directly to your front-channel power amplifier.

Depending on the physical location of your subwoofer and front-channel power amplifier, the switchover could be less than convenient.

I have two Parasound P7 (\$1995) multichannel analog preamps, one in each of my two room-based systems. The Parasound P7 has very similar functionality to the NuForce MCP-18, but includes a built-in crossover for two-channel sources so that you can go seamlessly from two channels to multichannel, using your subwoofer with both kinds of sources. From an ergonomic perspective, it’s unfortunate that NuForce chose not to include a similar crossover scheme in the MCP-18.

When I set up the MCP-18 as a stereo preamplifier in my computer-audio system I used a different wiring arrangement. Since I didn’t have to worry about multichannel sources I connected the balanced XLR front left and right outputs directly to my front-channel amplifier and then connected the single-ended stereo outputs to my subwoofer. After adjusting the subwoofer’s output and crossover points, the setup was done and required no additional adjustments or cable switching.

Sound

Reviewing the sound of a preamp used to be easy. All you needed was another reference preamp that had a tape-loop circuit in it. We used to put the preamp under review in the tape loop and then switch it in and out of the circuit and compare the sound. The only preamp that I own that still has a tape loop circuit is an Accuphase C-200, and when I tried the tape-loop test I could not hear any difference when the MCP-18 was part of the circuit. Although the

Accuphase was recently refurbished and operating within spec, either the MCP-18 was completely transparent or the Accuphase was not sufficiently high resolution for me to discern the differences when the MCP-18 was in the circuit. I needed to go to plan B.

Plan B was simple—connect more than one USB DAC via its analog outputs to the MCP-18 and compare the sound. Since my next review will be of several small-footprint USB DACs, this method killed two reviews with one “Stone,” so to speak. I connected several DACs to the MCP-18 and began listening.

Comparing DACs through the MCP-18 was enlightening in several ways. First I quickly learned to love the calibrated .5 dB step increments on the MCP-18. Using test tones I was able to accurately match the output levels on multiple DACs so that when I switched from one to the other I could make sure that differ-

SPECS & PRICING

Inputs: Two RCA, one XLR, two 8-channel RCA	Dimensions: 17" x 3.1" x 13.4"
Outputs: RCA and XLR (XLR output is balanced)	Power Consumption: 1W standby, 10W operating
Connectivity: RS232 Com Port; X 1; Trigger out: X 1	Weight: 15 lbs.
THD+N: 0.002% at 1kHz	Price: \$995
S/N Ratio: 105dB	NUFORCE INC.
Frequency response: 10Hz-100kHz -0.06dB; 20Hz-20kHz -0.04dB	47865 Fremont Blvd Fremont CA, 94538 (219) 363-1328 NuForce.com

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EQUIPMENT REVIEW - NuForce MCP-18 Multichannel Analog Preamplifier

ences in their different output levels were not affecting what I heard.

Although I could not do instant A/B switching from one USB DAC to another because the switchover required first changing the MIDI Out setting in my Mac computer, then changing the input selector on the MCP-18, and finally adjusting the output levels to match, I did get to a point where the switchover took under seven seconds. During these A/B tests it became obvious that the MCP-18 was sufficiently transparent for the subtle differences between DACs to be discernable.

During my DAC comparisons I discovered that it was very difficult for me to uncover the MCP-18's intrinsic sound. When I changed DAC sources what I heard was the new DAC, not any colorations that I could attribute to the MCP-18. While I would never be so brash as to call any component completely transparent and neutral, in all my listening time with the MCP-18 I could not come up with any negative sonic characteristic that I could say was part of the MCP-18's fundamental sound.

While I would not dispute that different preamps in different systems can sound better or worse than in others, in both of my room-based systems I was hard-pressed to find any noticeable differences between the sound of the MCP-18 and the Parasound P7 on multichannel sources. On two-channel sources I did hear some differences at first, but after readjusting my subwoofer settings so output levels were identical, the differences vanished. Both preamps produced equally large soundstages with the same amount of detail, dynamic range, and depth information.

Conclusion

If you are in the market for a multichannel analog preamp, you should consider the MCP-18, regardless of how much more money you were prepared to spend. It looks good, sounds virtually invisible, and even has a remote, all for under \$1000. The MCP-18's only drawback is that it has no built-in crossover for two-channel sources, but if you have full-range front left and right speakers this may not be an issue for you.

While I still subscribe to the opinion that no active preamp can be as transparent as no preamp at all, the MCP-18 is one of the most transparent preamps I've heard. It is also the least expensive preamp I've reviewed that has such a high degree of transparency. According to NuForce's head honcho, Jason Lim, "Basically, the MCP-18 is a hidden gem in our products and on hindsight we grossly mispriced it." NuForce's "loss" could be your gain. **tas**

beyond
ordinary

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MSRP \$995



DAC-10H

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MSRP \$1,795



ST-10

Reference LE Power Amplifier
MSRP \$1,595

HOME THEATER



HDAV-30*

High Definition Audio Video Processor



MCA-K38*

Multi-channel Reference LE Class Amplifier
*Available in June, 2015

HI-END REFERENCE



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Integrated Amplifier with high performance DAC
MSRP \$2,600



Ref 20

Mono Amplifier
MSRP \$3,800

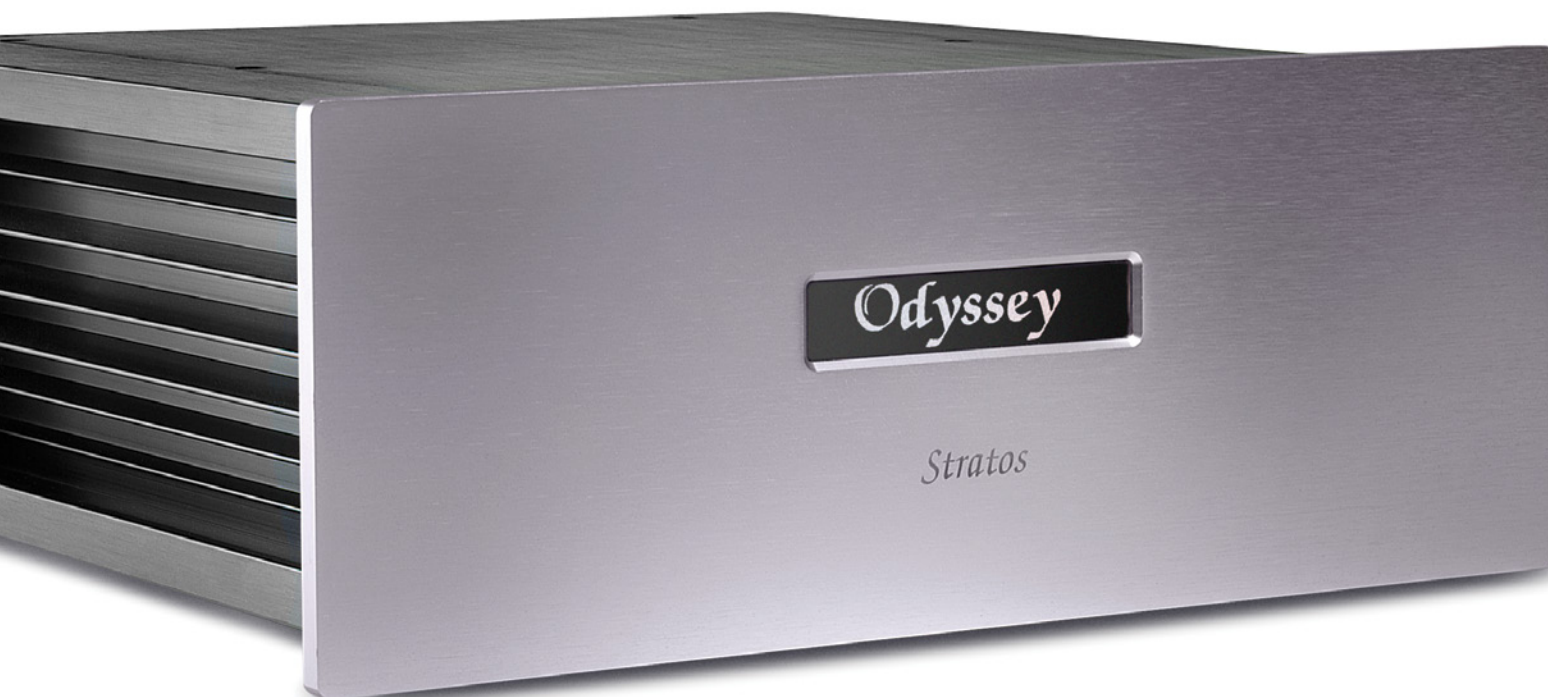
P-20

Preamplifier
MSRP \$5,000

Odyssey Stratos Monoblock Amplifier

Fabulous Value

Jonathan Valin



Those of you with long memories may recall that in Issue 195 I began my review of Klaus Bunge's wonderful \$995 Odyssey Khartago stereo amp with a disquisition on the excellence of the (then-brand-new-to-me) \$50k Soultion 710 stereo amplifier. I did this to draw a comparison between the best amp that a whole of of money could buy and the best amp that cost next to nothing.

As fate would have it, in a month or so I will be reviewing another Soultion amp, the 710's replacement, the, uh, 711. History doesn't really have to repeat itself in this case, since I've had the Odyssey Stratos monoblocks for quite some time. But why not let it repeat itself, thought I, since the grounds of the comparison are roughly the same? The \$65k Soultion 711 is the best solid-state amplifier I've yet heard in my system—in fact, the best solid-state amplifier I've yet heard. (I haven't auditioned the new Soultion monoblocks, but Robert has, and his conclusions are the same as mine.) How do Odyssey's \$2700-the-pair monoblocks hold up against the stiffest competition I can throw at them?

Of course, it is usual good practice to compare an affordable amp to something a mite closer to it in price. While such apples-to-apples comparisons are obviously fairer and more reasonable, they have also always seemed to me to be a bit demeaning, as if the reviewer were tacitly admitting that the product under test has to be held to a different standard of excellence than something that costs a whole lot more than it does. This said, I would be lying to please the "if-I can't-afford-it-it's-a-rip-off" crowd (and they are legion, folks, at least on-line) to say that I expected the Odyssey monoblocks to equal the Soultion 711 (nor do they). Despite what some pundits—and a whole lot of ignorant Internet posters—claim, most (not all) of the time you do get what you pay for in high-end audio. The question, as you will see, is whether you truly want to pay for it.

As budget-priced electronics go, the Odyssey Stratos monoblocks are unusually odd ducks—the same kinds of odd duck that the Khartago stereo amp was. Both aren't merely "based" on much more expensive amplifiers; they essentially *are* much

EQUIPMENT REVIEW - Odyssey Stratos Monoblock Amplifier

more expensive amplifiers.

To crib notes from my Khartago review, in the late Nineties Klaus Bunge, the gregarious, bear-like German expat who is the brains and most of the muscle behind Indianapolis-based Odyssey Audio (the rest of the work force are his wife and children—making the company a true family business), decided to offer a more “cost-effective” line of amps and preamps to complement the pricey Symphonic Line products he imports from Deutschland. Somehow Claus managed to talk the folks at Symphonic Line into letting him use the exact same circuits in his budget Odyssey amps that they use in their gourmet numbers. The Khartago, for instance, has specs that are almost identical—as they should be, considering that they’re virtually the same design—to those of the celebrated Symphonic Line RG 11 Mk 4. Both output 130Wpc into 8 ohms; both have a bandwidth that extends out to 400kHz; both have high damping factors, exceptional slew rates, and oodles of current. The only thing they don’t share is price. The Symphonic Line RG 11 Mk 4 is upwards of \$7000; the Odyssey Khartago costs \$995.

The same equation holds true for the Odyssey Stratos monoblocks, which use the circuit found in Symphonic Line’s RG 11 Mk 4 mono amps. Once again the specs are nearly identical (600kHz bandwidth, 180W output, 120-amp current delivery, high damping factor, etc.), and so is the considerable difference in price. The RG 11 Mk 4 monos cost \$14,000 the pair; the Stratos monos list for \$2700 (\$3400 for the Stratos Mono Extreme version with an additional 60,000→F of capacitance and a second transformer).

How does Bunge achieve this economy? First, by building and stuffing his less-costly PCB boards with his own high-quality, but less-exotic-and-pricey parts (although Odyssey does offer all sorts of parts-quality tweaks, such as Nichicon Muse caps, Vishay/Dale resistors, and extra WIMA metal-film caps, for a very modest uptick in price). Second, by sticking the amps’ innards in relatively utilitarian—albeit handsomely finished and custom-made—anodized-aluminum boxes. And third, by selling the end products factory-direct only. All this handiwork is done in the good ol’ U.S. of A., and each and every Odyssey amp comes with a twenty-year transferable warranty.

So are the Strati as good as the fabulous Khartago? In a word, yes. In two words, considerably better.

What you will get for your extra \$1700 are more power, higher resolution of inner detail, truly remarkable ambience retrieval (especially in the mid-to-low bass—for which, see below), a much better defined and extended bottom end, much wider and deeper soundstaging, and a more lifelike (which is to say, more dead-center-neutral) overall tonal balance. At the same time, you will get even more of the same virtues that set the Khartago apart—to wit, none of the customary peppery solid-state grain or background noise (and I mean none), zero added brightness and coarseness in the upper mids, zero added edge or spikiness on hard transients, and no transistor darkness in the treble (indeed, like the Khartago, the Stratos has an ARC-like touch of light and bloom on top). What you will get, in short, is a superb amplifier capable of handling any load, with no

significant weaknesses and many outstanding strengths. For the money, the Stratos is, I think, impossible to beat.

But let’s say money isn’t an object. Let’s say you’re simply shopping for the best electronics and are asking me what I’d recommend. How does the Stratos compare to the most realistic-sounding solid-state amp I’ve heard to date—the Soulution 711?

Well, it’s not quite as high in detail as the 711. On tuttis, individual players within string choirs—the CSO’s, for example, going all out on the *Feria* of Ravel’s *Rapsodie espagnol* from Chad Kassem’s fantastic reissue of *The Reiner Sound* [AP]—aren’t as breathtakingly finely differentiated as they are via the Soulution amp (or the Constellation Centaur). Having said this, I should quickly add that, compared to almost anything short of a statement-level Constellation, Pass, Boulder, Zanden, or ARC, the Odyssey Stratos is a monster of resolution. This is *not* an amp that smears inner detail; it simply doesn’t have the 711’s near-matchless way with textures, with the tiny variations in timbre and dynamics within ensembles that mikes at recording sessions tend to pick up (and ears at concert halls not so much). Trust me: Though you will hear the slight difference in resolution (if you’re listening for it), it won’t be anything close to a deal-breaker.

Next, though quite engagingly lovely in timbre, the Stratos is not as gorgeous-sounding as the 711, whose black-granite density of tone color in the bass and power range (i.e., lower mids) is both thrilling and lifelike. As I said earlier, the Stratos is dead-center neutral in balance.

Now, you could argue, with justification, that the Stratos’ essential neutrality makes it less

dark-sounding than the “bottom-up” Soulution, and consequently more open and extended in the treble, which, because of the difference in bass and power range weight and timbre, sounds more “exposed” through the Odyssey amp than it does through the 711. But I think that argument would be misleading. The 711 doesn’t have *less* treble than the Stratos; it has *more* lifelike color, energy, and weight in the bass and lower mids (and everywhere else, actually). Nonetheless, the Stratos is inarguably sweet, open, and extended in the upper octaves. Indeed, it is sweet, open, and extended everywhere it plays.

SPECS & PRICING

Stratos Mono	Stratos Mono Extreme
Power output: 180W RMS	Power output: 200W
@ 8 ohms, stable into a	RMS @ 8 ohms
2-ohm load	Bias: High Class A/AB
Bias: Class A/AB	Capacitance: Additional
Current output: 120 amps	60,000uF
Frequency response:	Transformer: Additional
1Hz-600kHz	400VA Plitron
THD: <0.04%	transformer for 800VA
Damping factor: 800	total
Input impedance: 22k	Weight: 66 lbs.
ohms	Price: \$3400 (pair)
Inputs: RCA and XLR	
Dimensions: 19" x 7" x	ODYSSEY AUDIO
18"	6731 West 79th Street
Weight: 56 lbs. each	Indianapolis, IN 46278
Price: \$2700 (pair)	(317) 299 5578
	odav@odysseyaudio.com
	odysseyaudio.com

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EQUIPMENT REVIEW - Odyssey Stratos Monoblock Amplifier

In the mid-to-low bass, the Stratos presents a real challenge to the superb Soulution. I'm sure all of you who listen to classical music are aware of the way that the deepest notes of massed cellos and doublebasses, particularly when they're accompanied or doubled by timps, can come into and go out of perfect focus on tuttis. Rather than separate harmonious instrumental lines you can on occasion end up hearing a powerful jumble, wherein the timp is hard to distinguish from the doublebasses, and the doublebasses from lower-pitched notes on the cellos. (The rock 'n' roll equivalent is, of course, Fender bass doubled by kickdrum.)

What you may not be aware of—and I, for one, wasn't—is the degree to which this slight, occasional blurring of the sonic picture is sometimes caused not by the loudspeakers interacting with the room they are playing in, but by the recorded instruments interacting with the hall *they* were playing in—or, to put this more precisely, by the amplifier's (and, subsequently, the speakers') inability to distinguish between the music and its powerful reverberation *on the recording*.

The truth of this observation was brought home to me via the Reiner LP of Ravel that I mentioned above. While the Soulution 711 (and every other amp I've tried with the D-5s) made it sound as if the Raidhos and my listening room were very occasionally misbehaving on a scant few notes in big tuttis; the Odyssey Strati made it clear that it was, in fact, not the speakers *per se* but the *interaction between* the source, the amplifier, and the speakers that was causing the problem.

Never before in my experience with this

recording—which stretches back some forty years—have I heard the reverberation of Chicago's Symphony Hall so clearly and unmistakably distinguished from the actual notes of the basses, cellos, and timp, whose individual musical contributions were also wholly clarified. In the bottom octaves, the magical separation of instrumental sound and hall sound that the Odyssey Stratos monos effected on certain *ostinatos* and tuttis of the *Feria* was astonishing, unexpected, and entirely new. What had been, in rare instances, a muddle of different events, in which the timing of sounded notes and their reverberations were seemingly compressed into a single powerful “boom,” became an orderly *sequence* of events from which all boom and confusion were eliminated. That, folks, was and is a considerable accomplishment.

Having said this, I should add there is a price to be paid for this unparalleled resolution and clarity of pitches and durations in the mid-to-low bass. While the Strati separate certain bass-range notes from their echoes with greater clarity than the 711 (or any other amp I've tried) when both are paired with the Raidho D-5s, they don't deliver the bass range or lower midrange with the same awesomely realistic power and color as the Soulution amp. Indeed, I have to think that the 711 isn't, in fact, dropping the ball on certain pitches so much as transmitting the same information with so much more energy that the D-5's woofers are, very occasionally, causing my room to add its own “ringtone” to the proceedings, where the Stratos' lighter-balanced bass doesn't trigger this effect.

Indeed, while exceedingly fast and powerful, the Strati aren't the equals of the Soulution

711 in transient speed, leading-edge definition, density of color, or sheer clout in the low end—or anywhere else. Thus, Chris Franz's machine-gun drumming at the close of “Life During Wartime” from Talking Heads' *Stop Making Sense*, while still *plenty* lifelike, doesn't have the same thrillingly realistic physical impact through the Strati that it has through the Soulution, nor is Tina Weymouth's chucking bass line as powerful and prominent. In fact, nothing—voice nor instrument—has quite the same lifelike presence through the Stratos that it has through the 711. Though you could argue that the Odyssey is the more relaxed (or neutral) presentation, I think (make that, I *know*) I'd miss the greater excitement and more beautiful tone color that the Soulution generates.

What about soundstaging? Here, the Stratos and the 711 are equals. Both reproduce a stage of impressive width and depth (on recordings that have stages of impressive width and depth), the chief difference being that what I call “action”—which is the way that instruments on the stage seemingly “bloom” into the foreground and recede into the mid- or background with changes in intensity and pitch—is somewhat better reproduced by the Soulution. (This is to be expected, given the 711's superior color, transient speed, and impact.)

On the basis of what I've just written you might think the Stratos falls short of the Soulution 711 in just about every way (save for its incredible discernment in the mid-to-low bass). And so it does. But it doesn't fall short by all that much. This is simply a fantastic mono-block amplifier, even in direct comparison to the best solid-state I've ever heard, and its shortcoming vis-à-vis the much

costlier benchmark, while audible, are matters of degree rather than outright omissions. The 711 doesn't do anything that the Stratos doesn't also do, albeit to an appreciably lesser extent, where the Stratos does do one thing—at least, in my room with my speakers—that the 711 doesn't.

As it isn't likely that those of you shopping for the Strati are going to be A/B'ing them with a Soulution 711 (on Raidho D-5s and a Walker Black Diamond V turntable), and as these Odyssey monoblocks cost twenty-four times less money than the Soulution 711 (and fifty-seven times less than Soulution's fabulous new monoblocks, the 701s), I can't recommend them highly enough.

But let me go a step further: Even if you did A/B these mono-blocks with super-amps and super-speakers (as I did), you might still find yourself pondering whether the difference in sound justifies the difference in expenditure. (That it clearly does is beside the point.) The way I see it, the fact that the Odyssey Stratos monoblocks could give even a jaded listener like me momentary pause makes them super-amps in their own right. Yes, you can buy better. The question, as I said near the start of this review, is: Do you really want to? tas

VTL TL-5.5 Series II Signature Preamplifier and ST-150 Power Amplifier

Musical Soul

Wayne Garcia



While recently listening to András Schiff's remarkable 2012 recording of Bach's *Das Wohltemperierte Clavier* [ECM]—in which Schiff, rather unusually, and to enchanting effect, employs no sustain pedals—I was struck by how this great Hungarian artist seems to inhabit the very soul of Bach's music, so beautifully and directly does he convey the essence of these intricate preludes and fugues.

Having now spent a great deal of time with VTL's TL-5.5 Series II Signature preamp and ST-150 power amp, I've started to think of them as being rather András Schiff-like, as the crux of the pleasure they deliver lies in their ability to convey the essence of whatever music you play. Like a lip-smacking bottle of wine that leaves you anticipating the next glass, this VTL tandem will have you excitedly pulling out record after record.

VTL's goal in designing the ST-150 was to create a relatively compact yet powerful stereo power amplifier employing 6550 tubes capable of driving a wide range of speaker loads, "as opposed," VTL's head Luke Manley explained, "to the EL34s that we use in other products in the Performance range." Compared to EL34s, Luke says the 6550s offer the ability to operate in either tetrode or triode modes, and provide better bass wallop and linearity, and an extended well-defined treble. Manley described the \$6000 ST-150 as a classic all-tube push/pull power amp delivering 150Wpc in tetrode mode, and, via the flick of a rear panel toggle, 70Wpc in triode operation, with a parallel 12AT7 input stage and 12BH7 long-tailed phase-splitter driving the push-pull output stage. "A fairly

standard, simple circuit," said Luke.

While I wouldn't like to get in the habit of comparing the two tube operating modes every time I play a piece of music, I did find that, generally speaking, the more powerful tetrode state was the obvious choice for rock, large orchestral and opera, and hard-driving jazz, while the triode circuit, with its extra sense of bloom and the third dimension, was preferable for chamber music, folk, and generally lighter, more intimate forms of music.

The ST-150's manual bias adjustment is fairly straightforward, even for a decidedly non-technical type such as myself. It does require removing the cage and a few tools such as a good voltage meter—that VTL was kind enough to provide—and I found that checking bias every three months or so is the best way to keep the ST-150 in top operating condition.

Finally I must say that, living in a small San Francisco house, I grew to appreciate the ST-150's notably compact footprint (19" x 10" x 9"). This is a high-performance amp that can find a home in pretty much any size listening room.

As for the ST-150's companion preamp, the TL-5.5 Series II Signature preamp was initially introduced in 1997 and has been seriously improved using technologies found in the flagship TL-7.5 Reference Series III (\$20,000) and TL-6.5 Signature Series II (\$13,500). These are, respectively, well over and nearly double the TL-5.5 Series II's price. That said, the 5.5 II 'taint exactly chump change, selling for \$8000 as a linestage only, and \$10,500 with its optional internal phonostage, which is how I elected to review it.

Another difference between these three top VTL models is that the 6.5 and 7.5 are hybrid

EQUIPMENT REVIEW - VTL TL-5.5 Series II Signature Preamplifier & ST-150 Power Amplifier

designs employing FET buffers, whereas the 5.5 shares their basic circuit, but uses tube buffers, which makes the 5.5 Signature II VTL's top all-tube model.

The optional phonostage is derived from VTL's standalone TP-6.5 phono preamp, and Luke Manley believes the performance of the 5.5 version comes close to that of the pricier separate unit. Indeed, during a visit from Manley and his wife, Bea, Luke popped the top on the TL-5.5 Series II in order to adjust (via jumpers) the load of the phonostage, revealing just how much space the phono section occupies within the chassis. It's a surprising chunk of real estate, but as Manley said, "We felt it was important to have as much of the TP-6.5's sound as possible."

This topless view also gave me an appreciation for the overall build and layout quality of the design. Keeping with the fully balanced idea, the phono section delivers a balanced signal to the balanced linestage, which creates a balanced output from the single-ended input.

As Luke explained it, the volume control is largely responsible for delivering the linestage's high-resolution performance. A chip-based control designed specifically for audio use, it has no crossing detection or internal op-amp buffers, which Luke tells me would degrade the sound. Instead VTL employs its own JFET buffer design, the same one used in its stand-alone phonostages. The volume chip operates at an unusually high 15 volts, which Luke explained allows for optimum signal headroom. Moreover, it's a dual-chip design, operating in differential mode—one chip per channel—that controls both volume and balance, thus avoiding running the signal through

the more commonly used, lossy, wiper-type volume control.

Via an e-mail exchange Luke added, "In designing the Series II version of the TL-5.5 we wanted to keep as much of the user interface and sonic capabilities of the more expensive TL-6.5 and 7.5, but offer a full-function preamp for people who require phono. We designed in the precision regulated power supplies in both the linestage and the phonostage that we use in the more expensive models, and I feel this gives the preamp its sonic precision and refinement."

His point is that VTL worked hard to pack a lot of price-to-performance value into the TL-5.5 Series II. In my experience it has succeeded marvelously.

I also appreciate the 5.5 II's features set, which, via either the front-panel buttons or remote control, allows users to select from among eight inputs, engage an external processor, select a mono mode, control absolute polarity as well as balance, and (of course) set volume. As noted earlier, you have to crack the lid to adjust phono loading, and once inside you can also tweak the gain for phono, as well as for high-level sources.

I was rather bummed recently to miss a series of local 50th Anniversary concerts that Ravi Coltrane had planned in celebration of his father's *A Love Supreme*. But it did trigger me to immerse myself in the superb sounding Acoustic Sounds 45rpm reissue of this extraordinary musical offering. Here is another fine testament to the VTL duo's musical soul. And indeed, I can think of no finer compliment to these designs than to tell you that, except when

taking the necessary notes for this review, contemplating the "sound" of this gear was pretty much the furthest thing from my mind. After all, who wants to listen to gear? The gear is merely a conduit for the music. Right? Well, that's like, my opinion, man....

But *you* want to know what it sounds like, so let's get back to *A Love Supreme*. First, harmony. By that I refer to the harmonious interplay of Coltrane's great quartet. Their collectively raw yet beautiful power, energy, and brilliance as a group is the key to this ecstatic, near-hypnotic gift to Coltrane's God, as well as to us, the listeners. From the start of "Acknowledgement," with Jimmy Garrison's four-note bass recitation of "a love supreme," Coltrane's lengthy, unfolding, gospel-like tenor, McCoy Tyner's insistent chord progressions, Elvin Jones' syncopated rhythm and delicately shimmering ride cymbal, the music, no matter one's religious bent (or none, for that matter), is as powerfully spiritual as it gets. And through this VTL pair there was a strong degree of transparency back to the session, an immediacy that makes one feel transported via time capsule to Rudy Van Gelder's studio on a December day in 1964.

But beyond this sensation of the musicians' presence is another kind of harmony created by these designs, the kind that, taken altogether, creates a seamless sense of bottom-to-top tonal coherence, dynamic push, and resolution to create a thrilling sense of aliveness and of the music-making process. These things are hard to articulate, but most of you reading this magazine have most certainly experienced that sense of being transported while listening to great music over great gear.

SPECS & PRICING

TL-5.5 Series II Signature Preamplifier	Dimensions: 19" x 10" x 9"
Inputs: Two pairs balanced XLR or single-ended RCA (optional mm/mc phono cards); six pairs single-ended RCA	Weight: 100 lbs.
Outputs: One pair single-ended RCA, one pair buffered RCA (tape)	Price: \$6000
Tube complement: Two 12AU7, four 12AT7 (line stage), two 12X7, two 12AX7 (mm), two 12AU7 (mc)	VTL 4774 Murrieta Street, Unit 10 Chino, California 91710 (909) 627-5944 vtl.com
Dimensions: 17.33" x 3" x 15.5"	ASSOCIATED EQUIPMENT Rega RP10 turntable and Apheta MC cartridge; Pro- ject Xtension 10 turntable with Sumiko Palo Santos cartridge; Sutherland Engineering N1 preamp; Primare A34.2 power am- plifier; TEAC HC-501CD/ SACD Player; Magnepan
Weight: 30 lbs.	MG 1.7 loudspeakers, Tara Labs Zero interconnects, Omega speaker cables, The One power cords, and BP-10 Power Screen; Finite Elemente Spider equipment racks
Price: \$8000 (linestage only), \$10,500 (with internal phonostage)	
ST-150 Power Amplifier	
Power output: 150Wpc into 5 ohms (tetrode); 70Wpc into 5 ohms (triode)	
Inputs: One pair single-ended RCA	
Tube complement: Eight 6550, two 12AT7, two 12BH7	

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EQUIPMENT REVIEW - VTL TL-5.5 Series II Signature Preamplifier & ST-150 Power Amplifier



Natural instrumental textures, for me, are another important key to surrendering to reproduced music. Here, Coltrane's tenor sounds big and meaty, airy and brassy—you can practically feel the wind blowing through the bell. It's intense, but warm of tone and never hard or unpleasantly brash. And this from one of the hardest blowing, least inhibited of all horn players. Garrison's bass sounds man-sized and cavernous of body, with softly textured strings and a warmth reminiscent of fine Kentucky

bourbon. Tyner's piano is a percussive force to compete with Elvin Jones's kit, but with great harmonic richness. And via VTL, Jones, surely one of the most distinctive voices to ever sit behind a drum kit, conveys a kind of contained frenetic motion—always highly articulate, passionate, driving, attention-grabbing but never less than supportive, with a palate of tones and textures as richly painted as one can imagine from stretched skins, brass cymbals, sticks, and mallets.

By the end of this four-movement suite, pushing it to levels right at the edge of my Magnepan 1.7s' comfort zone, the ST-150 never lost its composure or sounded as if it was running on fumes. Indeed, I'm sure this music left me feeling more breathless than the amplifier was.

Of course, the personality traits described above translate across all musical genres. And part of the pleasure *and* value of gear like this is that it regularly leads to crazy-fun listening sprees wherein many neglected or perhaps forgotten sides gain temporary freedom from their place on the record shelf. For example, one night after playing Dylan's *Blood on the Tracks* followed by *Desire* [Columbia LPs]—great music, hardly state-of-the-art recordings, but immediate and communicative in their own ways, and thoroughly engaging with this VTL pair—something compelled me to pull out the original Reference Recordings LP, *Ravel*, with Stanislaw Skrowaczewski and the Minnesota Orchestra.

Perhaps it's because I, like so many audiophiles, have fond memories of the Turnabout box of Ravel's music from the same orchestral team. Regardless, there I was at midnight lis-

tening to, of all things, *Bolero*. This has never been a favorite of mine and indeed it often baffles me that the man who wrote my beloved *Gaspard de la nuit* also composed many a slutty cheeseburger. Regardless, there I was, at midnight, *ahem*, enjoying *Bolero*. And Keith Johnson's excellent recording certainly allowed the VTL gear to shine. My Maggie 1.7s performed a pretty impressive disappearing act, with a stage as wide as the room and a depth that seemingly stretched far outside its rear wall. The hall's ambience was quite apparent, with a finely delineated sense of air around the players. Of course, *Bolero* is all about the slow simmer, and Johnson's recording is a study in subtle dynamic shading, building, like a Burgundian vineyard, layer upon layer of dynamic gradation as well as orchestral texture as the orchestra swells in ranks and volume to its final, roaring, cymbal-crashing climax.

This actually strikes me as one of Johnson's most natural-sounding efforts, without what I sometimes feel are exaggerated dynamic swings and deep bass power shots. Indeed, the sheer sonic thrill of it all made me feel like a budding audiophile again, as I submitted to the waves of gorgeously natural instrumental tones and textures, to the three-dimensionality, and precise sense of imaging.

So I continued with the *Pavane*, another guilty pleasure of shimmering, silver-laced strings, weightless-as-cobweb harp strings, winds as delicate as an angel's breath.... Goodness, look what happens to a jaded audiophile like me when the equipment is capable of sweeping us so completely into the music—and yes, ravishing sound.

At Luke's urging I also played the TL-5.5 Series II Signature through a solid-state amp, in this case Primare's A34.2 (review forthcoming). The results were impressive, showing that the preamp can bring many of the qualities described above to music lovers who may shy away from the all-tube route, and reminding a potential buyer that, if he loves the warmth, air, and texture of the best tube designs (without, allow me to add, the overly colored timbres and poorly controlled bass of some models) and is willing to futz with biasing and occasional tube failures, then there is greater pleasure yet to be had pairing up these units, as I was lucky enough to do for the duration of this review process.

Circling back to Schiff's recording of *Das Wohltemperierte Clavier* actually left me feeling that my old favorite, Glenn Gould's on Columbia, seemed mechanical by comparison (and this on LP vs. Schiff's ECM CD). While Schiff's pedal-less account won't be for all ears, I find it compellingly convincing as well as poetically beautiful. The VTL pair delivered Schiff's thoughtfully artful and highly articulate account with precision as well as an almost golden, lit-from-within sound to the piano.

As is obvious, for these ears (and this heart) VTL's TL-5.5 Series II Signature preamp and ST-150 power amp are remarkably successful at delivering on all fronts—thrilling in the ways that can arouse the latent audiophile within while drawing him deeply into all spectra of music. And what more, I ask, can we ask from our systems? TAS

Classé CP-800 Preamp and CA-D200 Amplifier

High-Tech Hi-Fi

Neil Gader

There was once a simpler time in the high end. Performance was in large part defined by component minimalism: an austere, stripped-down, hair-shirt aesthetic that shunned extraneous complications and pretty much shrugged off user convenience. The mantra was, above all, sonic purity. Tone controls, lighted displays, and remote controls? Not a chance. But today's high end is also married to the world of digital technology, computers, and communications. And that world has seen sweeping changes that have swept us along with them. Electronics are now expected to thread the needle between the analog and digital worlds. This has given rise to powerfully versatile components like the Classé CP-800 preamp/processor and its 200Wpc partner, the CA-D200 stereo amplifier.



EQUIPMENT REVIEW - Classé CP-800 Preamp and CA-D200 Amplifier

If the CP-800 designation sounds a tiny bit familiar at this point, it should. Jacob Heilbrunn reviewed an earlier version of the CP-800 in Issue 230 a couple years ago. Recently, however, some noteworthy upgrades suggested it was time for a return visit. Let's review: The CP-800 is still Classé Audio's top-tier analog preamplifier. It's a highly configurable and handsome beast, outfitted with an onboard DAC and well appointed with a sophisticated kit of digital processing options. Its internals include fully balanced circuitry and completely isolated, symmetrical left and right channels. The stereo DACs are Wolfson 8741s, two per channel, in a dual-differential design. An mm/mc phono-stage is also available as an option.

Visually the familiar Classé profile has aged well since the Delta Series launched in 2004. Its wrap-around aluminum front panel softens the often hard-edged cosmetics of most electronics brands. Its dominant feature is the LCD touchscreen display—now with a modern 16x9 aspect ratio. In fact, the touchscreen is responsible for so many functions that without it the CP-800 would be overrun with buttons and toggles. Fortunately, the screen is very legible, responsive to touch commands, and logically laid-out. There is a large, traditional volume-control knob to the right of the screen, along with a 1/4" headphone jack and a USB input for portable devices.

Once I familiarized myself with the comprehensive and graphically rich instruction manual (all fifty-plus pages' worth!), I found that the CP-800's menu windows were eas-

ily navigable, with clear and intuitive icons. The hefty remote control has a full complement of functions. (See Technical Sidebar.)

The big news and the primary reasons for revisiting the CP-800 are twofold: The asynchronous USB input, which is powered by its own galvanically isolated power supply, now supports full-bore 192kHz signals rather than the 96kHz of its predecessor. Even more welcome is the addition of network connectivity via Ethernet. Previously relegated to an inoperable back-panel input, this feature has been activated and offers streaming options including Apple AirPlay and DLNA. With the CP-800's own oscillators controlling timing for D-to-A conversion, files up to 192kHz can be accommodated.

The CA-D200 stereo amplifier is the first Class D amp to carry the Classé name—an important development for a company long devoted to Class AB. The CA-D200 is rated at 200Wpc into 8 ohms (400Wpc into 4 ohms) and uses a proprietary-designed switch-mode power supply (SMPS) with power-factor correction (PFC) and switching amplifier stages. Classé says that DSP is used to "optimize the performance of the system, lowering the dead-band-time—the gap produced when the plus and minus halves of the switching amplifier's output stage are both off, and considered the Achilles' heel of earlier Class D designs—to a vanishingly low three nanoseconds or less." Because of this reduction, distortion and noise have been markedly reduced in the bargain. It also enables the minimal use of overall negative feedback, another potential boon to performance.

System Tech & Setup Features

From any angle, the CP-800 reflects Classé Audio's extensive experience in the stereo, multichannel, and digital landscapes. The back panel is a case study in the art of connectivity. It's well laid-out and spacious enough for even the larger breed of cable terminations. The upper bank houses eight digital inputs including AES/EBU and USB, plus multiple SPDIF and TosLink. The bottom section houses analog inputs—three RCA and a pair of XLR. Additionally there are five analog amp outputs—a pair for the main R/L plus an aux pair for biamping, and a fifth output for a dedicated subwoofer. Put another way, this rig swallows up sources and devices like a vacuum cleaner. Even connecting to my home network was uneventful. Streaming from my NAS was only a matter of adding a media player like PlugPlayer or JRiver to my iPad.

The system's touchscreen set-up menu allows tailoring of inputs to specific source components. There are six different loudspeaker configurations for each input source; this feature will appeal to users who might elect to add a subwoofer to a stereo setup to create a 2.1-channel system, or to optimize a multichannel setup for stereo, multichannel music, or cinema listening. Input configurations include enabling balanced (XLR) and/or single-ended (RCA) outputs for main, aux, and subwoofer channels.

Within the source configuration menu, a myriad of options await. You can rename the input, assign a connector, determine input offset (+/- 10dB), enable or disable inputs, bypass DSP and pass-thru options. For example, given that most users will have fewer sources connected, the source selection page(s) can be simplified by un-

checking the Enable Source box for each unused input. Doing so removes the corresponding source button from the source selection page.

The CP-800 DSP section is driven by dual Analog Devices Sigma chips that control bass management, tone controls, and parametric equalization. DSP is also defeatable using the Digital Bypass option that switches off the digital clocks and permits the signal to remain in the analog domain.

For example, when a subwoofer is selected in the speaker configuration window, the Bass Management button appears. The user can then set crossover frequency and slope, select a high-pass filter, or enable stereo or two mono subwoofers. Also, the tone control is configurable either as conventional bass and treble controls, or as a tilt control. In either configuration, the maximum boost and cut is 6dB. The default setting configures the tone control as a tilt control with low- and high-frequency 3dB points at 200Hz and 2kHz, respectively. These values are user-adjustable, allowing customization of the frequency ranges. The tilt control will adjust frequencies above and below these inflection points by tilting the tonal balance in one direction or the other, stepping the higher frequency range up or down in 0.5dB steps, while simultaneously stepping the lower frequency range in the inverse direction, down or up, leaving the frequencies in between unchanged.

The full-featured, backlit remote control is excellent; however, once the CP-800 is connected to a home network, I recommend using the Classé App, which is available free of charge in the Apple App store. The Classé App allows enhanced functionality compared with the IR remote, and control can be exercised without line-of-site contact with the unit.

EQUIPMENT REVIEW - Classé CP-800 Preamp and CA-D200 Amplifier

Day-to-day living with the Classé was both a pleasure and a real eye-opener in the way it illustrated the ever-shifting nature of the high end. Whereas once upon a time my source components were limited to a turntable and a Dolby cassette deck, I took stock of all the sources driving the CP-800's during the evaluation and it was a like a population explosion. There was the ever-faithful turntable, CD transport over SPDIF, an HD-DVR, Blu-ray player, Lumin Music Player on the network with twin NAS drives, Apple TV, and a handful of USB thumbdrives. And they were all playing nicely, thanks to the CP-800's copious input selection and switching flexibility.

For listening I mostly used the CP-800 as a renderer, augmented by routing my MacBook Pro into the CP-800's back-panel USB input. Since I already have a Synology NAS on my wireless home network serving the Lumin A-1 Music Player, it was an easy task to connect another Ethernet cable from the router to the CP-800.

One of the first impressions I gleaned with the Classé separates was a tonal consistency across the spectrum that was neither significantly dark nor light, or if you prefer, neither yin nor yang. Top-end detail was uncluttered, and there was no hazy ceiling clouding the soundspace. These electronics were richly alive, viscerally musical, and dynamically charged. The combo most certainly did not follow the pattern of early Class D-driven systems that seemed to address only surface issues of music reproduction and tended to miss the finer points of low-level detail, ambience retrieval, and three-dimensionality. Classé may not have

been first to the Class D party, but its arrival was worth the wait.

Sonically the CP-800/CA-D200 has a character that admirers of top-notch solid-state will immediately cozy up to: tight, crisp, tuneful bass response, a well-proportioned midrange, and a top end that seems to extend skyward. Perhaps its greatest strength is just how clean and fast and focused even the smallest musical transitions that it conveys are. The entrances and exits of individual notes emerge and recede into the recording venue's inky black silences, pure and unfettered by noise or coloration. Whether it's a churning beat from a high-hat or the distant slap-rattle of a tambourine, or the articulation of a lightning-fast series of notes coming off a concert grand, the Classé is as sure-footed and nimble as they come. The same traits apply to the low-level transparency of, say, the soft string arpeggios from a concert harp, or the steely peal of a percussionist's triangle. These electronics allow me to peer ever-deeper into the SACD mixes of the Police's "Murder by Numbers" and BS&T's "And When I Die," both tracks heavily accented by dense high- and low-level cues of polyrhythmic percussion and drumming—complex inner phrasing that can be easily smeared through inferior electronics.

Measured against a couple of benchmark competitors that I've spent many hours with, I felt the Classé duo could benefit from a little more Pass Labs-style bloom in the midbass and a greater sense of MBL warmth and elasticity in the top end. And compared with a fine tube preamp such as the Rogue RP5 (review forthcoming), I'd have to say that the CP-800 is a

bit drier and cooler in personality overall. However, for sheer off-the-line speed, and its ability to convey venue dimensions or a studio recording's reverberant decay, the Classé is pure, ah, class.

Inevitably I turn to vocals to define a component's mid- and upper-middle range qualities. Listening to Jane Monheit's cover of Joni Mitchell's "A Case Of You," I was quickly swept up in the rich, airy expressiveness of this intimate song about love and obsession [*Come Dream With Me*]. The Classé was discerning in the way it revealed low-level subtleties, from the fretless bass to the shimmering accents of the soft percussion arrangements. Further, opera singers and choruses presented wonderful instances of what the Classé was capable of doing with the unamplified human voice in large acoustic spaces. As I listened to the Beethoven Ninth's "Ode To Joy," I heard the bass/baritone soloist fashion an aura of sound that seemed to fan out into the venue as their voices gradually began to decay. Similarly, the large chorale's finer dynamic gradations seemed to expand and contract the venue's boundaries like the pleated bellows of a giant accordion.

As long as I've been acquainted with the high end, simplicity has always been the watchword. Therefore, the traditional audiophile in me should hate all the perks and plusses that largely define the CP-800 and CA-D200. But that didn't happen.

Actually something indescribably magical occurred every time I began listening through these electronics. Poof, they were gone. I flat-out forgot about them and simply settled back and enjoyed the musical moment.

So maybe I've inadvertently stumbled onto the point Classé Audio is making—that in spite of its deep well of high-tech features that both inform and coddle the user, the Classé electronics are really first and foremost about superbly refined music reproduction living in peaceful coexistence with the industry's latest advancements. That's a future we all can live with. Well played Classé Audio, well played, indeed. *tas*

SPECS & PRICING

CP800 Preamplifier/Processor	CA-D200 Amplifier
Type: Solid-state preamplifier/processor	Type: Solid-state Class D amplifier
Inputs: Analog, three RCA, two XLR; Digital, four optical, three SPDIE, one AES/EBU, one USB	Number of channels: Two
Outputs: Analog, five RCA; five XLR; triggers, Ethernet	Power output: 200Wpc into 8 ohms (400Wpc into 4 ohms)
Dimensions: 17.5" x 4.78" x 17.5"	Dimensions: 17.5" x 4.78" x 16.5"
Weight: 33 lbs	Weight: 28 lbs
Price: \$6000	Price: \$4000
	B&W GROUP LTD. 5070 François Cusson Lachine, Quebec Canada H8T 1B3 (514) 636-6384 0614 classeaudio.com

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Constellation Audio Inspiration Series Preamp 1.0 Linestage, Stereo 1.0 Stereo Amplifier, and Mono 1.0 Monoblock Amplifiers

Progeny

Robert Harley

I get more reader letters complaining about the prices of some of the products we review than on any other topic. Six-figure amplifiers are bound to offend many sensibilities. But I'm about to demonstrate how the development of those cost-no-object components can benefit music lovers of more modest means.

Exhibit A is the new and relatively affordable Inspiration Series electronics from Constellation Audio. You may recall that back in 2008 this newly formed company launched a no-holds-barred assault on the state of the art in solid-state amplification by assembling a team of the world's greatest electronics designers—a "constellation" of audio stars, if you will, that included Peter Madnick, Bascom King, the late James Bongiorno, John Curl, and Demian Martin. They were given a mandate to do the best work of their illustrious careers without regard for time or cost. No idea,

design, or implementation, however expensive or exotic, was off the table.

The result of that effort was the \$65,000 Altair preamplifier and \$140,000-per-pair Hercules monoblock power amplifiers. The design and execution of these electronics were beyond heroic. To give you but a single example, the Altair's volume control attenuated the signal by inserting in the signal path a single resistor—without any mechanical connections or relays. This feat was achieved with an elaborate circuit that involved 48 pairs of light-dependent resistors, corresponding LEDs, and a DAC, all under software control. (I could have cited any number of additional cutting-edge circuits developed for the Reference Series—this was clearly a landmark effort.)

So how did the Reference Series sound? In my review in Issue 215, I concluded, "Constellation has established a benchmark against which all other linestages and power amplifiers can be compared."

Constellation followed that success with the

EQUIPMENT REVIEW - Constellation Audio Inspiration Series

Performance Series that included the \$24,000 Virgo preamplifier and Centaur power amplifier (\$24,000 stereo, \$54,000 monoblocks). The Virgo and Centaur employed the same circuitry as the Altair and Hercules, but in less elaborate implementations. The Performance Series delivered a surprising degree of the Reference Series' magic at a still high, but less-than-stratospheric price. The Virgo II and Centaur monoblocks sound so good that I've used them in my system for most of the past year driving the Magico Q7s.

Looking back now, I can see that the development of the Altair and Hercules wasn't purely intended to sell \$65,000 preamps and \$140,000 power amps. Rather, Constellation wanted to create platforms for discovering optimum circuit topologies and to establish a performance benchmark. Once created, the reference-level products would inform more affordable implementations that would be accessible to a wider audience. In my view, the ultimate goal of the Altair and Hercules design project was the Inspiration Series reviewed here.

It sounds simple in theory, but creating a successful trickle-down model is easier said than done. It requires that the initial development effort produce components that are truly world-class—which is far from a given. Then the reference-level products must sell in sufficient numbers to sustain the company. Finally, the firm's founders must possess long-term vision, not to mention adequate capitalization. But when it works, trickle-down engineering can bring to mid-priced products the essential DNA of cost-no-object components.

The three products in the Inspiration Series

are the Preamp 1.0 linestage (\$9000), Stereo 1.0 stereo power amplifier (200Wpc, \$10,000), and Mono 1.0 monoblock power amplifiers (400W, \$20,000 per pair). Although not budget-priced by any stretch, Constellation products at these prices represent quite a breakthrough. This is particularly true when you consider that the Inspiration Series uses exactly the same audio circuits designed for the Altair and Hercules. The \$9000 Preamp 1.0's schematic (and even the audio circuit-board layout) is identical to that of the \$65,000 Altair (and to the Virgo). The Stereo 1.0 and Mono 1.0 amplifiers employ the identical topology as the Hercules, along with many of the same components, including the transistors in the input, driver, and output stages. The cost savings are realized with simpler implementations of the same fundamental platforms. The circuit design isn't what's expensive in an audio component (after the R&D has been amortized), so why not use the best topology at every price level? I don't think I've encountered an example of trickle-down engineering in which the progeny hews as closely to the parent as it does here (see sidebar for details).

Even the Inspiration's styling, build, and visual aesthetic come close to those of the Performance and Reference Series. I had the \$24,000 Virgo II and \$9000 Preamp 1.0 in my rack at the same time, and sometimes had to do a double-take to know which was which. A closer look, however, reveals some clever techniques for saving money on the casework without diluting the aesthetic. The Preamp 1.0's front panel, for example, is flat rather than sculpted, and the aluminum case is smooth instead of

rippled. The same is true for the visual difference between the Centaur power amplifier and the Stereo 1.0. Yes, the Performance Series has a more upscale look, but if you didn't see the Inspiration side-by-side with it, you could easily believe that the Inspiration preamp and amplifier carried Performance Series price tags.

I'm in the fortunate position of having had Reference, Performance, and now Inspiration electronics in my home for extended auditions. Although the Reference Series was returned a long time ago, I still have the Virgo II preamp and Centaur monoblocks on-hand for direct comparison with Inspiration. It's been fascinating to hear how Constellation has taken that original groundbreaking design and translated it into products that cost a fraction of the originals. Consider that the Inspiration Stereo 1.0 is just 7% of the Hercules' price. But how much of what made the Reference Series so special ended up in Inspiration?

Quite a bit, it turns out. For starters, the fundamental "Constellation sound" survives intact down the line. By "Constellation sound" I don't mean a set of easily identifiable colorations. Rather, I'm referring to the brand's most salient and salubrious sonic qualities. First among these is the extraordinary transparency—the impression of hearing back through the playback and recording chains to the original musical event. The Constellation electronics have so little opacity that it's as though I could sense the air in the room in which the music was performed. The second defining character of Constellation electronics has been a treble presentation that's unique among amplifiers, in my experience—exceedingly highly resolved

SPECS & PRICING

Preamp 1.0	Weight: 55 lbs.
Inputs: Four balanced, four unbalanced (USB input for control)	Dimensions: 8.5" x 17" x 19"
Outputs: Two balanced, two unbalanced, 12V trigger	Price: \$10,000
Input impedance: 20k ohms balanced, 10k ohms unbalanced	Mono 1.0
Output impedance: <50 ohms	Power output: 400Wpc into 8 ohms, 800Wpc into 4 ohms (1kHz, 0.2% THD)
Weight: 25 lbs.	Inputs: Balanced, Constellation Direct (balanced), unbalanced
Dimensions: 17" x 5.25" x 15"	Input impedance: 20k ohms (balanced, Constellation Direct), 10k ohms (unbalanced)
Price: \$9000	Output impedance: 0.1 ohm
Stereo 1.0	Gain: 14dB unbalanced, 26dB balanced
Power output: 200Wpc into 8 ohms, 400Wpc into 4 ohms (1kHz, 0.1% THD)	Weight: 55 lbs each
Inputs: Balanced, Constellation Direct (balanced), unbalanced	Dimensions: 8.5" x 17" x 19"
Input impedance: 20k ohms (balanced, Constellation Direct), 10k ohms (unbalanced)	Price: \$20,000 per pair
Output impedance: 0.1 ohm	CONSTELLATION AUDIO
Gain: 14dB unbalanced, 26dB balanced	3533 Old Conejo Road, Suite 107 Newbury Park, CA 91320 constellationaudio.com

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EQUIPMENT REVIEW - Constellation Audio Inspiration Series

yet exceedingly delicate and refined.

This combination of transparency and resolution without etch that defines the brand was readily apparent in all three Inspiration products. I have so much experience with Constellation that there was no mistaking the Inspiration's crystalline transparency and openness for anything else. This see-through quality didn't just allow me to hear instruments in the back of the hall or deep into a multitrack mix; it also conveyed an impression of immediacy, of the air in which the instruments exist being "charged" with the life and vitality of the hall or studio. Many otherwise excellent electronics overlay the presentation with a kind of electronic haze that dilutes this impression of "aliveness," but the Preamp 1.0 and both Inspiration power amplifiers produced a sound that made me feel as though I were in the presence of the original music-makers. This quality goes a long way toward promoting deep immersion in the music.

The Inspiration's resolution was far beyond what I expected at this price. The treble, in particular, had that unmistakable delicacy and inner detail that most electronics smear. Think brushes on snares, hi-hat, tambourine, and other percussion instruments with very fine micro-dynamic structures. Many electronics are resolving, but not in the same way as Constellation's products are. What makes this brand special is the subtlety and refinement with which treble detail is presented. This isn't detail for the sake of detail, but rather an understated sophistication that provides all the cues that make instruments sound lifelike. Consequently, the top end is silky smooth and

perfectly integrated into the musical fabric without any metallic edge. The Virgo and Centaur are, not unexpectedly, smoother in the top end than the Inspiration electronics, but that doesn't take anything away from the Inspiration's achievement.

There's another Constellation quality that the Inspiration preamp and amp embody, and that's a lack of tonal and spatial homogenization. Even compared with mega-buck amplifiers, the Inspiration is superb at defining individual instruments within an ensemble. The Inspiration's ability to differentiate tonal color, even among the individual brass and woodwind instruments in a big band playing unison phrases, is up there with the best amplifiers I've heard. Speaking of tone color, the Inspiration comes very close to maintaining the richness and saturation I've heard in the Performance and Reference Series. The Preamp 1.0, however, doesn't have quite the textural density and timbral warmth of the Virgo II. Timbres are more richly portrayed through the Virgo II—more "meat on the bone." The Preamp 1.0 is a little leaner by contrast with less apparent density in the lower mids. Nonetheless, we're talking about reference-level tonal quality in the Virgo II, a level to which the Preamp 1.0 comes very close. In fact, the Inspiration's tonal beauty may be unprecedented at this price.

Incidentally, I found the "preamp bypass test" a useful tool in hearing exactly how each preamplifier affected the signal passing through it. I first drove the Stereo 1.0 with the output from the Berkeley Alpha DAC Reference with no preamp in the signal path. I then inserted into the signal path the Virgo II set at unity gain (the

DETAILS

The Preamp 1.0 looks very much like the Virgo, with a front-panel display flanked by two large knobs, volume and balance. Inputs and outputs are identical in the two preamps—not surprising since they are built with the same audio circuit board. Four balanced and four unbalanced inputs are provided, along with two balanced and two unbalanced outputs. The front-panel display shows the selected input along with the volume-control setting. The Preamp 1.0's machined aluminum remote is the same as that supplied with the Virgo. The remote's contoured shape, large buttons, and sensible layout make it easy to use. But as with the Virgo, the Preamp 1.0 isn't perfectly responsive to commands from the remote. For example, if you want 1dB more level (two 0.5dB steps), pushing the remote's volume up button may not immediately change the level, or it may increase it by 2dB. This happens only occasionally, but it does happen.

The Stereo 1.0 and Mono 1.0 look the same, and act identically. The front-panel operation is the same as the Centaur; a wide horizontal bar, hinged at one end, is pressed to turn the amplifier on and off, as well as to put it in Mute mode. A hard-mute switch is also included on the rear panel. The front-panel bar contains a tri-color LED that indicates the amplifier's operational status. Note that the Mono 1.0 isn't a stereo amplifier that is bridged into mono. This means that if you buy a Stereo 1.0 now you can't buy another Stereo 1.0 and convert them to a pair of mono amps.

Inputs include one unbalanced, one balanced, and an input marked "Constellation Direct." The latter input bypasses the power amplifier's input stage, but can be connected only to a Constellation preamp. The power amplifier's input stage, which is bypassed when using the Constellation Direct input, assures perfectly matched amplitude between the positive and negative halves of the balanced signal. But because that balancing circuit is the last stage in Constellation preamplifiers, it's superfluous in the power amp. This arrangement removes from the signal path one entire active stage.

input level was the same as the output level). I repeated this comparison, this time with the Preamp 1.0 in the signal path. The bypass test allows you to compare the preamplifier under evaluation with no preamplifier.

Soundstaging is outstanding for a preamplifier and amplifier of any price. Inspiration has a huge, open, and airy presentation that easily makes the loudspeakers disappear. Soundstage dimensionality is also sensational, and among the best of the amplifiers I've heard.

Just like its antecedents, the Inspiration excels at portraying the bloom around instrumental outlines. The Virgo II and Centaur monoblocks are a touch wider and deeper, but this essential characteristic remains intact.

There's one area in which the Inspiration power amplifiers depart from the sound of the original Reference Series and of the Centaur amplifiers—the bass performance. In my previous reviews of Reference and Performance I've noted that both tend toward a more polite,

EQUIPMENT REVIEW - Constellation Audio Inspiration Series

SIMILARITIES AND DIFFERENCES BETWEEN REFERENCE, PERFORMANCE, AND INSPIRATION SERIES

So, what exactly are the technical differences between the Reference, Performance, and Inspiration Series? Looking first at the Preamp 1.0, its circuit topology is identical to that of the \$24k Virgo and to the \$65k Altair. You read that right—all three preamplifiers share the same schematic and circuit-board layout. The differences are in the implementations. Where the Virgo's power supply is housed in a separate chassis, the Preamp 1.0's supply is integral. Nonetheless, both preamps employ three transformers, one for each audio channel plus a third to power the control circuitry (the two R-core transformers supplying the audio circuits are the same between the series). The regulation in the Inspiration is a little less elaborate, with three regulation stages rather than four.

All the preamps in Constellation's line are fully balanced and built around what the company calls the Line Stage Gain Module. This is the same module used throughout Constellation's various product ranges. Some of the parts in the module are identical, and others diverge in quality. For example, Reference uses the best parts available without regard for cost (\$7 apiece resistors, for example). The resistors in Performance are significantly less expensive (\$1), while the Inspiration employs carefully chosen but even-more-cost-effective devices. In all three lines, servos maintain perfect amplitude symmetry between the two halves of the balanced signal. As with the Altair and Virgo, the Preamp 1.0's audio circuit board floats on a "raft" that is decoupled from the chassis and even from the rear panel.

Substantial savings in the Inspiration Preamp 1.0 were realized with a volume control made from an addressable monolithic resistor-array chip. The Virgo features the same elaborate light-dependent resistor scheme developed for the Reference, a technique far too expensive for a \$9000 preamp.

The chassis and casework build is the same; interlocking pieces of machined aluminum are joined by steel reinforcements to create a rigid structure. The differences are mostly cosmetic. In addition to the Inspiration Series' smooth surface, the side vent-holes of the power amplifiers are larger which requires fewer milling operations. If I hadn't been told about the Inspiration's larger holes, I wouldn't have noticed.

The stereo and monoblock amplifiers are based on the same Balanced Bridged topology developed for the Hercules. In this unusual circuit, each amplifier channel is composed of two separate amplifiers, one driven by the positive half of the balanced signal and the other by the other half of the balanced signal. The loudspeaker is connected as the "bridge" between the two amplifier channels. The two amplifier channels are not referenced to ground. Moreover, the entire output stage is built from transistors of a single polarity (N-channel) rather than the typical pairs in which each N-channel transistor is mated to its P-channel counterpart. For a more thorough technical description, see my review of the Reference Series in Issue 215—the topology is identical.

rather than visceral, bottom end. In my Reference Series review I wrote that the bass "favored articulation and pitch definition rather than weight and warmth." In my Centaur review I noted: "The Centaur's bottom end is full and satisfying, but not the last word in weight and heft." You bought Constellation for qualities other than bottom-end slam.

I'm happy to report that with the Inspiration Series, bass performance is no longer a caveat. In fact, the Stereo 1.0's bass is outstanding, combining weight and authority with dynamic agility and a wonderful tunefulness. For example, Ray Brown's incomparable playing on the high-res download of *Soular Energy* has plenty of weight, along with the ability to convey the instrument's dynamics and tone color. The Mono 1.0s are even better, offering greater dynamic impact and effortlessness. Compared with the Centaur monoblocks, the Inspiration's fuller bottom gave the entire presentation a bolder, more forceful character. The Centaur (and Hercules) fosters an impression of elegance, grace, and refinement, not one of raw, primal power. The Stereo 1.0 and Mono 1.0 largely retain the midrange and treble refinement of the Centaur while giving the presentation a more muscular quality. It isn't just power music that benefits; even on a record like Duke Ellington's *Duke's Big Four* the Inspiration's fuller bass better conveys the swing and drive of this terrific band. Incidentally, the circuit changes that improved the bass were developed for the new Hercules II, and have been incorporated first into the Inspiration amplifiers.

Several years ago a visiting loudspeaker designer had just finished setting up a pair of

reference-quality speakers in my room, and asked to hear the various amplifiers I had on-hand. After the auditioning, he pointed to a non-Constellation amp and said, "I want the bass extension and power of *that* amplifier," and then pointing to the Constellation continued "with the midrange and treble of *that* amplifier." If he were to visit again, he would wish for no such chimera; the Inspiration leaves nothing to be desired in bass weight and tonal balance. This is particularly true with the Mono 1.0 monoblocks, which have greater bass authority, wider dynamic contrasts, and sound more composed during complex passages than the Stereo 1.0, as you'd expect from twice-the-power monoblocks. Nonetheless, the Stereo 1.0's bottom end is fully satisfying.

If you're getting the idea that these electronics are spectacular values, you're right. It seems almost churlish to point out the Inspiration's shortcomings relative to the world-class Performance Series, but since I've heard them all I would be remiss not to share my experience. I must reiterate, however, that if you didn't hear the two Series side by side, you wouldn't miss anything in the Inspiration. You'd still get the essential quality of Constellation electronics, which as I mentioned earlier is an extraordinary transparency, high resolution, gorgeous tone color, and tremendous sound-stage dimensionality. The differences in sound between Performance and Inspiration are more quantitative rather than qualitative. Moreover, the Performance Series, despite its not insignificant price, is still a terrific value, delivering close to the benchmark established by the Altair and Hercules in the Reference Series. I

EQUIPMENT REVIEW - Constellation Audio Inspiration Series

should mention that I've heard the Inspiration Series at three shows driving a variety of loudspeakers, and thought (along with many other showgoers) that the sound was superb on each occasion.

After I'd finished auditioning the Preamp 1.0 and Mono 1.0 I returned to the \$55k Soultion 725 preamplifier and \$165k-per-pair 701 monoblock amplifiers. One would think that this juxtaposition would only highlight the limitations of the one-eighth-the-price Inspiration pair. Instead, the comparison threw into sharp relief just how extraordinary the Inspiration electronics are. Not surprisingly, the Soultion was decidedly better (see Jonathan Valin's review this issue and my comments). But the Inspiration had some exceptional qualities that drove home what a great achievement and value these electronics represent.

Conclusion

The Inspiration Series brings more than a taste of world-class performance to electronics within reach of music lovers for whom six-figure amplifiers are out of the question. Although not budget-priced, the Inspiration Series delivers much more than a taste of the musical virtues of the Altair and Hercules. The sonic differences between the Reference, Performance, and Inspiration Series are a matter of degree, not of fundamental character.

The Preamp 1.0, mated to the Stereo 1.0 or a pair of Mono 1.0s, bring a level of transparency, resolution, refinement, and soundstaging to this price segment once reserved for much more expensive electronics. Coupled with these traditional Constellation qualities

is a newfound bass performance that adds a welcome authority, bottom-end dynamics, and tonal richness that were not the strong suits of the Reference and Performance Series.

It's unlikely that the Inspiration's combination of performance and value could have been realized from a clean sheet of paper. By taking the long view and investing in developing cost-no-object electronics, Constellation is able to offer the identical circuit topologies, and many of the design tricks, of those cutting-edge products in the relatively affordable Inspirations.

For those of you who find \$65k preamps and \$140k amps morally objectionable, take heart knowing that the existence of those products made it possible for music lovers of more modest means to own very close to the best for a fraction of the price. That's something we can all celebrate. *tbs*



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Garrett Hongo, The Absolute Sound, Issue 224



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Modern Tube Sound at its Best

Dick Olsher



There is good news for all of us glass-audio aficionados: Audio by Van Alstine (AVA) now offers an all-tube version of its linestage preamp. I don't know about you, but I find the model name a bit confusing, so for the record let me make clear that this is not a FET Valve hybrid. The new linestage does indeed feature an all-tube signal path, relegating MOSFETs to the role of power supply voltage regulators. The basic circuit is rather straightforward: two cascaded gain stages (12AT7 dual triode) followed by a 12AU7 dual triode connected in parallel and configured as a cathode-follower buffer. Frank Van Alstine tells me that this circuit was initially evaluated as far back as 2004 and was put on the back burner because it failed to provide the performance boost he was looking for back then.

In the intervening years, AVA developed a unique method of powering tube stages, which provides a separate high-voltage power supply for each individual plate. The improvement in musicality and transparency was apparently so dramatic that Frank decided recently to revisit the all-tube linestage project with, I might add, spectacular results. The new tube linestage design includes six regulated power supplies, two for each 12AT7 tube section and one for each of the 12AU7 tubes. Adjustable high-voltage regulators are used as a reference for the power supplies, replacing much noisier zener diodes. In addition, capacitor and resistor values have been tweaked and 1k-ohm grid-stopper resistors added for each tube. All capacitors in the signal path are now polypropylene types. A new PCB motherboard houses all active gain stages and power supplies, with room for an optional phonostage. And as an added bonus, the cost to build is less than before, which is reflected in a lower retail price (\$2099). Other features are unchanged. There are six line-level inputs, a tape input, a tape/CD-recorder output, dual line-level outputs, a low-gain switch, and a high/low filter to tame aggressive source material. A headphone amplifier is standard, though I did not test it. Remote volume control is a \$299 option. Other options include a phonostage (\$249 mm, \$299 mc) and buffered tape outputs (\$149).

Possibly this design's major takeaway is that there's still plenty of magic to be found in plain vanilla circuit topology. Series-regulated push-pull (SRPP) and Mu-follower stages have been quite popular in recent years, and each topology has its adherents. Differences in tube operating points and tube types make it

difficult to reach a definitive conclusion about which is better, though I would concede that when mated with a plain vanilla power supply the more exotic totem pole circuits have the advantage. However, the sophisticated power supply deployed by AVA makes all the difference. This was the approach used by Audio Research in its highly successful SP3a preamplifier. In fact, Audio Research revolutionized the high-end scene in the 1970s, riding the paradigm of power-supply regulation to market supremacy.

I should mention that a bit of negative global feedback (NFB) is taken from the buffer stage and returned to the cathode of the first gain stage. For those of you who are NFB phobic or wary of cathode-follower stages, I would simply ask you to give the FET Valve a serious audition. You'll be surprised by its dynamic prowess. To be sure, it's a bit unusual to deploy NFB in what is truly a single-ended Class A voltage amplifier. One consequence is a reduced distortion spectrum and hence less euphonic residuals. It's not difficult to imagine that someone in search of aural thrills might actually be attracted to a tube preamp precisely because of a particular euphonic sonic signature. Pervasive tube warmth that blankets the midrange irrespective of the program material falls in this category, and has proven to be a siren call for many tube-o-philes. The FET Valve is far from being a euphonic linestage. It does not imbue the presentation with any tubey coloration. And its frequency response is sufficiently wideband to avoid softening transients and overly liquefying harmonic textures. So if you're in the market for a linestage that loudly communicates its tube lineage then look somewhere else. In

EQUIPMENT REVIEW - Audio by Van Alstine FET Valve CF Preamplifier

addition, the tonal balance is quite neutral and lacks the overly lush lower midrange that some vintage tube preamps bring to the table.

If you were to ask me what I dislike the most about new-production 9-pin miniature preamp tubes, it would have to be their grainy harmonic textures. That has been a chronic complaint of mine for years, as the differences in textural smoothness between vintage and new-production types can be rather dramatic. Kudos to the audio guru who phrased it as follows: "I'll take a decent amplifier with the finest tubes any day over the finest amplifier with mediocre tubes." And that's audio verity you can take to the bank. It should therefore not come as a surprise that it didn't take me too long to replace the stock JJ Electronic tubes. Now let me make it perfectly clear that I don't fault AVA, or any other manufacturer for that matter, for shipping product with new-production tubes—it would be insane to try to do otherwise. When you are dependent on a steady supply of tubes, there is no rational alternative other than purchasing lots of new stock tubes. But for the end user there are other options, and in my experience it's pretty easy to locate a few primo vintage preamp tubes at boutique prices. I settled on two of my favorite brands: Philips Miniwatt 12AU7 and Mullard M8162/CV4024 for the 12AT7. More accurately, I tried these lovely tubes first and so had no good reason to go any further.

This vintage tube complement totally civilized harmonic textures to the point that the FET Valve performed brilliantly even when coupled with ultra-high-end power amps such as the Lamm Audio M1.2 Reference monob-

locks. In this context it was able to generate a believable sense of space with plenty of soundstage depth. In particular, soundstage transparency was simply spectacular with absolutely no discernible veiling. The upper octaves were airy and nuanced and excelled at resolution of brushed cymbals. There are many tube preamps out there that give the impression of enhanced detail by virtue of an overly bright presentation. No worries here. There was always plenty of low-level detail in evidence, but it emerged naturally from the music's fabric. The bass range was both well defined and sensitive to dynamic gradations. In a nutshell, this combo, a "David and Goliath" mismatch price-wise, was able to boogie with rhythmic conviction.

Enter Pete Millett's R120 SET amplifier, which is light years removed from the technology of the Lamm Audio monoblocks. There are only about 2 watts on tap, but the first watt, the one that sets the stage, is simply superb. The music's ebb and flow is totally relaxed and effortless while musical textures are beautifully layered and richly colored. The FET Valve did little to alter the R120's intrinsic sonics. In fact, with every power amp substitution I could identify the character of the amp without any editorial interference from the preamp.

My review sample was outfitted with the moving-coil cartridge option and factory set to a nominal input impedance of 200 ohms. Note that the phono input is assigned to the first line-level input. I understand that AVA is working on a small stand-alone version of the internal phonostage, with about a \$399 price tag. That would represent pretty impressive pricing since it is said to include nearly \$100

worth of semiconductors. The phonostage is based around the Burr-Brown OPA627, a well-regarded FET op-amp, and uses passive RIAA EQ. This high-speed precision op-amp is known for sounding slightly dark and a bit warm in the midrange, though it clearly lacks the effusive warmth of tubes. In my listening tests it went head up against the much more expensive Pass Labs XP30 phonostage, yet another "David and Goliath" matchup. I'm pleased to report that the FET Valve held its ground pretty well. There was plenty of detail to hear, and in this regard, I didn't feel it was lacking relative to the XP30. Transient speed and control were also excellent. On the debit side I noted a slight reduction in soundstage spaciousness while tonal colors were a bit darker than the real thing and not as fully saturated. Overall, I'm inclined to rank the phonostage as a 7.5 on a scale of 1 to 10, relative to the XP30.

If you're tired of putting up with the worst excesses of vintage tube sound, then you've come to the right place. The FET Valve represents modern tube sound at its best. Its twin virtues, really a happy blend of neutrality and accuracy, guarantee that it will not dominate the personality of your audio system. It responds well to vintage tube substitutions, and so configured, it is without a doubt the best sounding AVA preamp I've auditioned to date. And by extension, I'm inclined to accept that it is likely the best affordable full-function preamp money can buy. Consider it as a mandatory audition for anyone with a budget under \$6k. **tas**

SPECS & PRICING

Inputs/outputs: Five line inputs, one headphone input, two tape inputs; two tape and two RCA main outputs
Gain: 20 dB

Noise: <1mV broadband (line or phono circuit)

Input impedance: 47k ohms

Output impedance: 600 ohms

Dimensions: 17" x 12" x 3.5"

Weight: 17 lbs.

Price: \$2099

Options: MM phonostage \$249; MC phonostage \$299; remote control \$299; buffered tape output \$149

AUDIO BY VAN

ALSTINE, INC.

2665 Brittany Lane
Woodbury, MN 55125
(651) 330-9871
avahifi.com

ASSOCIATED EQUIPMENT

Basszilla Platinum Edition Mk2 DIY loudspeaker; Lamm Audio M1.2 Reference monoblock amplifiers, Coincident Speaker Technology Dynamo 34SE and Pete Millett R120 SET amplifiers; Apple Mac BookPro running Sonic Studio's Amarra Version 2.6 software, EAR DACute and AYON Stealth DACs; Sony XA-5400 SACD player with ModWright Truth modification; Kuzma Reference turntable; Kuzma Stogi Reference 313 VTA tonearm; Clearaudio da Vinci V2 phono cartridge; Pass Labs XP-25 phono stage; FMS Nexus-2, Wire World, and Kimber KCAG interconnects; Acoustic Zen Hologram II speaker cable; Sound Application power line conditioners

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Zesto Audio Bia 120 Amp

Bia-utiful!

Paul Seydor



When I first met George Counnas, President of Zesto Audio, the company had only one product, a splendid phonostage called the Andros (Issue 222). At the time, he told me a high-level preamplifier was on the way, but, when asked about a power amplifier, added he had neither interest nor plans for one. But when the Leto linestage turned out to be as splendid as the Andros, I figured it was only a matter of time before an amp came along. Counnas was refreshingly candid about his change of mind: "I needed it to round out the line." For all their pretensions to mixing and matching components, quite a number of audiophiles seem to like their electronics from the same manufacturer, preferably consistent in visual style. So here is the Bia 120 to make the Zesto duo a trio. I'll not indulge any suspense: Counnas is plainly a gifted designer who knows his way around circuits and sonics, and here hits the trifecta with this drop-dead gorgeous sounding amplifier.

Gorgeous looking, too. George's wife Carolyn carries over her signature styling from the Andros and Leto, and the Bia 120 features the same split-level chassis found throughout the line. With a graceful, wavelike pattern set in light silver aluminum bas-relief against black on the base, and the grand-piano-shaped (viewed from the top) upper chassis (housing the large toroidal transformer) with a curved polished-chrome fascia that reflects the softly glowing tubes, the amp makes a stunning impression. An elegant touch of visual rhythm is the repetition of the front-panel wave in the side vents on the upper chassis. As with its siblings, you'll want to keep the Bia 120 out in the open for all to see, which is mandated anyhow by how much heat it generates, which is considerable because it's 60Wpc in a push-pull output stage that completely eschews negative feedback and is operated in pure Class A.

Why Class A in a tube amp, which, after all, is not supposed to exhibit the typical solid-state notch when the signal crosses from positive to negative? "Unlike Class AB, where the A part is small and the B part happens only when the

signal 'turns on' the tubes," says Counnas, "in Class A, the current is going through the output tubes and not waiting for the signal, which gives you a more dynamic sound because the tube is constantly charged; it's on all the time." Doesn't this shorten tube life? "Theoretically yes," he answered, "but not by all that much in the Bia because the tubes aren't being run that hard." As for the absence of negative feedback, this is a prejudice from the early years of solid-state, when negative feedback got a bad rap because ridiculously large amounts were applied to transistor amplifiers to achieve distortion figures with four and five zeroes to the right of the decimal point. Trouble was, while this led to impressively low measured figures of steady-state distortion, it didn't necessarily translate into good sound, especially when it was used in substandard circuits to overcome the severe limitations of the transistors themselves. Negative feedback is effective mostly when the basic circuit and parts are already of good or better quality, whereupon judiciously applied in small amounts it can improve performance. By the time Counnas finished design-

EQUIPMENT REVIEW - Zesto Audio Bia 120 Amp

ing the Bia's circuit, he decided, based on measurements and listening evaluations, that he didn't need any. "All it did was reduce dynamic range while adding nothing sonically."

The Bia is a dual-mono design, with auto-bias and a large toroidal transformer. It features fully balanced and single-ended jacks and has heavy-duty binding posts with 4-, 8-, and 16-ohm taps. Owners of original Quads and very early LS3/5as (16 and 15 ohms, respectively) should take note: This is one of the lonely few modern tube amps that will match them optimally. Like all Zesto products, every Bia is broken in 50 hours before being boxed up, and is totally hand-made in the USA.

Counnas' goal was identical to that for his phono and linestages: a component that approached the neutrality of solid-state with the attractive "tonality of tubes." He succeeded spectacularly with the preamps and does so again here, though "approached" is the operative word, about which I'll have more to say anon. Cut from the same sonic cloth as previous Zesto products, the Bia's personality consists in a completely seductive musicality, free from the usual sorts of electronic colorations and artifacts, for a presentation that never, ever sounds electromechanical, instead drawing all attention to the music, which is reproduced in a wholly natural-sounding way. I simply never found myself thinking of reproduction as such or any of the typical audiophile categories—scintillating highs, slamming lows, liquid midrange, yak, yak, yak—rather about the music and music-making. Right now I'm listening to Valentina Lisitsa playing Liszt's *Totentanz* and wallowing in the waves of sheer sonority, the

way her generous use of pedal never seems to obscure the lines and textures, the control of the dynamics from delicate whisper to barnstorming roar, and bass that is exceptionally solid, extended, articulate, and powerful, with no need—thank you very much—to append the usual "for a tube amp" qualification. No wonder Counnas, who seems to love Greek names, christened this after Bia, daughter of Zeus and Styx, and the personification of force and raw energy.

Counnas told me that one of his goals was that if critical listeners didn't know what they were listening to, they wouldn't know whether it was solid-state or tubes. There's certainly no hint of anything that some dyed-in-the-wool tube fanciers still don't like about solid-state (even though almost no modern transistor amps suggest any of the nasties of the early ones). At the same time, however, they just might be a little disappointed that the Bia equally betrays so little of old-fashioned tube character either. There is something so completely natural about this reproduction that I really do find myself at a loss for words to evoke it. To be sure, it's tactile, rounded, gloriously dimensional, and "continuous"; there's nothing edgy, sharp, or overly articulate about it; it's not "liquid" as such or excessively smoothed over (though it is extremely smooth); textures sound to me like the textures of real voices and instruments; there is zero impression of grain (I mean no evidence at all); transparency is not a concern; and detail is as detail should be, to be noticed but not zeroed in on. And it's got by far lower perceived distortion than any tube amplifier past or present with which I've got more than casual ac-

quaintance. In fact, the only tube amps in my experience that may trump this one for overall neutrality are McIntosh's MC275, though take that "may" for all its worth, as it has been more than a few years since I reviewed those amps and my system was somewhat differently constituted then.

When it comes to dynamic range, the thing is wowie-zowie with a vengeance. I am gobsmacked by the prodigious levels Counnas gets out of these sixty watts, even Class A tube watts: I wish I could take all the audiophile cowboys who say Quad ESLs cannot play loud enough and force them to listen to the clear, clean, completely unstrained levels I've been enjoying daily with this combination. I played some piano recordings louder than they would be if the pianos were heard in real recitals, and certainly than I could listen to them comfortably, and neither the (very inefficient) 2805s nor the Bia evinced any strain that I could detect. The same is true for orchestral recordings, while voices have to be heard to believe (how refreshing not to hear sibilants unduly accentuated).

Imaging? Holographic. Moreover, there is something so preternaturally spacious about the reproduction it may constitute a subtle coloration, though if so, it's a very attractive one. Put on really well recorded orchestral music, like any of John Eargle's on Delos, for example, and the impression of size, scale, bloom, and vastness is spine-tingling indeed. The same is true for intimate music: I've been enjoying the Balcea's traversal of the Beethoven quartets, which are very naturally recorded with a good recital hall's row G-M perspective—close my eyes and

the ensemble is simply there in the front of my room. This held for LP after CD after SACD after high-res download. A litany of examples would serve no purpose than to make the same points over and over again.

I used the Bia on my Quads, the lovely Harbeth Monitor 30.1s, the fabulous new Martin-Logan Montis (review forthcoming), and it acquitted itself superbly on each. My experience with the Montis is limited, but I have long experience with my Quads, and can truthfully say I've never heard them sound better. This is the proverbial match made in heaven (and scarcely less so with the Harbeths).

Is the Bia perfect? Well, of course, nothing's perfect, but no matter what I threw at it, I couldn't make it sound anything less than beautiful. There may be some other amplifiers

SPECS & PRICING

Power output: 60Wpc, 20Hz-50kHz +/-1dB	Dimensions: 17" x 20" x 10"
Speaker outputs: 4, 8, 16 ohms	Weight: 66 lbs.
THD: 0.22% at 1W output into 8 ohms	Warranty: 2 years amplifier, 6 mos. tubes
Gain: 23dB	Price: \$12,500
Noise level: <0.2mV RMS into 8 ohms with input shorted	ZESTO AUDIO Thousand Oaks, CA (805) 807-1841 zestoaudio.com
Tube complement: Matched quad set of four KT88s; four Gold Pin ECC82s (12AU7)	

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EQUIPMENT REVIEW - Zesto Audio Bia 120 Amp

that can beat it out for sheer crunch and slam at the bottom, but I've no way of evaluating this because I don't own speakers with very large woofers that may need that kind of control. Current tastes run for more zing, zip, spit, and sizzle up top, though not mine, as I find these things inaccurate and often irritating—sounds the Bia seems incapable of generating. And yet, I know that there is something about the reproduction here that isn't truly accurate. The complete absence of any sort of negative feedback practically guarantees output impedance on the high side or, equivalently, a damping factor on the low, and this always has an adverse affect on flat frequency response into real-world loads, i.e., speakers. Despite listing a full set of specifications, the Bia's flyer does not state the figures for output impedance and damping factor, which, in my opinion, Counnas was remiss not to have measured and published.

But listening reveals the effects all the same. My favorite recorded performance of *Appalachian Spring* is Bernstein with the New York Philharmonic on Columbia. There are many sonic virtues to the reproduction, including powerful dynamics and a clear recording of great spaciousness. But it is multi-miked and notably bright, even fierce throughout the presence region and the highs. On most modern systems, which tend to have rising top ends, the sound can be fatiguing. On a truly flat system, the sound is tolerable, the violins not shrill, but not far off shrill, and in any case have way too much sheen and brilliance. (Every piece in this all-Copland collection is a great performance, but owing to the sonics, I rarely

listen to more than one at time.) With the Bia, however, it's a whole other story. Though the reproduction is plainly bright, it is so smooth and polished, still brilliant, though now *silky* brilliant, as to be not only very listenable but even rather wonderful (think of a somewhat overexposed photograph that you manage to correct in Photoshop or Lightroom). It's pretty hard to be a stickler for absolute accuracy when a component lets you enjoy one of your favorite recordings more than you ever have before.

I've already pointed out that the highs are never edgy or hard, which is good, but neither do you have the kind of crystalline ring, ultimate sparkle or tingle, or even the pleasing bite much high percussion can have. This extends to some other instruments too. Sonny Rollins' sax on *Way Out West* (SACD and vinyl reissue) is rendered with fabulous body and richness, and even the requisite bite and edge that his tone by design has, yet it still lacks the last degree of those latter qualities I hear from amplifiers that I know to be more literally accurate. I am told this is perfectly consistent behavior from an amplifier that has a highish output impedance. (Harbeth 30.1s have a more extended high-frequency response than either the Quads or the MartinLogans, so they and the Bia are really quite witchy together.)

I should not want to overstate any of this, as the Bia stays within what I would consider acceptable bounds of overall neutrality. But those who love rock and roll, some kinds of jazz or percussion, or any other music that depends for its full effect upon a certain degree of grunge, grit, and rasp would surely want to

audition before buying. But, then, you'd have to be crazy to buy any tube amplifier before auditioning, because the spectral profile will always vary somewhat with speaker load in a way that it does not with most solid-state amps.

So where does that leave us? Can a component sound too beautiful? Is accuracy overrated? These aren't questions anyone can answer for anyone else, so personal is the decision. So many recordings are miked so close to the musicians as to sound at best unnatural and at worst aggressively awful (this is one reason why I still value tone controls, especially for the treble). A design like the Bia poses a real conundrum when it comes to the truth or beauty question. A very close friend of mine, an audiophile of four decades standing, used to love tube electronics and acquired quite a collection of them. Eventually, and in part for professional reasons, he sold them in favor of components that would form a true reference system that would tell him what recordings, including those he makes himself, actually sound like. I invited him over to hear the Bia—he is very familiar with the sound of my system—and his face broke into a smile within just a few minutes. “I can see right away why you've fallen in love with this thing; it's so damn beautiful, so luscious and...velvety. I was in love with sound like this for years, though of course in those days it was nowhere near as clean, low-distortion, or quiet as this, and with nothing of the bass reproduction.” Well, there it is: I freely admit to having become quite besotted with the Bia.

Regular readers of mine will know that judged on the basis of performance alone, I do not find

super-expensive electronics to be worth the prices asked for them. By this I don't mean that they're not good, merely that they do not in my judgment offer sufficient performance over their lower-priced counterparts to justify the stratospheric asking prices, and sometimes they offer no improvement at all—and we happen to be living in a time of unprecedentedly high performance in even budget-priced electronics. By comparison to the pricing of the most expensive electronics, which can cost as much as luxury automobiles, the Bia's \$12,500 retail is positively modest; but it could be called a bargain only in the crazy world of high-end audio, where wire costs tens of thousands of dollars. By most people's standards, including mine, it's still very expensive (another four or five grand gets you an economy car!), and much more than I can justify paying for an amplifier, especially when there are so many available for much less that are more literally accurate.

That said, truth in reporting also requires me to add that the Bia is the only amplifier costing more than \$10k that I've heard that I might actually consider buying for the sheer love of the way it makes almost every recording I have sound beautiful. It's not the only amplifier I would ever want to own, especially for reviewing purposes; but if I did own it, I know it would get a lot of use and never cease to be a favorite. This is the kind of design around which passionately enthusiastic cults form, and I can easily see its owners treasuring it like classic Marantz or McIntosh amps from the salad days of high-end audio. I certainly would. *tas*



Reference Level Electronics

PASS

"Moderation is a fatal thing. Nothing succeeds like excess."

Oscar Wilde.



Xs 300
Xs 150
Xs Preamp
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Pass Labs Xs Preamp and Xs 300 Mono Power Amplifiers

Major New Challenges to the State of the Art

Anthony H. Cordesman

This is a case where I need to begin a review by reminding the reader that the name of this magazine is *The Absolute Sound*, not the *Cost-Effective Sound*. Both products I'm reviewing—the Pass Xs preamp and Pass Xs 300 power amplifier—are efforts to provide that absolute sound without compromise in either quality or price. They are new top-of-the-line components that push the state of art in audio to its limits, and they are priced accordingly. The Pass Xs Preamp sells for \$38,000, and the Pass Xs 300 mono power amplifiers sell for \$85,000 a pair.

As might be expected from Pass Labs' history, both components meet their goal. At the risk of eliminating any suspense from this review, they are the two best-sounding examples of a preamp and power amp I have yet heard. The kind of gear most audiophiles dream about—which only the truly lucky can afford—and that redefine the perceptions of reviewers during the all-too-brief time they pass through their systems.

A Case Study in Searching for the Limits to the High End

There is, however, a broader purpose to this review than simply praising the Xs preamp and Xs 300 amps. I've been reviewing Pass Labs components for years, and Nelson Pass' amplifier designs since the peak of high-end audio's popularity during the early Fillmore Administration. I use a Pass XP-30 preamp and a pair of Pass XA-160.5 Class A mono amplifiers in my reference system.

Reviewing the Xs preamp and the Xs 300 mono amps gave me the opportunity to put the merits of two true new assaults on state of the art in perspective. It allowed me to focus on the level of improvement you actually get from designs with a total cost of \$123,000, when my reference XP-30 preamp and XA-160.5 mono amplifiers cost \$38,500, and other truly excellent Pass components like the XP-10 preamp and XP-150.5 stereo amp cost a total of \$10,750, and the superb INT-150 integrated amplifier a mere \$7150.

The answers to these questions aren't simple, and they are discouraging to audiophiles on much tougher budgets. Every Pass preamp and power amplifier I've heard has been remarkably neutral, worked easily with a wide range of front-end components and loudspeakers, was free of any solid-state coloration, and was transparent and neutral in sound quality. You begin with truly musical components, and they get better and

EQUIPMENT REVIEW - Pass Xs Preamp and Xs 300 Mono Amp

better. Moreover—as is the case with every other top manufacturer of high-end preamps and amps—the level of improvement in sound quality relative to price is a matter of steadily diminishing returns. You have to pay more and more for less and less improvement.

I wouldn't be a high-end-audio reviewer or an audiophile, however, if I had an accountant's objectivity in measuring the incremental benefits from investing in top-of-the-line equipment. Like car freaks, wine snobs, and stamp perforation-edge perfectionists, my goals are not to be cost-effective, but to go to the limits of the sound quality I can afford—and all too often beyond. Real audiophiles pursue the limits of the high end for its own sake. We share a hobby or "sport" that largely ignores the reality of diminishing returns with each additional dollar spent. Success or "winning" consists of getting the best possible musical experience within a given personal budget. If you want to be cost-effective investing in Pass Labs equipment, buy the INT-150 and read TAS simply for your dreams.

The Pass Xs Preamp

So let me begin with the Pass Xs preamp, and try to explain why I soon came to feel the level of sonic improvement was both real and worth it to audiophiles who can afford it. Let me also set the stage by noting that virtually all high-end manufacturers tend to voice their equipment to a consistent standard. That standard tends to evolve with time and becomes steadily more realistic and musically enjoyable, but years of reviewing have taught me that given manufacturers and designers have consistent biases in the sonic nuances they voice into their equipment.

Equipment that measures "flat" using steady-state sinewaves into a fixed load does not sound flat reproducing complex musical signals into real-world loudspeakers. Some manufacturers voice for a slight bass boost, some add a slight boost for midrange or treble detail. Some voice for a more dynamic sound or more detail. Some voice for the warm and forgiving. I'm in the camp that says preamps and amplifiers can't affect tempo or rhythm—and modern digital electronics and the best turntables are incredibly accurate in this domain—but a slight upper midrange rise can give the music more apparent life.

This voicing of electronics also affects soundstage width, imaging size, and back-to-front realism and perspective. Some manufacturers voice for a wide, more front-of-the-hall soundstage. Some seem to play with imaging, and a few seem to play with depth. Centerfill is another related issue, and one I suspect we understate in reviews because—like depth—it is usually dominated by the recordings, speaker, and room setup.

To me, the best electronics have as little of this characteristic voicing as possible. I'm a mid-hall listener, unless I'm reviewing; I listen almost exclusively to acoustic music and small jazz groups, classical groups, and soloists, rather than band, orchestra, opera, etc. With a library of music that involves thousands of mediocre to excellent recordings going from the 1930s to the present, I don't want someone else's biases to give me apparent "insights" into part of my recordings, and mask or color the majority of the rest.

This is one reason that I minimize references to the sound of individual recordings in my reviews.

My concern is sound using a musical library, and far too often I find that a sudden "insight" into the music on a given recording usually proves to be a warning of a broader problem in listening to a full range of music. I have enough problems dealing with the voicing in my recordings, the sharper colorations in front-end components, and the unavoidable problems in matching even the best speakers to a given room and listening position.

At a different level, attention to electronic and physical noise and hum also varies, although any such problems have become far less audible over time. Like most audiophiles today, I want and expect my music to come out of a "black hole" of silence. I now find even a trace of electronic hum, noise, and hiss annoying—particularly with solo instruments in the quiet of the night. Some of my friends—particularly audiophiles who prefer the tube classics of the 1950s and 1960s—will listen gladly through such problems.

Moreover, the more I review, the more I come to distrust what I have come to regard as "trick" electronics. Preamps that minimize features to the point they don't even have a balance—to me an "imaging" or "soundstage" control—or enough XLR and RCA inputs and the equivalent of a tape loop; preamps and amplifiers that are remarkably sensitive to given cables and loads; underpowered amplifiers that work well only with some music on a handful of speakers; and particularly amplifiers whose wattage rating are not matched by high current, extension into the deep bass, and the ability to tightly control a wide range of speakers.

These criteria are why I now use Pass Labs preamps and amps in my reference system, why

I use and have used equipment from other manufacturers, and why I praise the electronics I review when they deserve it. Overall balance and lack of coloration or voicing, and lack of equipment noise and interaction problems, are the

SPECS & PRICING

Pass Xs Preamp	Pass Xs 300 Mono Amplifier
Max output: 22V	Gain: 26dB
Output impedance: 20 ohms main balanced per leg; 50 ohms aux balanced per leg; 120 ohms single-ended RCA, either	Power output: 300W into 8 ohms, 600W into 4 ohms
Noise floor: -122dB ref to 5V	Input Impedance: 200k ohms bal, 100k ohms single-ended
Distortion: .001% 1kHz 5V	Power consumption: 1000W
Frequency response: -1dB@1Hz and 100kHz	Number of chassis: Two per amplifier channel
Channel separation: Greater than 110dB	Dimensions: 19" x 11.5" x 27.5", each chassis
Residual broadband noise: Less than 25mV	Weight: 168 lbs. (power supply), 130 lbs. (amplifier)
Max gain: 10dB	Price: \$85,000
Volume control: .5dB steps	PASS LABS
Power consumptions: 55W	13395 New Airport Rd., Suite G
Dimensions: 19" x 6.25" x 14"	Auburn, CA 95602
Weight: 80 lbs.	(530) 367-3960
Price: \$38,000	passlabs.com

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EQUIPMENT REVIEW - Pass Xs Preamp and Xs 300 Mono Amp

reasons that I have used the Pass XP-10, XP-20, and XP-30 preamps as references in the past. Each has proved to be progressively better—as have the preamps I’ve used as references from other manufacturers.

I have wondered each time whether the new Pass preamp was really going to be all that much better than its predecessor. As with most of the top high-end manufacturers I’ve worked with in recent years, I’ve never heard any Pass equipment that did not provide excellent sound by most standards—regardless of price. I’ve also found the improvement to be progressively smaller and harder to describe. The fact is that most high-end preamps and amplifiers today are notable successes regardless of price, and the ones that have the least apparent voicing present more and more problems in describing the sonic differences.

The Xs preamp is, however, definitely better than the XP-30, and even more of a challenge to other manufacturers. Its price tag is an issue, but the Xs is better in every respect, and not just in sound quality. It has better ergonomics: The display is larger, and the volume and balance settings are more obvious; it has a polarity button that can make a real difference in sound quality; and the steps in the volume and balance controls seem more precise. It is a large two-chassis unit, rather than a stack of slimmer units—three in the case of the XP-30—which makes hookup easier. Although having an easy choice between XLR and RCA inputs is a strength of almost all Pass designs, the Xs interfaces perfectly with the Pass XP-25 phono preamp. It also retains the ability to independently adjust the outputs for bi-amping—a key feature with more complex systems.



As you might expect, the Xs also pushes the limits of its components and circuit design well beyond the capabilities of the Pass XP-30 preamp I use as a reference (along with the EMM Labs Pre-2 preamp). The noise floor is an incredibly low -122dBV. The Xs retains the features of the XP-30, but has more output and can swing

enough voltage to drive a balanced follower output at 150 watts rather than 80 watts. There are three advanced power supplies, and they drive what are the equivalent of dual-mono, gold-plated ceramic circuit boards.

When I asked Nelson Pass to describe the design activity that led to the Xs Preamp’s sound

quality and price, he replied as follows:

“Wayne [Colburn] was given an unlimited budget to do whatever he wanted: ‘This is your chance to go all out, Wayne. We aren’t calling this Xs for nothing.’ And so the approach is more like obsessive attention to detail armed with lots of money.

“Gold Megtron and ceramic circuit boards, hyper-selected and matched NOS FETs, crazy regulation and isolation, fabulous relays and switches, bigger display, more expensive parts and more voltage, more bias current, and still *more* voltage and bias current. ‘I want to be able to drive Magicos directly with this, Wayne!’

“There are a couple tricks I can’t talk about, such as how he got this great performance out of the volume controls, or the bias regulation of the output circuits, but most of the technology is *excessively* straightforward.

“Starting with two prototypes that measured very well, the last year has been spent tweaking them in tandem with a totally subjective approach—probably more listening time than any product we’ve ever done. Back and forth. More time, attention, work, imagination, and money is what we put into these products.”

I also asked Wayne—the lead designer on the Xs Preamp—to summarize his view of the impact of the design improvements in the Xs and how making them improved sound quality, and he provided the following background:

“This preamp is the sum of a lot of small things, from the first one I worked on at Threshold (the Forte 44), to all the small circuit refinements over the XP-30 and the group of people involved in testing and listening. It was also fun to do, especially when finished. It is DC-coupled

EQUIPMENT REVIEW - Pass Xs Preamp and Xs 300 Mono Amp

as well. The XP-30 used custom caps, but no cap at all is better. It provides better bass and extended resolution throughout the full range of music. I feel the servo-system I came up with works better than previous configurations I have seen or tried.

“The use of the optimized circuit-board materials has subtle effects. Sonically, it seems to lower the noise floor ever so slightly and give a bit of top-end extension. I also love the way solder works on the ceramic circuit boards and their gold-plating. I am not sure being rated for 280 degrees C does much, but it can’t hurt. The main board uses a new-to-us Panasonic material designed for high-speed computer routers, and the power supply has a high temperature board with heavy copper plating. There are thus a total of four different types of circuit board materials in the Xs.

“The new gain modules also use higher-power Toshiba devices for the cascode portion of the circuit and the pre-driver stage, allowing for more bias, which gave a bit more clarity and space in the sound. Two separate circuit boards for the power supply made for a marked improvement in instrument placement and bass control. The measured crosstalk is also better. The output stage runs twice the bias and sets itself automatically, so it is very stable and comes to its best operating point quickly. I think this makes for a better power amplifier interface.”

I found in comparing the Xs preamp with the XP-30 that Wayne met all of his goals in improving sound quality and other improvements, as well. The XP-30 is a truly great preamp, but the Xs preamp is a better preamp at every level. It provided an audible margin of musical realism that was progressively more audible as

speaker quality improved over a broad range of recordings with a variety of different front-end components and power amplifiers. (I used my Wilson Alexias and Legacy Aeris speakers, an aging pair of Spendor BC-1s, a pair of older Electrovoice horn speakers, and a friend’s Quad 2905s—a friend crazy enough to actually bring his speakers to my listening room.)

Could I hear more realistic musical energy and dynamics at every level from my best recordings? Yes. Was there more musical life? Yes. Did I hear more soundstage detail with the recordings that really have one? Yes. Was there even more freedom from even a touch of upper-midrange hardness without softening strings, solo piano, or woodwinds? Yes, again. Was there slightly more electronic silence? Yes, although at an almost sub-audible level compared to the XP-30—and at only slight improvements over my memory of the sound of the XP-10 and XP-20.

The already exceptional highs of the XP-30 were even more natural. Bass definition was slightly improved in the mid and upper bass, along with the transition to the lower midrange. Male and female voice were equally excellent and somewhat more open and natural. Complex organ passages were a bit cleaner, and so were complex orchestral dynamics. I’ve never found recordings of large jazz bands to quite live up to the live listening experience, but the Xs preamp sometimes almost forced me to pay close attention to just how creative some passages of big band music can be.

This is an ideal preamp if you want to get the very best sound from your best LPs and for testing the limits of high-definition digital downloads. More importantly, it is a preamp that al-

lows you to fully appreciate both the fun the Modern Jazz Quartet could have with the right music, and the subtleties of the best recordings of Bach’s most complex choral music.

I did keep trying to pin down exactly why the Xs preamp sounded better than the XP-30, and I kept finding that the improvements in the Xs were limited and not confined to any one area. They did, however, make the Xs consistently more musically natural and involving.

At a given point, however, describing the improvements in transparency and neutrality becomes an exercise similar to trying to write a long essay on different shades of red. You can try to make the prose exciting, but you really can’t describe the color red.

As for trying to rank or quantify such improvements, I ultimately found myself reacting to such efforts in the same way that I do to attempts to precisely rate wines from 1 to 100 with difference scored down to the last digit. Saying one bottle ranks a 91 and the other ranks a 92 implies you can really measure such difference consistently. Throwing references to the taste of wild raspberries, forest mushrooms, and oak trees, doesn’t help. (Query: Would a wine snob really know an edible forest mushroom from a poisonous one? How many oak tress and wild raspberries has he actually eaten?) Each level of improvement in Pass Labs or other preamps is audible, but if you begin with excellent overall sound quality, trying to quantify the level of subjective improvement is simply impossible.

The Pass Xs 300 Mono Amplifier

As you may already expect, I had much the same experience with the Xs 300 mono ampli-

fiers. The differences, were, however, more dramatic because I was comparing amps with such different power levels. The Xs 300 mono amps were not only better sounding in every respect than the XA-160.5s, but they had nearly twice the power: 300 watts into 8 ohms, 600 watts into 4 ohms, and 48 amps worth of peak output current. In contrast, the XA-160.5s deliver 160 watts into 8 ohms, 320 watts into 4 ohms, and 36 amps of peak output current.

I had originally chosen the Pass XA-160.5 Class A mono amplifiers over the more powerful Pass Labs X600.5 and other outstanding amps that were then available from other manufacturers that were not Class A because the overall mix of trade-offs was audibly worth it with the system and speakers I had at the time. I knew from long experience that this would mean a slight trade-off in the most exciting and detailed aspects of musical dynamics, but I felt it more than made up for this in other aspects of sound quality—particularly in lower-midrange realism and warmth, and in putting an end to any trace of edge in the upper midrange.

In the case of the Xs 300, however, the increase in power really makes a difference in both apparent musical “speed” and detail, especially in high-level dynamic peaks with top modern speaker designs like the Wilson Alexia. It was apparent with the sound from the woofers and other drivers on my Legacy Aeris, even though they have the equivalent of built-in amplified subwoofers. It helped improve the resolution of musical energy and dynamics, from microdynamics to the highest-level peaks, which good speakers like the Quad 2905s can resolve without distorting. Good as the XA-160.5s are,

EQUIPMENT REVIEW - Pass Xs Preamp and Xs 300 Mono Amp



the Xs 300s made them seem just slightly polite and forgiving in contrast.

The Xs 300s do involve a major increase in size and weight. Each mono amp has a separate power-supply and gain unit; each unit is 19" x 11.5" x 27.5". The gain unit weighs 168 pounds and the power supply 130 pounds; both consume some 1000 watts of AC. This may pose placement problems, but the styling and new meters are both restrained and visually impressive.

The Xs 300s are the kind of components that make a real visual statement to other audiophiles. That really shouldn't matter. However, if you do happen to be an authoritarian leader and high-end audiophile who is seeking to intimidate other high-end authoritarians—and to do so with style and dignity—these are the amps for you, *and they match the Xs preamp!*

At the same time, as Nelson Pass makes it clear in the Pass literature on the Xs 300s, they are not an exercise in size for size's sake or in specmanship. He stresses the harmonic structure of the Xs 300's transfer curve and its ability to reproduce the quality and integrity of live music. He also responded to my request for background on how the changes in design affected sound quality by stating that "we had been working on the Xs amplifier design for several years, and the big hardware aspect of it was nicely covered, but the progress stalled when we found that a simply bigger version of what we had been doing wasn't enough of a breakthrough in sound. Then a couple of years ago my batch of custom SIT transistors arrived, and we started to listen to the first prototypes of little 10 watt amplifiers using them. The transistors had a unique character, and while the SIT amplifier was not at all adequate to our

needs, it still showed us what we were looking for. I remember remarking that 'whatever the hell that has, we need to find a way to bottle it!'

"I began a comprehensive *objective* analysis of the SIT amp and began applying some new approaches to elicit some of those same qualities from the existing Xs amp circuit. Initially we used the SIT amps as a benchmark, but quickly began expanding the performance envelope for much greater power and control and much less distortion. While we retained most of the signature in the subtle relationships between the lower-order harmonics, it was not quite the same—it was better.

"While every part of the amplifier is important, playing with developmental tube and SIT designs showed that it is the character of the power output stage itself is most influential in shaping the sound of the amplifier. This is not a radically new idea—the output stage does the most work, generally has the most distortion, and is the interface to the complex variable and reactive load which is a loudspeaker. In the end, we found that adjusting the values for push-pull Class A biasing, and also the amount of single-ended bias in the output stage, gave us a major improvement. There are also two new and proprietary circuit techniques, one having to do with a form of local feedback around the middle stage (stage 2 of the 3), and the other fundamentally altering the use of the constant current sources that are used to contribute to the bias of Class A push-pull output stage and mold its sonic footprint."

Nelson notes in the instruction book for the Xs 300 that his previous designs for Pass Labs led him to go from the single-ended/push pull

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Aleph Series, to single-end bias in balanced output stages in the early XA Series, to balanced push-pull/single-ended Class A in the XA.5 Series, to finally making massive increases in the output stages of the Xs with a 10-fold increase in the bias current provided by constant current sources. This expanded the single-ended power range by a factor of 100, and brought the Xs Series to something far closer to pure single-ended Class A. The output stages eliminate even trim capacitors, have a 100kHz open-loop bandwidth with only limited feedback, and the circuit is DC-coupled.

He also notes that the Xs Series of power amps makes improvements in the drive stages and devices—using Toshiba MOSFETs and new forms of local feedback. Input impedance has been raised to 200k ohms in the balanced input, with minimal capacitance. Virtually any preamp will drive the Xs, and sensitivity to input cables is minimal.

Like the Xs preamp, the end result is a pair of amps I'd love to be able to afford and own—perhaps Pass will let me use one of my children as a hostage and loan me a pair. The Xs 300s are superbly musical with any kind of solo voice and instruments, depending on the recording. That added level of detail and dynamic realism is less forgiving of recording and front-end limits than the XA-160.5s—particularly any that are slightly bright or have an upper-midrange edge.

Going back to its ability to deliver immense levels of power and energy at real-world listening levels, the Xs 300 has enough power in the bass to drive my listening room—hell, my whole house—to vibration on those few recordings that really get down to the deepest bass. It can eas-

ily handle the electronic room compensation of my Wilson Alexias down below 25Hz (get out your copies of Rutter's *Requiem*, the Fennell and Dallas Wind symphony recording of *Pomp and Pipes*, or the Jean Guillou organ recording of Moussorgsky's *Pictures at an Exhibition*). Control, detail, and apparent speed are all improved for the lower bass into the bottom edge of the midrange.

It is the overall realism of the music in the lower to upper midrange, however, that is the area of clearest improvement. In a head-to-head comparison with the Pass XA-160.5s, and the excellent AVM SA8 power amp, the Xs 300s did as much as any amplifier I have yet heard to get the most musical detail and realism out of the full range of my recordings. Low-level musical and soundstage detail were particularly impressive. So was the purity of really good recordings of solo violin and piano, as well as soprano voice.

I was also struck by the fact the Xs 300s made two other improvements over the XA-160.5 and other Pass amps I've auditioned, which I had heard to a lesser degree in comparing the Xs preamp to the XP-30. The soundstage is not only more detailed, but also more open and wide, and apparent depth is more realistic when the recording permits. The mid- and upper-bass are also more detailed and lifelike, again when the recording permits.

The Xs 300 is the first Class A amplifier I have heard that does not even slightly soften upper-midrange and upper-octave dynamics. The end result is musically realistic and involving at every level. No aspect of music or sound quality stands out from another because none has to. This is an almost perfectly balanced set of in-

cremental but very real improvements over the other amplifiers I've auditioned in my system, and it is an overall level of improvement my audiophile friends heard and commented upon without any prompting from me.


As a result, there is a natural synergy between the Xs preamp and the Xs 300 mono amplifiers. To go back to my earlier comments about the way manufacturers voice their electronics, the two are complementary in their improvements, and the sheer neutrality of their voicing ensures that improvements in the sound quality of one does not mask those in the other.

Summing Up

I should stress that the margin of superiority that the Xs preamp and Xs 300 amplifiers had over my reference XP-30 and XA-160.5 was limited, and was dependent on the quality of the recording, my front end, speakers, and cables. But hell, I'm an audiophile and that margin of superiority is really hard to resist. There are reasons why Nelson Pass warns in the manual for the Xs preamp that "I can only say that if you are on a restricted budget, you might be wise to avoid borrowing one of these." That same warning applies to the Xs 300s, and even more to listening to both.

But, I'd temper Nelson's warning just a bit. I've heard a lot of truly superb systems and gear over the years that were well beyond my budget. I've never regretted such experiences, for they have always taught me something about setup, sound, and music, and even when I've had to return gear on loan I've gone back to my reference system able to understand it and enjoy it more than before.

As has been the case with every bit of really good gear I've listened to—regardless of whether I could afford it—I have truly enjoyed my time with the Xs preamp and amplifiers, and done so without regret. Moreover, I know from personal experience you can get truly outstanding performance out of far less expensive Pass Labs preamps and amplifiers. I never come away without learning enough to make slight improvements in the way I place my speakers and listening position, in choosing interconnects and cartridges, in how I set up my tonearm and turntable, and in selecting front-end components. Oddly enough, I also find myself rethinking my ratings of the sound quality of both my older LPs and high-resolution recordings and downloads. Being an audiophile does not have to be a passive sport. Every time you learn from listening to other components, you can act on those lessons.

Finally, if you do ignore Nelson's warning and somehow become addicted to the Xs preamp, the Xs 300, or both—and if find you desperately need a solution that goes beyond intelligent restraint—I have one that works every time: Just win the lottery. You deserve an Xs preamp and a pair of Xs 300s! 

Balanced Audio Technology Rex II Preamplifier and Rex II Monoblock Power Amplifier

Mellifluous

Jacob Heilbrunn



About a decade ago at the Hilton Hotel in Manhattan, Balanced Audio Technology demonstrated its electronics in a magnificent surround-sound configuration with Avantgarde Trio loudspeakers and Bass Horns subwoofers that were parked in each corner of the capacious room. A line formed outside to wait to hear it. One of the demo cuts featured the Catalan tenor Jose Carreras performing with a choir. You could almost pick out each voice in the chorus. Carreras' voice sounded utterly ethereal. It was one of those audio experiences that you tuck away in your mental sonic album and return to with a sense of nostalgia. [The same system at a San Francisco show elicited a standing ovation with wild applause at the conclusion of Pink Floyd's *The Wall*—the only instance of such a reaction to a show demo in memory. —RH]

Ever since that event I've followed the progress of BAT, as it is known, with more than casual interest. A few years ago I visited the factory in Delaware where the equipment is built, and became acquainted with the very intriguing and variegated trio—Victor Khomenko, Steve Bednarski, and Geoff Poor—that runs the company. All three are passionate music lovers and Khomenko's design knowledge is not to be trifled with. The guy, to put it bluntly, is brilliantly innovative. Consistent with Russian engineering, which makes the most out of basic parts (think AK-47), BAT equipment appears quite impregnable when it comes to reliability.

Since I saw the factory, however, BAT has undergone a change in ownership. The original team remains intact, but the company itself was purchased by Music Direct owner Jim Davis in 2013, who has provided it with vital financial backing.

When Khomenko, Bednarski, and Poor visited me to deliver the company's new 160-watt Rex II monoblock amplifiers and preamplifier, I was thus curious to listen to the equipment for several reasons. For one thing, I wanted to see if the company had been able to build upon its new resources to improve its equipment. I was also simply avid to audition another tube amplifier, a pursuit that I've been following with some assiduity in the past year. Tube amplifiers that I've listened to at some length in recent months include the VTL Siegfried monoblocks, the Audio Research Reference 75 stereo amplifier, the Octave MRE 220 monoblocks, and the Doshi V 3.0 monoblocks. The Siegfried had a mesmerizing fullness of sound and stygian bass and the ARC a pellucid treble. The Octaves had a very transparent sound and the Doshis a winsome musicality. What would BAT bring to the table?

Quite a lot, as it turned out. Apart from superlative reliability, chief designer Khomenko focuses on a low noise floor, purity of power, and a mellifluous sound. He's gone to heroic lengths in designing the Rex preamplifier, which boasts no fewer than 18 tubes. Upgrades from its first incarnation include replacing the Six-Pak of capacitors with amorphous-core output transformers. The Rex has only one gain stage for signal purity and uses no global feedback. Its ability to drive low-impedance loads is also superb, deploying for high-current delivery no fewer than eight 6H30 tubes, which hail from Russia. The outboard Power Module, housed in a full-sized chassis, contains what BAT terms a low-impedance local power supply. The Power Module is a true dual-mono design that eschews silicon diodes in favor of vacuum-tube rectifiers. The AC shunt regulators are also built from vacuum tubes, for a total of ten tubes in the Power Module.

Meanwhile, the Rex II amplifier is hardly less impressive: it features a fully symmetrical triode circuit, employs auto-bias, and is monitored by an electronic protection circuit. It looks almost impossible to damage these big boys, a big change from the days when turning a tube amp on and watching whether it would perform or emit a shower of sparks was a big question mark.

Perhaps most startling, BAT doesn't rest content with the possibility of powering your speakers with just a pair of its monoblocks. Instead, there was literally a colossal amount of BAT amplification in my listening room—four power amplifiers to be precise. The way BAT has designed its amplifiers, which are each based around two pairs of the extremely robust 6C33C tube, it's possible to daisy-chain them—

EQUIPMENT REVIEW - BAT Rex II Preamplifier and Rex II Monoblock Power Amplifier

pretty much infinitely, depending on your tolerance for heat and your willingness to countenance a whirling electric meter that might even take off like a flying saucer. Essentially, if I have it right, the second amp, which was tied to the first amp, functions as an extra source of reserve power. Specifically, adding the second amplifier in parallel doubles the voltage, doubles the current, halves the output impedance, and increases the signal-to-noise ratio by 6dB. The idea is that it will provide an increase in soundstage size and musical control.

This is the mode in which I first listened. As a result, the immense power and grip of the BAT amplifiers when coupled with the Rex II preamplifier instantly came to the fore. One of the things that most impressed me in listening to baroque and early classical music was the iron grip that the amps exercised on the bottom end. It wasn't that the amps had the opportunity to deliver pounding bass. On the contrary, it was the way they brought out the hitherto barely audible and subtle details of the basso continuo, thereby perceptibly enhancing the sense of the room in which the recording originally took place.

As enjoyable as it was to listen to two pairs of tube amplifiers, I have to admit that I cracked pretty soon. The heat, even in my fairly large room, was simply too overwhelming. But I also couldn't help wondering if the additional complexity of the quad-amplification system might also not carry some sonic penalties as well as assets. For example, I couldn't avoid the sense that a very slight muddying of sound was taking place with extra sets of speaker cables and interconnects linking the amps. Thanks to the

generosity of the Nordost Corporation, I had oodles of its superlative Valhalla II cabling on hand for the review. But perhaps four amps were too much of a good thing: with a single pair of monoblocks the musical presentation took another notch up in alacrity and spontaneity and coherence.

Which is a somewhat roundabout way of saying that the tandem of Rex II preamplifier and amplifiers sounded utterly beguiling. One of the most conspicuous strengths of this duo is the tautness of the bass. There was not a smidgen of the bloat that sometimes afflicts tube amplifiers. It doesn't explore shifting tectonic plates the way Boulder amplifiers do. But this is no muffin-top amplifier. It's lean and mean in the nether regions. The depth, explosiveness, and clarity were phenomenal. It's not like you had to strain to hear it. Consider Leonard Cohen's new album *Popular Problems* [Columbia Records]. On the cut "Almost Like the Blues," the propulsive quality of the bass line comes through beautifully and makes for a riveting performance. It's easy to scant the importance of bass, but make no mistake: There is no substitute for the stygian frequencies, once you've heard them authentically reproduced. True bass sets up so much of the ambience of a concert hall or recording studio. On the Cohen album, for instance, it not only endows all the instruments with remarkable weight and authority but also allows his gruff, hoarse voice to project from a black space. This sense of gravity extends to instruments such as the violin on the cut "Samson In New Orleans," which sounded supple and plangent. Often instruments such as violin on pop recordings

can sound thin and etched. Not with the Rex II gear. On a Teldec recording of Gidon Kremer performing the Schumann violin concerto, the very marrow of the violin emerged with great fidelity, producing a rich palette of overtones that lingered on long after the initial note had been sounded.

At the same time, the sheer scale of the soundstage was quite riveting as well. On a Telarc recording of the trumpet virtuoso Rolf Smedvig, the Rex provided a sumptuous and wide soundstage. It was possible to identify accurately, or about as accurately as it can get with excellent stereo, Smedvig's position relative to the Scottish Chamber Orchestra. Seldom, if ever, have I heard so much of the acoustic envelope as the BAT supplied. But this is not to say that the BAT equipment poked into every nook and cranny of the orchestra. It didn't. Rather, it gives you the whole gestalt, the sweep of an orchestra without getting lost in the details. Something occurred in listening to Pinchas Zukerman and Marc Neikrug performing Beethoven's "Kreutzer" Sonata—the BAT superbly conveyed both their hair-raisingly audacious playing in the presto movement. It pretty much had me sitting on the edge of my chair. Here the Rex II winningly rendered the emotional energy that both Zukerman and Neikrug invested in the sonata—imaging was impeccable as were the uncompressed fortissimos. Accordingly, the dynamic impact was off the charts.

Overall, the Rex II amplifiers delivered, when appropriate, a tremendous wallop—not a sledgehammer assault but a true sense of the scale and sweep of the music. One track

SPECS & PRICING

Rex II Preamp	Power output: 80W in 8 ohms or 4 ohms (3% THD)
Tube complement, control module: 8x 6H30	
Tube complement, power module: 2x 5AR4, 4x 6C19, 2x 6H30, 2x 6C45	Frequency response: 5Hz-200kHz
Frequency response: 2Hz-200kHz	Input impedance: 108k ohms
Maximum gain: 18dB	Dimensions: 17" x 9" x 24"
Inputs: Five balanced on XLR jacks	Weight: 100 lbs. each
Input impedance (minimum): 100k ohms	Price: \$19,900 each
Outputs main: Two balanced on XLR jacks	ASSOCIATED EQUIPMENT
Outputs tape: One balanced on XLR jacks	Continuum Caliburn Turntable with two Cobra tonearms, Lyra Atlas and Myajima mono Zero cartridges, dCS Vivaldi CD/SACD system, Wilson Audio XLF and Magenpan 3.7i loudspeakers and Wilson Hammer of Thor subwoofers, Nordost Valhalla II and Transparent Opus cabling, Stillpoints Ultra 5 and Ultra SS footers
Output impedance: 200 ohms	
Dimensions (each module): 19" x 5.75" x 15.5"	
Weight: 76 lbs. (control and power module)	
Price: \$25,000	
Rex II Power Amplifier	
Tube complement: 4x 6H30, 6x 6SN7, 2x 6V6, 4x 6C33C-B	

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EQUIPMENT REVIEW - BAT Rex II Preamplifier and Rex II Monoblock Power Amplifier

alone sufficed to demonstrate for all and sundry who were at my house for a party that the amplifiers can deliver a prodigious amount of current—on Monty Alexander’s mind-blowingly good performance of “Night Mist Blues” at the Montreux Festival, the palpability, speed, and body of the piano as he slams the keys were staggering, enough to bowl over even non-jazz aficionados. The piano seemed to resound in the very space in front of us.

Much of this can be ascribed to the Rex II’s ability to render realistic decays. I recall being instructed at the Oberlin Conservatory that music is all about death and decay: once a note been sounded it immediately begins to die. Sure, a piano pedal can allow it to resound longer but no matter the instrument, once a note has been produced it’s headed for the exits. The Rex duo excels at providing the full value of notes, allowing them to decay into the ether.

Part of its ability to accomplish this so persuasively is linked to its iron rhythmic precision. The preamp and amp never rush the notes, never overemphasize any part of the frequency spectrum. Instead, they have a kind of hypnotic ability to deliver a realistic sense of pacing, something that tube amplifiers can have difficulty accomplishing. No, the Rex is not quite as clean as the Boulder 2050 monoblocks that resided in my basement for a few months, but then again, I’m not sure anything can match that standard, at least for now. But there is a sense of ease—not, mind you, to be confused with complacency!—and steadiness that the BAT gear appears to offer.

If the BAT equipment has continued to make great strides toward what some more auda-

cious than myself term the absolute, it also retained some of the qualities that have characterized its performance in previous generations. The timbral reproduction of both the preamplifier and amplifier, it must be said, continued to hew to the darker sound of the spectrum. This has both pluses and minuses. The upside is that the overall presentation is rich and organic without a trace of treble rebarbateness. The downside is that the treble is not as extended as that of a variety of other amplifiers. A certain rounding of the treble means that even hand claps or whistles simply sound lower on the frequency spectrum than I have heard with other gear. There is absolutely no shrillness that can be associated with the Rex, but it’s also the case that the somewhat velvety treble impinges ever so slightly on the micro-dynamic performance of the Rex II.

Designing a preamp or amplifier consists of making choices, and as near I can tell, BAT has chosen to err on the side of a musical and seductive presentation. The great merit of the Rex twins is that they offer the sterling virtues of tube gear absent many of the shortcomings that have traditionally plagued the genre. The marvelous midrange and bass of BAT’s latest designs is almost impossible to listen to without wanting to listen to one recording after another, even as the glowing tubes exert an almost equally tantalizing visual appeal. Anyone seeking a tube amplifier with great clarity, indefatigable drive, and exquisite midrange magic need look no further than the BAT Rex II. tas



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Paul Seydor, *The Absolute Sound*, April 2014

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Dan D'Agostino Master Audio Systems Momentum Preamplifier and Amplifier

Dan D'Agostino's Finest Effort

Anthony H. Cordesman



One of my friends who makes a constant series of jokes about my obsession with the high end described the sculptured look of the D'Agostino designs as “the best equipment I’ll never listen to”—the most positive remark the earbud-wearing twerp has ever made about any hi-fi components. If you don’t like the D’Agostino Momentum preamplifier and amplifier even before you listen to them your soul is simply dead.

You can get superb performance from, say, a car that has an understated “form-follows-function” design, like the Porsche 911. The Pass Labs preamp and amp I use as references have that kind of utilitarian, Bauhaus character. You can also, however, signal functional excellence through a visual image so unique that it is really a work of art.

In the Momentum’s case, the closest analogy I can think of is the kind of “art-follows-function” design you get with a highly styled Italian super-car. The Lamborghini Murcielago Reventon is an instance—from the bodywork down to the electronic display on the dashboard. The D’Agostino Momentum preamplifier and amplifier are the first examples of this paradigm I’ve ever seen in high-end audio—from the copper finish of the heatsinks to the hole in the needle on their custom-designed meters.

To paraphrase another car-related image, these also are not your father’s Krell designs—a reference to the iconic company D’Agostino founded in the early 1980s. They are personal designs from Dan D’Agostino—one of the greatest amplifier designers in high-end audio. They are custom-made in virtually every area with

quality as the object and little regard to cost. The Momentum preamp sells for \$32,000; the Momentum power amps sell for \$60,000 a pair, although an only slightly less powerful stereo version sells for \$32,000.

Talking to Dan D’Agostino during setup made it clear that to some extent making the Momentums was a liberating experience compared to running a full-range audio company like Krell. He was able to both go back to his roots and reinvent most of his approaches to design. The visual style of his preamp and amp has a clear functional rationale. Like the Lamborghini Murcielago Reventon, they are intended to define the state of the art and they are priced accordingly. They are the audio equivalent of *auteur* products—the result of the design skills and ears of one of the most proven engineers in the high end, rather than a corporate product or one thought up by the equivalent of a committee.

Yes, this does make them unaffordable for me and at least 95% of TAS readers. At the same time, they almost have to set a precedent for making equipment as much fun to look at as to listen to. More importantly, they provide any audiophile who listens to them with the kind of sound quality that can help aid him in choosing far more affordable equipment. You can’t set your standards by comparing one affordable preamp or amplifier to another affordable one. You need to choose your trade-offs by listening to the best.

The D’Agostino Momentum Preamplifier

Let me begin with the preamp—both because it comes first in the audio chain and because preamps are always more fun to describe than power amplifiers. Dan D’Agostino summed up

EQUIPMENT REVIEW - Dan D'Agostino Master Audio System Momentum Preamplifier and Amplifier

some of the key features in the Momentum pre-amp as follows in an interview for this review: "The Momentum preamplifier is an all-discrete design using all through-hole components. The preamplifier is pure differential with all of the circuit boards exhibiting one plus phase and one minus phase with the board split down the middle. The preamp consists of six plug-in boards, three per channel. Plug-in boards allow for future updates making the design future-proof.

"The audio circuits of the preamp are very wideband using multiple current mirrors and zero feedback, and are built using all through-hole devices that are matched and assembled by hand. The power supply is all discrete and has separate transformers for analog and digital supplies with separate ground paths.

"The tone control is a separate amplifier board which is completely isolated from the main amplifiers of the preamp and has its own power supply. When it is switched on it is inserted between the input and volume control board by a high-precision relay. When the tone control is switched off it is completely out of the circuit.

"The volume control, one of the most important parts of a preamp, is made up of a discrete ladder using special 0.1% resistors and high-precision, very-low-loss aerospace relays. The volume control itself uses an optical encoder with a 2+-diameter, rotating encoder-wheel, which will give extremely good linearity with very small increments of change possible. The knob is assembled with two sealed ball-bearings. The two bearings are assembled into a preloaded chamber, which allows a perfectly

smooth precision feel to the volume control." At a more pedestrian level (arguably the first mixed metaphor in this review), the Momentum Preamplifier is a six-input linestage preamp, but it does have a number of special features. Its six XLR balanced inputs include a theater input (the theater input has unity gain regardless of the volume-control setting). It has a remote control that can either be used to control a small IR sensor-tower wired to the rear-panel input, or the front IR sensor in the meter housing. There is a meter to show the volume and and a large ring around the meter that controls the volume. This is a beautiful design feature in itself.

The remote control adjusts balance and signal polarity as well as volume and source-selection. There are truly functional tone controls that are carefully designed to allow you to increase the amount of bass at low frequencies or reduce a trace of boom, and alter the upper-frequency balance to adjust for hardness or dullness in the upper midrange and treble with minimal impact on the rest of the mid-range. Almost all of these features affect the lighting and colors on the front display in a subdued enough way to complement rather than spoil the design, and the remote is a round unit suitable to live on a table or hold, with buttons spaced far enough apart and labeled clearly enough to actually use easily.

There are also 12-volt trigger jacks that can control power amps and other equipment, and a DB9-type input, which allows the Momentum preamp to be controlled by home automation systems that use the RS232 protocol. The pre-amp also fits on a power supply unit connected

by a bale in the rear that adds to the sculptural effect, making it quite a display item if you like showing off your equipment (and easy to conceal if you don't).

You can get more of these details in the pre-amp manual at the company Web site; it's a fun read regardless of your real-world equipment budget.

D'Agostino Monoblock Power Amplifier

Dan sums up the features in the D'Agostino monoblock power amplifier as follows:

"The circuit for the amplifier is very different from anything I have done in the past. With very low nested feedback of 5dB and no global feedback, the Momentum is an extremely quiet design, typically -104, -105dB unweighted. The low-gain design is harmonically accurate and true to the input signal.

"The use of copper allows me to get much more output power from a very small package, not requiring large aluminum heat sinks. Copper absorbs heat 91% faster than aluminum keeping all the output devices at a constant safe temperature. The Momentum amplifier can produce huge amounts of power—1200 watts into 2 ohms—and has enough output to drive any speaker with power and authority.

"All components in the amplifier are matched and curve-traced for maximum linearity and repeatability. The selection of parts is based on sound with a cost-no-object approach. All of the operating circuits are analog and all parts are through-hole, allowing for maximum reliability."

The Momentum amp is a visually compact design (although it weighs 98 pounds), and

draws less than a watt in standby, allowing you to keep it operating constantly at little cost in electric power. Although the Momentum amplifier sounds good at turn-on, it requires approximately 30 minutes to reach optimal operating temperature.

There aren't many features to describe: 12V control, input and output jacks, and switches

SPECS & PRICING

Momentum Preamplifier	RCA (adapter supplied)
Inputs: Six balanced XLR stereo (one of them theater-bypass)	Outputs: High-quality binding posts
Outputs: Two balanced XLR stereo	Power: 300 watts into 8 ohms, 600 watts into 4 ohms, 1200 watts into 2 ohms
Frequency response: 0.1Hz-1MHz, -1dB; 20Hz-1MHz, +/-0 dB	Frequency response: 1Hz-200kHz, -1dB
Distortion: <0.006%, 20Hz-20kHz (full output)	Noise: -105dB, unweighted
Signal-to-noise: -105B, unweighted	Gain: 26.5dB
Gain: +6 to +12dB, adjustable	Weight: 98 lbs.
Weight: 75 lbs.	Dimensions: 12.5" x 4.3" x 18.5"
Dimensions: 18" x 4.3" x 12"	Price: \$60,000 per pair
Price: \$32,000	
Momentum Monoblock Power Amplifier	D'AGOSTINO MASTER AUDIO SYSTEMS
Inputs: One balanced XLR, one unbalanced	7202 E. Cave Creek Road #B1 Carefree, AZ (480) 575-3069 dandagostino.com

EQUIPMENT REVIEW - DDan D'Agostino Master Audio System Momentum Preamplifier and Amplifier

for meter brightness and power sensitivity. The D'Agostino monoblock is designed for XLR inputs, although RCA adapters can be used. It is also far smaller and far "greener" than most power amps.

If you want a full description of all the operating features, the on-line manual describes the product, and the cover photo shows its visual beauty.

The Sound

I normally review the sound of preamplifiers and amplifiers separately even when they come from the same manufacturer. In this case, however, the only meaningful differences between the sound of the preamp and the amplifier were largely the product of the amplifier/speaker cables. There was no meaningful difference in the sound character of each unit except for the impact of the speaker-dependent interface—something that became clear by shifting my different reference speakers in and out, and by using the D'Agostinos to drive the speakers of two of my friends.

In general, I would also recommend that you stick with preamps and amplifiers from the same manufacturer, and at the same level of quality in that manufacturer's line if you can afford to do so. It may be possible to get lucky and get the best possible sound with a mix-and-match between either the D'Agostino preamp and amplifier and a different manufacturer's preamp or amplifier. For instance, the D'Agostinos certainly worked well with my Pass Labs XP-30 preamp and Pass Labs power amps. But with almost all top equipment you almost always get the best results when you

use a matching amp and preamp. You reduce coloration, hear what the preamp and amplifier designer actually meant you to hear, and reduce the risk of any trace of a hum loop or other interface problem.

This is particularly true with products of the quality of the D'Agostino preamp and amplifier. They are far too neutral and accurate to use them to try to compensate for the colorations in another piece of gear. Like the other preamps and amps that top today's high end, they do not have a characteristic sound that shapes the music. They are not warm, bright, or hard, and don't favor or penalize some part of the sound spectrum. They do not perceptibly alter dynamics from the subtlest to the loudest levels I can stand to listen to.

While some high-end gear seems designed to shape the sound of all the music that passes through it, the D'Agostino Momentum preamplifier and amplifier seem to free music from such alterations, getting the best of detail, dynamics, soundstage, and imaging.

Part of this "freeing" of the music is due to the fact that the preamp and amplifier seem so truly quiet. I don't just mean they are low in hum and noise, although once properly set up they are outstanding in those respects. The music simply seems to come without any of the faint electronic cues of character that make you at least subtly aware the sound is electronic and not natural.

Some audio designers and reviewers refer to this as a "black" sonic background. Whether they mean "black" in the sense of a black film background, a black hole, or any other interpretation of "black" that mixes visual and sonic

images, the end result is still an oxymoron. It's simply one more instance of struggling to describe a sound that isn't there.

That does not mean the D'Agostino Momentums don't have their peculiarities. Like the other state-of-the-art preamps and amplifiers I have listened to, they have extraordinary transparency. This becomes clear almost immediately if you listen to them with really good recordings on a really good system, and then shift to otherwise top-quality, high-priced preamps and amplifiers. There is none of the slight rise in midrange energy which in some electronics gives the impression of added detail, or for that matter any of the softening that slightly reduces real detail and natural musical edge. You don't hear additional detail and musical realism in the form of some sudden new insight into the music or an unexpected change in a given recording. When it comes to preamps and amplifiers, I always find such "discoveries" to be a warning of a problem in either the item under review or the one it is being compared to. Changing today's preamps and amplifiers should never make those kinds of changes in sound quality unless there is a real design fault in at least one of the components under review.

What you do hear are clear dynamic shifts, more low-level detail, better definition. Differences between really good digital recordings in the 24/96 world—copied from masters made directly at the performance at these rates—show up the potential of high-resolution digital. If the recording is good enough, you also hear a more natural, articulate, and three-dimensional soundstage. The stage seems to expand in width without stretching instruments or voice.

There is a more natural spread and more centerfill, and, particularly with the Momentums, more depth. In addition, imaging is not only more precise; images are placed more realistically in both width and depth.

It is important to note here that, while their nuances are hard to describe, there are audible differences between the Momentums and other state-of-the-art preamp and amplifiers. For instance, both of the Momentums tend to be more mid-hall than front row in perspective. The problem is that the differences are small enough, and enough dependent on the recording, that I can't be sure that any coloration is involved when comparing the D'Agostinos to other top electronics because I have no way of knowing what the actual performance was like.

What I can say is that the Momentums' mix of imaging and other soundstage characteristics, coupled to their other merits, makes the music more listenable, more emotional, and more real on many recordings. Moreover, the sound remains deeply engaging over long listening periods.

Unfortunately, there is no audio term for the ability to produce a fully enjoyable sound over time. It isn't just a matter of avoiding listening fatigue; it is the ability to keep you engrossed in the music. These are not a preamp and amplifiers to read by or use for background music. With equally good associated components, they pull you into the music and the performance and they keep you there.

At one level, they give you truly outstanding performance with truly outstanding recordings, and are not forgiving of any defects in mediocre or poor recordings. At another, they get the

EQUIPMENT REVIEW - Dan D'Agostino Master Audio System Momentum Preamplifier and Amplifier

best out of even the most ordinary Deutsche Dullaphon recordings (although tweaking the tone controls does help!), as well as the all-too-many jazz orchestra, symphonic, and opera recordings that tend to blur the music into a mass at peak levels on large-scale choral passages, or during those many recordings when Mahler seemed determine to cram 1000 or more performers onto the stage at the same time. The Momentums make as much sense out of the final parts of Saint-Saëns' Symphony No. 3 as possible, until a recording comes along that can actually handle all of its dynamics and detail.

There is, however, one important difference between the Momentum preamp and amplifier. The preamp has excellent bass. The amplifier not only has that same bass, but does an exceptional job of controlling the woofers in good associated speakers—even ones that are difficult to drive. I suppose you could argue that the amps make a slight trade-off between bass detail and sheer energy, but they also make a slight gain in extension in the deep bass. In practice, this is far more a description of their sound than a criticism.

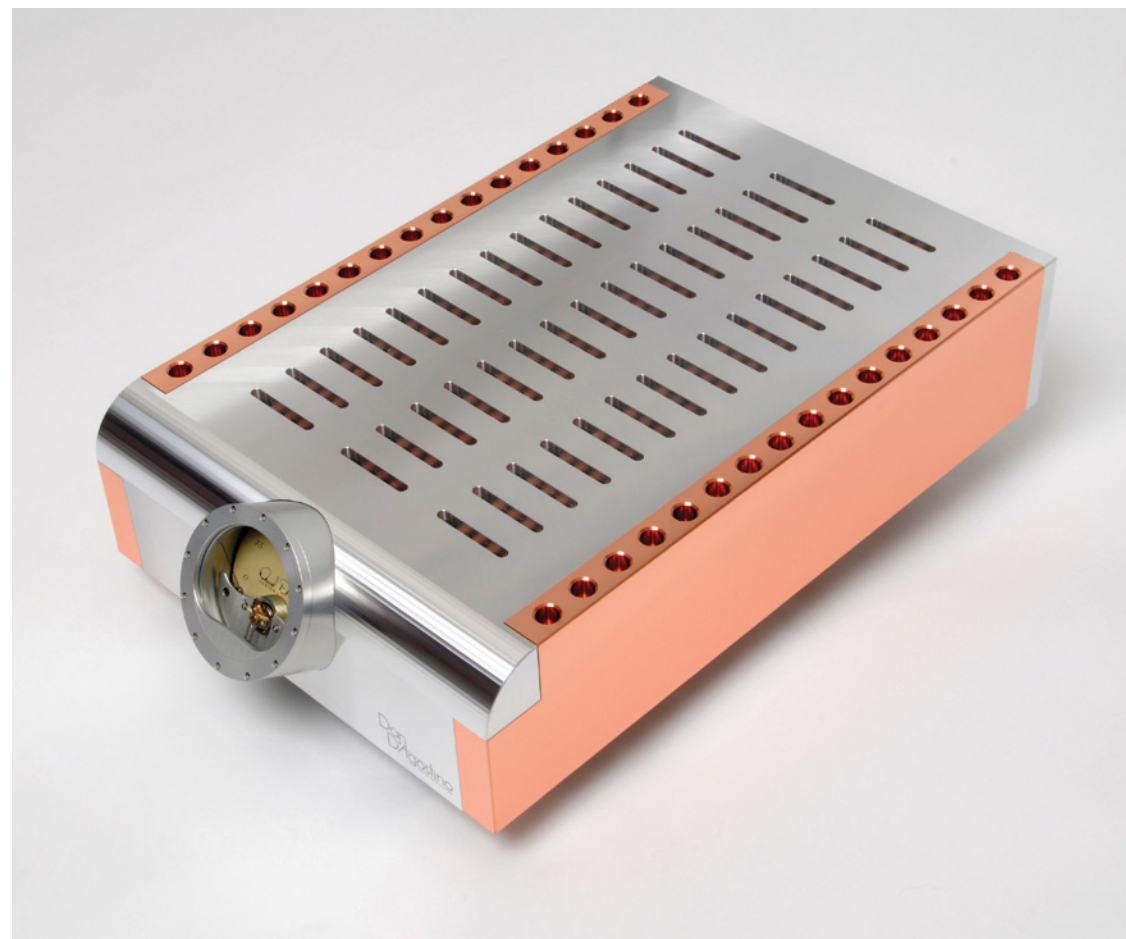
Setup and Interfacing

The Momentum monoblock amps seems to be able to drive any speaker known to man, including older electrostatics and the earlier low-impedance Apogees. They did not present any problems with different interconnects and speaker cables, either, or exhibit any interface problems with different front-end components. They are so transparent that they will be far more revealing of the sound of the other com-

ponents in the system, and this may require some adjustments in your choice of "wires," and possibly even a slight movement in speaker location to reflect the better focus of the soundstage and to get the best bass response, but this is true of all really state-of-the-art preamps and amplifiers.

Any really good power cord, including those that came with the preamp and amplifier, functioned well in my home. The only sensitivity I found in my setup occurred where I have separate power circuits to each outlet near the speakers in my listening room, and another circuit to the components in a separate room. This did not present a problem *per se*, but the use of in-wall AC filters and a separate power conditioner did create trace ground-loops even with AC cheater-plugs. This is a common problem with a lot of top equipment, and a caution about upgrading your AC power. The value of conditioners is very supply-and-house-wiring dependent. Spending vast sums on AC outlets is ridiculous. Most of the time, using high amperage, very thick AC lines for the AC wiring that feeds your sound system, improving AC grounding, and using the cheaper high-quality outlets available at any home improvement store will produce better sound quality than using separate AC filters or conditioners on different AC circuits.

My advice is that if you have the slightest hum, check the AC lines and their grounding. The problems will not be in the D'Agostino equipment and it makes no sense to buy electronics at this price without having high-quality and preferably dedicated AC lines. If you do not know how to do this, most dealers will be able solve the problem for you, or can recom-



mend an experienced electrician. Good overall AC circuits are a key part of a high-end system.

Summing Up

There are always rivals at the top of any area. You don't get constantly better without real competition. I had two new power amplifiers in

for review at the time I carried out these listening tests, and each provided outstanding performance with a different mix of the more subtle sonic nuances I touched upon earlier. The fact remains, however, that the D'Agostino Momentums are as good as the high end gets. A real privilege to audition! *tas*



Phonostages

PS Audio NuWave Phono Converter

A New Breed of Phonostage

Anthony H. Cordesman



PS Audio's NuWave Phono Converter combines a phono preamplifier and an analog DSD/PCM converter that can be used for a record player, a tape recorder, an FM tuner, or any other high-level input. It features an advanced all-analog phonostage and an equally advanced A/D converter, both of which have discrete circuit sections. The NuWave isolates and separates the analog and digital paths within the device—making it the first product where you can clearly compare the sound of a true high-end analog phono preamp with that of a state-of-the-art A/D converter that can drive virtually any modern DAC.

For those who don't yet need the integral A/D converter, the NuWave functions just as any other phonostage would. It will amplify cartridge outputs with a pure-analog signal path based on a differential low-noise input stage coupled through passive RIAA equalizer to a discrete Class A FET output stage. It has an extraordinary range of gain which can accommodate cartridges from moving coils with as low as 0.2mV output up to moving magnets with up to 220mV output, and can do this with virtually no noise or hum.

At the same time, the NuWave utilizes a high-performance Burr Brown PCM4222 A/D converter that PS Audio states has exceptional dynamic range and low noise. It allows the user to choose between linear PCM or DSD at the NuWave's digital-output jacks. For PCM, the A/D chip can provide up to 24-bit/192kHz resolution, while the DSD option offers both standard DSD (2.8224Mbs) or double DSD. This means that you can digitize and store your LP collection at up to 192kHz/24-bit PCM, or standard or double-speed DSD. The PCM output is available at the USB, SPDIF coaxial, and I²S outputs. The DSD stream is output exclusively on an I²S bus via an HDMI port.

The A/D chip's clock is processed by PS Audio's Digital Lens reclocking circuit to reduce jitter. It's worth noting that jitter in the A/D's clock is just as sonically pernicious as jitter in the D/A's clock. The difference, however, is that jitter introduced in the A/D stage is permanently embedded in the signal and cannot be removed later. There is a separate high-level analog input for digitizing line-level sources such as from an FM tuner.

You can find a full technical description on

the PS Audio Web site. There, you can also find a copy of the instruction handbook—which is far more intimidating at first glance than it is in practice. What counts, if you choose to reject all the techno-babble, is that you can not only use the PS Audio NuWave Phono Converter to play straight into any DAC with DSD or PCM and take advantage of its linestage preamp capabilities, but also create your own digital library from vinyl, tape, radio broadcasts and live events, or even studio work. This does allow for the potential horror of someone recording high-res digital karaoke or *Guitar Hero*—ironic as that may be—but in every meaningful respect it provides a mix of features I suspect every audiophile will eventually need.

Performance as an Analog Phono Preamp

Let me begin with the core aspect of the PS Audio NuWave Phono Converter's performance. First, it is a truly excellent analog phono preamp. While it has many other features, this will be the most important single aspect for most owners. It also means you can have some of the best analog sound available right now and wait for the day you will need its digital features, or continue with analog while you convert your LP collection for digital storage. With all of the additional features of the PS Audio NuWave, there are none of the trade-offs typically required when choosing between a purely conventional phono preamp and an A/D converter, especially at its price of \$1895.

Not only does the NuWave have exceptional gain with exceptional silence, its gain can easily be adjusted to allow for different cartridge loadings while playing a record. It produced excellent results with my lowest-output moving

EQUIPMENT REVIEW - PS Audio NuWave Phono Converter

coils, high-output moving magnets, and moving irons. My only quibble would be providing some additional higher impedances like 3k, 5k, and 1k ohms for what is admittedly a handful of moving-iron designs—more a reflection of my love of trying different loads with Soundsmith and Grado cartridges than a real-world audiophile need.

Optimizing the gain and loading are critical with a phono preamp. So is consistency, regardless of gain and load, and here the PS Audio NuWave Phono Converter is exceptional compared to many competing products. Far too often, a phono preamp has “sweet spots” in noise, in gain versus sound quality, and in accurately reproducing the dynamics of music.

As for actual musical performance, I have no idea how PS Audio’s voicing tests for this unit were conducted, but someone clearly went well beyond his favorite cartridge and really worried about providing a truly musical interface with a wide range of cartridges and preamps. A few much higher-priced all-analog phono preamps sound better to my ear, but they tend to be at the cutting-edge level, like the Pass Labs XP-25—a unit that sells for \$10,600, some five times the cost of the PS Audio.

In short, this is an intensely musical phono preamp. I’ve had some quibbles about the sound of some PS Audio equipment in the past; its previous preamps and phono preamps seemed to tilt a bit towards the highs, making the midrange just a bit bright and hard. The PS Audio NuWave provides all of the upper midrange and treble energy anyone could desire, but like the rest of the PS Audio equipment I’ve auditioned in recent years, it now provides that

life and detail without any hardness, leanness, or unrealistic brightness.

I lean towards a slightly warmer sound, but this reflects my preferences as a mid-hall listener. Even so, I had no problem enjoying the upper-octave sound from my most demanding reference records—including harpsichord, transverse flute, older violins, modern clarinets, and all of the other torture tests of upper midrange and treble sound quality. If you are lucky enough to have a collection with some of the Accent classical recordings or other smaller European labels that made truly great classical chamber music recordings—ones that did as little as possible to compress the sound or limit the true near-field energy of older instruments—you’ll know how demanding such music can be. However, you can use any other LP in your collection that exposes the most demanding aspects of the upper midrange, and you’ll find that a properly loaded cartridge will perform at its musical best.

Fortunately, the lower midrange and bass are equally good; if anything, the NuWave either has just a touch of excess deep-bass energy, or does a better job of retrieving such musical information than most of the competition. The deep bass seems to be an area where no two top designers ever seem to voice their units or deal with the RIAA curve in exactly the same way (the NuWave uses passive RIAA equalization). The key point is that if the NuWave errs at all, it errs in the direction of musicality, even in a system that measures relatively flat down to 25Hz in my listening room. There is musically realistic life and detail—from the lowest passages to the loudest—without any of the

dulling that all too often occurs at really low musical levels in phono preamps and without any problems at peak levels. This is as true of the most demanding fortes in full symphonic music, jazz orchestras, and opera as it is of solo voice, piano, guitar, and violin. Part of this exceptional performance may be the superb signal-to-noise ratio, which makes the NuWave sound significantly quieter than the specified 72dB for moving-coil cartridges—at least compared to similar specifications in other phono preamps (try finding a real-world room silent enough to really listen at levels where the ambient sound allows you to clearly hear the full impact of such S/N ratios).

The soundstage is also very detailed and is as natural as given recordings, cartridges, tonearms, and setup permit. One of the strengths of the NuWave is that it clearly presents the sonic and musical impact of small changes in tracking weight, VTA, azimuth, and channel separation. The cartridge and set-up quality will generally be the key limiting factors in imaging and soundstage size with a really good phono preamp—analog has its limits as well as its joys—and this was fully apparent with the NuWave.

It does an equally good job of reflecting the more subtle nuances in the sonic characteristics of given cartridges—an issue I’ll come back to later. My VPI tonearm allows almost instant cartridge swaps and makes it very easy to hear the differences between cartridges without using two tonearms. Once again, it takes a truly excellent phono preamp that costs substantially more than the NuWave to challenge its ability to clearly reproduce the subtler sonic differences among cartridges.

The World Beyond Analog

At this point I had better start focusing on why it is called a Phono Converter rather than simply a phono preamp. Let me remind you that it converts analog phono sources into digital and has a separate high-level analog input that can provide a digital output from analog tape recorders and FM tuners. In short, if you have a DAC that is a full digital preamp, or you want to stream your analog music for any reason, the NuWave is one of the first truly high-end products that can do this and provide a conversion in both high-resolution DSD or PCM.

I was able to use the NuWave with PS Audio’s Perfect Wave DAC and the far-more-expensive EMM Labs XDS1 DAC, as well as do some short listening with several of my friends’ DACs in their systems. In each case, the sound of the digital output from the NuWave was virtually

SPECS & PRICING

Inputs: Two RCA phono; two RCA line-level	Dimensions: 14" x 8.3" x 2.4"
Outputs: RCA or XLR; S/PDIF digital coax; HDMI; USB	Weight: 14 lbs.
Gain: 0.2-220mV, mc/mm	Price: \$1895
Cartridge loading: 60 ohms (80nF) up to 100k ohms (47pF)	PS AUDIO
A/D Converter: PCM up to 24-bit/192kHz; DSD 2.8MHz or 5.6MHz (DSD64, DSD128)	4826 Sterling Drive Boulder, Colorado 80301 (720) 406-8946 psaudio.com

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EQUIPMENT REVIEW - PS Audio NuWave Phono Converter

the mirror image of the sound from the analog phono circuit—allowing for the colorations introduced by each DAC. In the case of the Perfect Wave DAC, the sound through my analog reference system was remarkably close to the pure analog path, and I could make use of the Perfect Wave's volume and balance controls, along with its wide range of digital inputs, to successfully eliminate the need for an analog preamp and get truly great sound.

In short, if you want to know about the nuances of the NuWave's sound quality, just read my earlier comments about the analog sound. Its digital output preserves all of the sonic nuances in its analog output including the character of the cartridge and front end, and the end result—at the recommended recording rate of 24-bit/96kHz—gives you something so close to the sound of playing a record through the system used to make the recording that you get all of the (guilty?) pleasures of analog.

Certainly, there is no loss of life or dynamics, nor a constant touch of digital edge. It affords the ability to hear all the different sonic nuances that come out of various cartridges, or even pressings of the same recording. And if you doubt this, just try comparing the sound of the analog output to the sound of the PS Audio NuWave Phono Converter's digital output through a really good DAC. This is a result I never expected. My experience to-date with anything approaching consumer level A/D has often been very good, but never this close to being inaudible. If there is any coloration, it is at a token level and masked by all of the other coloration in an analog front end.

I should note, however, that these comments

are based largely on the Phono Converter's PCM outputs. The one DAC I could use with DSD input capability produced excellent sound, but I'm not really familiar enough with that DAC's DSD performance to make detailed judgments or enter the raging high-end debate over PCM versus DSD. About all I can say is that PS Audio is a great fan of DSD, and it is highly unlikely that the DSD output lags behind the PCM with regards to sound quality.

Creating Digital Copies of Your LPs and Tapes

I did try making digital copies of FM and tapes with the PS Audio NuWave Phono Converter, and it did an excellent job. My main focus, however, was on its ability to make digital copies of LPs. This is also the main focus of the PS Audio instruction manual, which I would strongly suggest you follow to the letter. The process was also complicated enough for me to contact Paul McGowan—head of PS Audio—for a supplement to the manual on finding the right software to create a digital library of LPs, which is provided in the sidebar to this review.

One of Paul's recommendations is an independent product called Vinyl Studio (\$29.95; alpinesoft.co.uk), which is a very affordable program that worked as well as anything I've encountered, and whose features keep improving as the software is refined. The end result was again excellent sound quality for every LP that I copied, but I did come away with mixed feelings about the idea of transferring a library of records to digital. This is not a process that is nearly as easy as streaming CDs or downloading digital recordings. You have to bring your computer to your turntable or vice versa; there are

some minor computer set-up issues. Unless you use a Mac, you have to make sure your record is properly cleaned and your phono front end is optimally adjusted, and you have to monitor the actual playback of the record.

This is fine for the pearls of your record collection, but work your way through several hundred or thousand LPs and do so knowing that cartridges, tonearms, and turntables constantly evolve? Well, audiophiles are crazy—I know because I am one—but, *that crazy?*

And yet, the answer eventually might be yes. The rationale for such a library is not just to ensure against damages to your records or having a digital copy in your library for streaming; rather, one of the great strengths of analog for

seasoned audiophiles is that they almost certainly have gradually acquired a front end that has the colorations they love.

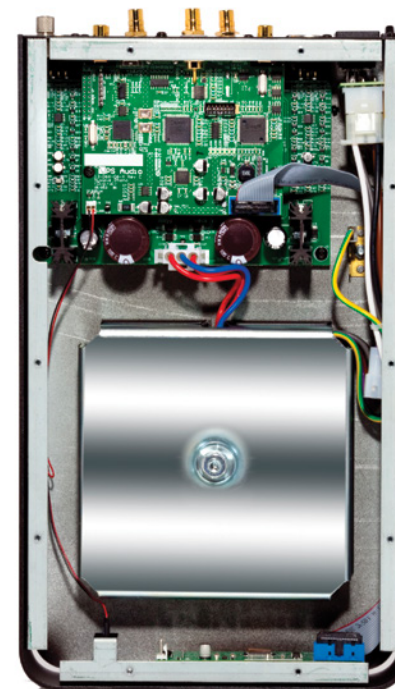
Let's face it, LPs have serious technical limits, one of which is an often musically satisfying level of compression, and most LP recordings were mastered with considerable equalization. No cartridge can be neutral and no audiophile I know of buys a cartridge for its technical performance.

Tonearm settings are critical, and as CBS Labs found years ago there is no right setting for VTA—there is no null; you have to trade increases in one form of distortion for another. Turntables, levels, and cables all make a difference—as does the way you clean your record and stylus. And yet, the end result can still be a triumph of aesthetics over technology.

Some purists may get upset with the idea of recording colorations. *The Absolute Sound* has never, however, been the province of Puritans. When TAS was founded, Harry Pearson repeatedly pointed out that the test is how real and moving the music is. In fact, if TAS had a mantra, it would be: "It's the music that matters."

Summing Up

PS Audio's NuWave Phono Converter is truly an innovative product with great sound and value for the money. A real pleasure to review—even if it does suck me into making digital copies of my LPs! *tas*



Parasound JC 3+ Phono Preamp

Déjà-Vu and Then Some

Neil Gader



First, hats off to Parasound for not bowing to convention and badging its new, hot-rodded version of the original JC 3 phono stage with the shop-worn cliché “Reference” or “Signature Edition.” And second, and more importantly, if you’re a current owner of the Parasound JC 3 phono stage, don’t panic. It’s still a great phono stage, except now it has company—the JC 3+—priced \$645 above the original’s \$2350.

As readers will recall, the original JC 3 clinched a Golden Ear Award not long after I reviewed it in Issue 215. I stated at the time that this full-chassis, dual-mono design featured “a near obsessive attention to isolation,” to the extent that each channel was housed in its own extruded aluminum enclosure within the chassis, and further isolated from the power supply with 3/8"-thick, low-carbon mild-steel partitions. It remains, in my view one of the most worthy phono stages on the market. But audiophiles are a finicky bunch and the JC 3’s lack of variable

loading stuck in the craw of some. Taking notice, Parasound tasked phono wizard John Curl to work his magic once again. Curl’s wand-waving not only resulted in loading adjustments but a chassis full of other improvements as well.

The story goes that during the design phase of the original JC 3, Curl had rejected variable-load adjustment due to the added noise intrinsic in potentiometers. As a result the JC 3 was built with limited, switched-input load-impedance choices. In a short interview accompanying my original JC 3 review Curl’s remarks turned out to be prescient: “Actually I think I underestimated the market. Most phono cartridges don’t require a whole lot of big extremes and I thought on this particular point people wouldn’t be using the most exotic cartridges, so I kept them to a minimum with 100 ohms and 47k for the moving coil and 47k for the moving magnet...We might even consider adding more loading if people complain enough.”

Evidently the market did indeed pipe up. But Curl and circuit-board designer Carl Thompson needed to be convinced they could get the required performance to make the change worth pursuing. They turned to Vishay, a top manufacturer of low-noise parts, which ultimately agreed to develop a potentiometer and manufacture it in small quantities for Parasound. The JC 3+ now features independent, variable-load fine-adjustment capability for moving coils in each channel, ranging from 50-550 ohms using Vishay’s special low-noise dual-gang potentiometers.

As it turned out there are lot more positives to the JC 3+ than variable loading. Curl and Thompson tweaked the phono-module boards to further optimize every performance parameter.

The copper circuit-board traces in the phono modules are now plated with 24-karat-gold at the junction where each part is soldered. Turning to numbers the moving coil signal-to-noise ratio is improved from 75dB to 87dB, A-weighted. Moving-magnet gain has been increased slightly from 47dB to 48dB, but mc gain has actually been reduced from 68dB to 64dB so that very-high-output mc cartridges won’t cause the JC 3+ to overload the inputs of some linestage preamps. The JC 3+ power supply has also been significantly upgraded with 47% larger, low-ESD power-supply filter capacitors for greater current reserves. Finally the new R-core power transformer is 82% larger to provide better bass performance. One ergonomic nitpick: The inputs and pots are deeply inset on the back panel so that only the smallest fingers need apply when trying to reach the spring-loaded release buttons of a typical pair of balanced XLR interconnects.

I had an opportunity to listen to these phono stages side by side, and I’m glad I did. Fortunately the essential character and balance of the standard JC 3 remains intact in the “+” version—the air, the impression of warmth and bloom, the fully realized timbres, and the three-dimensional continuity of the soundscape. Backgrounds are still eerily quiet, instrumental colors ripe, and channel separation exquisite. But then there’s just a little something more. Curl’s application of choice go-fast bits-and-tweaks adds up to speed and resolution improvements of consequence. As I followed the backing accordion during “I’ll Be Seeing You” from Ricki Lee Jones’ *Pop Pop* [ORG], the “+” kicked low-level transparency up a notch with a heightened resolution of dynamic gradients—micro and macro—and cleaner transient behavior.

EQUIPMENT REVIEW - Parasound JC 3+ Phono Preamp

Critically there's a subtle reduction of haze and veiling on top, which further sweetened Joni Mitchell's folksy soprano during "A Case of You" from *Blue* [A&M]. The lack of electronic noise and hash revealed a fuller expression of the inner dynamics of her voice, drawing more attention to the flutter of her vibrato as she sustained the lyric "And still be on my feet." *Les Brown Goes Direct to Disc* [Century] is a clinic for big band dynamics and a challenge for any phono stage. I'm particularly fond of the tracks "Satin Doll" and "Fly Me To The Moon" with their sparkling and colorful clarinet and trumpet solos. On a macro level there was more jump and pace to the performance through the JC 3+. The trumpet solo was cleaner, alive with snappier transients and clearer decays. More dimensional cues were revealed as well. Especially noteworthy was the piano placement. Where it once resided closer to the right edge of the stage, with the JC 3+ it slipped into a comfortable pocket within the band. This goes along with my general observation that this version's improved dimensionality is likely due to its higher resolution of micro-dynamic nuances.

Further validation of the JC 3+'s broader dynamic contrasts came during the "Winter" movement of Vivaldi's *The Four Seasons* [Argo]. Overall there was greater resolution of inner detail. The solo violin was sweeter—warmer and simultaneously a little quicker off the mark—and the full weight and micro-dynamic expression of the string section were more keenly expressed. As the melody ascended there was also the slightest reduction of the upper-frequency glare that would sometimes slip into the picture with the JC 3. In addition the "+" reproduced more of

the textural gradients of the harpsichord, while also further revealing the ambience encircling the keyboard. The JC 3+ created a soundstage that simply flowed more smoothly from corner to corner.

Original or new and improved? There are no wrong answers. But choosing one or the other comes down to two issues. For those with stable analog rigs who assiduously avoid the cartridge-of-the-week hunt—the obvious choice is to stick to the Parasound original. But then there are those unrepentant analog junkies prone to swapping exotic cartridges, and seeking resolution's final word. For you (and you know who you are) an extra six hundred bucks is a small price to pay to put a little extra "+" into your records. *tas*

SPECS & PRICING

Input impedance: Moving magnet, 47k ohms;

moving coil, 47k ohms
fixed, 50-550 ohms,
variable

Gain: Moving magnet,
48dB; moving coil, 64dB

Dimensions: 17.25" x
4.12" x 13.75"

Weight: 19 lbs.

Price: \$2995

PARASOUND

PRODUCTS, INC

2250 McKinnon Avenue
San Francisco, CA 94124
(415) 397-7100

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Musical Surroundings Nova II Phono Preamplifier

Superduper

Paul Seydor



In one iteration or another, the Musical Surroundings phono preamplifiers designed by Mike Yee have been my references since I reviewed the original Phenomena in 2002 (TAS 134). The design has undergone two upgrades since then. The first, called the Nova Phenomena (TAS 172), incorporated the original's optional outboard battery supply in the main chassis, and now here is the second, called simply the Nova II. Despite the changes, which I'll detail anon, all three models exhibit the same basic sonic personality, which, quoting my original review, I characterized as "Apollonian, all classical grace, poise, and restraint, with a neutrality and freedom from coloration that I have no hesitation in calling state of the art." I've read some reviewers who fault the earlier versions for being too neutral—a criticism I've always found odd when made of something the purpose of which is to reproduce something else—and others who crave more in the way of kick, slam, liveliness, what have you. Fair enough, perhaps, but what places Yee's designs ahead of most of the pack is that very neutrality, which translates into a more accurate replica of what is actually being fed it, including the sonic personality of the phono pickup. As Yee has brought out successive versions, however, there have been subtle improvements in both dynamics and that elusive sense of lifelikeness, without compromising the original's neutrality.

Once the Nova II was plugged in and cooked (a few hours does the trick) and the batteries fully charged, I got down to serious listening with the recent Gould/Bernstein Beethoven Fourth as reissued by Impex. It opens with the soloist playing the limpid first theme, his piano set slightly back in the center, the impression of a holographic image so persuasive that Peter Walker's metaphor of a window on the concert hall became eerily real, an impression only deepened with the entrance of the orchestra surrounding the piano. Better still was the lightness, ease, and delicacy of Gould's touch and the severe beauty of his tone—best of all the involvement and vitality of the listening experience. Panorama and detail are ideally resolved, with Gould's famous singing and humming along just evident enough without being emphasized (the way some overly detailed components can).

Being in an orchestral mood, I followed this with Original Recording Group's new reissue of *The Planets* in the Mehta/Los Angeles Philharmonic recording. I've always found this a checkered recording, with the sound varying from cut to cut and all sorts of shenanigans with levels, balances, and miking, and not very much depth. "Mars" sounds hard, for example, but "Jupiter" quite wonderful, with strings smoother and more beautiful. Overall, however, this recording's dynamic range is impressive, which is one reason I played it: I wanted to see if there were any further improvements in the Nova II—and there were. Nor did I have to listen very long to Stokowski's sensational *Rhapsodies* [RCA] to discover even more. This recording never ceases to thrill me both as performance and as sonics. The combination

of weight, warmth, definition, and sheer power in the bass the Nova II rendered as about as spectacularly as any phonostage I've used and better than most because free from any editorializing, while the range from soft to really loud was equally impressive. One reason for this is the Nova II's quietness. Even in AC mode it's quieter than most phonostages I've heard, but in battery mode it's close to dead quiet even at pretty healthy levels.

I concentrated on music with a lot of dynamic range and weight because I wanted especially to hear the new version's performance in these areas. The dynamic opening of *Graceland* [Sony] made me snap to attention, while the clarification of textures really brought a smile to my face. And if it's toe-tapping rhythmic panache you're after, this unit will give it to you (and without that "clipped" impression you get with some components that tend to etch each beat, i.e., those...that...sound...like...this). Reference Recordings' new album by the blues singer and guitarist Doug MacLeod, made at the famous studio at Skywalker Ranch (the site of so many fine Harmonia Mundi USA recordings), is wonderfully transparent on MacLeod's powerfully expressive voice, at once warm yet raspy and palpably present, with a strong low end in the doublebass and the kick drum. Sometimes Keith Johnson's recordings can be too spacious, but not here, where focus is never blurred at the expense of atmosphere. A very different kind of singing is to be heard on *Sing We Noel* [Arkiv Music], a longstanding favorite of mine by Joel Cohen and the Boston Camerata. The program is early British and American Christmas music performed by small chorus, soloists, period instruments, and

EQUIPMENT REVIEW - Musical Surroundings Nova II Phono Preamplifier



the like. The recording, made in a reverberant church, captures the voices with rare beauty: rounded, dimensional, and very vivid. It also makes full expressive and dramatic use of the venue—the final number has the whole ensemble singing the “Gloucestershire Wassail” as they recede. A really good setup will allow you to hear a greater portion of reverberant to direct sound as the group moves farther back (and also more bounce off the rear wall), which is certainly true of the Nova II and Ortofon Windfeld/Basis 2200/Vector combination.

The last thing I played before wrapping up this review was the classic first Bernstein recording of *The Rite of Spring* [Columbia], recently newly remastered and reissued on vinyl—just the sort of material previous Novas and Phonomenas were supposed to come a cropper on. Not this time. The recording is close-up, explosive, and cataclysmic, and was reproduced accordingly. Wow!

The new Nova II shares with its past brethren all-discrete, dual-mono circuitry and peerless flexibility when it comes to loading and gain options. Like them, the Nova II’s are

accessible via DIP switches on the rear panel. A pair of internal NiMH battery packs, one for each phase, supplies the power in full-battery mode. Yee employs a novel “smart-sensing” circuit that automatically causes the unit to go into recharge mode when the batteries lose their charge (without interrupting playback). A charge is good for about three hours of listening, and when full-battery operation is selected, a relay completely disconnects the unit from the AC line (though the wallwart power supply must always be plugged in).

But it is the new aspects of the design that contribute the most, I believe, to its improved performance with respect to dynamic range and lifelikeness. First, the original design’s matched pair of transistors went out of production, so Yee had to find a replacement and what he found yields lower noise and, on the basis of what I’m hearing, increased control. (Yee tells me that the new “matched pairs alone are more expensive than the integrated op-amps that most companies use for phonostages.”) He has also changed the RF filtering, which reduces the noise floor by some 6dB, which in turn by definition results in increased dynamic range. One of my notes reads that in battery mode especially “this thing is really, really, really quiet!” Finally, the chassis and mechanical design are new and to entirely beneficial effect. Good as the Nova Phenomena was and is, it always looked to me as if it had been manufactured in a garage, with a large Cyclops-like indicator light—the designer himself called it a “flashing eyeball”—that struck me as positively ugly. Based on Yee’s MYDAC II DAC and available in black or silver, the Nova II’s

chassis is now svelte, sleek, and elegant. The front panel has a single button that allows you to choose among battery, charging, or AC modes. Another benefit of the new casework is improved mechanical isolation, which extends even to the mounting of the circuit board inside the chassis. Yee also tells me it’s easier to build, which may help account for why the price increase is so small: at \$1200 the new unit costs just \$201 more than its predecessor—fair to the point of giveaway—and it’s still built entirely in California.

Indulge me a few moments about the loading and gain options here, which remain unprecedented for number and scope in any phono preamp known to me regardless of cost. I know I tend to go on about the importance of loading mc’s, but it is necessary for optimum performance, and I am far from alone in believing this. Years ago I once asked Dave Wilson, as perfectionist a man as you can get about all things audio, how he felt about proper loading of mc’s. He answered with a question,

SPECS & PRICING

Gain: 40–60dB in 13 steps	Price: \$1200
Input loading: 200pF/300pF, 30 ohms to 100k ohms in 17 steps	MUSICAL SURROUNDINGS, INC.
Dimensions: 9 7/8" x 9 7/8" x 2.5"	5662 Shattuck Ave.
Weight: 5 lbs.	Oakland, CA 94609
Warranty: 3 years	(510)420-0379
	musicalsurroundings.com

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EQUIPMENT REVIEW - Musical Surroundings Nova II Phono Preamplifier


"Would you drive a car without shocks?" Bullseye. All moving coils have resonances in the extreme highs that left undamped (i.e., unloaded) will ring and usually result in some frequency response anomalies, especially in the highs. Many audiophiles, including more than a few reviewers, actually seem to like this effect because they hear it as increased openness, airiness, transient sharpness, and so on. I have no intention of arguing taste here, and if you like these effects, my response is to live, be well, and enjoy. But they are impositions upon the source and they cannot result in accurate reproduction.

If you happen to purchase the Nova or have a phono preamp that has provision for loading, I'd suggest giving it a try. I believe you'll discover that over the long haul, you'll prefer the focus, precision, and accuracy of correct loading, especially with its gains in musical naturalness. Mind you, proper loading will not make a pickup that lacks flat response into one that has it. All correct loading will do, apart from suppressing the high-frequency resonance, is allow the frequency response of the pickup to be as flat as the design itself permits. If that isn't flat, then you won't hear flat; if it is, you will. The Nova II provides loading for 17 values from 30 to 100k ohms and 13 gain settings from 40 to 60dB. There is also a switch to select a capacitive loading of 200 or 300pF to accommodate moving-magnet pickups that are sensitive in this regard. (Typically capacitive loading has little effect as such on moving coils.) The combination of all this flexibility plus truly high performance adds up to why I continue to

use Yee's designs as my reference: In addition to their musical pleasure, they are invaluable tools for reviewing pickups of all kinds.

To sum up, the Nova II retains all its forebears' virtues of neutrality and low coloration, with considerably improved dynamic range, robustness, and perceived life and vitality: in other words, this new Nova now has a satisfying infusion of Dionysus in its otherwise Apollonian personality. Although Yee's designs are always very quiet and extremely transparent, this latest one is exceptionally so, ranking up there with some of the most expensive phonostages I've ever heard. Where does it stand in the marketplace? Limiting myself to recent high-performance designs I've reviewed, it doesn't have quite the sheer grip or bottom-end crunch of Plinius' Koru, which costs three times as much, doesn't offer nearly the flexibility, and is trumped by the Nova's neutrality. Nor does the Nova have quite the warmth, body, and ultimate "organic" quality of Zesto Audio's Andros, but the Andros costs well over three times as much, isn't as quiet or neutral, and again has less flexibility for loading and gain (though the Andros is certainly adequate in these respects for the pickups I tend to prefer, such as Ortofon, Dynavector, and a couple of Benz and Clearaudio models). But when I switch from the Andros to this new Nova, I listen with as much involvement and equal, if different enjoyment. So just in case I've not made myself clear: The already superb performance of the Nova II's predecessor has been made even better in the new model, which means that a super value is now a superduper one. I cannot recommend it enthusiastically enough. **tas**

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Jadis DPMC Phono Preamplifier

Joie de Vivre

Dick Olsher



Situated in the petite village of Villedubert in the south of France, the Jadis factory is literally far off the beaten track. According to designer JC Calmettes, Villedubert is a wonderful, quiet place, where air, food, and life are all good. It has apparently also been a perfect setting for audio inspiration since Jadis was founded some 31 years ago by JC's father, Andre Calmettes, and Jean-Paul Caffi. After his father's retirement 12 years ago, JC has been solely responsible for all analog work. His design philosophy remains the same as that of his father: Offer the customer the most potent emotional experience when listening to reproduced music—and that has meant vacuum-tube-based gear from the beginning. Jadis has stayed small over the years but always focused on the necessary ingredients for success: handcrafted components built without compromise, using parts that are only selected after extensive listening sessions (and in the case of output transformers designed and fabricated in-house) to ensure everything's done right. Jadis has justly earned a reputation for sonic excellence combined with design elegance—a feast for the eyes as well as the soul. Driven by musical passion, Jadis views its designs as the means to transmit that passion to the end user.

It's been over two decades since I've auditioned a Jadis component, so I was looking forward to the experience. The DPMC is the entry-level phono amplifier in a lineup that includes the JP80MC, probably Jadis' best-known preamplifier. It is described as an ideal means of adding phono capability to any integrated amplifier or line preamp. And initially that's exactly how I used it, driving it into a line-level input on the PrimaLuna Dialogue Premium line preamplifier. The DPMC has only

one phono input and a single output. However, a volume control is provided, and because the output impedance is sufficiently low (less than 1k ohm), it is quite possible to directly drive a power amp, assuming one is content with being restricted to a dedicated analog front end. That option was also explored, by driving the DPMC directly into the Lamm Audio M1.2 Reference monoblocks.

A single large PC board houses both the power supply and gain stages. The power supply is a critical factor in any amplifier design, and especially a phono preamp tasked with amplifying fragile, low-level signals. In line with what has become a common denominator for many successful tube phono preamps, the DPMC incorporates DC filament and regulated plate voltage supplies for the gain stages. The use of a solid-state series pass regulator was adopted by Audio Research as early as the 1970s with the iconic model SP-3, and this approach gained popularity in the 1980s. The DPMC's star attraction is a tube-based series pass regulator consisting of an EL84 beam power tube and an EF86 pentode. The regulator serves to maintain a stable B+ and reduces AC ripple in the plate voltage of the four 12AX7 dual triodes used as gain and buffer stages, a major plus for any phono preamp. The stock 12AX7 triodes are Russian Tung-Sol reissue types, which Jadis considers to offer the best sound available with regular and stable production.

When I spot 12AX7s in a phonostage I automatically suspect active RIAA equalization. And that happens to be the case with the DPMC. Since an active network uses feedback loops to implement the inverse RIAA

frequency response, the overall voltage gain is significantly reduced, making high-gain tubes a prerequisite for such a circuit. To my mind this approach has withstood the test of time, having been embraced by many great designs dating back to the Dynaco PAS-2, Marantz 7, and the early Audio Research and Conrad-Johnson preamplifiers. In the late 1980s, partly based on an irrational fear of any type of feedback, fashion swung away from this traditional implementation toward passive RIAA EQ, which made it possible to use medium amplification-factor tubes such as the 6DJ8. However, as the DPMC amply demonstrates, there is plenty of magic left in the classical approach, especially when coupled with a modern, well-regulated power supply.

The DPMC's single input is intended to accommodate both mm and mc cartridges. There's plenty of gain (66dB) to handle even low-output moving-coil cartridges, especially when factoring in the gain of the associated integrated amplifier. The problem, however, is that there is no provision for adjusting the input impedance in order to match the needs of a given mc. The input impedance is fixed at 47k ohms for all cartridge types. I consider this to be a serious limitation as many mc's work best into an impedance load in the range of 100 to 300 ohms. The impact of an improper loading would most noticeably be perceived in the treble range as reduced damping of treble transients and as brightening of harmonic textures. As a user, be aware that running an mc into this preamp is a bit like playing with fire. The end result may not necessarily be equivalent to lighting a match to a gasoline-soaked treble range, but may in the long run result in listening fatigue. Of course,

EQUIPMENT REVIEW - Jadis DPMC Phono Preamplifier

there are some mc's that are fairly immune to loading effects. And with certain albums, and on some systems that are tonally laid-back, these effects may not be objectionable.

It so happens that I have a total of seven functioning turntables in the house. Most of these are tangential trackers acquired over a period of several years in an effort to explore a format that is essentially no longer in production. Since some of these tables are outfitted with moving-magnet cartridges, the plan was to listen to several of these "second tier" tables before rotating over to my reference front end, which comprises the Kuzma Reference table, Kuzma Stogi Reference 313 VTA tonearm, and the Clearaudio Da Vinci V2 MC phono cartridge. First in line was a refurbished B&O 8000 outfitted with the superb MMC 20CL moving-magnet cartridge featuring a single crystal sapphire cantilever and a line-contact stylus. Next in line was a refurbished Revox B795 outfitted with an Audio Technica ATOC9ML moving coil. After that it was time for my Sony PS-X600 fitted with a Signet MR5.0ML moving magnet—a musical combination that is well worth pursuing on the used market. Note that the DPMC manual recommends a one-hour warm up. That may be a bit on the conservative side, as about twenty minutes seemed sufficient to smooth out the treble range.

By now, after assimilating listening impressions with three 'tables, I was developing significant enthusiasm for the DPMC, so let me stop to share a few findings. It became perfectly clear that there was

plenty of tube charm in play. The soundstage was spacious and superbly solid, as if carved from stone. Image specificity was first class, allowing individual spatial outlines in an ensemble to shine through the mix. Tonal colors were vivid and midrange harmonic textures flowed sweetly with exceedingly low levels of grain. There was plenty of transient speed in evidence with sufficient lucidity to allow retrieval of low-level detail. When I think of an overly tubey, thick, and syrupy sound, I am reminded of the classic Dynaco PAS-2, the poster child for this sort of presentation. The DPMC is light years removed from all that. Imagine tube sound without excessive fat—with the DPMC you can have your sonic cake and eat it, too. However, the fly in the ointment was mc performance relative to that of the mm cartridges. On some albums, bright upper registers, for me a major sonic turnoff, ultimately resulted in listener fatigue.

The foregoing conventional imaging and tonal color descriptors hardly do the DPMC justice. It proved to be one of those rare components that involve and pull you into the music. Put another way, it was able to communicate the music's pace and rhythmic drive to a degree that is exceptional at this price point, propelling musical lines forward with startling verve. Pace and rhythm are the perceptual parameters that standard high-fidelity specs don't capture. The fact that perceptual attributes such as soundstage depth can't be measured with test gear is glossed over by Henry Kloss' famous quote: "If it measures good, but sounds bad, you measured the wrong thing." There probably

isn't a way to conventionally engineer, i.e., by measurements alone, the sort of perceptual attributes audiophiles are after. Yet some designers measure their way to a final product without conducting any listening tests along the way. That definitely is not the Jadis way. My thesis is that fidelity to the real thing is best approached by voicing and selecting various components via listening tests. Harry Olson, a giant figure in American acoustical engineering, put it thusly: "In all things audio, the ear is the final arbiter." That was true in his lifetime and is just as relevant today.

Finally, it was time to take the main phono front end for a spin, and into uncharted waters looking into a fixed 47k ohm loading. Although the Da Vinci mc is reasonably immune to cartridge loading effects, it complained on certain records with a bit of gratuitous brightness. I had much better luck running the DPMC directly into the Lamm Audio monoblocks. In exchange for a slight loss of bass definition the DPMC delivered plenty of tube virtues, and even managed to sound naturally balanced on some recordings. While the Pass Labs XP-25, my standing phonostage reference, offers better bass control and greater transient speed and soundstage transparency, the DPMC sounded much more seductive. Think enhanced spatial perspective, and fatter, richer, and more liquid textures. Putting the argument of accuracy aside for the moment, I can tell you that the Jadis was more pleasurable to listen to.

The Jadis DPMC's tube signature is unmistakable. It romances the soul, and I for one could not resist its siren call. With a good mm cartridge in tow, the DPMC is musically

compelling. It celebrates the music with unmistakable *joie de vivre*. Join the fun; you'll be glad you did. TAS



SPECS & PRICING

Gain: 66dB	
Input impedance: 47k ohm	ASSOCIATED EQUIPMENT:
Output impedance: <1k ohm	EnigmAcoustics Mythology M1
Power consumption: 30W	loudspeaker; Lamm
Dimensions: 17.9" x 4.9" x 12.6"	Audio M1.2 Reference; Kuzma Reference
Weight: 11 kg	turntable; Kuzma Stogi
Price: \$6900	Reference 313 VTA tonearm; Clearaudio
JADIS	Da Vinci V2 MC phono
5 Chemin du Pech	cartridge; PrimaLuna
11800 Villeduber	Dialogue Premium
France	line preamplifier; FMS
jadis-electronics.com	Nexus-2, Wire World,
BLUEBIRD MUSIC, LTD.	and Kimber KCAG
(U.S. Distributor)	interconnects; Acoustic
(416) 638-8207	Zen Hologram speaker
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\$999

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Hegel H80 \$1995

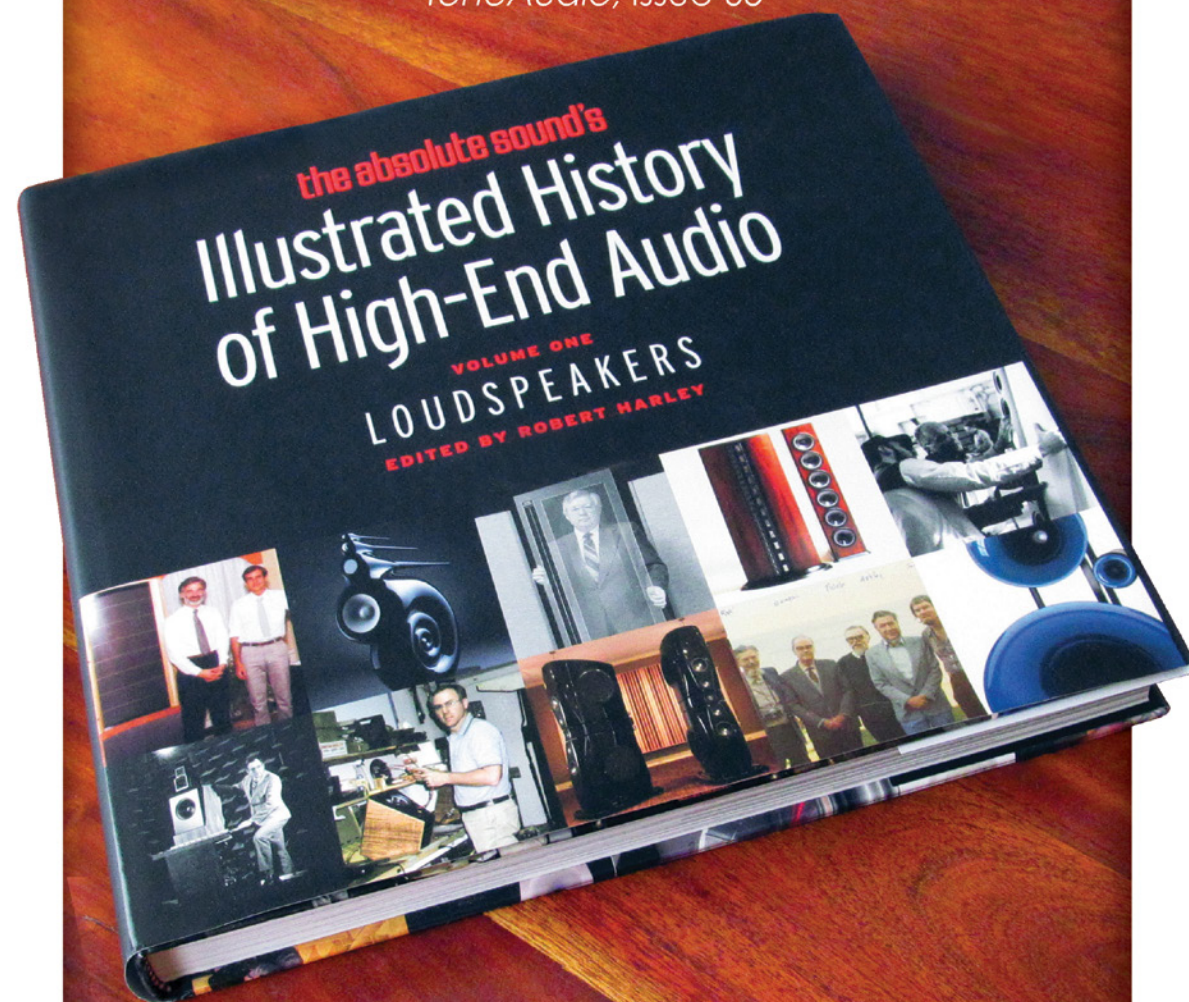
Those who are (sometimes justifiably) frustrated with escalating prices, take heart; Hegel's 75Wpc, solid-state H80 integrated amplifier with onboard 24/192 DAC answers the call for high-performing audio kit at a very reasonable price. No, it does not have the seamless liquidity, high resolution, and fundamental solidity of the more expensive stuff, but it gets you enough of the high-end essence to be more than a great place to start. The H80 delivers a nice measure of musical verve, accompanied by a lack of listener fatigue that one rarely encounters in \$3000 integrations—let alone in one priced at \$2000. Conversely, many integrated amps near its price with a low listener-fatigue factor too often also sound overly polite or reserved, where the H80 is musically involving, well balanced, and surprisingly powerful for its rating. This is the real deal...and a sweet deal, too. (245)

Hegel H160 \$3500

Another terrific performer and value from Hegel, the H160 offers everything in the H80 but with more power, even better sound, and an upgraded DAC. The H160 defies expectations in the mid-priced integrated amp category, delivering a tremendously engaging musicality. The quality of the Hegel's reproduction of music was most impressive, particularly when you take into account that it is, by high-end standards, a real value. If you're looking for an integrated amplifier that doesn't reside in the Himalayan region of audio pricing, then the Hegel fully deserves an audition. (254)

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Lyngdorf Audio TDAI-2170 Digital Integrated Amplifier and DSP Room Correction

\$3999

The Lyngdorf Audio TDAI-2170 is much more than an 85Wpc integrated amplifier; it incorporates Lyngdorf's vaunted RoomPerfect DSP room-correction system that removes speaker- and room-induced frequency response errors. After running the correction system, the TDAI-2170 will deliver perfectly flat frequency response at the listening position regardless of the room. Although the TDAI-2170 has analog inputs, the product is primarily a digital device. The signal is kept in the analog domain until the amplifier's output; the conversion is a byproduct of the switching output stage. Sonically, the TDAI-2170 is exceedingly neutral, so much so that reviewer Robert E. Greene wrote "My feeling was rather one of correctness, of lack of electronic additions of any kind, of a quietness and control and lack of splashiness (for lack of a better word) that was providing the speakers with an input that was truly representative of the recordings. The TDAI-2170 is a sonic and practical triumph." (253)

Audio Research VSi60

\$5000

Transparency is *the* great strength of ARC's VSi60. One never senses that this hybrid-integrated amplifier imposes its own voice on the music, but rather it acts in service to it. In a nutshell: pristine, grain-free, open, detailed, dynamically nimble. Note that its 50Wpc may be a bit light for certain speakers (like Magne-pans), but the right speakers should make for a match made in heaven. (242)

Pass Labs INT-150

\$7150

Pass Labs' first foray into the ultra-competitive integrated amplifier arena has brought to market sixty pounds of 150Wpc, solid-state, aluminum-machined majesty. This powerhouse, which doubles its output into 4 ohms, brims with a neutrality tempered with a pleasing warmth quotient. It has an ease and fluidity that are not euphonically tube-like but emblematic of solid-state with a strong Class A bias—a prime feature of this amp. The midrange has a sweetness and romance that are disarming. The INT-150 fleshes out vocalists and reveals the full physicality of power-singers, from deepest bass-baritone to lilting coloratura. Bass response is well-defined and highly controlled. NG, expecting a bit more bloom, wondered whether the amp might be too tightly controlled, but it's got the precision "thing" down perfectly. It bear-hugs images and exhibits a deep-space resolving-power that Stephen Hawking would admire. Dynamically it reproduces micro- and macro-level dynamics with an ease that takes the rest of your system a rung higher. Audiophiles who maintain LP and SACD collections will be especially rewarded by the INT-150's wealth of micro-dynamics, fluidity, and a spatiality that really play to the strengths of these enriched formats. It's a musical force of nature and arguably about as good as it gets in the here and now. A powerhouse design with a heart that should make anyone re-think the "separates" option. (184)

Simaudio Moon 600i

\$9000

Priced at \$8500, the 125Wpc 600i would never win the "most-watts-per-dollar" contest, but it would win just about any other contest that judges design, build-quality, and fit 'n' finish. The 600i is impeccably made in every way, from its fully balanced dual-mono architecture (unusual in an integrated amplifier) down to the feel of its hefty machined-aluminum remote control. The 600i is also software-controlled, imbuing the amplifier with a host of convenience features. The sonic presentation hits all the audiophile criteria—outstanding dynamics and bass, low levels of timbral coloration, spectacular soundstaging—but the 600i goes beyond these specific performance attributes to deliver a truly compelling listening experience. Music is highly dimensional, with a soundstage that is richly layered, with depth portrayed along a continuum and a real sense of bloom around images. The 600i's resolution of low-level instruments, along with the outstanding clarity of timbre, fosters the impression of a richer and denser canvas and, along with it, a greater sense of life and vibrancy. The bass is tuneful, dynamic, rock-solid, with visceral grip and propulsive power. If you want the sound quality of a separate preamplifier and power amplifier in a compact, beautifully engineered package, the Simaudio 600i is a great choice. (210)

Our Top Picks: We Choose the Best Integrated Amps, Preamps, and Amps at Every Price

Devialet 200/400

\$9650

This technological marvel is best viewed as a hardware platform that can be configured via software to suit your needs. That platform includes a 200Wpc integrated amplifier with a unique hybrid Class A/Class D output stage, a high-res wireless streaming DAC, and an ultra-cool remote control. You can convert a line input to phono (with variable gain and loading), engage filters (perfect with subwoofers), and implement other useful features. Sonically, the 200 sounds like a powerhouse, with a rich bottom end and terrific dynamic impact. The soundstage is exceptionally transparent and open. The treble leans toward the incisive, with a high level of immediacy. When the 200 is converted into a monoblock and a second unit is added (turning the pair into the Model 400), the system becomes world class. It's all wrapped up in a futuristic and room-friendly housing and user interface. (250)

PREAMPLIFIERS

Nuforce MCP-18

\$599

The MCP-18 is an analog preamp designed to handle both multichannel and two-channel sources in the most sonically unobtrusive manner possible. It is basically a source-selector and gain-adjustment device whose signal path has been optimized to obtain maximum transparency and minimum coloration. The MCP-18 offers audiophiles a budget high-sound-quality alternative to digital pre/pros while still retaining a system's multichannel capabilities. SS discovered that it was very difficult to uncover the MCP-18's intrinsic sound. When he changed DAC sources what he heard was the new DAC, not any colorations that he could attribute to the MCP-18. The MCP-18 certainly ranks as one of the most transparent preamps he's heard, regardless of price. (243)

Rotel RC-1570

\$999

The RC-1570 stereo preamplifier is a fully featured unit with four analog inputs, an additional balanced analog-in, and even a moving-magnet phonostage. But that's not all: The RC-1570 is equally adept with digital. There are two coax and optical inputs, plus two USB inputs (one on the front panel and one on the back). With digital sources, the preamp has a built-in Wolfson DAC that supports resolutions up to 192/24. Indeed, the RC-1570's excellent all-around sound—it gets the essentials of timing, tonality, and dynamics right despite its modest price—only gets better with high-resolution files. With all these inputs and the built-in DAC, the RC-1570 can serve neatly as a versatile control point for a modern audio system. (242)

Aesthetix Calypso and Janus Signature

Calypso, \$5000; Calypso Signature, \$7000; Janus, \$7000; Janus Signature, \$10,000

The stalwart Calypso and new Janus Signature (which includes a Rhea Signature phonostage) share numerous qualities: speed and detail; highs without a glint of shrillness; a low noise floor; precise rhythms; dynamics that are only a skosh less lively than reference-caliber; and a laid-back perspective. The quiet background and smooth treble add up to long hours of glorious, fatigue-free listening. As for differences, the normal Calypso/Janus soundstage is big, but not huge, while the Signature soundstage is fully realized. The Signature also delivers a richer portfolio of instrumental timbres, more air, longer decays, and better-defined bass. However, these are accompanied by an upper-bass bump that adds a warmth and thickness that affects both timing and timbre. The choice between the Signature and non-Signature model will come down to personal preference, though, at \$5000, the original Calypso remains a steal. (196)

Our Top Picks: We Choose the Best Integrated Amps, Preamps, and Amps at Every Price

Constellation Inspiration Preamp 1.0

\$9000

As with Constellation's other Inspiration Series components, the Preamp 1.0 offers Constellation-grade sound quality in what is essentially breakthrough pricing for this maker of cost-no-object components. The Preamp 1.0 sports the same circuitry, chassis build-techniques, remote control, and display as the \$24k Virgo 2. The sound is similar as well, with the trademark Constellation combination of resolution with ease, tremendous clarity and transparency to sources, and wonderful rendering of timbre. (249)

POWER AMPLIFIERS

Odyssey Audio Khartago

\$995

Although the 130Wpc Odyssey Khartago solid-state stereo amp has been around for better than a decade, it was new to JV until amp-connoisseur Alon Wolf (of Magico) told him he used it in his shop and it was excellent. Wolf was right. Although the Khartago doesn't have all the articulation and transparency of the standard-setting \$40k Soullution 710 stereo amplifier, it has a shockingly similar balance (albeit a bit warmer and less transparent), no discernible grain, high resolution, and a deep, wide soundstage. Positively, the best budget amp JV has heard (and the \$2k Odyssey Stratos monoblocks are great, too). (194)

AVA FET Valve 600R

\$3299

Frank Van Alstine's 300Wpc hybrid amp is based on AVA's patented forward-transimpedance design. A 12AT7 triode front end is coupled to a fully complementary power MOSFET output stage. The stock JJ Electronic tubes are quite musical, so there's no compelling reason to tube roll. No, it doesn't sound like a tube amplifier, but what sets it apart from a host of solid-state designs is its soulful midrange and ability to retrieve music's drama and tension. Tack on decent spatial delineation and you have the making of a successful hybrid design. It's a complete package featuring low distortion, superior speed, killer bass, and superb dynamics. The treble is somewhat closed in, and tonally, harmonic colors are on the dark side of reality, requiring careful system matching. At its best, the 600R can sound much like a \$20k power amplifier. World-class power amplification at an affordable price. (225)

Constellation Inspiration Stereo 1.0

\$10,000

The 200Wpc Inspiration Stereo 1.0 brings the same circuit design and some parts from Constellation's \$140k Hercules monoblocks to a more accessible price point. Constellation has done an amazing job of maintaining many of the qualities that made the Hercules such a standout, including a highly resolved treble that never crosses over into the analytical. Transparency and timbres are also first-rate. The icing on the cake is that the Stereo 1.0 incorporates new circuit refinements that improve the bass performance beyond that of its predecessors. (249)

Our Top Picks: We Choose the Best Integrated Amps, Preamps, and Amps at Every Price

Pass Labs X350.5

\$11,550

Considerably more than merely good sonic performance awaits owners of this 350Wpc (700Wpc into 4 ohms), Class A/AB stereo amplifier. The X350.5 provides truly compelling listening sessions with any music collection—fatigue-free, imagination-inducing, emotion-filled listening sessions. Its prodigious power, natural tonal balance, incredible bass, and overall liquidity impart a solid foundation to even the most demanding music, while caressing delicate passages with a silky fine touch. Reviewer KM couldn't think of a more powerful and non-fatiguing-sounding amp close to its asking price. (238)

Zesto Audio Bia 120

\$12,500

Zesto's new Bia 60Wpc, Class A, all-tube power amplifier, with styling to match the company's Zeto linestage and Andros phonostage, brings the designers the trifecta. As with the preamps, Bia's personality consists in a completely seductive musicality free from all the usual sorts of electronic colorations and artifacts, for a presentation that never, ever sounds electro-mechanical, instead always wholly natural. Broadly neutral but not completely accurate, the sound here is more beautiful than real—luscious, velvety, silken, gorgeous. (243)

Hegel H30 Reference

\$15,000

This Norwegian powerhouse of an amplifier (375Wpc into 8 ohms) combines the brute-force bass control and dynamic impact of a dreadnought design with a midrange and treble refinement, delicacy, and sweetness that are reminiscent of a single-ended triode amplifier. The midrange, in particular, is highly vivid and present without sounding the least bit pushy or forward, infusing the presentation with a palpability and directness of expression previously unheard in any amplifier near the H30's price. Perhaps the H30's outstanding sonics and high value can be traced to Hegel's SoundEngine technology, in which dynamic crossover distortion is greatly reduced through a patented circuit, coupled with a rigorous transistor-matching protocol. The H30 can be operated in bridged mode for 1000W (requiring two H30's for stereo operation), but some of the midrange magic disappears and resolution slightly diminishes. A great bargain in high-powered amplifiers. (223)