

GUIDE TO HIGH-END ELECTRONICS

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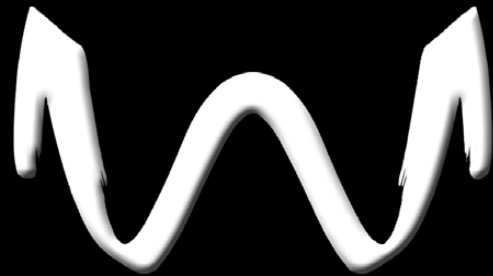


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Contents

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Features

- [From the Editor](#)
- [On the Horizon: High-End Electronics Components Headed Our Way](#)
- [How to Choose a Power Amplifier](#)
- [Our Top Picks](#)
- [Editors' Choice](#)

Integrated Amps

- [Primare I32](#)
- [ModWright Instruments KWI 200](#)
- [B.M.C. CS2](#)
- [Hegel H300](#)
- [Marantz Reference Series PM-11S3](#)
- [Gato Audio AMP-150](#)
- [Vitus Audio RI-100](#)
- [Bryston B-135 SST²](#)
- [Ayon Orion II](#)
- [NAD C 390DD](#)
- [NuForce DDA-100](#)
- [Wyred4Sound mINT](#)
- [Plinius Hautonga](#)
- [Peachtree Audio nova125](#)
- [Rogue Audio Sphinx](#)

Power Amps

- [Gamut D200i](#)
- [Triode Corporation TRX-M300 Monoblocks](#)
- [Carver Black Beauty 305](#)
- [Lamm ML2.2](#)

Preamp/Power Amp Pairs

- [Musical Fidelity M8 & M8700m 845 Monoblocks](#)
- [Absolare Passion & Passion 501 Monoblocks](#)
- [Soulution 520 & 501 Monoblocks](#)
- [Constellation Audio Virgo & Centaur](#)
- [Audio Research Ref 5SE & Ref 250](#)
- [Jeff Rowland Design Group Corus & 725 Monoblocks](#)

Preamps, Phonostages, Receivers

- [NuForce HAP-100](#)
- [Zesto Leto](#)
- [Peachtree Audio Grand Pre X1](#)
- [Simaudio 810 LP](#)
- [T + A Cala](#)
- [Constellation Audio Perseus](#)
- [Audio Research Corporation Reference Phono 2 SE](#)

Headphone Amps

- [Desktop Amplifiers and Amp/DACs for Dynamic Headphones](#)
- [Desktop Amplifiers for Electrostatic Headphones](#)
- [Portable Amplifiers and Amp/DACs](#)

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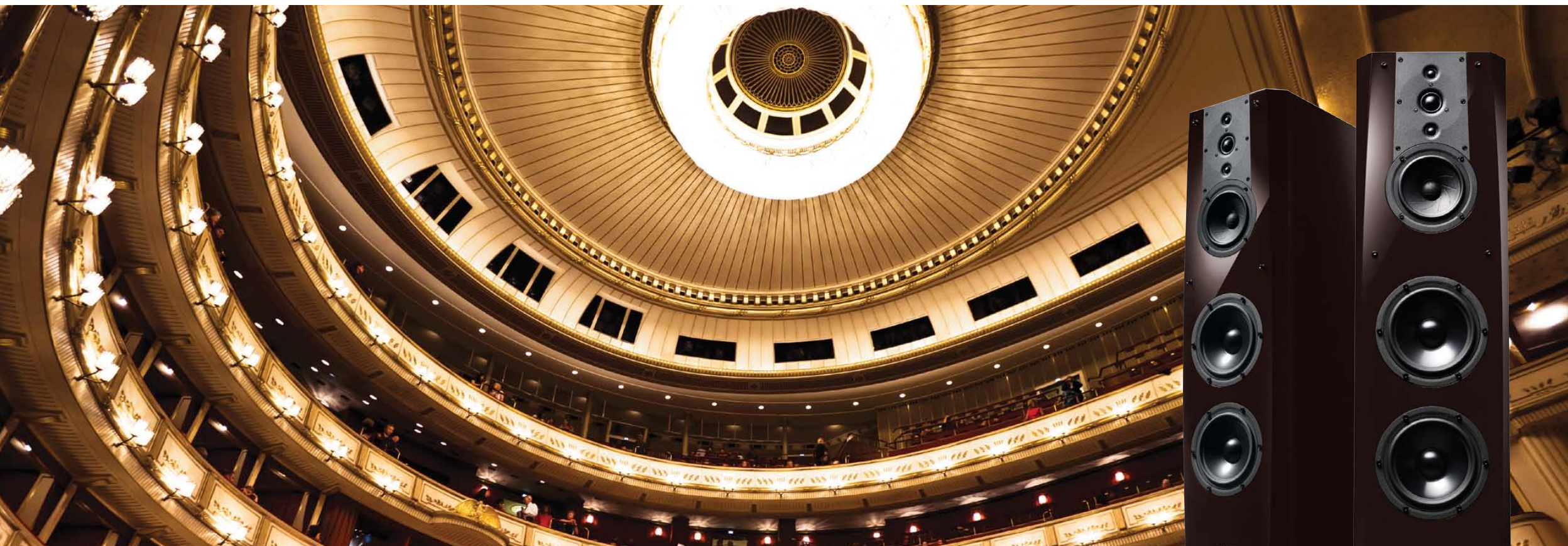
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FROM THE Editor

Welcome to *The Absolute Sound Guide to High-End Audio Electronics - 2013*. At the most basic level, electronics are the means through which we control our audio systems, but they are also much more than that. In a very real way, electronics are to our music systems what the heart is to the human body; that is to say that they are the seemingly inexhaustible power plants that, when chosen with sufficient care, turn otherwise inert assemblages of audio equipment into living, breathing entities able to convey the power, pulse, textures, and emotions of music itself.

More so than some might realize, electronics components set the entire tone and tenor of our music systems, unlocking their potential and bringing their voices to life. What is more, given that distinctions between digital audio source components and amplification components are becoming increasingly blurred, we can now choose from among an evolving class of hybrid “source + amplification” components that offer downright mind-bending levels of performance and versatility.

To help stimulate readers’ thinking about audio electronics and to help them choose components wisely, our Guide incorporates a large number of equipment reviews (some of them never before published in the print edition of *The Absolute Sound*), plus a number of overview articles to help readers better grasp the options before them. Guide contents include:

- **“On the Horizon”**—16 manufacturers show us 25 new electronics components soon to appear on the market.
- **“Top Picks”**—Seven TAS editors and contributing writers name 15 electronics components of special merit.
- **“How to Choose a Power Amplifier”**—An excerpt from TAS Editor-in-Chief Robert Harley’s famous reference book, *The Complete Guide to High-End Audio* (fourth edition), wherein the author tackles the question, “How Much Power Do You Need?”

- **Integrated Amplifiers**—15 TAS reviews, including three all-new reviews for this Guide.
- **Power Amplifiers**—Four reviews of solid-state and tube-driven power amps.
- **Power Amplifier/Preamplifier Pairs**—Six reviews of solid-state and tube-driven preamp/power amp combos, including two all-new reviews.
- **Preamps, Phonostages, and Receivers**—Seven reviews including one all-new review.
- **Headphone Amplifiers and Amp/DACs**—To address an important new product category, we provide mini-reviews of 16 high-performance desk-top, electrostatic, and portable headphone amps.
- **Editors’ Choice, Electronics**—Leveraging material prepared for the TAS Editors’ Choice edition, our veteran staff members recommend top high-end audio electronics components in every product category.

We hope you find this Guide both useful and entertaining. We enjoyed putting it together and will consider our time to have been well spent if our Guide in turn helps you find greater musical satisfaction in your audio systems.

We wish you happy listening.

Chris Martens

Click here to turn the page.

ON THE HORIZON

High-End Electronics Components Headed Our Way

Neil Gader

In this section we have invited 16 reputable manufacturers to share with our readers information on 25 new very high-performance, high-end audio electronics components that are about to appear on the horizon or that have, in some instances, recently arrived.



ABSOLARE SIGNATURE PASSION PREAMPLIFIER AND AMPLIFIER

Absolare has recently introduced Signature editions of its Passion Preamplifier and Passion Power Amplifiers. For maximum signal path purity, the Signature edition models incorporate state of the art exotic components including Duelund copper cast capacitors, Echolite Obsession Signature internal wiring (featuring a Silver/Gold/Palladium alloy) and custom-made Japanese carbon resistors. Absolare has also introduced a remote control option for the preamplifier. Both the Signature Passion preamplifier and power amplifiers are available in single-ended or balanced topologies. Signature Passion models feature exquisite, leather-clad chassis and Absolare offers a wide range of leather color options to suit every music lover's taste. **Pricing: Absolare Passion Signature Preamplifier, \$32,500 (single-ended) \$36,000 (balanced); Absolare Passion Signature Power Amplifier \$48,500/pair (single ended); \$52,500/pair (balanced).** www.absolare.com



AUDIO RESEARCH SP20 PREAMPLIFIER

Sporting a look reminiscent of classic Audio Research components comes the SP20 vacuum-tube preamplifier. A completely modern design, the SP20 is pure Class-A with zero feedback and a fully balanced topology. And, for the first time on an ARC preamp, there is a headphone output with a high-performance vacuum-tube headphone amplifier designed to drive a wide impedance range of headphones. In addition to the headphone feature the SP20 offers a phono stage, plus five single-ended and two balanced inputs. There are two sets of balanced and one set of single-ended outputs. The presentation is as one would expect from ARC: relaxed, natural and transparent, with great dynamics and impact. In short, the SP20 delivers musically, with an ability to effortlessly drive a tube or solid-state amplifier. **Price: \$9,000.** www.audioresearch.com

ON THE HORIZON

AURALIC VEGA DIGITAL AUDIO PROCESSOR

AURALiC's VEGA Digital Audio Processor combines a DAC and a preamplifier that support all high-resolution formats, including DSD and DXD. The compact, elegant VEGA uses next-generation electronics to deliver rich, smooth and uncompromising high-resolution sound, precise details, rock-solid stereo imaging and great transparency with minimal noise and distortion. AURALiC's exclusive 1000 MIPS Sanctuary Audio Processor, based on a multicore ARM9 architecture, provides capabilities ideal for high-resolution multichannel music. The VEGAs Flexible Filter Mode offers users their choice of six groups of easy-to-use digital filters. Precise Femto Master Clock technology harnesses an aerospace-grade crystal oscillator for very low (sub-one picosecond) jitter and dramatically reduced phase noise. Other features include an exclusive power purification module that protects electrical circuits from interference, while maximizing stability and minimizing noise. **Price: \$3,499. www.auralic.com/en**



AVA SYNERGY CONTROL AMPLIFIER

The upgraded Synergy Control integrated amplifier from Audio by Van Alstine generates 100 watts per channel into 8 ohms and comes packaged in AVA's new big SL chassis. The Control Amplifier uses a passive preamplifier section to feed a high-gain version of AVA's Synergy solid-stage power amplifier—a combination that makes this an outstanding performer. The amp uses four power-MOSFET output devices and can drive 4-ohm loads and up. Like all AVA Synergy amplifiers, the Control Amplifier uses no overall feedback, meaning its inputs can never overload on an overall loop error-correction signal (because there isn't one). Instead, the Control amp uses a unique active and buffered powered feedback loop matched perfectly to the active buffered input parameters. The Control Amplifier has multiple regulated power supplies including regulated output circuits and heavy-duty Exicon output MOSFETs.

Price: \$1,799. www.avahifi.com



CONRAD-JOHNSON LP125SA POWER AMPLIFIER

The latest in the highly regarded series of Conrad-Johnson vacuum-tube power amplifiers, the LP125sa offers the convenience of a single stereo chassis, sufficient power (125Wpc) for the majority of high-end speaker systems, and the audio excellence associated with the Conrad-Johnson name. The LP125sa offers the same circuit technology used in the firm's flagship ARTsa amplifier, but in a more affordable package. Costs are controlled by using a simpler, less costly chassis, and by executing the circuitry with high quality but less exotic parts. For example, the LP125sa uses polypropylene capacitors instead of the ARTsa's costly CJD capacitors and precision metal film resistors rather than the ARTsa's metal foil resistors. The LP125sa retains Conrad-Johnson's proprietary ultra wide-band Transpectral output transformers and KT120 output tubes. An upgraded version of this amplifier, the LP125sa+, features metal foil resistors and CJD capacitors in strategic applications, plus upgraded I/O connectors. **Pricing: LP125sa, \$8,250; LP125sa+, \$10,000. www.conradjohnson.com**

ON THE HORIZON



↑ CONSTELLATION REFERENCE SERIES ALTAIR II PREAMPLIFIER

Altair II is an updated version of the original Constellation Audio Reference Series Altair preamp. The audio circuitry and construction are exactly the same, but the user interface has been refined based on feedback from dealers and customers. A new touchscreen allows all functions to be controlled from the front panel. A redesigned remote control, machined from aluminum and wrapped in leather, provides immediate access to functions such as power, volume, source selection, mute and phase. A new home theater bypass allows easy interfacing with surround-sound systems. All of the Altair's core design elements remain, including the "raft" construction that floats the audio circuitry on an elastomeric suspension, an 8.2mm-thick machined aluminum chassis, and an optically controlled resistor volume adjustment. **Price: Altair II, \$65,000. www.constellationaudio.com**



↑ CONSTELLATION REFERENCE SERIES HERCULES II MONOBLOCK AMPLIFIER

The Hercules II answers the request Constellation Audio received from its dealers to create a more traditional, horizontally oriented version of the original tower-shaped Hercules amplifier. While the amplifier circuit is the same, the horizontal configuration gave the engineers room to improve the power supply with larger storage capacitors. The additional storage provides even cleaner DC power than the original supply, and also enhances performance with low-impedance speakers. The fundamental sound quality of the Hercules is the same, because it uses the same innovative design as the original: a modular construction incorporating multiple 125-watt, single-ended amplifiers. The result is an amplifier that delivers the finesse of a small amplifier, yet with power and dynamics that no high-end amplifier can exceed and probably none can match. **Price: \$75,000 (500W/ch stereo); \$150,000/pair (1000W mono). www.constellationaudio.com**



↑ MAGNUM DYNALAB MD807T INTERNET MEDIA TUNER

The MD807T is the third in our range of four new Internet Media Tuners. The tuner can connect to your home network via Wi-Fi antenna or hard-wired LAN cable, giving access to over 20,000 Internet radio stations and music streams. The MD807T's triode tube audio section features both single-ended and balanced outputs. The audio section is wired with Kimber Hyperpure cable, uses Audiocap gold-lead polypropylene capacitors with Mundorf Supreme bypass capacitors, and offers a spacious, musical, and tonally accurate reproduction of the source. The unit features standard, digitally synthesized FM radio and a unique feature called "My Music" that allows you to play digital music files from your computer via the network, an accessory hard drive, or from a USB stick. All digital sources are processed by a proprietary, full-time upconverting 24/192 Burr-Brown DAC for superb sound. The MD807T also provides a rear-panel digital input for use with external digital sources. **Price: \$4,500. www.magnumdynalab.com**

ON THE HORIZON



OCTAVE HP 300SE TUBE PREAMPLIFIER

The Octave HP 300SE tube preamplifier is an enhanced version of the HP 300 MKII with improvements in the power supply and the output stage, featuring two XLR and three RCA inputs, and one Monitor, two RCA, and one transformer-balanced XLR Output. The XLR output allows connecting or disconnecting the ground to the power amp to reduce disturbing mains-induced currents that usually flow in the ground of the signal connection. There is a selectable home theater bypass, and a phonostage is optional. Gain is switchable in three steps, enabling optimum gain and regulation ratio depending on loudspeaker efficiency. Signal-to-noise ratio is extremely high, and the external power supply and ultra-low-noise voltage regulators of the main unit combine to significantly reduce noise. **Price: \$7,700 - \$8,900 (depending on configuration).** www.octave.de



PEACHTREE AUDIO NOVA125 INTEGRATED AMPLIFIER/DAC

For audiophiles looking to consolidate large stacks of gear into one retro-modern package, Peachtree Audio's nova125 could be the ideal solution. The versatile nova125 is a high performance integrated amplifier with rated power output of 125 Wpc into 8 ohms or 220Wpc into 4 ohms. Inside, you'll find a 24/192-capable ESS Sabre DAC, a triode 6N1P tube buffer, and a built-in headphone amplifier. Just add a source and a pair of speakers and you're ready to start playing. Digital music lovers can take advantage of the nova125's multiple digital inputs, including two coax, one optical, and one 24/192 asynchronous USB input. Any digital source, from a streamer to a CD player to a PC or MAC, can take advantage of the Peachtree's internal DAC. Better still, the nova125 includes a dedicated analog input, which is run as a totally separate signal path that never enters the digital domain. **Price: \$1,499 (gloss black); \$1,599 (cherry or rosewood).** www.peachtreeaudio.com



PRIMARE NP30 NETWORK PLAYER

Primare's NP30 Network Player is based on their already well received MM30 media module for their I32/PRE32 integrated amp/preamp. The NP30 creates a great foundation for any high quality music system adding audiophile streaming, internet radio, and gapless audio playback, through integration with UPnP devices such as PC/Mac/ NAS iPod®, iPad®, iPhone® or USB thumb drive. It's a genuine 24/192 DAC including 3x optical, 1x SP/DIF, USB-A, USB-B, WLAN, LAN inputs (incorporating an asynchronous master clock for low jitter), and XLR, RCA, Digital (192 kHz) outputs. The NP30 can be added to a system as a standalone component or as a digital preamp capable of driving a power amplifier. **Price: \$3,499 (black and titanium).** www.vanaltd.com

ON THE HORIZON



ROGUE AUDIO PHARAOH INTEGRATED AMPLIFIER

The new Pharaoh is Rogue Audio's flagship integrated amplifier and incorporates their proprietary tubeD™ technology in its design. This highly efficient "green" design takes advantage of both solid state and tube technology to create a tube amp that runs cool, uses very little energy and requires none of the maintenance normally associated with tube amplifiers. Boasting 175 Wpc into 8 ohms, the Pharaoh features a tube preamplifier circuit, a tube headphone amplifier, and an MM/MC phono preamplifier with adjustable loading and 40/60 dB of gain. Other features include a processor loop, XLR balanced inputs and a home theater bypass. It's good to be king... **Price: \$3,495. www.rogueaudio.com**



ROWLAND CONTINUUM S2 INTEGRATED AMPLIFIER

The 400W Continuum S2 is beautifully housed in a non-resonant, precision-machined aluminum chassis with trademark Jeff Rowland diamond-cut faceplate. All new signal circuitry uses the latest precision low distortion operational amplifiers powered by ultra low-noise voltage regulators. Signal inputs are buffered by Lundahl audio transformers providing superior RF and EMI immunity. An optical encoder-controlled volume level control provides excellent channel matching and low noise throughout the entire volume adjustment range. Inputs: Two pairs, balanced (XLR); two pairs, unbalanced (RCA); and one pair, unbalanced bypass (RCA). Outputs: One pair, parallel speaker terminals. Isolated line-level outputs: One pair, balanced (XLR); and one pair, unbalanced (RCA). Available with optional DAC or Phono card and compatible with Jeff Rowland's PC-1 external power factor correction unit. **Price: \$9,500. www.jeffrowlandgroup.com**



SIMAUDIO MOON NEO SERIES COMPONENTS

Launched in May 2013, Moon Neo series was conceived to remind people of our flagship Evolution series, but at a fraction of the price. Using aesthetics from the much more expensive Evolution series, the Neo series models incorporate various circuit enhancements to improve sound quality noticeably. Neo takes the place of most models previously available in the Moon series. New Neo models include the 380D Digital-to-Analog Converter with 32-bit architecture, **\$4,350** (basic DAC), **\$5,550** (DAC with optional MiND Network Player), **\$4,950** (DAC with optional preamplifier circuit), **\$6,050** (DAC with Mind and Preamp options); 260D CD Transport, estimated price under **\$3,000**; 250i Integrated Amplifier (50Wpc), price TBD; 340i Integrated Amplifier (100Wpc, with optional DAC, phonostage & XLR input), 350P Preamplifier, **\$3650** or **\$4,400** with optional DAC and phonostage; price TBD; 330A Power Amplifier (125 Wpc), **\$4,300**; and 400M Power Amplifier (400-watt monoblock), **\$4,300** each. **www.simaudio.com**

ON THE HORIZON



T+A AMP 8 INTEGRATED AMPLIFIER

Able to drive even demanding loudspeakers effortlessly with a powerful, warm, yet highly resolving sound, the T+A AMP 8 stereo amplifier (80Wpc into 8 ohms) shares technologies with the firm's flagship PA 3000 HV (High Voltage) model, while its compact non-magnetic aluminum case mirrors that of the T+A DAC 8. The extremely linear, broad-band voltage and current amplifier stages are isolated from each other, as are their power supplies, which feature their own reservoir capacity and buffering to eliminate potential interaction between the channels while preventing any feedback effects from the loudspeakers. Non-magnetic Vishay resistors, special WIMA and ELNA audio capacitors, and select audiophile components are utilized at points in the circuit board critical to sound quality. The AMP 8's minimally inductive layout enables a superb transient and dynamic response.

Price: \$2,800. www.taelektroakustik.de



VAC STATEMENT LINE AMPLIFIER

VAC's Statement Line Amplifier is a high current, low impedance, and balanced Class A1 triode vacuum tube amplifier, inherently balanced in design. The chassis is machined from high-grade, non-ferrous aluminum and processed through a series of plating steps. The resulting AlCuNiCr chassis offers superior RF rejection for greater resolution and subjectively blacker backgrounds. The chassis provides isolated subsections each dedicated to specific signal functions; interconnecting wires are carefully routed through machined nonmetallic guides. The hand-wired vacuum tube circuit assembly is bonded to a massive brass loading plate isolation-mounted to the main chassis. By avoiding negative feedback and using input and output transformers VAC has eliminated unwanted stray interactions between the source components and power amplifier that could coarsen the sound and flatten the sound stage. The remote volume control is a massive one-pound multisection potentiometer with machined brass shielding between the sections. This extraordinary part is critical in obtaining the highest fidelity in the world. **Price: \$46,000. www.vac-amps.com**

WYRED 4 SOUND DAC-2 DSDSE

Wyred 4 Sound is proud to introduce the all new DAC-2 DSDse. With upgraded features ranging from DSD support to custom Vishay Z-Foil resistors, this award winning DAC sets the standard for performance and value. New units retail for \$2,499 and if you already have a DAC-2 you are in luck! Existing units can be upgraded to the new specifications for only \$1,250. W4S products are available direct from the factory and manufactured in the U.S.A. to provide unparalleled quality and service. Visit their website or call to learn more. **Price: \$2,499.**

www.wyred4sound.com



How to Choose a Power Amplifier

Excerpted and adapted from *The Complete Guide to High-End Audio* (fourth edition).
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Robert Harley

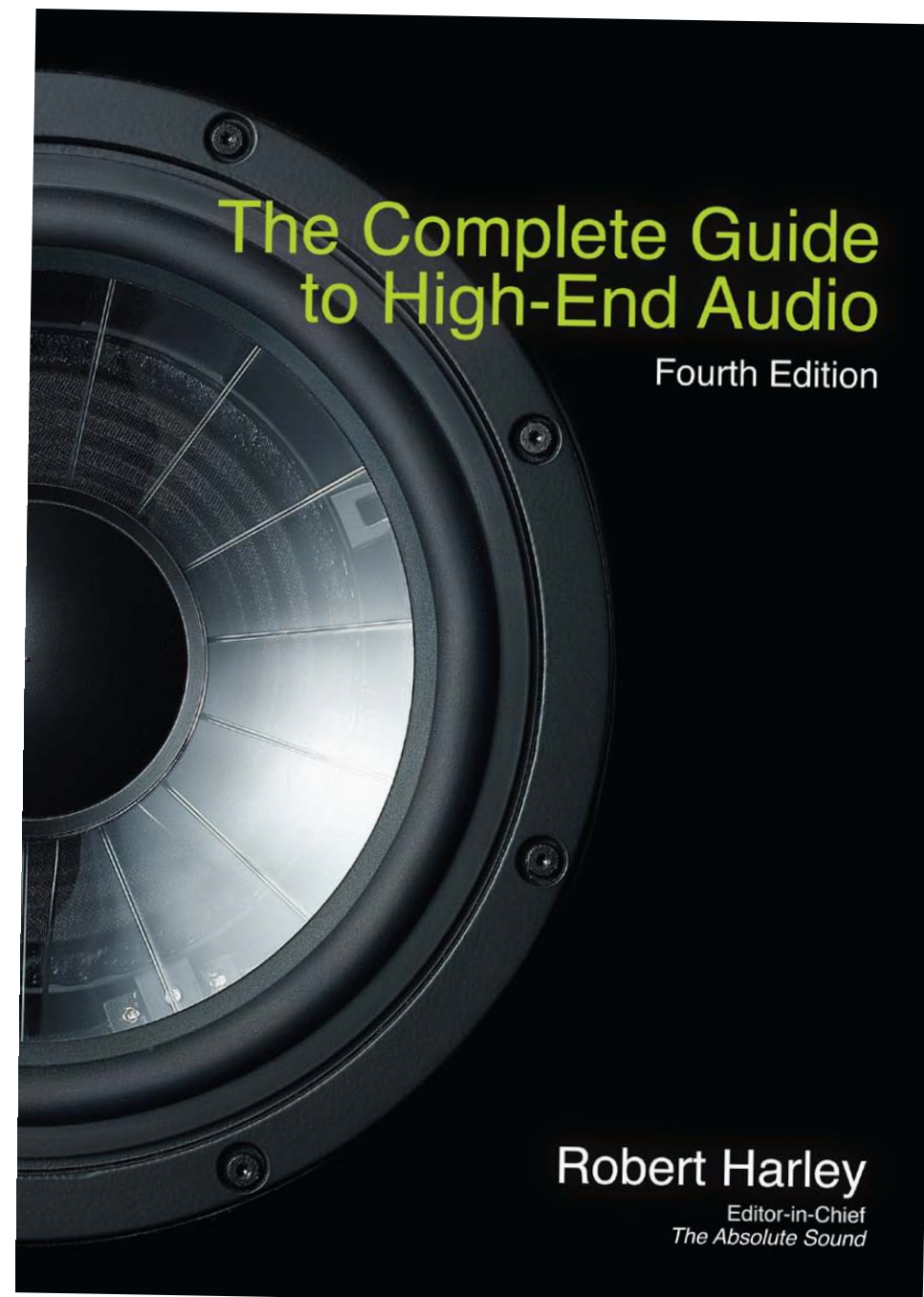
Unlike most of the other components in your system, power amplifiers vary greatly in electrical performance. Consequently, choosing a power amplifier requires careful system matching for electrical compatibility, not just musical compatibility. While any digital source will function in a system (even though it may not be musically ideal), some power amplifiers just won't work well with certain loudspeakers on a technical level. Choosing a power amplifier is thus a technical, as well as aesthetic, decision that requires careful attention to system matching. We'll discuss these technical factors throughout this chapter.

Because a power amplifier's cost is often proportional to its output power, read this chapter's "How Much Power Do You Need?" section to select just the right power rating for your needs. Whatever your budget, the power amplifier should consume about 20 to 25% of your total system budget.

The first division of power amplifiers—a stereo unit or a pair of monoblocks—will be decided by your budget. Monoblocks generally start at about \$2500 per pair. At this price level, a single stereo unit may make more sense; with only one chassis, power cord, and shipping carton, the manufacturer can put more of the manufacturing cost into better parts and performance. I advise against monoblocks if your amplifier budget is less than about \$4000. There may be exceptions

to this figure, but it nonetheless offers a broad guideline. Many excellent stereo units, for example, cost upward of \$6000. A very popular price range for high-quality power amplifiers is \$800–\$2000, with the \$2000 models sometimes offering musical performance close to that of the most expensive amplifiers.

Monoblocks generally perform better than a single stereo unit for several reasons. First, because the two amplifier channels are separate chassis, there is no chance of interaction between channels. Consequently, monoblocks typically have better soundstage performance than stereo units. Second, monoblocks have completely separate power supplies, even down to the power transformers: the left- and right-channel amplifier circuits don't have to share their



Book Excerpt: How to Choose a Power Amplifier

electrical current source. This gives monoblocks the ability to provide more instantaneous current to the loudspeaker, all other factors being equal. Finally, most manufacturers put their cost-no-object efforts into monoblocks, which are often the flagships of their lines. If you want all-out performance and can afford them, monoblocks are the way to go.

Integrated Amplifiers

At the other end of the scale from monoblocks is the integrated amplifier, in which a preamplifier and a power amplifier are combined in the same chassis. Though the power output from integrated amplifiers is generally lower than that from separate power amplifiers, integrations are much less expensive, and ideal for budget to moderately priced systems. True high-end integrated amplifiers start at about \$300 and can cost as much as \$15,000 for top models.

High-end integrated amplifiers have changed radically in the past few years. Once relegated to low-powered units from European manufacturers, with idiosyncratic operation and non-standard connectors, integrated amplifiers have finally come into their own. Leading high-end manufacturers have realized that an integrated amplifier makes sense for many music lovers. The cost and convenience advantages of an integrated amplifier are compelling: integrations take up less space, are easier to connect, reduce the number of cables in your system, and can even offer the performance of separate components. Now that high-end manufacturers have taken the integrated amplifier seriously, they're putting their best technology and serious design efforts into their integrations.

Consequently, many manufacturers have enjoyed booming sales of integrated amps in the \$2000–\$4000 price range that produce about 50–150Wpc (watts per channel) of power.

Some manufacturers have even included a quality tuner with their integrated amplifier. Not so long ago, the term “high-end stereo receiver” was an oxymoron. Today, however, there's no reason why a receiver designed and built with the dedication given to separate components should offer anything but high-end musical performance.

These newer integrated amplifiers have also overcome one of the limitations of earlier designs: the inability to upgrade just the power amplifier or preamplifier section. Today's integrations often include preamplifier-out jacks for connecting the integration to a separate, more powerful amplifier. They also often have power-amplifier input jacks if you want to upgrade the preamplifier section. Higher-end integrated amplifiers feature a dual mono design in which the left and right audio channels are completely separate from each other, even down to the power transformers. These premium-quality integrations also boast technologies found in upper-end preamplifiers, such as discrete-resistor stepped attenuators (described in the previous chapter), a discrete Class-A input stage, and fully balanced operation.

The digital age has driven a radical transformation of the integrated amplifier from a simple, no-frills product into a technological showcase. For example, today's integrated amplifiers often include a digital-to-analog converter with a USB input for connection to a computer-based music system. If you would like to plug a portable music player into your integrated amplifier, look for one with a front-

panel 1/8" stereo jack. Some integrations also offer an iPod docking port. If you're interested in the latter feature, there's a distinction you should know about: Some iPod docks tap into the iPod's analog signal, while others take the iPod's digital output and convert that digital signal to analog with the integration's digital-to-analog converter. The latter approach replaces the iPod's compromised DAC and analog output stage with the integration's superior circuitry.

Other useful features on an integration include “gain offset” and “theater bypass.” Gain offset allows you to attenuate the signal level on each input individually to compensate for the varying output levels of source components. This adjustment prevents large jumps in playback volume when switching between sources. Theater bypass is important if you plan on using the integration as part of a home-theater system. This switch, or sometimes a dedicated input, sets the integration at a fixed gain (the volume control is disabled) so that you calibrate the channel levels with an AV controller and maintain that calibration. Chapter 12 includes a complete description of how a stereo preamplifier or stereo integration works with an AV controller in a home-theater system.

When choosing an integration, combine the advice in Chapter 4 (“Preamplifiers”) with the guidelines in the rest of this chapter. If your budget is under \$5000 for amplification, seriously consider one of the new breed of high-end integrations rather than separates.

How Much Power Do You Need?

The first question to answer when shopping for a power amplifier or integration is how

much output power you need. Power output, measured in watts into a specified loudspeaker impedance, varies from about 20Wpc in a very small integration to about 1000Wpc. Most high-end power amplifiers put out between 80 and 250Wpc. Single-ended triode amplifiers, described later in this chapter, generally produce between 3Wpc and 20Wpc.

Choosing an appropriate amplifier power-output range for your loudspeakers, listening tastes, room, and budget is essential to getting the best sound for your money. If the amplifier is under-powered for your needs, you'll never hear the system at its full potential. The sound will be constricted, fatiguing, lack dynamics, and the music will have a sense of strain on climaxes. Conversely, if you spend too much of your budget on a bigger amplifier than you need, you may be shortchanging other components. Choosing just the right amplifier power is of paramount importance.

The amount of power needed varies greatly according to loudspeaker sensitivity, loudspeaker impedance, room size, room acoustics, and how loudly you like to play music. Loudspeaker sensitivity is by far the biggest determining factor in choosing an appropriate power output. Loudspeaker sensitivity specifies how high a sound-pressure level (SPL) the loudspeaker will produce when driven by a certain power input. A typical sensitivity specification will read “88dB SPL, 1W/1m.” This means that the loudspeaker will produce an SPL of 88 decibels (dB) with one watt of input power when measured at a distance of one meter. Although 88dB is a moderate listening volume, a closer look at how power relates to listening level reveals that we need

Book Excerpt: How to Choose a Power Amplifier

much more than one watt for music playback.

Each 3dB increase in sound-pressure level requires a doubling of amplifier output power. Thus, our loudspeaker with a sensitivity of 88dB at 1W would produce 91dB with 2W, 94dB with 4W, 97dB with 8W, and so on. For this loudspeaker to produce musical peaks of 109dB, we would need an amplifier with 128W of output power.

Now, say we had a loudspeaker rated at 91dB at 1W/1m—only 3dB more sensitive than the first loudspeaker. We can quickly see that we would need only half the amplifier power (64W) to produce the same volume of 109dB SPL. A loudspeaker with a sensitivity of 94dB would need just 32W to produce the same volume. The higher-sensitivity speaker simply converts more of the amplifier's power into sound.

This relationship between amplifier power output and loudspeaker sensitivity was inadvertently illustrated in an unusual demonstration more than 50 years ago. In 1948, loudspeaker pioneer Paul Klipsch conducted a demonstration of live vs. reproduced sound with a symphony orchestra and his Klipschorn loudspeakers. His amplifier power: 5W. The Klipschorns are so sensitive (an astounding 105dB SPL, 1W/1m) that they will produce very high volumes with very little amplifier power. Klipsch was attempting to show that his loudspeakers could closely mimic the tonal quality and loudness of a full symphony orchestra.

The other end of the speaker-sensitivity spectrum was illustrated by a demonstration I attended of an exotic new loudspeaker. During the demo, the music was so quiet that I could barely hear it. I looked at the power amplifiers—300Wpc monsters with large power meters—and

was astonished to see that the power meters were nearly constantly pegged at full power. This unusual speaker converted only a minuscule amount of the amplifier's output power into sound.

The importance of loudspeaker sensitivity is also demonstrated by today's 3Wpc single-ended triode amplifiers, which can produce moderately loud listening levels through high-sensitivity speakers. These examples of huge variations in sound-pressure level and amplifier power illustrate how loudspeaker sensitivity greatly affects how big an amplifier you need. Even a small difference in loudspeaker sensitivity—2dB, say—changes your amplifier power requirements.

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GAIN MOMENTUM.



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“It may, perhaps, be the best amp on the planet.”

—Ken Kessler, Hi-Fi News & Record Review, July 2011



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Editors' Top Picks: High-End Electronics Components

Neil Gader, Robert Harley, Jacob Heilbrunn, Chris Martens, Kirk Midtskog, Dick Olsher, Paul Seydor, and Jonathan Valin

For this section of *The Absolute Sound Guide to High-End Audio Electronics*, we invited a select group of staff members and freelance writers to choose those electronics components that in their assessment stand out from the competition. Each writer was encouraged to express his individual views on which electronics components he thinks are truly great—and why.

Some of these components are long-time references that have withstood the test of time. Others are newfound favorites destined to become classics. In either case, the electronics components selected are special, indeed.

—Robert Harley

NEIL GADER



Hegel H300 Integrated Amplifier
\$5500

The greatest tribute I can pay the Hegel H300 is that in all the hours I spent with this amp, I never wanted to shut it off. On paper the H300 is not unusual for a high power, line-level integrated amp. A dual-mono design, it outputs a hefty 250Wpc into 8 ohms. The flat black exterior is seriously Spartan. But then things gets interesting. The H300 is uncommonly versatile. The H300 integrates a 32-bit DAC stage with five digital inputs including USB. Sonically the H300 is a strictly neutral and quiet affair, opening a transparent, harmonious window on the source. Its pristine lack of distortion, superb edge definition, and micro-dynamic liveliness are special—and the DAC stage is stunning, producing startlingly focused images without the soundstage phasiness or image smearing that is common in this segment. A product that represents the high end at its most rewarding. (TAS 233)



Vitus Audio RI-100 Integrated Amplifier
\$13,000

When my review of the Vitus Audio RI-100 integrated was originally published I characterized this 300Wpc mega-amp as “the sledgehammer with a heart.” My opinion is unchanged. The RI-100 is still capable of extracting the highest highs and most dynamic lows and pretty much everything in between. Though not quite as warm, ripe, and fluid as the superb Class A Vitus SIA-025, the brawny RI-100 is virtually unrivalled in its breathtaking grip on the lower octaves. Vitus Audio has promised optional plug-in DAC and phono modules in the near future. (TAS 232)



Parasound JC 3 Phonostage
\$2350

Built by Parasound, but designed with the inspiration and insight of the legendary John Curl, each channel of this dual-mono design is housed in its own extruded aluminum vault. Its backgrounds are eerily quiet, instrumental timbres ripe, and channel separation utterly exquisite. There's also a sweet kiss of romance through the mids and an uncanny ability to extract and define low-level information. To my mind, the JC 3 should continue to embarrass much pricier phonostages for the foreseeable future. It truly is an affordable exemplar of one man's passion for a format that just won't quit. (TAS 215)

EDITORS' TOP PICKS

ROBERT HARLEY



Absolare Passion Preamplifier and Passion 845 Monoblock Power Amplifiers

\$25,000 (preamplifier) and \$37,500 per pair (power amplifiers)

These ultra-minimalist single-ended electronics are not only gorgeous to look at in their leather-clad chassis, they are stunningly beautiful musically. The Absolare preamplifier and 52W single-ended triode amplifier strip away the feeling of electronics imposing themselves between you and the musicians, instead fostering a powerful impression of contemporaneous music-making. The Passion preamplifier and 845 power amplifiers deliver the glories of single-ended triode circuits in a cost-no-object implementation—gorgeous timbre, a smooth and relaxed treble, tremendous soundstage depth and dimensionality—but do so with enough power to drive real-world loudspeakers to satisfying playback levels. Moreover, Absolare electronics have robust bass extension and control that fly in the face of conventional wisdom about SETs. The build-quality, fit 'n' finish, and customer support are world class. (TAS 234)



Lamm ML2.2 Monoblock Power Amplifier

\$37,290

At one time if you told me that an 18W amplifier that cost \$37k would be at the top of my list of desirable amplifiers, I would have thought you crazy. But that's what the Lamm ML2.2 is—the world reference in immediacy, timbre, and musical communication. There is, however, a big caveat to this statement: You must partner the ML2.2 with a loudspeaker of high sensitivity and a benign load. Although the ML2.2 doesn't exhibit the bass and dynamic limitations of most other SETs, it is nonetheless significantly restricted in which loudspeakers its 18W will drive. This said, with the right loudspeaker the ML2.2 is simply magical. The music just exists in front of you, unencumbered by any electronic sonic signature. The ML2.2 makes even the best solid-state amplifiers sound somewhat flat and dimensionless by comparison. This is an amplifier that every audiophile should hear. (TAS 230)



Constellation Virgo Preamplifier and Centaur Monoblock Power Amplifier

\$24,000 (Virgo), \$54,000 per pair (Centaur monoblocks)

It may seem odd to call a \$24k preamplifier and a \$54k pair of monoblocks “trickle-down” but that's exactly what they are. These electronics are very similar in design and construction to Constellation's \$65,000 Altair preamplifier and \$140,000 Hercules monoblocks. Having lived with both in my listening room, I can report that the Virgo and Centaur come very close to the performance of the cost-no-object products at a lower, though still lofty, price. The Virgo and Centaur have a wonderful warmth through the midrange that is reminiscent of SET designs coupled with perhaps the best treble reproduction of any solid-state amplifier. The upper-midrange through the top treble is extremely defined, resolved, open, and spacious. Moreover, it delivers these qualities without sounding etched or fatiguing. The 500W Centaur monoblocks are powerhouses that can drive any load to any reasonable listening level. It all adds up to a preamplifier and power amplifiers that bring you within a hair of the performance of Constellation's Reference Series for a fraction of the price. (TAS 234)

EDITORS' TOP PICKS

JACOB HEILBRUNN



VTL Siegfried Series II Reference Monoblock Amplifier

\$65,000 per pair

Tube lovers have lots to obsess over, from the quality of output transformers to the brand of tubes. But when it comes to delivering sheer slam, VTL has pretty much been at the head of the pack. Want a French horn blazing lustily out of the rear of the orchestra? VTL supplies it. But VTL has achieved a higher level of performance with the introduction of the new version of the Siegfried, which handily betters its predecessor, both in musical refinement and control. A slight electronic glare in the treble in the first version Siegfried has now been effaced by a new circuit design. Particularly noteworthy is the amplifier's uncanny ability to reproduce what my colleague Jonathan Valin has called the "action" of an instrument in a concert hall—the sensation of how it produces and projects sound. It digs deep, mining an LP or CD for every last bit of information. The new Siegfried thus couples a majestic soundstage with a sumptuous level of finesse and bloom to offer a musical experience that lingers in the ear long after the notes themselves have faded away. (Series II not yet reviewed) Series I reviewed in Issue 180)

CHRIS MARTENS



Rega Osiris Integrated Amplifier

\$8,995

Rega's 162Wpc solid-state Osiris integrated amplifier has been controversial from the start, possibly because enthusiasts regard the UK-based firm more as a maker of value-oriented hi-fi gear than as a proper purveyor of ultra high-performance top-tier components. Nevertheless, "top-tier" really is the only descriptor that fits when talking about what the Osiris is and can do (much like Bentley's famed Continental GT, the Osiris can seem understated—right up until you put the hammer down). The elegant Osiris features a passive preamplifier section that feeds a minimalist high gain power amplifier where, says Rega, there is just "a single stage of power amplification between the input and the speakers." The sound is focused and richly detailed yet not analytical, fast and incisive yet not edgy, and natural and organic yet not veiled or artificially warmed-up. The greatest fun, however, comes when watching serious high-enders hear the Osiris for the first time. At first listeners are openly skeptical (it's "only" a Rega, right?), but after an hour or two most concede Rega has crafted an integrated amp that truly competes with the big boys. (TAS 213)



Cavalli Audio Liquid Glass Hybrid Tube/Solid-State Headphone Amplifier

\$3,750

I am a strong proponent of listening to music through very high-performance headphone-based systems because they can, at their best, serve up wide-range frequency response, killer dynamics, and downright stunning levels of transparency and resolution. Of course you will need a great headphone amplifier to achieve such results and one of the best I've heard is Cavalli's hybrid tube/solid-state Liquid Glass. Designed specifically with "tube-rollers" in mind the Liquid Glass provides a versatile tube-powered front-end section driving a low-noise, low-distortion, wide-bandwidth solid-state output/buffer stage. The Glass provides pairs of both octal (8-pin) and nonal (9-pin) tube sockets (along with appropriate heater and plate voltage selector switches) and thus can accommodate dozens of different types tubes that conform either to 6SN7 or 12AU7 pin-out arrangements. In practice, listeners have hundreds of tube options to choose from, each with its own subtle sonic characteristics, and happily the amp's inherent transparency and resolution make it child's play to assess those differences. The value of this phenomenal amp lies not only in the sonic riches it will reveal in your favorite music, but also in its ability to help you identify, understand, and pursue a sound that will, for you, represent the absolute. (Hi-Fi+ 99)

EDITORS' TOP PICKS

KIRK MIDTSKOG



Gamut D200i and M250i Power Amplifiers

\$12,500 and \$23,000

The 200Wpc D200i solid-state stereo amp negotiates some of the sonic divide between solid-state adherents and tube lovers. It doesn't try to "mimic" traditional tube tonality, but it does have a fair measure of tube-like liquidity, image solidity, and layered depth—elements which often get short-changed by solid-state amplifiers in its price category. It is reasonably powerful, tonally neutral (but not clinical), runs cool, has four adjustable input gain settings (to better match up with a variety of preamps), and should prove to be very reliable—if it is anything like its D200 MkIII predecessor. The heavier and more powerful M250i monoblock sibling ratchets up all the positives of the D200i to an astonishing level. A wide, deep, and clear view into good recordings opens up even more than with the already accomplished D200i. The M250i also imparts greater ease and authority to the proceedings. The M250i is one of those amplifiers one simply buys and then enjoys for years. (TAS 229)

DICK OLSHER



Pass Labs XP-30 Reference Linestage Preamplifier

\$16,500

State-of-the-art when it comes to bass control and resolution, the XP-30 transcends the tube/solid-state divide. Microdynamics essential for capturing music's expressiveness and rhythmic drive, long the trump cards of tube preamps, are reproduced with great conviction. There is no hesitation in expanding the sonic envelope from loud to very loud, giving full scope to the music's drama and intensity. It is fully capable of laying down an orchestral foundation with big tone conviction and dynamic integrity. The first stage uses high-transconductance Toshiba JFETs as matched complimentary pairs in a cascode topology that is responsible for exceptionally low distortion levels. Secondary gain and high-current follower output-buffers are implemented using Toshiba MOSFETs. Expect a winning combination of soundstage transparency and low-level resolution. Transient attack is a model of speed and clarity, while decay is well controlled. In particular, the treble range blooms with satisfying levels of finesse. Brushed cymbals and struck bells shimmer just right. A supremely musical line preamp that may well prove to be all things to music lovers and audiophiles alike. (TAS 223)

PAUL SEYDOR



Zesto Audio Andros PS-1 Phonostage and Leto Preamp

Andros, \$4300; Leto, \$7500

As I did last year, I cheat by including a pair of electronics, but these splendid all-tube units are such obvious kissing cousins from aesthetic design (among the most strikingly original I've seen) to sound quality that I haven't the heart to separate them (though they can easily be used separately). Almost miraculously, their sound seems to exhibit virtually no discernable electro-mechanical artifacts: smooth, velvety, harmonically rich, marvelously rounded and dimensional, with great body and solidity, and completely organic, seamless, and whole. The Andros's mm/mc phonostage is transformer coupled for moving coils and provides a good range of loading options, and both units feature a novel circuit that allows for floating the ground independently for each channel, which is very effective for eliminating ground loops. I've never encountered electronics I've more enjoyed reviewing, listening to, or living with. (TAS 222 and 230)

EDITORS' TOP PICKS

JONATHAN VALIN



Soulution 520 Preamplifier and 501 Monoblock Amplifiers 520, \$26,000; 501, \$55,000 per pair.

Via the use of higher-capacitance switching power supplies (now also found in their 700 Series electronics), Soulution's Cyrill Hammer and chief engineer Bonne Ditmar have turned supremely high-resolution/low-distortion electronics into absolute dynamic monsters with perhaps the most spine-tingling bass grip, extension, and slam I've yet heard from any electronics. With the 520 and 501 your speakers simply sound as if they're plugged directly into the wall. Until they run completely out of steam and shut down, the amps just don't quit at any dynamic level, despite their modest (120W into 8 ohms, 240W into 4 ohms) power rating. Plus the 520 comes with a superb phonostage built into it. Incredible neutrality, speed, resolution, and (now) power—what's not to like? (TAS 235)



Audio Research Corporation Reference 10 Linestage Preamplifier \$30,000

ARC has literally upped the ante in the high-end preamplifier showdown with this two-box linestage. Every quality that you've always loved about ARC electronics (neutrality, timbre, texture, resolution, bloom, air, staging) is here improved to levels that may actually exceed those of ARC's spectacular \$40k Reference Anniversary preamp of a few years back. Plus the Ref 10's got grip, speed, and extension in the bass unrivaled by any other tube preamp I've heard—and a midrange realism to die for. A new standard in tube preamplification from a company that specializes in setting new standards. (Forthcoming)



Siltech SAGA Preamplifier/Amplifier System \$75,000

A veritable electronic satyr, Siltech's unique, three-box, linestage/power amplifier uses a combination of cutting-edge technologies that have never before been seen in a single package. The tubed preamp and tubed voltage-stage amplifier are battery-powered. The AC-powered current-stage amplifier is Class A solid-state with a twist: An extremely-high-intensity light source (called the Apollo Drive), modulated by the voltage of the voltage-stage amp, is used to bias the transistors—completely isolating the output transistors from the noise and grunge of house current. The result is an amplifier of incredible power and suavity—ultra-low-noise, ultra-fast, ultra-high-resolution like the best solid-state, but with the gorgeous timbres and textures of tubes. A marvel of modern engineering. (Forthcoming)



EQUIPMENT REVIEWS

Integrated Amps

Primare I32 Integrated Amp

Scandinavian For “Sock It to Me”

Neil Gader



Il bet we all remember what our parents asked us before we went out to play on a Saturday afternoon. The fateful question was, “Did you finish your homework?” How this question applies to the digital wing of the high-end is just as fateful. As competitive and fast-moving as this segment is, pity the product that is brought out to play without having done its homework. After spending a lengthy period road-testing the new Primare I32 integrated amplifier, I can say without reservation that beyond its power, looks, and user flexibility, the Primare has done its homework and may even deserve some extra credit.

For those less familiar with this Scandinavian firm, Primare’s lineage can be traced to the stunning 900 Series and 200 Series products of Danish industrial designer Bo Christensen from the 1980s. More recently Primare has teamed with Xena Audio of Sweden—known for its Copeland and QLN brands—to bring together the talents of Primare’s Bent Nielsen and Xena’s Lars Pedersen. The final piece of the puzzle was filled in the late 1990s with the addition of brilliant engineer Bjorn Holmqvist.

Still, it’s been something of an on again/off again love story between the U.S. and Primare. Gaining a secure foothold in the American market can be a tortuous road for even the canniest foreign electronics manufacturer. Economic variables, marketing savvy, timing, or just dumb luck can make

or break a company’s fortunes on this side of the pond. However, with the leadership of a new and highly experienced distributor in Kevin Wolff of Vana Ltd., my instinct tells me that Primare is here to stay on this go-round.

The I32 is a 120Wpc integrated amplifier, a rating that nearly doubles into 4 ohms with 230Wpc. Output power is achieved via twin proprietary Ultra Fast Power Device (UFPD) power modules, a Class D technology which has a consistent 26dB feedback-loop gain across the entire audio range and is stable way beyond the audio band like traditional linear, non-switching amps. In Primare’s words, “The UFPD amplifier actively adapts the loop gain to keep the total loop stable during start-up, clipping, and current limiting. It senses the changes to the filter output and applies the correct amount of feedback to compensate. [It] allows for several more dBs of constant loop gain across the audio band.” The claimed result is lower noise, lower output impedance, and lower harmonic distortion. Because it’s load *independent* it’s able to accurately drive even difficult speakers. The thermal efficiency of these designs is well documented, but many users will be pleased by their eco-friendly standby mode of just 0.2 W.

The I32 revisits the low-profile, small-footprint form-factor of earlier Primare models. It exudes quality and craftsmanship. It’s elegant to the touch—control buttons and aluminum knobs for volume and input selection have a nicely weighted feel. The OLED screen is very sharp (Apple-Retina-display-like in clarity). The smart screen illuminates brightly when an operation is selected and then dims to a softer light. A numerical value for the current volume setting is always visible but increases in size and brightness when volume is

EQUIPMENT REVIEW - Primare I32 Integrated Amp

changed. Operationally it's a dream, and menu navigation, the hobgoblin of complex "hub-style" integrated amplifiers, is comprehensive and intuitive. All inputs can be renamed and enabled/disabled and their outputs optimized.

MMGood

Speaking of inputs, the I32 is available in two versions—the traditional integrated amp with analog inputs or with the MM30 multimedia-upgrade-module that transforms the I32 into a digital media central. With its 24-bit/192kHz DAC board it offers network streaming via Ethernet or wireless, plus Internet radio and gapless audio playback. The more common digital inputs haven't been put out to pasture either; they include S/PDIF, TosLink, plus USB-A and -B inputs (asynchronous for low jitter). Since the MM30 is compatible with UPnP controls like PlugPlayer or Asset UPnP, integrating the panoply of UPnP devices from PC/Mac/NAS to various iDevices or USB thumb drives is (with some patience) a relatively simple procedure. Consistent with Primare's design philosophy, the digital and analog signal paths within the Primare have their own dedicated ground planes—a design feature that preserves the purity of analog signals. Similarly the electronics package in the front-panel display is electrically isolated from the chassis, and there's extensive use of ribbon connectors and surface-mount circuitry for low noise.

The Primare tablet app (a free iTunes download) is graphically solid and is a good organizer of imported album metadata. But it could be easier to navigate. I'd like to see a more sensitive volume indicator, and ideally a way

to input network settings from the app rather than entering alphanumeric characters via the front panel. As this review was going to press I was informed by the distributor that a newer, more refined app is in the works that should address these issues including source-selection, volume, and renaming functions. Lastly, this new application will also notify the owner of future software updates.

I had to go a long way back to recall the first Primare integrated I reviewed. It was the \$1250, 70Wpc I20 in Issue 143. It was a very good amp for the time, but time marches on. The I32 is an entirely different animal sonically. Where the I20 seemed to place a lid over the treble, darkening the sonic landscape and tamping down harmonic detail, the I32 is vastly more open and expressive. Tonally it's superbly balanced across the audio spectrum. Images are allowed to spread as effortlessly as their timbral character allows. While there is still a hint of residual dryness on top, any impression of constriction, of harmonic and ambient compression, is largely absent.

This is not an amp that merely scratches the surface of musical reproduction. Even in some of the most popular of pop releases, there are levels of texture and dimension that only need a good amp like the I32 to be heard. Just listen to "Going Home," the first track from Leonard Cohen's latest album *Old Ideas*, if you want to hear what I'm describing. Musical transients are snapped off smartly with the clean report of a starter's pistol. And more generally, the bright, crisp edges that are heard from small percussion instruments like a tambourine, an orchestral triangle, or a set of bar chimes are resolved as purely as by any amp I've heard at or near this

range. As I listened to versions of the Eagles second album *Desperado* (an original British Asylum LP and the terrific HDtracks 24-bit/192kHz download) I was hearing a wonderfully articulate musical conversation taking place between the banjo, Dobro, and bass guitar during "Twenty-One." Cymbal crashes seemed lifted into the soundscape on a cushion and then decayed naturally, as opposed to sounding thickened and abruptly clipped off. The band's trademark harmonies still remain admirable, but it's the reproduction of the superb balance of voices that producer Glyn Johns attained during "Saturday Night" that makes using the I32 so rewarding. Its "insider" resolution is so good that harmonies can be followed as a single collective voice or as a chorus of discrete voices brimming with unique inflections and character.

I customarily associate the retrieval of these low-level harmonies with classic Class AB designs, not Class D—a result that further supports my belief that, next to cone-driver box-loudspeaker technology, the components that have made the greatest leaps in sound quality are Class D amps. As many recall, the early returns for switching technology were lackluster. Although they featured exceptionally well-defined bass, many designs were highly load-dependent—harmonic distortion might increase and select frequencies and dynamics could be constricted depending on the load. Recent designs, like MBL's LASA technology found in its Corona amplifier, have largely solved these issues. And now I would count Primare among the success stories as well. The shaded top end and the glaze that often smeared transparency were not part of the I32 personality. What I did

hear in spades were pristinely clean backgrounds and an atmosphere devoid of any suggestion of electronic hash or grain. For example, during the lightest pianissimos from a solo piano, individual notes can sometimes sound as if they are being projected with a vestigial veil of sonic texture that lightly smudges the transient and clings to the note like a spider web. The I32 was simply spotless in this regard—not a hint of noise affecting Laurel Masse's *a cappella* vocals on *Feather & Bone* [Premonition] in the vast acoustic of the Troy Savings Bank Music Hall. As if emerging from the blackness of space, there was simply her articulation of a note and the long, unbroken, reverberant decay of that note saturating the venue.

SPECS & PRICING

Power output: 120Wpc (230Wpc into 4 ohms)

Inputs: three RCA, two XLR; MM30 inputs

Outputs:

Dimensions: 16.9" x 16.5" x 4.2"

Weight: 22 lbs.

Control: 12V trigger, RS232

Price: \$4499 with MM30 installed; \$2999 in black or titanium;

MM30 (as upgrade): \$1999

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EQUIPMENT REVIEW - Primare I32 Integrated Amp

The I32 resolves bass pitches very well. The signatures of orchestral bass instruments like doublebass and bassoon, and percussion instruments such as bass drums and tympani, are unmistakably lifelike from opening transient to the outpouring of reverberant bloom. They fill every acoustic corner of a space rather than sounding overly tightened and harmonically strangled. Ultimately the I32's bass response can't fully grapple with music's deepest timbres and most sledgehammer dynamics. A true avalanche of low-frequency percussion and dynamics will reveal the differences between the I32 and a clean-up hitter like the mbl Corona C21 stereo amp (Issue 228). Take for example Copland's *Fanfare For The Common Man* [Reference]. The I32 can't quite match the big MBL's weightiness and dynamic energy. Its grip loosens slightly trying to reproduce the full duration of the note's resonance. Like a hammer striking a nail, the I32 won't drive that nail as deeply as the Corona does, so some parts of the floor-rumbling reverberations are slightly subdued.

Turning to the Hatfields and McCoys of digital media—Ethernet vs. USB—I concluded that they performed in a near dead heat. Which is to say both are very, very strong, especially whenever I turned to high-resolution material. Every time I felt myself wavering, leaning to one camp or the other, I'd have another listen and find myself leaning in the other direction. Worth mentioning was that over Ethernet there was a very short lag when changing song selections on the fly. Then again I was informed by others very knowledgeable in this field that there are many potential logjams in the world of networking that can't be directly ascribed to the Primare—

even the choice of routers could be a culprit. (In the interests of full disclosure, I used a Netgear GS605.) To my mind USB remains the most straightforward configuration, but I can appreciate the allure of the networked system for multiple users. So for me the jury is still out. But for the digitally progressive, future-proofing your investment with the MM30 is a no-brainer decision. That's how I'd take delivery of an I32 without question.

At this point I'm not even going to try to restrain my enthusiasm for the Primare I32 integrated amp. It's one of the most successful implementations of Class D I've yet heard and it's a strikingly good deal. All the more so when fully equipped with the MM30 media module. I've tested a lot of integrated amps in this segment and on balance you'll have to go a long way to match the I32. Primare's done its homework and the I32 is ready to come out and play. **tas**

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Powerhouse!

Kirk Midtskog



ModWright Instruments started out in 2000 as a modifier of digital products. The company, founded by Dan Wright, achieved some success right out of the blocks. Expanding from installing its line of tubed analog output stages in other manufacturers' digital gear, it went on to build its own products from the ground up. The 9.0 Series of preamps was launched in 2003, followed by the first ModWright power amplifier in 2009. If anyone hasn't noticed from the listings of exhibitors at Rocky Mountain Audio Fest in the last couple of years or RMAF write-ups, ModWright electronics are among the most frequently used by many exhibitors. There are good reasons for this: Dan Wright is a supportive and approachable guy, and, more importantly, ModWright gear sounds good and partners well with other brands' wares.

ModWright designs and builds tube preamps and solid-state power amplifiers, but the company's first integrated amp is entirely solid-state. The KWI 200 includes a fully active linestage preamp section (using tubes to implement it would have

increased costs beyond ModWright's product brief). The large, heavy, and quite powerful KWI 200 uses a digitally-controlled analog stepped-attenuator (providing .5dB volume-control steps). The Alan Kimmel-designed power amp section,

called "Solid-State Music Stage," uses Lundahl input transformers instead of coupling caps, has just one gain stage (providing 26dB of gain), and operates with no global negative feedback. It produces 200Wpc into 8 ohms, doubling to 400Wpc into 4 ohms. This ability to double its output power as the impedance is halved is indicative of a robust power supply and output stage. The front panel has a nice, simple layout: one knob for input selection, one knob for volume control, one button for power on/off, and another button to activate home-theater bypass (or power-amp-section input). There are two large display windows, which can be easily read from across a fairly large listening room (applause!)—one for input selection, the other for volume setting. The use of the unit is straightforward and intuitive.

The cosmetics have a muscular, confident, slightly retro-American-chic look, with the faceplate's clean and functional layout combined with the more curved ornate MW logo and the ModWright Instruments name engraved in a traditional-looking font. As reviewed, in its basic configuration as a linestage integrated amp, the KWI 200 retails for \$5000 and comes standard with a small, plastic remote control. A more upscale metal remote is available for \$200, as are an on-board 24/192 DAC module (\$1150) and a mm/mc phono section (\$350) as add-on options. It has three pairs of line-level RCA inputs, one XLR input (but is not fully balanced internally), one RCA home-theater bypass input (or power-amp-

section in), one preamp out, and a pair of nicely positioned speaker binding posts. The hot and neutral posts are placed vertically at the outer edges of the back panel for easy speaker cable routing outward to the sides. The apparent high quality of the casework and rear panel connectors all suggest to the user, "This is a well made product, built to last in the good ol' U.S.A." To be absolutely clear about the location of manufacture, the back panel has, "Designed and handcrafted in U.S.A. by ModWright Instruments, Inc." engraved in its center. You will need a sturdy and deep shelf; the KWI 200 weighs 55 pounds and is over 17" deep. Its support feet are at the outer corners, so you can't get by by allowing much of the chassis depth to overhang a shallower-than-17" shelf—unless you use aftermarket footers like cones or bearings.

Dan Wright recommended 400 hours of running time—to help burn in the power amp section's input transformers, in particular—so I made sure the KWI 200 received its full burn-in before I did any serious listening. From the start, this amp sounded full-bodied and powerful. With a 1.5kVA toroidal transformer and 234,000uF of total power-supply capacitance, this integrated has the kind of power that simply commands typical speakers. The KWI 200's bass grip extended deeply, tunefully, and convincingly when paired with three different speakers: the YG Kipod Signature II Passive, the Aerial 7T, and the Dynaudio C1 II. It has a rock-solid, gutsy presentation that underpins music

EQUIPMENT REVIEW - ModWright Instruments KWI 200 Integrated Amplifier

with any bass or dynamic force behind it. The opening didgeridoo passage on Dead Can Dance's "Song of the Stars" [*Spirit Chaser*, 4AD] had fantastic power and weight—nearly overwhelming with the Aerial 7T. Even the tiny Dynaudio C1 II pressurized my listening room admirably on this track when hooked up to the KWI 200. (Don't be fooled by the C1's diminutive size. An experienced listener once asked, "Where is the subwoofer?" when he heard the C1 pump out low organ notes in Rutter's Requiem [Reference Recordings].) This is a good illustration of how partnering electronics can fundamentally influence how we perceive basic speaker performance limitations. As alluded to briefly already, music with dynamic power is backed up with fantastic control and poise, which helps create a sensation of ease and lack of restriction. "Breathing room," if you will.

Frequency extension at the upper end of the spectrum was also very good. I never felt as though I were missing some extra energy or "presence" because of a reigned-in top end. Along those lines, the KWI-200 had a "quick" upper-midrange and lower-treble presentation that allowed much of the natural swing or verve of live music to come through at satisfying levels. This upper-midrange snap, coupled with solid, sure-footed bass, helped bring out the momentum in heavily beat-based music. "Winter" from Patricia Barber's *Modern Cool* [Premonition Records], for example, took on an infectious forward propulsion with its seven-beat time signature and minimalist arrangement. The overall tonal balance of the KWI 200 is essentially neutral with just a

hint of pleasant warmth in the midbass and a whiff of nicely integrated "liveliness" in the upper midrange—which could very well bring a welcomed sense of speed and rhythmic oomph in an otherwise slightly lackluster system.

Soundstaging was, generally speaking, also quite good: respectably wide, deep, and fleshed out with defined images. Rendering of depth, both of individual images and of the front-to-back layering of the larger soundscape, was also reasonably good. The depiction of depth in modestly-priced solid-state amplification is one of a few defining elements for me, but may be less important to others. On this dimension, the Hegel H200 (Issue 211, 200Wpc) presents a more fleshed-out portrayal of depth, of both the individual images and of the overall soundscape. It reveals more of the subtle details that convey spatial cues and dimensional relationships such as during "Chinese March" in *Song of the Nightingale* [Stravinsky, Oue, Reference Recordings]. The H200 has good bass extension and control, but the KWI 200 has even better bass extension and control in absolute terms, as well as having a more engaging upper midrange and more overall dynamic verve than the H200.

So, we have some interesting and different positive characteristics highlighted in these two products: the more sophisticated, relaxed, and more revealing H200 versus the more lively, dynamically compelling, and bass-powerful KWI 200. Personally, I preferred the KWI 200 on some music material when mated to the Dynaudio C1 II, but preferred the H200 across the board with both the more revealing

YG Kipod II Passive and Aerial 7T speakers. The Dynaudio seemed to benefit from some of the liveliness of the KWI 200, whereas the YG and Aerial speakers sounded more musically rewarding with the more liquid presentation of the H200. The KWI 200 has the advantage of offering both digital and mm/mc phono capabilities as add-on options, but it also starts off at \$600 more for the basic package. The \$4400 Hegel H200 comes with a nice metal remote, whereas the metal remote to replace the KWI 200's plastic stock one is a \$200 upgrade. This makes the two integrations, as reviewed, \$4400 (Hegel) and \$5200 (ModWright). The respective price and performance of these two amplifiers are relatively close to each other and both would be included in any list of integrations I would recommend to someone in the market in this price range. In my own way of evaluating value, and based on matching up in my system, the Hegel H200 tips the scale in its favor. This, by no means, is any predictor of how you will assess the ModWright KWI 200—or the H200, for that matter. As usual, system-matching and personal preference play large roles in choosing the best amplifier for you. If you're in the market for an integrated amplifier in this price range, I encourage you to audition both before making a decision.

On its own terms, the ModWright KWI 200 is a well made, solid performer. Its power output, dynamic range, rhythmic agility, and welcoming tonal balance make it an attractive choice for a lot of listeners. It certainly will hit the mark for many users with power-hungry speakers looking for an easy to use and musically satisfying single-chassis amplification solution.

SPECS & PRICING

Power output: 200Wpc

Inputs: Three RCA, one XLR line-level, and one "amp in" (RCA)

Outputs: One pre-amp (RCA), two 12V triggers, 5-way speaker terminals

Dimensions: 17" x 6" x 17"

Weight: 55 lbs.

Price: \$5000. Options: metal remote, \$200; DAC, \$1150; mm/mc phono, \$350

MODWRIGHT INSTRUMENTS, INC.

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ASSOCIATED EQUIPMENT

Analog Source: Basis Debut V turntable with Vector 4 tonearm, Benz-Micro LP-S cartridge

Digital Sources: Ayre C-5xeMP universal disc player, Sony VAIO VGN-FZ-490 running JRiver MC 17, Hegel HD2 and HD20 DACs

Phono stage preamp: Ayre P-5xe

Line stage preamp: Ayre K-1xe

Integrated amplifier: Hegel H200

Power amplifiers: Gamut M250i

Speakers: Dynaudio Confidence C1 Signature, Aerial 7T, YG Kipod II Signature Passive

Cables: Shunyata Anaconda ZiTron signal cables, Audioquest Coffee USB and Hawk Eye S/PDIF, Shunyata Anaconda and Cobra ZiTron power cables

A/C Power: Two 20-amp dedicated lines, Shunyata SR-Z1 receptacles, Shunyata Triton and Typhon power conditioners

Room Treatments: PrimeAcoustic Z-foam panels and DIY panels

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B.M.C. CS2 Stereo Amplifier

Young Gun

Neil Gader

B.M.C. (Balanced Music Concept) is a relatively new company with an old soul. It was founded in 2009 by a team of accomplished designers and managers who have produced quality components for a variety of well-known brands since the mid-1980s. Led by the articulate and gregarious Carlos Candeias (who studied electronic engineering at the Berlin Technical University), B.M.C. is a truly cosmopolitan effort which designs and markets in Germany and manufactures and assembles in its own purpose-built dedicated factory in China.

With the \$8390 CS2 stereo amplifier there's more than meets the eye. It's a hybrid of sorts, adaptable for multiple roles at the user's discretion. As with an integrated amp or preamp there is input-switching and a volume control. But there is no conventional preamp stage. Thus, it can be used purely as a stand-alone stereo amp or slaved to a preamp or processor. In the ultimate expression of the CS2's synergy it connects with the B.M.C. DAC 1—a high-resolution DAC also available with an analog preamp option. Complete with digital (including USB) and analog inputs and B.M.C.'s unique DIGM compatibility (see Tech Highlights), the DAC 1 effectively becomes the command center for input-switching and volume, basically bypassing all but the CS2 amplifier section. In a nutshell this is what the B.M.C. philosophy is all about—short signal chains, bypassing extraneous circuitry where possible and, chameleon like, creating component flexibility.

The CS2 is visually striking—an 88-pound, retro-brawny component that imprints on the

memory long after the system is powered down. The execution of the aluminum casework is stunning, massively constructed with deeply finned wraparound heat-sinking and an equally thick faceplate. As the CS2 can run fairly hot, a pair of silent fans underneath the chassis maintains thermal equilibrium. Everything about the CS2 creates an impression of strength, resonance rejection, and permanence. Its power output is rated at 200Wpc into 8 ohms and 350Wpc into 4 ohms—a spec that places it near the top of its category. It has a fully regulated power supply with a huge 2kW toroidal transformer and a small battalion of specially designed and produced current capacitors.

The front panel centers around a whimsically large, circular analog VU (as in volume units) meter. It displays right and left channel signal level, while volume level and input-selection are numerically displayed. The display is well lighted and dimmable and, depending on your point of view, highly entertaining as you watch the red

signal needles whipping back and forth. Equally arresting are power and volume knobs the size of hockey pucks that require a firm hand to ratchet up and down. The back panel is spacious and, befitting the amp's dual-mono circuitry, features a mirror-matched input/output setup. There are three sets of RCA inputs, a pair of XLR inputs, plus an Opto control-loop for DIGM compatibility. A full-featured machined-aluminum remote, the RC-1, handles multiple functions including B.M.C.'s own CD and DAC-1 separates.

Sonically the CS2 plays big. There's nothing bashful or withdrawn about the personality of this amp. And dynamically it just flat-out brings it on. As I listened to Solti's reading of the Beethoven Ninth [Decca], the full percussion and brass batteries of the Chicago Symphony blazing, I couldn't help but shake my head at the CS2's potency and the steady grip and control it exerted on the music—traits that infuse a system with a firmer foundation and denser hall ambience. Coupled with its unflagging dynamic thrust these

were qualities that exemplified the long reach of a robust power supply and transformer. Even loudspeakers that I was very familiar with (some of them compacts) benefited from this weightier, more stable sound. These are characteristics we assume come as standard equipment on high-power-rated amplifiers, but this doesn't always prove out in practice. As I was listening to the 24-bit WAV file of "Mercy Street" from Peter Gabriel's *New Blood* album, I became increasingly aware of the dynamics gathering behind the vocal like a harmonic storm, and welling up from below the orchestra during the second chorus of the song.

The CS2's tonal balance is modern solid-state. It doesn't suggest the kind of brazen personality that once defined tubed or early transistor electronics. There's not a hint of the grain, forwardness, golden bloom, and slightly tubby bass of early valves. It doesn't tilt to the rose-complected side of the tonal spectrum, either, although orchestral string sections do have an authentic sense of harmonic richness. Nor does the amp suggest icy stridency



EQUIPMENT REVIEW - B.M.C. CS2 Stereo Amplifier

whether it's engaging the Hamburg Steinway beneath the fingertips of piano virtuoso Minoru Nojima [Reference] or the aggressive bowing of Arturo Delmoni [John Marks Records]. Throughout my evaluation the word "control" kept resurfacing. The CS2 imparts a musical performance with a timekeeper's level of precision. But the CS2's virtues go well beyond a precise sense of image placement, although the amp excels at this. On a richly ambient cut like Dire Straits' "Private Investigations" from *Love Over Gold* [Warner], there is just more space in and around groupings of images, and expansiveness at the borders of acoustic environments.

There's also a light-footed sparkle to the musical presentation that calls to mind the elegant amplification of Simaudio—a company that continually fields amps at the highest levels. Like that Canadian firm, the B.M.C. sound is spotlessly clean—clean in the sense that from the leading edges to the trailing ends of notes or musical phrases there are no electronic or textural oddities clinging to the music—no thin, cottony halo or veiling that smudges and smears. It's as if someone has vacuumed a layer of dust from the auditorium prior to letting the audience take its seats. Try listening to your system using one of my favorite examples, the solo piano of Bill Carrothers' *Civil War Diaries*. You should hear only a pristine silence against a placid, jet-black background where the lowest level micro-dynamics emerge. Is it the DIGM volume control that deserves the credit? Hard to say. If so, pristine, low-level resolving power is most definitely the beneficiary.

Through the CS2, transients fly out of the blocks as if cued by the report of starter's pistol. I knew I was onto something with this amp when



I was startled by the deep bark of the baritone sax during Jen Chapin's "It Don't Mean Nothing" or Roy Hargrove's trumpet blasts on *Jazz in the Key of Blue* [Chesky]. There's pure magic to this detail and image precision. There's also a speed to transient and dynamic attack that can only be credited to an overarching lack of amplifier distortion. There's something extra-pristine in the way the CS2 recovers the leading edges and trailing harmonics of a performance. And yet it also does this in a relaxed manner, without etch or grain or constriction of treble information.

Bass response is a richly balanced blend between deep extension and sophisticated timbre and pitch definition. There's a descending bass line riff during Yes' "It Can Happen" [Atco] that always reminds me of this competitive balancing act. This simple cue, a finger slide down the electric bass' fretboard should convey a smoothly

plummeting pitch, and an engulfing resonance at the same time. Some amps emphasize one over the other—losing pitch at one end or thinning out the resonant information at the other. The CS2 always struck a natural balance in these instances.

As neutral as the CS2 is, its personality is not completely devoid of color or flavor. Its emphasis on precision and control can also result in an underlying dryness with string sections, and a constriction of dimensionality and orchestral layering. In these criteria, it contrasts with other mega-integrateds like the Vitus Audio RI-100 (Issue 232). During the middle portion piano solo from Holly Cole's "I Can See Clearly," I found the CS2's character skewing slightly cooler on top—not quite the match for the RI-100's warmer, darker harmonics, which back up images with a greater degree of air and low-level color. B.M.C. bass lines are precisely rendered melodically, though they're not quite as rock-solid as those of the Vitus. In many ways, my thoughts on the B.M.C. remind me of the classic and controversial audio divide, in that this amp reflects a little more of the analytical head than the seductive heart of musical reproduction. Both sides are entirely valid and each has its ardent devotees. The synergy that each establishes with a given loudspeaker should ultimately make the case for one or the other. As an aside, I should note that it says an awful lot about the CS2 that I needed to seek out an integrated of the caliber as the Vitus RI-100 in order to adequately contrast its sonic merits. The margins of difference between the two were at times very thin.

The B.M.C. CS2 performs at some of the highest levels of amplification I've experienced. Exceptional

transparency, commanding power reserves, and intriguing innovation make this a world-class amp. At its not insubstantial price it jousts with an elite crowd of integrateds, but its flexible layout and circuitry give it unique advantages that should bode well for its continued success. B.M.C. may be technically a rather young company, but by any measure the CS2 is a first-class, mature effort all the way. **tas**

SPECS & PRICING

Power output: 200Wpc into 8 Ohms, 350Wpc into 4 ohms

Inputs: Two balanced XLR, Three unbalanced RCA

Dimensions: 17.1" x 5.9" x 15.9"

Weight: 88 lbs.

Price: \$8390

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Hegel H300 Integrated Amplifier

From Oslo With Love

Neil Gader



It seems as if Hegel Music Systems, the Norwegian electronics manufacturer, can do no wrong these days. Kirk Midtskog has written glowing reviews of the Hegel H100 and H200 integrated amplifiers (in Issues 206 and 211). And when Editor-in-Chief Robert Harley evaluated the H30 Reference stereo amplifier, he characterized the 350Wpc behemoth as a contender for any well-heeled audiophile's short list (in Issue 223). So, when the opportunity for me to review the H300, Hegel's latest and most powerful integrated amplifier, presented itself, I figured, "Okay. Let's see what all the excitement is about."

Even before I started delving into what makes the H300 tick I cued up "Georgia Lee" from Tom Waits' *Mule Variations* [Anti-Epithaph]. It's a favorite track of mine—a raw performance, underscored

by Waits' gravelly, chesty voice. With the mbl Corona C31 CD player handling front-end duties, I could already hear straight through the H300 to the tattered felt hammers of his old upright

sounding uncertain pitches, the noisy sustain pedal thumping along with the piano, the song's tempo shortening and lengthening with the shifts in the tune's emotional landscape. It's a track adorned with low-level found-sound ambient clatter and birdcalls. I felt that I was hearing and feeling this performance at its deepest levels.

I then turned to the Jimmy Cobb Quartet's bossa-nova-accented cover "If Ever I Would Leave You" from *Jazz in the Key of Blue* [Chesky]. The easy ensemble playing was captured in a stunning display of discrete imaging, micro-dynamic gradients, and hi-hat detailing—and of course trumpeter Roy Hargrove's tasteful playing and carefully measured dynamics. Even after just a couple tracks I was beginning to understand what all the Hegel brouhaha was about.

The H300 is a high-power, line-level integrated amplifier that outputs a generous 250Wpc into 8 ohms (430Wpc into 4 ohms). Visually, the flat black exterior is seriously Spartan with merely a pushbutton on/off, and rotary knobs for input and volume selection plus a large blue-lit display, easily legible from afar. Paired with the H300 is a beautifully machined aluminum, full-function remote control that makes front-panel visitations essentially irrelevant. The back panel houses ample analog and digital connectivity and one big plus. The H300 joins a new and relatively select segment

of electronics, the DAC/integrated amplifier—new in the sense that amplifiers and DACs, though not novel in themselves, have mostly been marketed as independent components. However, in recent issues I've reviewed DAC/integrateds from Simaudio and Perreux, and more are either currently available or coming to market. Given the ever-expanding popularity of digital media the trend is logical and not unlike the built-in phono/RIAA inputs that were commonplace when vinyl was dominant.

The H300 represents a ground-up redesign, which Hegel characterizes as a Hegel 2 amplifier platform; improvements are geared to increase channel separation and decrease noise levels. The H300 evolved during the design phase of the P30 Reference preamp and the H30 Reference monoblocks. The most significant change, according to Hegel chief designer Bent Holter, is in the preamp section—a dual-mono design with new advancements in circuitry, optimized board layout, improved components, hand-matched FET transistors, and, perhaps most significant of all, a newly devised precision volume attenuator that's based largely on the P30. The amplifier stage features a robust dual-mono 1000VA power supply with 90,000uF capacitors and an output stage formed by twenty 15A 150W high-speed bipolar transistors. Hegel's newest generation

EQUIPMENT REVIEW - Hegel H300 Integrated Amplifier

core technology, SoundEngine, was also spawned during the H30 project. It's based on a proprietary topology and highly selective transistor-matching that is said to eliminate dynamic crossover distortion in Class AB amplification. (See RH's H30 review in Issue 223 for Holter's thorough explanation of the SoundEngine technology.)

The 32-bit DAC stage is built around the AKM AK4399 chipset. For Hegel it's AKM's best pro audio chip and capable of 24-bit/192kHz resolution. For USB throughput, resolution tops out at 24-bit/96kHz, but extends to 192kHz through either the optical or coaxial S/PDIF inputs. Hegel notes that the new DAC improves over the HD11 with more robust and cleaner power supplies and newly designed, higher-precision clocking. Like the HD11 it features proprietary reclocking circuitry and a Hegel designed clock.

Unique to the H300 is the DAC Loop function, which allows the owner to add an external (and presumably more advanced) DAC down the road while retaining Hegel's sophisticated reclocking circuit. Although naturally Hegel would urge owners bent on upgrading to buy its own HD25 DAC, the company stresses that all H300 owners can continue to take advantage of its re-clocking circuitry by connecting any quality DAC to the H300's digital output. Holter explained that the DAC loop has a high-quality S/PDIF reclocker circuit that removes jitter from all digital inputs so that the H300 can be used as a stand-alone reclocker with any audio system. He adds that "the beauty of the H300 reclocking is that when feeding the reclocked S/PDIF signal to the coax input of an external DAC you will reduce the complete system digital jitter to as low levels as possible." [I heard a demo of the H300 used as a

reclocking device and can report that it improves the sound as claimed. —RH]

The sonic character of the H300 is strictly neutral. Neutral, that is, in the sense that even the most minor tonal colorations or electronic detritus common to many amplifiers simply don't materialize. There's certainly no grit or grain. If you're looking for a plush midrange warmth, some extra push in the bass, a golden bloom in the upper mids, or even a burst of sparkle in the treble, the H300 won't be your ride. Hegel's approach is holistic but no-nonsense—opening a transparent, harmonious window of sound. And neutral doesn't imply dull by any means. For the H300 neutrality is merely the platform to exhibit a pristine lack of distortion, superb edge definition, and micro-dynamic liveliness.

What the Hegel possesses in spades is the ability to reproduce the source material from an exquisitely low noise floor without compression, constriction, and transient distortions, in essence

releasing music openly, rather than bullying it into submission. So to my ears, during Elgar's *Enigma Variations* from the new Reference Recording disc [RR129], a snare drum thwack and a bass drum or tympani thwump never sounds cut off or artificially controlled at the resonant end of the note. It lingers as long as it can before it's swallowed by the silence of the hall. And equally defined is the timbre of wind instruments, notably flutes, which is reproduced in a remarkably lifelike manner and always with the appropriate halo of surrounding air.

The H300 provided a wide luscious soundstage during Dire Straits' "Private Investigations" from *Love Over Gold* [Warner], a track brimming with sound cues large and small. I was especially taken by the dynamic breadth of the performance, from the CinemaScope-styled drum fills emerging from somewhere approximating the center of the Earth to the delicacy of the nylon-stringed guitar, marimba accents, and scratchy soles beneath the

intermittently appearing footsteps. The sudden turn of a doorknob and a kitten's mewing, noises I've heard dozens of times, still send shivers down my spine.

Turning to the DAC, I felt it produced a startling, focused sound without the sensation of phasiness or smearing of stage and image information that has often accompanied DACs in this segment. Images were detailed and discrete yet possessed of a natural ambient connection with adjoining images on the soundstage. Like some of the elite DACs the H300 digital section suggests more than a hint of analog-like warmth, dimension, and continuity, a richer flow of information. On Jennifer Warnes' "Song For Bernadette" [Impex] there's plenty of image elbow room, the overall impression being one of expansiveness rather than clutter, right down to the very last element of reverb echo.

How does this compare to the USB/DAC section aboard the mbl Corona C31, a \$9200 player?



EQUIPMENT REVIEW - Hegel H300 Integrated Amplifier

It's awfully close, but fair is fair. The mbl is more convincingly realistic on Holly Cole's cover of "I Can See Clearly." And it has more warmth and a stronger sense of dimensionality and physicality. Still, the H300 is excellent by any yardstick I've encountered thus far.

I listened initially to the H300 primarily with digital sources, reserving LP playback for the latter stages of this review. And as expected my turntable rig plus the H300's superior analog circuitry and low noise floor served as a stunning reminder that, as inspired as the performance of Hegel's digital section is, the LP remains ensconced as stubbornly as ever in the playback throne. As I listened to the glorious Athena LP pressing of the Rachmaninoff *Symphonic Dances* the dimensionality, tonal ripeness, and bloom that were hinted at but not fully developed in digital playback were restored. This was most especially the case with massed strings, as a distinct sweetness and a sense of individuation spread across the section from front to back.

As a testament to the high-level performance of the Hegel H300, only a benchmark integrated amp like the considerably more costly Vitus Audio RI-100 (\$13,000) can help define the H300's modest limits. The H300, by comparison, doesn't have quite the same expansive soundstage as the Vitus, nor does it image quite as discretely. Vocals have a little less air and the resonance of piano soundboards is less palpable. The bass line vamp that introduces "I Can See Clearly" becomes less distinct as the song progresses. Toss the Vitus into the mix and the acoustic atmosphere of the Rachmaninoff thickens, the soundstage widens and deepens. Still the H300 cuts the margin of these differences awfully fine—coming so close

to the Vitus at times that it's scary.

In fact, no matter how you cut it, the Hegel has got it all going on, as an unbiased transporter for music reproduction or in its sophisticated connectivity or in its forward thinking philosophy or sheer value. The greatest tribute I can pay the H300 is at once understated yet in its way an overwhelming affirmation: In all the hours I spent with this amp, I never wanted to shut it off. Ever. It represents the high end at its most rewarding. **tas**

SPECS & PRICING

Power output: 250Wpc into 8 ohms

Analog inputs: Five RCA, one balanced, three unbalanced plus HT bypass

Digital inputs: Two coaxial S/PDIF, two optical, USB

Outputs: One preamp, one coaxial

Dimensions: 17" x 4.7" x 15"

Weight: 55 lbs.

Price: \$5500

HEGEL MUSIC SYSTEMS, USA

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ASSOCIATED EQUIPMENT

Sota Cosmos Series IV turntable; SME V tonearm; Sumiko Palo Santos, Air Tight PC-3; Parasound JC 3 phono; Synergistic Element Tungsten/CTS, Wireworld Platinum interconnect & speaker cables; AudioQuest Coffee USB & Firewire, Synergistic Tesla & Audience au24 phono & powerChord, Wireworld Platinum power cords

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Marantz Reference Series PM-11S3 Integrated Amplifier and SA-11S3 SACD/CD Player

Power and Poise

Paul Seydor



It's impossible not to be impressed with these new entries in Marantz's Reference Series. Their weight alone—59 pounds for the PM-11S3 amplifier, 37 for the SA-11S3 SACD player—tells you they mean serious business. With beefed-up chassis (5mm thick for the top plates), copper-plated internal surfaces to resist RF, and even special isolating/absorbing feet, they seem intended to realize the idea of integration in an unusually thorough way. Marantz apparently doesn't want the end user to feel he or she has to supply anything for optimal performance, apart from an interconnect to link the two components together (though a generic one comes with the player). A fair number of parts and features from the Reference Series' separates has been incorporated into these models, which, while far from inexpensive, nevertheless come in at prices considerably lower than Marantz's flagship models, the integrated amp and the SACD/CD player each retailing for a dollar under five and four grand respectively. Looks, design, and build are of highest quality.

Let's start with the integrated amplifier, which is equipped with forty of the latest generation of Marantz's all-discrete amplifier modules. Rated at 100Wpc into eight ohms, doubling into four, the PM-11S3 boasts a huge toroidal transformer that ensures absolute stability into any loudspeaker load, the circuit optimized for maximum current delivery within

its power rating. The control half of the unit has some novel features, including a configuration whereby two or more units can be tethered for multichannel operation. There's a built-in phonostage (switch-selectable for moving coils and moving magnets); two line-level inputs; two tape loops with monitoring; and one balanced pair. There is provision for two pairs

EQUIPMENT REVIEW - Marantz PM-11S3 Amp and SA-11S3 SACD/CD Player

of speaker systems with switching, Marantz's own heavy-duty speaker terminals looking as substantial as anything from WBT, as do the other jacks. The amp and preamp sections can be operated independently, though not both at the same time. For all the obeisance to audiophile concerns, it's curious the AC receptacle on the back is only two-pronged, not three—the same for the disc player—so how this will work with most after-market cords that have a separate ground I don't know. The same remote handset operates both the amplifier and the disc player, and it is *not* an accessory, as certain functions on both components are inaccessible without it.

In an otherwise rather full-featured product, a puzzling omission is a mono switch, very odd inasmuch as there is left/right channel balance. Don't manufacturers know mono operation is essential for routine system checks, not to mention mono sources, which usually sound better played that way? My regular readers will know I applaud the inclusion of a balance control and also tone controls, which Marantz has gone so far as to make accessible even—indeed, only—from the handset. Well done and deserving of an extra round of applause . . . except that the actual implementation leaves a lot to be desired. To start with, accessing them requires entering a menu where the settings are selected with the “help” of the front-panel alphanumeric display. The reason for those quotation marks is because the display is so small that I couldn't read it from my listening seat some ten or eleven feet away. Guys, what good is remote operation if you can't read the settings from the location where you're likely to be entering them?

The tone controls operate in 2dB increments

over a ± 8 dB range, an adequate spread at the bass end for normal listening levels, much less so for very low levels, though at least the 50Hz center frequency is well chosen. But whose idea was it to center the treble at 20kHz? It's utterly useless for fixing bright recordings, which require no higher than 10kHz, with 7k–8k much preferable. About all 20kHz is good for is taming the resonance of inadequately loaded mc pickups.

Like many integrated disc players these days, the SA-11S3 allows for independent operation of its DAC section and transport. It also seems to have every kind of input and output jack you are likely to need, including USB-A and -B. I am not much into downloads yet, so I cannot comment on the DAC section's performance or flexibility in this regard. It wouldn't recognize some Chesky WAV files downloaded from HDtracks onto a USB stick (a check of the manual indicates it will play only MP3 and WMA files). It's entirely possible this could be circumvented by connecting a computer to the SA-11S3, which can be done, but, as I said, I'm only beginning to experiment with hi-res downloads and am not savvy yet about any of this. All the same, I doubt anyone contemplating the purchase of a disc player is doing so because he or she wants to use it for downloads. One thing I did find extremely useful is the selectable optical input. I subscribe to DirectTV, which still has not worked out its grounding issues to eliminate 60Hz hum when its DVR is connected to a sound system. But connecting the optical out from my display to the Marantz yielded blessedly hum-free sound. Otherwise, I used the SA-11S3 strictly as a disc-spinner.

In common with the more expensive Reference Series Marantzes, the SA-11S3 has digital filters

and a noise-shaping circuit. According to the company's literature, with Red Book sources Filter 1 has “extremely short pre- and post-echo characteristics and an absolutely linear phase response” for the highest fidelity to the original digital source, while Filter 2 provides a more “analog-like signal,” meaning some detail is sacrificed in favor of “rich harmonics.” With SACDs, Filter 1 provides no additional filtering, while Filter 2 “attenuates any residuals above 100kHz.” There is also a noise-shaping filter “for in-band low-level linearity” and another that cuts out infrasonic signals (DC to 1.7Hz). All filters are accessible only from the handset, and whatever is in use at turn-off is defaulted to upon turn-on. As with the amplifier, the display is too small to read from a typical listening location.

Marantz products almost always stand out from their competitors for a very musical sound that is notably free from harshness, glare, or anything remotely abrasive. Such is the case here with both products. The tonal balance of the PM-11S3 is about as neutral as you can get, which means that nothing calls attention to itself up and down the spectrum. Occasionally you run into designs that subtly highlight one part of the spectrum over the other. A few issues back I reviewed Plinius' powerful Hautonga integrated amplifier (TAS 229), which, like this Marantz, also comes outfitted with a phonostage and is more or less competitively priced (\$5750). The Hautonga exhibited great control and dynamic impact, but its sound was definitely on the Yang side of the continuum: crisp, etched, if not bright then certainly canted that way. While all this was within the bounds of acceptable neutrality, those characteristics were observable with critical listening.

This Marantz displays no such anomaly. As with the Plinius, I hear no bogus warmth, but, as is not the case with the Plinius, neither do I hear anything in the opposite direction. The top end is very extended, but quite natural and easy on the ears. For example, on the SACD of Christy Baron's *Steppin'*, all the high percussion (including rain sticks) emerge with truly crystalline clarity and glitter yet without any excess audiophile “sparkle,” so to speak. The midrange displays welcome body, ripeness, and dimensionality (again, a bit more than the Plinius), the bottom end has the

SPECS & PRICING

PM-11S3 INTEGRATED AMPLIFIER

Power: 100Wpc, 8 ohms; 200Wpc, 4 ohms, 20Hz–20kHz

THD: 0.01%

Dimensions: 17-5/16" x 6-5/8" x 17-7/8"

Weight: 59 lbs.

Price: \$4999

SA-11S3 SACD/CD PLAYER

Sources: CD, SACD, CD-R, CD-RW, MP3, WMA, AAC,

Inputs: Optical, coaxial, USB-A (front), USB-B (rear)

Outputs: single-ended, balanced, optical, coaxial

Dimensions: 17-5/16" x 5" x 16-9/16"

Weight: 37.5 lbs.

Warranty: 3 years parts and labor

Price: \$3999

MARANTZ USA

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EQUIPMENT REVIEW - Marantz PM-11S3 Amp and SA-11S3 SACD/CD Player

kind of extension, weight, power, and definition you'd expect from an amplifier equipped with a transformer the size and weight of this one. But again, there's no hype or hard-sell here, so if you're a bass-freak who wants extra push, I'd suggest a good listen before buying. For me, it was right on, but your tastes may be different. (The Plinius has a lot of bottom-end oomph.)

One area where the PM-11S3 really pulls ahead of the integrated pack is with the included phonostage. While it's nice to see more and more manufacturers paying attention to the persistence of vinyl in an increasingly digital age, many built-in phonostages give the impression of being something of an afterthought, included more as a selling point. Not so here. This one is astoundingly clean, lifelike, and about as transparent as any I've heard—you feel you can almost reach out and touch the sound, it's so palpable. Though it lacks options for loading moving coils, the fixed impedance of 100 ohms is an ideal value if there is to be only one. The presentation on the Bernstein *Carmen* had a rare tactile presence, combined with sensational dynamic wallop and brilliance. Perhaps there was a tad too much of the latter quality, but I am certain this owes not to the circuit itself but to the slightly high 100-ohm loading for the Ortofon Windfeld, which really does like to see about 30–50 ohms for absolute neutrality. This is one area where the 20kHz-centered treble control proved genuinely useful—a very slight cut did the trick, but even without the cut that little bit of brilliance is so mild that most of the time I didn't even bother to correct it, except for really extremely bright recordings.

I moved next to *Belafonte at Carnegie Hall* (Classic Records reissue) and was again

rewarded with the same virtues of eye-popping transparency, presence, and body and remarkably precise imaging and soundstaging. In "Sylvie," the background vocals were perfectly rendered and placed—just present enough to make themselves felt, but not too much—and Belafonte's voice had tremendous focus and you-are-there realism. Resolution is likewise extraordinary, and again those background voices tell the tale: You can actually make out the words despite how soft the singing is. By the way, hardly less impressive is how truthful applause sounds through this setup—not undifferentiated hash but a huge crowd of real hands brought together to make an approving noise.

I have no way of measuring the performance of electronics, but this phonostage sounds *really* quiet and unusually low in perceived coloration and distortion. Perhaps there is something to the DC-servo equalization Marantz makes a point of

using in preference to what it calls "conventional" RIAA equalization with its "negative feedback." Offhand I can't recollect a better built-in phonostage in any integrated amplifier. I don't like to evoke quality in terms of price, because I find the correlation inexact to say the least, especially when it comes to electronics. But I've heard separate phonostages costing three-to-four grand that are no better, some not as good. About the only criticism I might tentatively advance is perhaps a slight foreshortening of depth (slight enough that I wouldn't want to put any real money on it), which I also noted on digital sources. It may seem odd to be raving so about a built-in phonostage in a unit with looks and design as contemporary as this one and that has a matching disc player, but there it is. Before I move on, let me reiterate how *involving* the presentation always was. I put on the Belafonte album only to spot check a couple of things, but wound up listening

through two of the four sides.

Late in the review process David Chesky provided me with some hi-res WAV downloads of his newest album *The New York Rags* for solo piano. This was my first experience of high-resolution downloads and they put my jaw into my lap: clean like I've rarely heard clean, powerful, vivid, stunningly registered all up and down the scale. The CD version, good in and of itself, simply pales by comparison—and I do mean pales, as in deficient in color, timbre, tonality, and sheer force. I also downloaded a variety sampling from HDtracks and was similarly floored, in particular by a Reference Recording of the Minnesota Orchestra playing "Dance of the Tumblers" from Rimsky-Korsakov's *The Snow Maiden*, staggering in its realism, clarity, dynamics, and transparency. (As noted, the SA-11S3 would not read any of these files off a flash drive, so I played them through an Oppo BDP-105 universal Blu-ray player.) Suffice it to say, this is a brave new world I will be exploring in the future. In the meantime, the PM-11S3 fully rose to the occasion of these stellar downloads, as I have no doubt it will with any sources sent its way.

Turning to the SA-11S3, the "sound," what there is of a distinctive personality, that is, came as no surprise because I've been using Marantz's much lower-priced SA8004 player (\$999, TAS 211) as my primary source for SACDs and CDs (though usually feeding it into a Benchmark DAC1 for the latter). The 8004 sacrifices a small amount of detail and absolute resolution for a presentation of great naturalness and musicality. It's a player I never tire of listening to. The SA-11S3 offers more of the same, though it has state-of-the-art control, neutrality, and resolution (which means you



EQUIPMENT REVIEW - Marantz PM-11S3 Amp and SA-11S3 SACD/CD Player

needn't have any concerns about retrieval of detail). It also costs four times as much, but we all know this doesn't make it four times better because that's not how high-end audio works. It's merely better: thickly scored passages, for example, appear a little more well-ventilated as it were; the presentation is subjectively more transparent; there is better grip. As for SACD sources, I've been hooked on the format since it was introduced and have had occasion to use several very fine SACD players in the years since. This new Marantz is one of the best I've heard anywhere and unquestionably the best I've had in house. One of the last things I played was the Anonymous Four's *Gloryland*. Never have I heard it reproduced with greater purity, presence, or throat-catching beauty.

I spent a lot of time comparing the filters before I read the company's description of their sonic characteristics. What the literature describes is pretty much what I found: Filter 1 more accurate and neutral, Filter 2 softer, less resolved, but easier to listen to, especially with older recordings that are bright or plagued with early digitalis. I reached the point where I could tell with fair reliability which was engaged without looking, but it took some time and great concentration. In other words, there is no night-and-day difference, their effects instead subtle enough that outside the reviewing context I wasn't inclined to make a fetish of determining which I preferred every time I slipped in a disc. Filter 2, the more "analog"-sounding one, evokes the sound of my 8004, while Filter 1 is closer to the 8004 going through the Benchmark DAC1 (which I still regard as Red Book reproduction second

to none).

So at the end of the day, where do these two Marantzes fit into the market? About the same as at the beginning: outstanding electronics that would do any system proud. The idiosyncratic way the balance and tone controls have been implemented in the PM-11S3 and the lack of a mono switch still annoy me. Deal-breakers? Not a decision I'm prepared to make for you, but that fabulous phonostage would and should loom awfully large if LPs occupy a lot of your listening time. As for the SA-11S3, well, unless I had much more discretionary income than I do, four grand is about the absolute *most* I'd consider paying for any product with a technology that changes as rapidly as digital does. But if I did make such a plunge, this Marantz would head the list, and by some distance, owing to its lineage, its perfect mediation of musicality and neutrality on Red Book sources, and its absolutely magnificent SACD performance.

One thing I see I've neglected is how beautifully styled these products are, the amplifier imposingly so. On either side of the display area, hidden behind the center escutcheons, Marantz has put a blue light that shines behind a narrow translucent cover from top to bottom. It makes for a soft lovely glow that, along with the curved side cheeks, mitigates the severity of all that gleaming black metal. My description hardly does it justice, but it confers an elegance that more or less symbolizes what these units are sonically: covering all the bases with an inimitable combination of power and poise yet scrupulously attentive to subtlety and nuance.

tas

Marantz, Oppo, and the Value of Subjectivity

Subjective reviewing of audio components continues to generate controversy, as I believe it should: No one who attempts to practice it responsibly is unaware that it's fraught with countless perils and pitfalls. Yet a pair of coincidences surrounding my review of these Marantz components served to reaffirm the validity and necessity of critical listening as an evaluative tool. Right around the time the Marantzes were delivered, I purchased Oppo's new BDP-105 universal player. Although I bought it for Blu-ray and DVD playback, I couldn't resist comparing it to the SA-11S3. With both SACD and Red Book sources, the differences were obvious. The Oppo has exceptional clarity, definition, control, and resolution, but it was also to my ears very much a Yang, as opposed to Yin, sound. I didn't dislike it in the least and would have no trouble using it as a primary disc player, but in every comparison I preferred the SA-11S3, which I found to offer somewhat richer, rounder, more natural reproduction at virtually no sacrifice of the qualities that distinguished the Oppo.

Then, just as I had finished writing this review but before I sent it off, I received my advance copies of TAS 232, which contained Chris Martens' review of the BDP-105. Let me preface what I'm about to say by pointing out I do not know Chris at all well—we've met at most twice, I think, brief hail-fellow-well-met CES introductions—and we don't correspond via e-mail or any of the Internet social sites. Nor did I receive a prepublication copy of his review—indeed, I didn't even know he was writing it. And Chris' reference system is very different from mine. Yet just about everything

Chris had to say about the Oppo's performance on both CD and SACD tallies with my own experience in virtually every aspect and particular, notably his observation that the Oppo might strike some as lean-sounding. One of things I noticed—again, well before reading Chris' review—was that, to take one example, at the beginning of Stokowski's recording of Liszt's *Hungarian Rhapsody No. 2*, the Marantz suggested more weight, power, and depth in the doublebasses. Both units displayed comparable definition and clarity, but the Marantz was audibly richer and projected the fundamentals with greater extension. Though I didn't use the word "lean" in my notes, clearly I was hearing some of the same things as Chris.

Now anyone who reads Chris' review (and I urge you to) will soon notice that he and I do not attach the same *values* to what we heard. He is ready to ascribe greater accuracy to the Oppo, myself to the Marantz. But that is not my point, which is rather that our *descriptions* of the Oppo's reproduction are remarkably similar quite apart from how we ultimately *interpreted* what we heard. It's rare that we reviewers get an opportunity to set down our impressions of the same product; when it happens, it's always gratifying to find we hear more or less the same things, the differences consisting in how we subjectively evaluate our findings. In this instance, I can even second Chris' warning about the break-in time for the Oppo, which mirrored my own experience. He's right on the money, and I say this as someone who usually has a healthy skepticism for the whole idea of break-in! **PS**

Gato Audio AMP-150 Integrated Amplifier and CDD-1 Compact Disc Player

Class to Burn

Wayne Garcia



Although I generally concur with Rega's Roy Gandy that audio gear is best viewed as a tool for enjoying music, I also appreciate the fact that beautiful industrial design and superior craftsmanship make a fine watch something more than a device to tell time by, a beautiful chair something more than something to sit on, or a luxury car something more than a vehicle to get us from Point A to Point B.

The Danish-made gear from Gato Audio, which Michael Kelly at Aerial Acoustics is importing to the States, is not only strikingly beautiful-looking in a retro-modern kind of way—the swoop of the curvaceous chassis, fetching rounded sides, large centrally placed meters, and minimalist controls—but is built to jewelry-like standards that speak of this company's ambition and pedigree.

The company's dual pathways began in the 1950s, when the father of Gato's Paul Rossing started a radio-manufacturing firm where young Paul learned the basics of amplifier and speaker design. As high-end audio began to blossom in the late 1960s and early 70s, Paul Rossing began importing to Denmark now-iconic brands such as Audio Research, Luxman, B&W, and Fidelity Research. Soon thereafter Rossing started the speaker company Avance, which crafted enclosures of a fiber-reinforced concrete material.

Fast forward to the mid-nineties, when two

other key players now at Gato, engineer Frederik Johansen and designer Kresten Dinesen, met at a small audio company called Holfi, which earned a reputation for battery-driven power supplies, cherry wood front panels, and handmade speaker drivers. The pair would join forces again at Thule, when Rossing took over to revitalize the struggling GamuT brand and recruited Johansen and Dinesen to help. In 2007 that pair teamed with another engineer, Rasmus Holm, to found Gato, a company dedicated to highest-quality workmanship, design, and sound reproduction, and in 2009 their paths converged when they convinced the then-retired Paul Rossing to join the group as managing partner.

As Michael Kelly wrote in an e-mail, "What attracted me initially to Gato was the combination of top performance, European build-quality, and fresh, beautiful design. What made me want to import Gato was the solid personal character of its energetic founders, Frederik Johansen and

EQUIPMENT REVIEW - Gato Audio AMP-150 Amp and CDD-1 CD Player

Kresten Dinesen, and their long-term vision.”

Of course, such qualities come at a price, the AMP-150 integrated amp and CDD-1 compact disc player sell for \$7990 a pop, which may not be crazy compared to ultra-high-end components but for most of us still counts as fairly serious money.

With a power rating of 150Wpc into 8 ohms, and 250Wpc into 4 ohms, the AMP-150 ranks as one of the more powerful integrateds on the market. Sure, it's got muscle, but as I'll describe shortly this is a very refined beast.

But then Gato's stated design goal for the 150 “was to create the best-sounding integrated amplifier possible inside a compact exterior. Secondly, we wanted to create a line of components where design was not simply a question of a good-looking faceplate, but a more complete product that is beautiful from every angle and expresses a classic electro-mechanical look.”

I've quoted Gato's philosophy for two reasons. One is that no matter how striking these components may appear in photographs one needs to see and operate them to fully appreciate the design and finishing work. Another is to underline the thinking behind team Gato's approach to creating what are remarkably holistic products. The Gato gear seems completely thought through to a degree rarely seen, and this applies to the sound, too. The Amp-150 and CDD-1 are notably alike in their sonic signatures.

Internally, as one would expect at this level, component-parts selection is very high; many hours are spent on final voicing; and the pre- and power-amp sections are mounted on their own double-sided, copper-clad-fiberglass circuit boards, each with its own regulated power supply. The linear supplies are wide-bandwidth, which Gato claims is a key to the sound quality. The power amp's input stage employs JFETs, while output devices are MOSFETs, which Gato believes provides the best of both worlds—high power with a “vice-like grip [and] the softness and transparent sound of a good tube amplifier.”

I found this last statement curious because, while the Amp 150 does indeed have a “vice-like grip,” the last thing I would call it is soft. Transparent? Oh, yes, but there is nothing (at least) traditionally tube-like about the sound of the Amp 150. I say that with no negative

connotation. Like current tube designs from Audio Research, which are anything but traditionally tubey—overly warm, golden, soft, etc.—the Gato is neither cool nor dark in timbre, but rather a highly refined expression of the shared “neutral” and “musical” schools of thought that have been defining the modern high end for these past many years.

Operating the Amp 150 is simplicity itself, either from the faceplate or the unusually slick and rather macho-looking remote wand. The remote, machined from aluminum, features a thumb wheel for volume adjustment rather than the usual up/down buttons. In addition to Standby, in which only the microprocessor and LEDs are powered up, the unit also offers something called a pre-heat mode, which shortens the amp's normal two-hours-to-full-warm-up time to around 15 minutes. The display meter's light intensity is adjustable on the rear panel, and the meter features a series of graphic icons to indicate the source when the pre-heat stage is complete, as well as the input selection. The meter's needle indicates volume attenuation from $-\infty$ to +10dB, with a 0dB middle point.

As I wrote earlier, the AMP 150 is among the most powerful integrated amps I've encountered. And its 250Wpc output into the Maggie's 4-ohm load brought a comforting sense of power-to-spare plus effortless control to these notoriously power-thirsty speakers. Deciding exactly how much power your speakers “need” is an interesting exercise that has little to do with a manufacturer's often-vague recommended power rating. The reason I say that is not just because our rooms vary in size and so forth, but also because our musical tastes and preferred volume levels also differ, not to mention the tradeoffs one is willing or otherwise needs to consider based on sonic criteria, budget, and a host of other choices we all make as we build a system.

As an example, I also have the very different and likewise fine Audio Research VS160 integrated in-house for review. Rated at 50Wpc at both 4- and 8-ohms, the VS160 is quite a lovely-sounding unit that I will report on in another issue. Yet even in my small room the VS160's power output is barely enough for the 1.7s, and there are moments, especially with large orchestral or rock music, when I wish I could push it just that one notch higher. I have no such

reservation with the Amp-150. This baby has juice to spare. So, for instance, if I'm in the mood to blast out with Led Zeppelin's recently released *Celebration Day* [Atlantic], from the 2007 tribute concert for Atlantic Records founder Ahmet Ertegun, or otherwise play a favorite recording of Stravinsky's *Le Sacre de Printemps* to recognize its centennial year, this Gato integrated delivers enough drive, control, and dynamic pop to out-distance the Magnepons, whose Mylar membranes can of course “bottom-out” when pushed beyond their limit.

SPECS & PRICING

AMP-150

Power output: 150Wpc into 8 ohms, 250Wpc into 4 ohms

Inputs: Four pairs RCA (unbalanced), one pair XLR (balanced)

Outputs: One pair RCA (unbalanced), one pair XLR (balanced), two pairs 5-way binding posts

Dimensions: 12.8" x 4.3" x 14.8"

Weight: 30.4 lbs.

Price: \$7990

CDD-1

Inputs: Digital, RCA, USB type B

Outputs: Analog, one pair RCA (unbalanced), one pair XLR (balanced); digital, one RCA

Dimensions: 12.8" x 4.3" x 14.8"

Weight: 22 lbs.

Price: \$7990

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EQUIPMENT REVIEW - Gato Audio AMP-150 Amp and CDD-1 CD Player

Housed in the same basic chassis, the CDD-1 is arguably an even sexier machine: a top-loading CD player/DAC with an exposed drive that's protected by a machined clamp when playing a disc as well as at rest. With a disc in place the clamp is lowered over the drive spindle and rotated into the Play position by turning the clamp either left or right. And because the clamp locks into place at eight different positions, one needn't worry whether it's being applied the "right" way. It's that intuitive. Digital inputs include asynchronous USB and coaxial S/PDIF.

The CDD-1's meter works somewhat like a multi-function speedometer. Once a disc's contents have been scanned, a numeric display lists the number of tracks, and the needle pegs far right. When a disc begins to play the numeric display starts at 1, and the needle reverts to its far-left starting position. As the disc plays the needle advances around the dial until play stops. When the CDD-1 is functioning as a DAC, the meter measures sample rates up to 192kHz. The digital readout in the center of the meter reads bit-depths up to 24 bits.

The transport is the fine Philips CDpro2LF, which is fixed to a kilogram block of solid machined aluminum suspended in a tripod of Sorbothane to minimize mechanical and environmental resonances. All inputs (CD, USB, S/PDIF) are upsampled to 24-bit/192kHz, and Gato takes obvious pride in its mix of technology—gentle filtering, dual-mono 192/24 Burr-Brown DACs, low-noise, wide-bandwidth, short signal paths, and the like.

The end result with both of these Gato designs is most impressive. As I touched on earlier, the Amp-150 and CDD-1 share essentially identical

sonic characteristics, and to a degree I'm not certain I've heard from any gear in my experience, outside of MBL.

Take a simply recorded but natural-sounding disc such as Stephen Stills' *Just Roll The Tape* [Atlantic], a solo session from April 1968 that contains demos of tunes later made famous by CSN. Though certain moments suffer from overload distortion, the way Stills' vocals and brilliant acoustic guitar playing are captured has made this one of my favorite recent acquisitions. ("Suite: Judy Blue Eyes" is an emotional revelation.) Throughout, the Gato pair brings a notable feeling of tangibility, detail, and soft as well as driving dynamic swings to this music. The sense is of a solid balance between an uncolored presentation and one that nevertheless remains tonally rich. Details are simply "there" and never spotlighted. And, as it should be—though this can



be hard when wearing a reviewer's beanie—one quickly becomes absorbed in the music while forgetting the gear.

Playing the classic EMI recording of Barbirolli's Mahler Fifth Symphony only underlined the obvious. Brass choirs sounded rich and throaty, strings wonderfully rich and resinous, and percussion explosive while still retaining the entire range of available timbre. Dynamic range cruised from nearly hushed whispers to full-on, seemingly limitless orchestral climaxes. And here one can argue that, at least power-wise, more is indeed better. These Gato designs made these well-known passages thrilling.

As to soundstaging and depth layering, unlike some components, which seem to add their own layers to most every recording—which, can, I realize, be a neat and enjoyable trick—the Gato designs morph from disc to disc. Big, rich,

engulfing as a wave with Barbirolli's Mahler, less tall, more spread out, leaner, yet with great air on the Argerich/Abbado/Berlin Philharmonic recording of Prokofiev's Piano Concerto No. 3 [DG].

This naturally extends to all types of music, from the intimacy of the Stills demo tapes to the raucous, grinding, distortion-laden party of Neil Young and Crazy Horse's *Psychedelic Pill* [Reprise], where the sound crushes you like a steamroller. I must admit that I had the Maggies rocking harder than I once imagined possible.

I hope it's clear, but with all this talk of the Gato's impressively controlled power let me emphasize that these components are equally capable of great delicacy and beauty. Favorites from my oft-cited Argerich *Gaspard de la nuit* [DG] to Jeff Buckley's "Hallelujah" [Columbia/Legacy] to Sinatra's *Only The Lonely* [MoFi] displayed great expressiveness, lilt of phrase, and emotional impact.

No gear is perfect, and I don't want to imply that Gato's is. There are far costlier components that may elicit higher resolution, throw larger stages with greater depth, deliver greater tonal richness, or place more air around individual players than these products do. But the overall balance of strengths heard from the Amp-150 and CDD-1—their exceptional musicality and ability to draw listeners into the music played combined with an exceptional beauty of design and delightful operation—makes it hard for me to imagine anyone, excepting the most diehard lover from the romantic school of music reproduction, who wouldn't be delighted by what Gato has achieved. I'm excited to see what's next from this still-young company. *tas*



Vitus Audio RI-100 Integrated Amplifier

Sledgehammer With a Heart

Neil Gader

The word “entry-level” covers a vast swath of price points in the high end. For Vitus Audio, a premium maker of electronics from Denmark, its Reference Series, which includes the RI-100, is a \$13k entry-level product—Vitus’ bottom rung. It’s beneath the Signature Series, Vitus’ pure Class A fully balanced designs, and even further down the ladder from the heady, damn-the-torpedoes, dual-chassis Masterpiece Series. The RI-100 is vivid confirmation of the Paul Simon lyric, “One man’s ceiling is another man’s floor.”

The Reference RI-100 lineage integrated is not my first date with a Vitus Audio amp. In Issue 218, I reviewed the Signature Series SIA-025, a marvelous Class A lineage integrated and, at a vertiginous \$25k, the most expensive one I’ve reviewed to date. So it would be natural to assume that the RI-100 at roughly half the price would be a big step down. Not by a long shot.

At its core, the RI-100 is essentially the Vitus Audio RS-100 solid-state stereo amplifier with the addition of a lineage preamp. It outputs a stout 300Wpc RMS into 8 ohms. Cosmetics are minimalist but the amp is built to endure. It shares both the chassis and the massive aluminum faceplate and pushbutton controls of the RS; however, unlike the Signature and Masterpiece components, the rear casing is prosaic sheet metal, a nonmagnetic aluminum rather than the thick slabs of steel and aluminum of the pricier products. The expansive back panel houses a pair of unbalanced RCA and a trio of balanced XLR inputs, plus a preamp output.

Controls, memory functions, and assorted connectivity can all be optimized via menu-driven software from the front panel or remote control. The latter is an Apple remote, not the fully-featured rechargeable masterpiece that the uptown Signature Series offers. Since it’s an off-the-shelf device, the user needs to pair the remote to the RI-100 (unless you like triggering other Apple-compatible devices elsewhere in the house). Like the pricier models the precision volume control is relay-based and employs only a single resistor in series with the signal at any given time. Still, ergonomics are a little clunky and the display too small for my taste. Personally I like spinning a heavy volume wheel and seeing the results via a large set of fluorescent numerals

I asked company president Hans Ole Vitus about

the key differences between Reference RI-100 and the previously reviewed SIA-025. He stated that the output stage is identical to the SIA-025, but with some topology differences in the input module. The transformer is a more traditional EI-core rather than the Signature’s custom UI-core. Parts quality and matching of internal components, while stringent in the Reference Series, reaches an ever-higher threshold in the fully balanced Signature Series. The crucial difference, as mentioned earlier, is output stage operation—Class AB for Reference Series and Class A for Signature.

As powerful as the RI-100 is, brute force is not the sonic element that stands out—at least not all the time. From day one, what really struck home was the lack of an electronic signature throughout the frequency spectrum. There was no glaze smudging transients, or any dry powdery whiteness over the treble. The RI-100 was supernaturally quiet. I’d describe its character as relaxed but ready. Sure there was impressive transient speed that seamlessly integrated with a rich tonality. But the RI-100 was not euphonic in the classic tube sense of the word, nor was it etched or pushy like less-desirable solid-state. In comparison to some other amps I’m familiar with, its top end would have seemed a tad warm and reserved at first, except for the amount of sheer musicality that poured forth, especially on violin recordings like those featuring Arturo Delmoni [JMR] or Anne-Sophie Mutter [DG]. The RI-100 delicately presented the upper register of the violin as sweetly contained aggression, which is the most concise way I can describe what a violin sounds like at full tilt.

The Vitus conveyed a chesty center of gravity on recordings from the lower mids on down, zeroing in on the substance and weight of brass sections

EQUIPMENT REVIEW - Vitus Audio RI-100 Integrated Amplifier

and capturing the full body of a featured saxophone on recordings like Sonny Rollins' *Way Out West*. I could pick out with utter clarity the surprising minutiae that humanize a performance—whether it was a creaky piano bench or a rustle of clothing or the flutter of sheet music being turned.

But the RI-100 was also a sleeping giant that could summon a sledgehammer of energy at any instant. As I listened to the bass drum and tympani exchanges of Copland's *Fanfare for the Common Man* [Reference Recordings] I felt that I was finally realizing the unrestricted dynamic and visceral potential of this recording. There was more deep-seated rumble, sustain, air, and decay. And this translated into greater insight into the nature of the recording itself.

It also reproduced the delicate world of space and ambience around the music like few amplifiers I've experienced. This amp fixed a musical image in a precise position without sacrificing the distinct ambient space that instrument was occupying. It also teased out high-frequency information, harmonics, accurate sibilance, and leading-edge transient cues, and did so with a soft touch. The string sections of *Appalachian Spring* had buoyancy and a lack of strident edge that on more than one occasion had me recollecting the flawless treble performance of the pure Class A SIA-025.

There are people who will look at an integrated amplifier like the Vitus Audio RI-100 and ask, "What am I going to do with three hundred watts per channel?" My stock reply is, "Eighty-three." As in 83dB, the sensitivity of my long-standing reference compact loudspeakers, the ATC SCM20SL. Every amp that has come through my listening room in recent years has had to deal

with this two-way sealed-box compact and its death-defyingly low sensitivity. (Seems to me, when a rating dips this low it should become an "insensitivity" rating.) If you consider that every 3dB decrease in loudspeaker sensitivity requires double the amplifier power to achieve the same sound-pressure level, you'll realize just how much loudspeaker sensitivity dictates the need for amplifier power.

The ATC will not do bottom octave bass, but driven with the right amplification it is extremely articulate, as it rolls off into the 40Hz range. How does this apply to the RI-100? Marc Cohn's track "True Companion" [Atlantic] has a bass drum (likely augmented in the studio) that's softly struck at the end of each verse. I've heard this track hundreds of times on a countless number of amplifiers. Systems have a hard time reproducing the extension and detail of this moment, but the RI-100, likely summoning a healthy heaping of its 300 watts, provided more detail and sustain from this cue than these speakers have ever reproduced before.

What constitutes authentic bass reproduction in a system always involves strong personal preferences. The question of control and grip cuts both ways. On the one hand, I expect to hear the resonant sustain and gradual decay of bass information, but if it's not balanced against a controlled attack the illusion of realism dissolves like so much smoke. By the same token, too much grip can choke off sustain and decay. For example, during Jennifer Warnes' "Way Down Deep" [Private] I've heard the talking drum played by percussionist Paulinho Da Costa run the gamut from flat and tuneless to fat and loose. With the RI-100 I felt I was hearing an ideal balance of

transient impact, drum skin flutter, and voicing shifts.

The Reference Series RI-100, on balance, gives away little to its highfalutin' pure Class A Signature Series siblings. They both present music with astounding presence and energy. Both are fluid and articulate. But the Class A SIA-025 has a riper tonality, and a micro-presence that expresses the smallest dynamic gradients and image clusters (orchestral section layering and choral groups come to mind) in a way the larger amp can't quite match. By the same token the RI-100 powers through the broader swaths of large-scale symphonies and power rock in a way that makes other amps seem a bit submissive. It's virtually unrivalled in its breathtakingly tight-fisted low-octave reproduction, but it won't quite offer up the fullest breath of soundstage dimensionality like the superb Vitus SIA-025.

So which one is for you? The answer depends most heavily on the choice of loudspeaker, the size of the room, and to a lesser extent your own listening bias. For example, if you're seeking orchestral levels in a large space with only a moderately sensitive loudspeaker, the RI-100 would brilliantly fill the bill. But perhaps your tastes run more to smaller-scale music such as soloists and chamber groups, and you also have a high-sensitivity loudspeaker. In such a case, the SIA-025 could be the better choice.

However, this story isn't over. The RI-100 will fulfill its destiny—filling those empty red-sealed slots on its back panel—when the optional DAC and phono modules become available. Said to be retrofittable in the field, this will be a first for Vitus Audio, and I intend to report on these developments when they hit the market sometime

in 2013. However, even as a "basic" linestage integrated the Vitus Audio RI-100 has carved out a unique segment in the high end—what could be termed "entry-level elite." It currently has few challengers, and none that I have yet heard can surpass it. An alpha amp if ever there was one. More to come on this one soon. **tas**

SPECS & PRICING

Power output: 300Wpc RMS into 8 ohms

Dimensions: 17.1" x 7.6" x 18.5"

Weight: 88 lbs.

Price: \$13,000

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Bryston B-135 SST² Integrated Amplifier

Immediate and Powerful

Kirk Midtskog

Not many high-end audio marques have survived to observe their 50th anniversary. Bryston, a Canadian company with product lines in both the professional and consumer markets, celebrated fifty years of existence in 2012. With an impressive client list, including concert halls, production studios, educational institutions, and, of course, many private consumers, Bryston has a solid foundation in the specialty audio industry.

The new B-135 SST² integrated amplifier handles basic pre- and power amplification duties for \$4695, and if you add the optional on-board DAC (\$1395) and moving-magnet phono section (\$600), you have a single-box solution that will cover many different input, conversion, and amplification requirements. (The DAC supports up to 96/24 resolution files through two S/PDIF and two TosLink inputs, no USB.) The B-135, without either the DAC or phono section (as reviewed), has seven single-ended line-level inputs, a preamp output and power amp input, a ¼" headphone jack, and a tape loop. Some of the line-level input pairs are commandeered for the add-on phono or digital inputs if you buy those options. One line-level input can be assigned as a “pass-through” for use with a home-theater processor. The hefty, full-featured, programmable, remote handset is also optional (\$375). The B-135 has a balance control, which allows users to attenuate a channel up to 6dB, as well as a nifty channel-muting function—sometimes useful for troubleshooting. There are additional inputs for an external infrared remote-control relay unit and a 12-Volt remote trigger connector for convenient turn-on and turn-off of all devices connected to the B-135. In versatility and features, the B-135 pretty much covers all the bases.

Micah Sheveloff, Bryston’s U.S. media representative, assured me that the B-135 is not merely a beefed-up version of its predecessor, the B-100. Bryston took two years to develop the B-135, and it incorporates some technology from the SP-3 processor as well as elements from its latest SST² power amplifier line. The volume control uses a computer-controlled, motorized analog potentiometer, which allows remote-controlled operation while still employing only

fully discrete analog circuitry throughout the preamp section. Bryston claims that most solid-state Class AB power amps have lower distortion in the top two thirds of their power-output ranges as well as better distortion figures in the lower frequencies, thereby leaving the first few watts and the upper frequencies to be relatively distortion-laden. According to Bryston, their SST² technology cleans up distortion in those problem areas, as well as addresses much of the crossover notch distortion (common in Class AB operation amplifiers), where the signal is “handed off” between the positive-going phase and the negative-going phase. Bryston apparently employs very fast drivers and a method called “Quad Complimentary Output,” which is said to reduce the capacitance seen by the drivers, and this, in turn, reportedly significantly reduces distortion-inducing “storage delay” in the output transistors right in the crossover region. Other aspects of SST² topology include the following: no point-to-point wiring in the power-supply circuitry which Bryston found reduces noise, new output chokes to help lower distortion in the upper frequencies, a soft-start circuit to reduce wear and tear, and finally, simplification of several circuit assemblies to bring down the number of signal-smearing contact points.

The overall fit and finish of the casework and the sense I get from interacting with the B-135 point to a well-made product. The tactile elements, such as using the buttons, volume control, and connectors, all engender a feeling of confidence. Even the speaker-cable binding posts, custom-made for Bryston, require less fiddling than usual to get large spades to seat—at least compared to the slotted WBT binding posts I have come across. Inputs are selected directly by pressing the corresponding button on the either the front

EQUIPMENT REVIEW - Bryston B-135 SST²

faceplate or the remote. You do not have to cycle through input selections until you reach the one you want. Bryston's attention to detail shows. Output power is listed as 135Wpc into eight ohms and 180Wpc into four. I do not have headphones, so I did not try that feature. I added about 200 hours of additional break-in time after I received the review sample, which presumably also had its standard 100-hour burn-in at the factory.

My first impression of the B-135's sound can be summed as "immediate and powerful"—powerful for its physical size and output rating, that is. Bass extension and dynamic snap were commendable, suggestive of a power supply capable of delivering ample power reserves on demand. The B-135 had little trouble driving my somewhat difficult to drive Dynaudio C1 II speakers (4 ohms, 85dB sensitivity), except on very demanding music. Individual images appeared to be a bit larger—especially in the center of the soundstage—and closer than I am used to, thereby contributing to a feeling of immediate presence. The front of the soundstage also tended to hang in space in a plane a little more forward than usual, which also added to my perception of being nearer to the musicians. Using terms like "forward" often means a tendency towards brightness, but this really isn't the case here. In fact, if I consider its overall tonal balance, the B-135 comes across as essentially neutral, with only a hint of extra energy in the 2–4kHz zone. It is a near perfect tonal match with the Dynaudio C1 II speakers and will most likely partner very well with the majority of speakers it dances with.

The B-135 tended to accentuate the primary elements of the music, the main musical line, and the principal music-makers—such as the lead singer or most prevalent group of instruments—at any given moment in a recording. As a result, my initial response to the overall presentation was one of enjoying the clarity with which these primary musical constituents were represented. Patricia Barber's voice and Michael Arnpol's acoustic bass in "Winter" from *Modern Cool* [Premonition], for example, came across as "direct" with very little coloration of any kind intruding on the performance—despite rather odd recording values like too much reverb on Barber's vocals. I think some of the B-135's straightforward

character comes from its somewhat forward soundstaging, as mentioned, and also through its apparent dynamic agility. It is not hyper- or over-charged; it just comes across as clean and direct. As I already alluded to, the B-135 mated quite well with the Dynaudio C1 II, not only tonally but also because of the C1's less-forward soundstaging and its ability to unravel overlapping dynamic events quite well. This helped the B-135 sound more musically complete and less dimensionally restricted to two or three depth-levels, as was the case when it was paired with the Aerial 7T.

Whether you like the B-135's somewhat straightforward presentation is something you will have to determine for yourself. What else is available at a similar price? I still have the larger and heavier Hegel H200 that I reviewed in Issue 211. The H200 was awarded integrated amplifier Product of the Year in 2011 in Issue 219. It costs \$4400, puts out 200Wpc into 8 ohms, 350Wpc into 4 ohms, and has three line-level inputs (one is balanced/XLR), a record out, two preamp outputs, a power amp input, and two pairs of speaker binding posts per channel. No phono or internal DAC options are available for the H200, although Hegel offers two other integrated models with on-board DACs. The B-135 has more features and inputs, and has better casework, although the Hegel's slightly curved, smooth faceplate and understated aesthetics are certainly easy on the eyes. To my ear, the H200 simply offers a more complete musical experience overall. Through the H200, notes start just a bit sooner and continue longer before they dissolve into the noise floor. The H200 also supplies more ambient air, or interstitial space, around the musicians, and this enhances one's sense of the context in which the music-making took place. The B-135 throws about the same size soundstage from side to side (about one foot beyond the outer speaker panels), but the H200 has considerably more depth portrayal, both of individual images and of the greater soundstage envelope. The H200 tends to render individual images on a slightly smaller scale than the B-135 does, but the H200 uses its total available soundstage "frame" to include more of the surrounding spatial context, and so images within that frame are necessarily a bit smaller. Almost counterintuitively, the H200 sounds at once more relaxed and more revealing. One "sees"

deeper into the performances. The H200's bass is also a little more robust, lending a feeling of greater solidity and foundation, especially on larger orchestral works.

As you can tell, I prefer the H200's sonic personality, but this does not mean it will shake out the same way for others. In other systems, some listeners may find the H200 to sound too laid-back or not as "quick" as the B-135. The Bryston will definitely work better for headphone users or those with a lot of source devices.

SPECS & PRICING

Power output: 135Wpc

Inputs: Seven line-level and one "amp-in" (RCA), 12V trigger port, auxiliary remote-relay jack

Outputs: Preamp (RCA), record (RCA), headphone jack, speaker terminals

Dimensions: 17" x 4.55" x 14"

Weight: 30 lbs.

Price: \$4695, optional BR2 remote adds \$375

BRYSTON LIMITED

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ASSOCIATED EQUIPMENT

Analog Source: Basis Debut V turntable with Vector 4 tonearm, Benz-Micro LP-S cartridge

Digital Sources: Ayre C-5xeMP universal disc player, Sony VAIO VGN-FZ-490 running JRiver MC 17, Hegel HD2 and HD20 DACs

Phono stage preamp: Ayre P-5xe

Line stage preamp: Ayre K-1xe

Integrated amplifier: Hegel H200

Power amplifiers: Gamut M-200, Gamut M250i

Speakers: Dynaudio Confidence C1 Signature, Aerial 7T, YG Kipod II Signature Passive

Cables: Shunyata Anaconda ZiTron signal cables, Analysis Plus Big Silver Oval speaker cables, AudioQuest Coffee USB and Hawk Eye S/PDIF, Shunyata Anaconda and Cobra ZiTron power cables

A/C Power: Two 20-amp dedicated lines, Shunyata Triton and Typhon power conditioners

Room Treatments: PrimeAcoustic Z-foam panels and DIY panels

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EQUIPMENT REVIEW - Bryston B-135 SST²



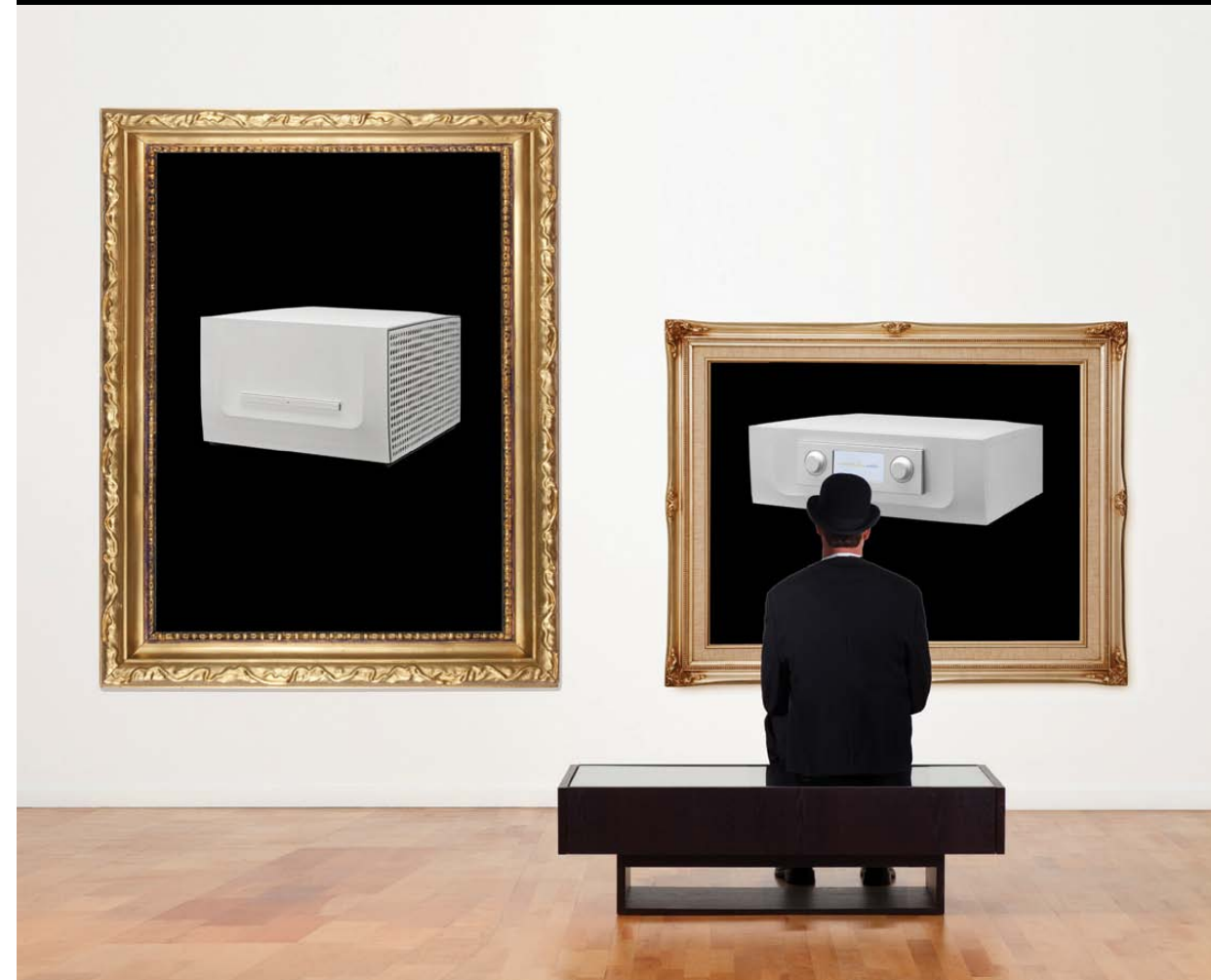
There is also a price consideration. The Hegel H200 comes with a remote handset for \$4400; the Bryston B-135 costs \$4695, and its remote, which I consider mandatory, adds \$375 for a total of \$5070. These prices are close enough to make both two amps viable options for listeners searching for an amplifier in this price bracket. That said, the cost advantage does go to the Hegel H200, with enough of a savings to leave some funds left over for a cable upgrade. There's also the issue of company longevity and warranty; Bryston offers a 20-year warranty vs. three years for Hegel, and Bryston's 51-year track record.

Speaking of cables, I did a cross check with cables (and speakers) I typically do not use for much of my listening these days as a way to "triangulate" on the Hegel's and Bryston's respective differences more thoroughly. In this instance, I used Analysis Plus Big Silver Oval speaker cables, Wegrzyn Copper Slam power

cords, and Dynaudio C1 II loudspeakers. My impressions of both integrated amps were confirmed when I also listened though more revealing products like Shunyata Research Anaconda ZiTron speaker cables and power cords together with Aerial 7T speakers. The differences between the two amps were simply made more apparent through the more revealing (and more expensive) setup. I did not use any power conditioners for this review.

The Bryston B-135 certainly is a well made, versatile, and reasonably powerful integrated amp. It will meet some users' needs just right, sonically and in terms of connectivity and usefulness. Even if I would, personally, chose another integrated, I still appreciated the B-135's rhythmic snap and straightforward presentation. I think it will hit some people's sweet spot on the button. It is certainly worth your consideration. *tas*

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Ayon Orion II Tube Integrated Amplifier

Connoisseur-Level Audio for Those on a Budget

Ron Doering



In my humble opinion, nothing says “you’ve made it” quite like owning high-end music-reproduction equipment. And yet both you and I both know that audio gear is not the first thing people think of as a status symbol, although they should, because it’s hard to imagine anything with a lower practicality-to-expense ratio. Big, luxurious house? Well, unless it’s used only for parties, a house, any house, is very practical simply from the standpoint of being a shelter (both in the physical and tax sense). An expensive car? No matter what it is, it provides the very practical attribute of transportation, which we all know is necessary for modern life. What about a yacht? Again, still practical from a shelter, transportation, *and* as a second home, from a tax deduction point of view.

Perhaps we get closer along the lines of fine art collecting but even here there is utility associated with this activity that escapes the hi-fi connoisseur: Fine art is expected to *increase* in value. Substitute watches, stamps, Fender guitars, Pez dispensers; you get the same result. On the other hand a shockingly small sample of audio equipment has proven to increase in value as it ages (and you may not even like how it sounds).

So I say you keepers of the hi-fidelity flame have good reason to feel fairly superior to the benighted masses sprouting little white wires from their ears, or just about everyone else for that matter. Still, even among the enlightened there is a steeply ascending caste system. At the top of the ladder are the high priests of the Single Ended Triode altar, who like any devout individuals have vowed to live a restricted existence, a life of poverty if you will, not of money (although that may very well accompany this lifestyle) but of watts. By nature traditionalists and extremely conservative, some would say that these folks act like the last 106 years (!) of amplifier development never happened.

All the while, sitting at the back of the hi-fi church are people like me who know good sound from bad and search the market often for the best in lower-priced but great-sounding products. For us fancy metal-work, silver wire, even acceptable quality-control are grudgingly dismissed for the sake of good music vibes. We have no problem with plastic knobs, stamped metal chassis, or the occasional missing screw. It’s what’s on the inside that counts, right?

I for one have remained happy in the back pews for years since, quite frankly, much of the “aspirational” gear simply fails my personal cost/benefit analysis. Oh, that’s nice but my NAD integrated gets me 90% of the way

EQUIPMENT REVIEW - Ayon Orion II Tube Integrated Amplifier

there for a whole lot less (or so I tell myself). So I find it really annoying when something like the Ayon Orion II (\$3910) comes along and bursts my bubble of self-delusion. Rightfully the Orion belongs to that couple stationed maybe ten rows in front and a little to the left of where I'm sitting. They've got money to spend, no small children or pets, are cultured, and appreciate the good things in life. And for this review they let me sit next to them.

Ayon is one of those special concerns that doesn't just make and sell products; it makes ideas, and then works hard to make sure those ideas spread far and wide throughout the hills and vales. Ayon's big idea: Vacuum tubes are and always were, unapologetically, the best way to amplify an electronic signal. In other words, they hope to change hard-boiled folks like me, who view tube amplification as akin to having a real, live puppy for a pet: great fun, cute and cuddly, and then it pees all over the rug and chews on the chair leg. Tubes age, and as they age bias voltages need to be adjusted, and when a tube prematurely dies the question becomes does the owner replace only the one or the complete set of power tubes? All this fuss, care, and feeding are what drove me toward the solid-state world (well, that and price), where amplifiers run forever and never ask for more than an occasional dusting—and all the puppies are stuffed ones. It may not be the most interesting world in which to live, but it is clean.

This is pretty much the divide over which Ayon has set about building bridges, and it begins with "leave the bias adjusting to us." This, an activity that dramatically distinguishes the "valve-o-philes" from the rest of us, has major

consequences for the sound quality as well as for the longevity of what may be very expensive (and numerous) tubes. Manual tube-biasing may be held a badge of honor for some, but Ayon guessed, and I think correctly, that if this became something automatic, or at least something very easy to do, then one more reason for not "going tube" would be eliminated. Unlike fully automatic biasing systems Ayon's auto-fixed-bias (AFB) does not operate during normal operation; rather, a push of a button at the back of the chassis mutes the amplifier then sets in play an automated tube-test program, which adjusts bias and checks for tube failure, noting which tube has failed via an LED at the back panel. The system will also automatically "break-in" new tubes for the first ten hours, reducing bias to 60% of normal during that period. While Ayon's system does not completely eliminate owner involvement, it strikes an almost perfect balance between optimal performance, carefree listening, and satisfying user engagement.

And then there are the tubes themselves. Tubes are fun to watch and talk about. They project warmth both figuratively and literally. They are guaranteed conversation starters. The old reminisce and the young just stand there in awe. Tubes can also be maddeningly unreliable and, by nature, promote distracting behaviors such as "tube rolling." Ayon understands all this. It acknowledges that tubes are, indeed, wonderful things and so displays them in all their skin-searing glory. Ayon doesn't do tube cages. Cage your dog. Cage your cat. Cage your children. Don't ask Ayon to cage its tubes.

But here's some comforting news: Ayon does a five-point test on every tube it ships

(so you don't have to!) including plate current, transconductance, heater-to-cathode leakage, gas-ion current effects, and microphony. The Orion II comes with Ayon's own Black Treasure SX KT88s and either Tungstram, RCA, or Mullard 12AU7 signal tubes. Ayon's Charlie Harrison tells me Ayon will soon be providing its own BT SX signal tubes. My sample sounded fine with a trio of Tungstrams.

Tubes or no, this is a Thoroughly Modern Millie of an amplifier in its minimalist execution. Two eminently grab-able knurled knobs greet the listener on the front panel—a motorized volume control on the left and a non-remote-controllable input-selector on the right. To its right is a vertical laundry list of functions, the operation of which is indicated by a red LED. From the top there are Line Inputs 1 through 3, plus USB, Direct, Mute, and Triode. The small but nicely finished all-metal remote control works the volume and mute functions and is satisfactory except for a bit of overshoot. It also contains two extra buttons, which are not shown or discussed in the manual, labeled Amp and Pre. These I assume are meant to toggle between the Orion II and something else (the "pre"). "Direct" is switchable from the rear panel and activates a set of "Direct In" and Pre Out" RCA jacks, useful for an A/V processor, equalizer, subwoofer, or headphones. Speaking of headphones, the sharp-eyed will notice that the previous iteration of the Orion did, indeed, have a proper headphone jack. Charlie says that with the total redesign of the Orion it was decided to drop the jack—evidently customers preferred to do without.

A tour of the back panel from left to right begins with an IEC AC receptacle. Next is what

SPECS & PRICING

Output power: 60Wpc pentode, 40Wpc triode

Tube complement: Four KT88, three 12AU7

Frequency response: 27Hz-40kHz +/-0.5 dB

Transformer taps: 4 and 8 ohms

Bandwidth: 15Hz-50kHz

Nominal voltage gain: 40dB

Input sensitivity (full power): 1V

Input impedance: 100k Ohm

S/N ratio: 85dB (2mV)

Dimensions: 18" x 14" x 10"

Weight: 62 lbs.

Price: \$3910

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ASSOCIATED COMPONENTS

NAD C325BEE integrated amplifier; Kenwood KT-8300 AM-FM tuner; Rotel RDD-980 CD disc drive; Meridian 203 DAC; Dell Inspiron 530 PC running Windows Vista, J River Media Center 15; Hegel HD2 USB DAC; Thorens TD309 turntable; Dual CS 5000 turntable (78s Only); TP 92 tonearm; AudioTechnica AT-95B cartridge; Ortofon OMB 78 cartridge; Bellari VP129 phonostage; Snell EII and Vienna Acoustics Beethoven Baby Grand loudspeakers; Kimber Kable PBJ interconnects; Kimber Kable KWIK-12 loudspeaker cable; Staples 5 meter USB cable; Have Canare DigiFlex Gold coaxial digital cable

EQUIPMENT REVIEW - Ayon Orion II Tube Integrated Amplifier

could be called the bias-control center, consisting of the AFB initiation button, four LEDs indicating which KT88 is being adjusted/analyzed or has failed, and a “Bias-Ref” knob which is factory-set at 3 out of a range of 1 to 5. While this control is easy to leave alone, it also almost begs to be played with. Three sets of gold-plated speaker terminals optimize playback through speakers rated at 4 or 8 ohms or thereabout. The latter proved to be a good match for my Snells. While I was impressed by the overall massiveness of these terminals they were really best suited to spade terminations. I was also a tad surprised that they were completely unshielded and so, I thought, could not possibly be CE approved. Charlie set me straight here, informing me that as per European Union regulations shielding was not required for voltages less than 50V. Well, now you know.

Rounding out the back panel are the aforementioned Direct In/Pre Out jacks and switch, the USB input, and three line-level inputs which were top-notch-quality gold-plated and chassis-mounted. That USB (and associated internal D/A converter), although garnering barely a mention from Ayon in its literature, proved to be quite a right-sounding thing, accepting up to 48kHz/16-bit datastreams. Way over-qualified for the streaming radio I usually fed it, but obviously not suitable for hi-res music files.

Triode or pentode operation is available at the twist of a knob located on the top plate—the amplifier delivers 60Wpc in pentode and 40Wpc in triode. As easy as I just made that sound, Ayon strongly suggests that the unit be shut down completely before this switch is thrown. Why the two modes? Partly because the KT88

tube allows for this, and partly because there are definite differences in the sonic signatures of the two modes, which may serve the material being played. More on this later, but keep in mind that no matter how attractive the idea of purity of design (the three parts of a triode tube—cathode, plate (anode), and grid—are the *minimum* possible to construct an amplification device), the fact that it was found necessary to later add more devices to, among other things, improve linearity and reduce distortion is worth noting. Keep in mind also that at the end of the day a KT88 is not a pure triode like, for example, a 300B because of the way the grids are assembled within the tube.

Did I miss something? Oh yes, the power switch, which is, indeed, easy to miss. It is located *underneath* the unit, which seems an odd place to put it until you think about the advantage, which is that it makes it difficult to inadvertently turn the unit off and on again in quick succession—a practice that Ayon frowns upon. I think this is also in keeping with its overall approach and aesthetic of listening through a tube power amplifier. Tubes are thermionic devices and so you literally cannot get music out of them until they come up to temperature, which takes a while. Even after the Orion II warms up, it takes about a minute for the auto-biasing system to run through its checklist, making sure that all is well. Until then the amp is muted. The same is true for the shut-down procedure. So while there may have been no technical reason *not* to put the on/off switch right there smack in the middle of the front panel, or even on the remote for that matter, the overall *deliberateness* of this amplifier made the choice of switch location a natural one.

Use and Listening

This from a famous-brand headphone advertisement, which appeared on my Kindle recently: “Crushing bass and dynamic sound from 50mm drivers . . . powerful bass from Direct-Vibe sealed acoustic structure.”

So you see folks, just in case you were wondering, it's indeed all about bass. Dangerous and life-threatening bass. Although something tells me this ad was not intended to reach the demographic of e-reader owners, it nonetheless found me just as I was listening, quite happily by the way, to “animal” from Pearl Jam’s vs. [Epic] in pentode mode (of course) and getting a fairly accurate taste of the message the boys were sending 20 years ago. Tight and dynamic, with many tracks having a one-take, live feel, this album begs to be turned up loud, and the Orion II obliged. From side to side and top to bottom I got a coherent, rock-solid image of the band doing what they probably did best at decibel levels they would certainly approve of. My gut was feeling the music as much as my ears were hearing it. Bass was powerful and tight as were drums. The distinct musical personalities of guitarists Stone Gossard and Mike McReady were well delineated both spatially and musically. Eddie Vedder was almost in the room on some tracks. The best part is that all this was occurring with the volume control just cracked open at about 8 o'clock—achievable in a smaller listening room through suitably high-sensitivity-and-impedance speakers like my own Snells. And, of course, these ain't just any watts—these are tube watts.

While the importance of measured harmonic distortion to the quality of an amplifier remains debatable, I almost agree with Ayon that the

subject is, especially in comparison to other (especially qualitative) attributes, really not worth talking about. What *is* worth discussing (and certainly worth listening to) is an amplifier that is dynamic, fast, pushy, unapologetic, maybe even a bit rude sometimes—in other words, *alive*. This is what I believe Ayon has achieved with the Orion II: getting the macro-dynamics *and* the micro-dynamics spot-on. And I'm not talking about this being a secret truth known only to those who have the means of accessing it either through associated equipment, 180 gram virgin audiophile label LP, or 24/96 high-res digital.

A terrific example of the “aliveness” of which I speak can be found in the first few measures of Oliver Nelson’s great “Stolen Moments” from *The Blues and the Abstract Truth* [Impulse!]. Nelson, Eric Dolphy, Freddie Hubbard, and George Borrow start the piece with four successive chords each played as a crescendo followed immediately by a decrescendo. It's fast and subtle but if it's not there, well then the performance is missing too. This is the real “drop the book and take notice” stuff that good gear does for a living, and what the Orion II does expertly. Jazz recordings of this period (1961) were by nature “purist,” employing a minimum of takes, tracks, and microphones. Amplification was tube. This wasn't because it was cool but because there was no alternative. Spitty, blatty, breathy, sometimes clanky, this is what brass instruments can sound like in an intimate setting—like the recording studio or my living room—and this much appreciated information came through unabridged.

Bass performance, which is rarely high among a tube amplifier's bragging points, was certainly adequate in my experience, and I never felt the

EQUIPMENT REVIEW - Ayon Orion II Tube Integrated Amplifier

need for a subwoofer. If pressed I would say that the grand closing to the “Uranus” movement from *The Planets* [London] may have been a little soft but that low, low E of the organ nonetheless nicely locked with my room. On the other hand, it is generally held that space and midrange are a good tube amplifier’s calling cards, and the Orion II certainly met expectations here. When I played their *Chanson D’Amour* [RCA], the six gents of the King’s Singers were believably arranged in a semicircle before me with the location and distinct quality of each voice unerringly conveyed. Again, micro-dynamics were captured with alacrity as the Orion II was easily able to keep up with the speed at which the voices launched notes, changed pitches, and went from *mezzopiano* to *mezzoforte* and back again in a split second.

Instant comparisons between triode and pentode, possible given the Orion’s simple control layout, were not an option, both because of the need to shut down the unit before switching modes and because, not unexpectedly, gain levels were grossly different between the two. That said, after months of listening, I found myself favoring the pentode for most material. Dynamic, punchy, fast, and powerful were the adjectives I most often scribbled in my notes. In this mode the Orion II seemed at least twice as powerful as its rating. This is not to say that I did not enjoy the triode setting, because I did, but only on music that did not require strong and precise percussive or timing cues to sound believable and alive. The King’s Singers or Ravel’s Quartet in F [Naxos] were particularly well served. Triode also became my *de facto* late-night listening mode, adding just a little bit of body and richness to the sound at domestically approved levels.

Conclusion

There are so many reasons to recommend this amplifier: fabulous sonics, world-class build-quality, a manufacturer that seems to really care about what it is doing, how it is doing it, and has its customers’ best interests at heart, and yes, overall coolness. More? Ayon electronics are manufactured to EU standards, in the EU—Austria, in fact—so you can be pretty sure that the workers earn a living wage and the environment gets a break. Given a suitable pair of loudspeakers, decent upstream electronics, and, of course, good recorded material, the Orion II is a reminder that vacuum-tube amplification is an excellent way to do the job. Ignoring other factors such as cost, weight, size, flexibility, efficiency, maintenance requirements, and durability, tubes may even be the *best* way.

My friend Carl was smitten by the Orion II after hearing it at my home after a dinner party. “How can I convince my wife that it is worth the price?” he asked, hoping that I could feed him some good ammunition for the argument soon to take place. To his dismay, knowing he had two kids in college, I told him that he most likely could not convince her but that, yes, the Orion II was definitely worth it. Absolutely worth it.

Start saving, Carl. **tas**



Product I32 and CD32

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Primare - It’s the silence between the notes.

NAD C 390DD Direct Digital Integrated Amplifier

Chip Off the Old Block

Robert Harley

It was only a matter of time before NAD brought the groundbreaking technology and architecture of its M2 Direct Digital Amplifier to a lower-priced product. The \$6000 M2, which I reviewed in Issue 198, is unique in part because it converts standard-resolution or high-res digital bitstreams directly into signals that can drive loudspeakers. This approach eliminates from the signal path all the circuitry of a digital-to-analog converter, preamplifier, and most of a power amplifier, not to mention the interconnects, jacks, and wiring of separate components. Moreover, the M2 upended the traditional system configuration of a digital source feeding a preamplifier that then drove a power amplifier. With the M2, you simply connect a digital source to one of its inputs and loudspeakers to the output terminals. The unit's functions mimic a DAC and integrated amplifier, with source-switching and volume control.

NAD's new C 390DD brings the M2's technology and features to a unit costing less than half that of the M2. Significantly, the \$2600 C 390DD adds some new capabilities beyond those of the M2, including extensive room-equalization functions as well as modular construction that allows you to tailor the C 390DD to your particular connectivity needs as well as update the C 390DD's hardware and software to accommodate technology advances. NAD calls this MDC for Modular Design Construction. In this era of rapidly evolving technology, it seems a no-brainer to provide an upgrade path through user-replaceable digital-interface circuitry.

In practice, the C 390DD has three rear-panel slots that will accept an optional input module (DD AP-1 Analog Line/Phono Module) or the

module containing three HDMI inputs and one HDMI output (DD HDMI-1). Each optional module is \$300. The analog-input board offers one stereo balanced input on XLR jacks, one unbalanced input on RCA jacks, and one phono input, also on RCA jacks. The phono input will accept moving-magnet or moving-coil signals. Because the C 390DD operates entirely in the digital domain, the analog input board performs analog-to-digital conversion. The sampling rate and word length are user-selectable, up to 192kHz/24-bit. The HDMI inputs are useful when using the C 390DD as part of a "2.0" or "2.1" theater system in which the soundtrack is reproduced by the left and right loudspeakers, foregoing a center channel and surround loudspeakers. Note that the rear-panel USB inputs (marked "Computer,"



on a USB Type B connector and a USB Type A jack for connecting a FAT 32 storage device) are also on a removable board (included as standard) to accommodate possible hardware changes in the USB format (or entirely new digital interfaces). A second USB input on the front panel will play music from memory sticks. All three USB inputs are asynchronous, and can accommodate resolutions up to 96kHz/24-bit.

A stock C 390DD provides eight inputs; a fully loaded unit sports a whopping 14 inputs. The fixed inputs (those integral to the C 390DD rather than being on replaceable boards) include two digital coaxial on RCA jacks, one AES/EBU, and two TosLink optical. These inputs can accept resolutions up to 192kHz/24-bit. Digital outputs are also provided on RCA and TosLink optical jacks. To keep this input flexibility from becoming overwhelming, unused inputs can be removed from the front-panel display and input-scroll function, allowing you to more quickly and easily select between sources. Each input can also be named by the user.

In addition to this wide array of inputs, the C 390DD offers a line-level output as well as a line-level stereo (or mono) subwoofer output. An onboard crossover can be engaged to split the frequency spectrum appearing at these outputs;

the C 390DD thus functions as the crossover between the subwoofer and main speakers in a 2.1-channel system.

The C 390DD is rated to deliver 150Wpc into 8 ohms. As with other NAD amplifiers, this continuous power rating doesn't adequately reflect the C 390DD's real-world power delivery when reproducing music. Part of the C 390DD's generous dynamic headroom is owed to NAD's Digital PowerDrive circuitry, which automatically senses the loudspeaker's impedance and adjusts the amplifier's characteristics to more efficiently drive that particular loudspeaker load. The C 390DD also features NAD's Soft Clipping circuit, which gently compresses peaks that would otherwise clip. If you overdrive the amplifier, Soft Clipping compresses the dynamic range rather than allowing the output stage to flatten the waveform tops (heard as a crunching sound on peaks). Soft Clipping can be engaged via the front-panel display.

The C 390DD's on-board DSP provides extensive equalization possibilities. In addition to bass and treble controls, the C 390DD allows you to boost or cut six selectable frequencies below 240Hz to reduce room-induced peaks and dips. Each filter has adjustable bandwidth. As with the C 390DD's other features, the room equalization is

EQUIPMENT REVIEW - NAD C 390DD Direct Digital Integrated Amplifier

The \$6000 M2 vs. the \$2600 C 390DD

Although the M2 and C 390DD share the same technology platform, there are a number of differences between the units. For starters, the C 390DD's output stage is exactly half that of the M2. The M2 featured a bridged output stage employing four FETs; the C 390DD uses two FETs without the bridging topology. This change is reflected in the two amplifiers' rated output powers: 250Wpc vs. 150Wpc.

This lower output power not only puts less demand on the power supply, but also reduces the need for shielding. The M2 chassis was highly compartmentalized, with extensive electromagnetic shielding between sub-sections. The C 390DD's shielding is more modest, but shielding is less crucial because the C 390DD's output stage radiates half the switching noise of the M2. Speaking of the chassis, while the M2 was housed in lavish (for NAD) Masters Series casework, the C 390DD is pure traditional NAD in which the chassis is a functional rather than an aesthetic statement.

The M2's DSP that performed the PCM-to-PWM conversion was a general purpose field-programmable gate array. In fact, the FPGA was the technology's development platform. The C 390DD now supports a dedicated integrated circuit that is more efficient. The chip has additional DSP power that is put to good use with bass and treble controls, room equalization, subwoofer output, and other features.

Where the M2 included an integral A/D converter, the C 390DD's A/D is on an optional board. Similarly, the M2 doesn't benefit from the C 390DD's Modular Design Construction that puts the digital-interface electronics on removable boards to accommodate technology evolution.

In addition to these large differences, it's natural that in the more than two years between the M2 and C 390DD, the designers would find a number of small ways to improve the performance. This is particularly true with such a new technology. Among these small benefits (small technically, not necessarily small sonically) are improved jitter rejection in the C 390DD.

accessed via the unit's large front-panel display. The manual makes reference to an integral test tone useful in setting the equalization, but that feature had not yet been implemented in the review sample. NAD says that the test tone will be available as a software update.

A number of other miscellaneous features are also included. For example, the unit has IR inputs and outputs, an RS232 input, and 12V triggers, all useful for integrating the C 390DD into an automated system.

The remote control is outstanding for its ease of use, volume control ballistics, and comfort. Although this is the same generic remote supplied with NAD's AV receivers and disc players, the superfluous buttons didn't interfere with operating the C 390DD. Incidentally, when I was using the NAD remote it struck me how much more functional and comfortable it is compared to many high-end remotes that are machined from aluminum and have tiny points for buttons, illogical layouts, and difficult-to-read legends.

Listening

The C 390DD replaced in my reference system the Berkeley Alpha USB USB-to-S/PDIF converter, Berkeley Alpha DAC Series 2, Hegel H30 linestage, and Hegel H30 power amplifier. With cables, this signal chain has a retail price of about \$30,000, eleven times the C 390DD's price. I fed the C 390DD with the USB output (AudioQuest Diamond USB) from an iMac running iTunes and Pure Music, as well as with analog signals from the Aesthetix Rhea Signature phonostage. As mentioned earlier the C 390DD operates only on digital signals, requiring that analog inputs be converted to digital. The review sample was fitted with the optional analog-input board that offers balanced and unbalanced line-level inputs as well as a phono input.

I controlled the iMac music server from my iPad with Apple's free Remote app. With this app, your iTunes library interface appears on the iPad. My system was reduced to the iMac, the NAD C 390DD, a pair of Venture Ultimate Reference loudspeakers, and the iPad for remote-control music selection.

After living with NAD's M2, I was interested to hear how that unit's impressive technology translated into a unit of half the cost. In addition, my friends Scott and Kerry have been asking me for some time how to upgrade the sound of their existing system and at the same time transition into a music-server. They have a Pioneer Elite AVR with a Pioneer CD changer driving GoldenEar Triton 2 loudspeakers. They want better sound quality for music than this setup delivers, and are ready to replace the CD changer with a computer-based digital source that can be controlled wirelessly. They

SPECS & PRICING

Output power: 150Wpc into 8 ohms, 20Hz-20kHz, 0.005% %THD

IHF dynamic power: 165W into 8 ohms, 250W into 4 ohms

S/N ratio: >95dB referenced to 1W

Inputs: Two coaxial digital, two TosLink, one AES/EBU, one computer (USB Type B), two mass-storage input (USB Type A), IR, RS232

Optional I/Os: DD1 Analogue Phono Module with one balanced input on XLR jacks, one unbalanced input on RCA jacks, one phono input (mm or mc); DD HDMI-1 HDMI Module with three HDMI inputs and one HDMI output

Formats and resolutions supported:

MP3/WMA/FLAC up to 48kHz (USB mass-storage inputs); USB output from Macintosh or PC up to 96kHz/24-bit (computer input); up to 192kHz/24-bit (TosLink, coaxial, AES/EBU)

Outputs: One coaxial digital, one TosLink digital, one line-level, one subwoofer

Dimensions: 17 1/8" x 5 3/16" x 15 5/16"

Weight: 17 lbs.

NAD ELECTRONICS INTL

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EQUIPMENT REVIEW - NAD C 390DD Direct Digital Integrated Amplifier

How the C 390DD Is Different from Other Amplifiers

The C 390DD eliminates from a traditional signal path all the electronics of a DAC as well as the active analog gain stages of a preamplifier and power amplifier. It does this by converting the PCM signal from a digital source directly into a pulse-width modulation (PWM) signal that turns the C 390DD's output transistors on and off. That's it—no digital filter, no DACs, no multiple stages of analog amplification, no interconnects, no jacks, no analog volume control, no preamp. The conversion from the digital domain to the analog domain occurs as a byproduct of the switching output stage and its analog filter. This is as direct a signal path as one could envision.

The C 390DD is different in two important ways from other amplifiers that use a Class D switching output stage. In a conventional switching amplifier, analog input signals are converted to a series of pulses that turn the output transistors fully on or fully off. The signal's amplitude is contained in the pulse widths. An output filter smooths the pulses into a continuous waveform. But in the C 390DD, PCM digital signals fed to the amplifier's input (from a CD transport, music server, or other source) stay in the digital domain and are converted by digital signal processing (DSP) to the pulse-width-modulated signal that drives the output transistors.

This difference might not seem great at first glance, but consider the signal path of a conventional digital-playback chain driving a switching power amplifier. In your CD player, data read from the disc go through a digital filter and are converted to analog with a DAC; the DAC's current output is converted to a voltage with a current-to-voltage converter; the signal is low-pass filtered and then amplified/buffered in the CD player's analog-output stage. This analog output signal travels down interconnects to a preamplifier with its several stages of amplification, volume control, and output buffer. The preamp's output then travels down another pair of interconnects to the power amplifier, which typically employs an input stage, a driver stage, and the switching output stage. In addition to the D/A conversion, that's typically six or seven active amplification stages before the signal gets to the power amplifier's output stage.

With the C 390DD, PCM data are converted by DSP into the pulse-width

modulation signal that drives the output transistors. That's it. There are no analog gain stages between the PCM data and your loudspeakers. The signal stays in the digital domain until the switching output stage, which, by its nature, acts as a digital-to-analog converter in concert with the output filter. The volume is adjusted in DSP.

“There's no digital filter, no DACs,
no multiple stages of analog amplification, no
interconnects, no jacks, no analog volume control,
no preamp. This is as direct a signal path as one
could envision.”

The second point of departure between the C 390DD and all other Class D amplifiers is the switching output stage itself. The C 390DD uses direct digital feedback amplifier (DDFA) technology and chipset. The primary innovation is the use of feedback around the output stage to reduce distortion. Feedback, used in virtually all analog amplifiers, takes part of the output signal, inverts it, and sends it back to the input. The technique lowers distortion. But conventional feedback isn't practical in digital amplifiers because of the delay required for the DSP processing. The DDFA innovation is to compare the actual high-level PWM signal (at the transistor outputs) to a low-level reference PWM signal. Any difference between the actual and reference PWM signals represents an error. The actual PWM signal can deviate from the theoretical ideal because of power-supply noise or droop, slight changes in the pulse widths, transistor tolerances, or variations in the rise-time of the pulse edges. All these potential sources of errors affect the area under the pulses, which is how the analog signal's amplitude is encoded. This error shows up as a voltage, which is digitized at a conversion rate of 108MHz, then continually processed to compensate for the error by adjusting the width of subsequent modulation cycles.

The reference PWM signal must be essentially perfect or else the system will correct “errors” that aren't present. The pulse widths

must exhibit jitter of less than ten picoseconds, a level of performance commensurate with the lowest clock jitter in high-performance digital-to-analog converters. In fact, you can think of the C 390DD as a DAC with gain and judge its technical performance using the same metrics as those employed in evaluating D/A quality.

The C 390DD's topology has interesting ramifications for a system's overall noise performance. In a traditional system of digital source, analog preamplifier, and analog power amplifier, any noise introduced ahead of the power amplifier greatly degrades the system's signal-to-noise ratio (SNR). For example, if we start with a CD player with a SNR of 115dB, feed its output to a preamplifier with a SNR of 108dB, and then drive a power amplifier whose intrinsic SNR is 115dB (all great specs), the system's overall SNR is only 84.1dB referenced to 1W (all SNR numbers are un-weighted). Noise at the front of the chain gets amplified by the power amplifier, no matter how quiet that amplifier is. In the C 390DD, the only source of noise is in the DSP and the switching output stage, and the noise level is completely independent of the gain. That is, the SNR doesn't degrade at low volume. The DSP's noise is kept low in part because of the 35-bit data path. The C 390DD has a SNR of 95dB (un-weighted, referenced to 1W) at any signal level.

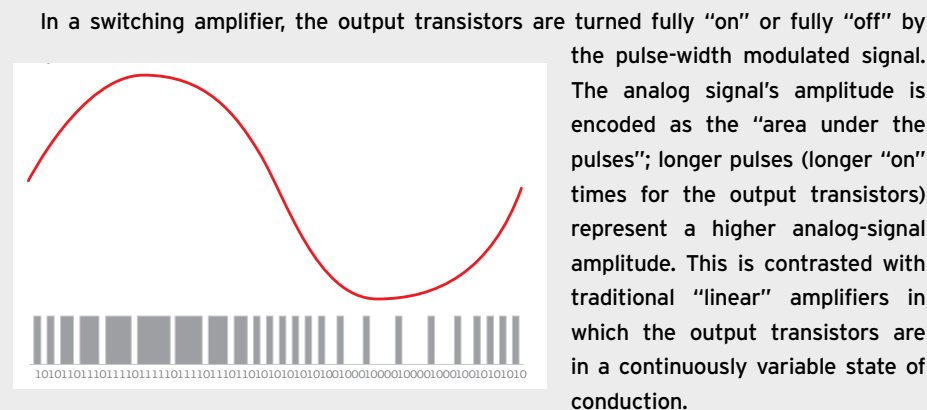
There's no free lunch, however. Switching amplifiers require a serious output filter (typically a large inductor and a capacitor) to remove high-frequency switching noise from the output, and to smooth the waveform. This filter is conceptually similar to the reconstruction filter in traditional DACs. Switching amplifiers are also very susceptible to audible degradation if the power supply feeding the output transistors isn't perfectly clean. That's because the output transistors either connect the output transistors' power-supply rail to the loudspeaker (in the “on” state) or disconnect them (in the “off” state). Any noise or ripple on the supply rails is connected directly to the loudspeaker. Switching amplifiers thus require an extremely quiet supply.

EQUIPMENT REVIEW - NAD C 390DD Direct Digital Integrated Amplifier

Pulse-Width Modulation

How can a series of pulses represent the continuous waveform of music? In exactly the same way that Direct Stream Digital (DSD), the encoding format behind SACD, produces music from a bitstream. In fact, PWM and DSD are conceptually identical.

Fig.1 shows the relationship between a DSD bitstream and the analog waveform that bitstream represents. The bitstream is a series of pulses of varying lengths, with the pulse length encoding the analog signal's amplitude. The pulse-train generated by DSD encoding looks remarkably "analog-like." That is, you can look at the pulse train and get an idea of what the analog waveform looks like. The relationship between the analog signal and the bitstream is so close that in theory, a DSD signal can be converted to analog with a single capacitor (DSD-to-analog conversion is more complex in practice). The bit rate of DSD as used in SACD is 2.8224 million bits per second.



The output of the PWM stage is a series of high-level pulses that must be smoothed into a continuous waveform. Every amplifier with a switching output stage employs a large filter (an inductor and a capacitor) between the output transistors and loudspeaker terminals to perform this smoothing function and to remove switching noise.

In the DDFA system, the pulses are quantized with a master clock frequency of 108MHz. This frequency determines the number of discrete pulse widths available to represent the audio waveform. That number is 128, which appears at first glance to be too low to encode a complex musical signal. But even at 20kHz, there are many modulation cycles available within the period of a 20kHz waveform.

primarily use their system for music (and they play lots of vinyl on a Pro-Ject turntable). I've had my eye on a number of products for them (mostly separate USB DACs and integrated amplifiers), but I advised them to hold off until just the right product came along. (Many readers are also exploring ways to get better sound and at the same time make the leap to computer audio.) The C 390DD, with its unique technology, functionality, and future upgrade potential via the modular construction, could be a highly appealing option if its sound quality was anything like that of the M2.

"The NAD C 390DD is an extremely sophisticated, forward-looking product whose feature set perfectly matches the needs of today's music listener."

But out of the box the C 390DD sounded dark and closed-in through the upper treble, and bright and grainy in the upper midrange and lower treble. This character diminished over the first few days, and after four days, disappeared. The transformation was more dramatic than I have experienced with any other component. If you audition the C 390DD, but sure that it is fully broken-in and warmed up. In fact, I thought that the C 390DD continued to improve over about a ten-day period.

After the C 390DD was fully broken in, there was no mistaking its heritage; it sounded very much like the M2. The C 390DD's greatest strength was undoubtedly its authoritative bass and startling bottom-end dynamics. This amplifier sounded like a powerhouse, with rock-solid solidity to bass guitar and tremendous impact to kick drum. The C 390DD took iron-fisted control of the Venture Ultimate Reference loudspeakers' four 9" woofers per side, serving up a visceral, body-involving experience on albums such as Talking Heads' *Speaking in Tongues* (96kHz/24-bit). Even at high levels, the kick drum's ability

to cut through the bass guitar lines was phenomenal. The C 390DD's terrific bass and wide dynamics were also on full display when I listened to large-scale orchestral music; I heard no strain on even the most demanding passages. In fact, I experienced a kind of disconnect when listening to an album like Jeff Beck's *Performing this Week...Live at Ronnie Scott's*; it seemed hard to believe that the massive kick-drum impact and rock-solid bass lines were being produced by this diminutive and lightweight (compared with the huge monoblocks flanking the C 390DD) integrated amplifier. A phrase came to mind when I was marveling at the C 390DD's bass: "Krell-like." Krell amplifiers have, since their introduction in the early 1980s, represented the pinnacle of "center-of-the-earth" solidity and bottom-end dynamic impact. Improbably, the 17-pound C 390DD invited this prodigious comparison.

It wasn't just that the bass had depth and impact; it also exhibited texture, definition, nuance, and dynamic flow. I love the sense of swing and movement that bassist Ray Brown brings to music, a swing that the C 390DD conveyed with aplomb. On the Kenny Burrell tune "Bass Face" from Bill Evans' *Quintessence* [Analogue Productions 45-rpm LP], Brown locks the group into a deep groove that sets a foundation for solos from Burrell, Evans, and tenor player Harold Land. The C 390DD conveyed this aspect of the music so well largely because the amplifier was so dynamically agile and precise sounding, revealing both Brown's perfect timing and the full measure of attack of each note. Moreover, the bass sounded like a large wooden body resonating with rich density of tone color and clear pitch definition.

The C 390DD shared another characteristic with the M2: a dead-quiet background. As described in the sidebar, the C 390DD's architecture confers advantages in signal-to-noise ratio, advantages that are heard in the listening room as a blackness against which the music seems to hang in space, detached from the loudspeaker. The silent

background also aided in low-level resolution, which was outstanding for an integrated amplifier of this price.

In overall tonal balance, the C 390DD had a somewhat subdued character through the upper-midrange and treble. This was not a forward or bright-sounding amplifier by any stretch. The upside of this tonal balance was a sense of ease and lack of fatigue during long listening sessions. I listened to music through the C 390DD exclusively for about two weeks and never found it aggressive, hard, or tiring. The downside is a slight diminution of palpability and presence in the midrange along with a minor reduction in treble air. Interestingly, the M2 sounded more forward and assertive through the midrange and treble than the C 390DD. Concomitantly, the C 390DD had greater liquidity and warmth than the M2. Midrange forwardness and a reduction in liquidity can be a jitter-induced artifact; it is perhaps no coincidence that the C 390DD has less jitter than the M2. Whatever the reason for this overall tonal balance, the C 390DD should mate well with mid-priced loudspeakers that often have a bit of midrange prominence and extra sparkle in the lower treble. The C 390DD's tone controls can provide a treble boost to restore the top-end extension, but I found that even the smallest boost increment was too much for most recordings—which gives you an idea that the character I'm describing is not significant in magnitude.

The C 390DD was not identifiable as a Class D amplifier by its sound. That is, it lacked the characteristic “fingerprint” of most switching amplifiers. Although you wouldn't mistake the C 390DD for a tubed amplifier, the NAD had an organic and natural rendering of timbre free

from the “chalky” coloration of some switching amplifiers. I also found that the C 390DD's sound quality didn't vary as much with loudspeakers and cables as other Class D amplifiers (I drove a pair of GoldenEar Triton2s with Kimber speaker cables as well as the Ventures with Shunyata and FIM cables).

Conclusion

The NAD C 390DD is an extremely sophisticated, forward-looking product whose feature set perfectly matches the needs of today's music listener. It is ideally suited as the core of a music-server-based system, yet will also accommodate those with multiple analog sources including vinyl playback. In addition to a wide range of connectivity options, the ability to replace the digital-interface boards and update the software assures that the C 390DD won't be left behind in technology's inexorable march forward.

All this great functionality wouldn't mean much if the C 390DD didn't deliver musically, but on this count the new NAD is a winner. The C 390DD's sound quality is easily commensurate with conventional integrated amplifiers near its price. You might find a similarly-priced integrated with greater midrange presence and more treble air, but to equal the C 390DD's bass quality—dynamic impact, muscularity, and texture—you'd have to spend four figures for massive monoblocks. The C 390DD's bass is that good.

This combination of sound quality and features makes the C 390DD a very capable and compelling package. I can't think of another integrated amp anywhere near the C 390DD's price that I'd rather own. **tas**



'Absolare products are one of the most musical and involving electronics I have heard. Absolare virtues include a directness of expression, immediacy, and musical involvement that are world-class.'

Robert Harley

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NuForce DDA-100 Integrated Amplifier

A PWM Integrated Amplifier for the Masses

Steven Stone

Insomniacs must populate NuForce's R&D department. That's the only explanation I can come up with for NuForce's rapidly expanding stable of new products. I reviewed its excellent DAC-100 in Issue 228, and now NuForce has introduced an even more revolutionary digital product—a direct-digital integrated amplifier that utilizes pulse-width-modulation technology.

Priced at a paltry \$549 the DDA-100 delivers value with a capital V. You get four digital inputs (no analog—remember, this is an all-digital amplifier), one TosLink digital output, and one pair of speaker terminals. NuForce even throws in a nice little credit-card remote control. Add a computer to the front end and a pair of speakers on the back and you've got a completely modern audio system. And, I will brashly add, the DDA-100 sounds better than any conventional integrated amplifier I've heard priced under \$2500.

Technical Tour

According to NuForce, "The DDA-100 doesn't require the typical DAC stage found in most of today's digital audio products. Rather, its PWM power amplifier stage is modulated directly by the incoming signal, and the digital-to-analog conversion takes place at the speaker outputs. In effect, the PWM power amplifier stage operates as a power DAC." The DDA-100 supports any 16- or 24-bit digital signal, from 44.1 to 176.4 (but not 192 kHz) via its one S/PDIF input. The two TosLink and single USB 2.0 inputs support up to 96kHz and 24 bits.

For a description of how PWM power amplifiers work, please read Robert Harley's sidebar. Suffice it to say that PWM is not the same as switching amplifiers, such as Class D or T designs, and offers the technical advantages of a simple signal path and fewer active components, as well as a few ergonomic drawbacks.

Setup and Ergonomics

The DDA-100 principal market is audiophiles who want a simple, moderately priced, one-box solution to go from any conventional digital source directly to a pair of loudspeakers. Headphone and subwoofer users will need to add additional components to the signal chain.

Using either a USB to S/PDIF converter box with multiple digital outputs (one for the DDA-100 and a second one for your headphone DAC) or a USB DAC with an auxiliary S/PDIF output, will expand a DDA-100-based system's capabilities to handle more ambitious systems.

Hooking up the DDA-100 is easy as long as you keep it simple. If you do any amount of headphone listening you'll need to add another DAC to your system, since the DDA-100 has no headphone output. For headphones I used the NuForce DAC-100—I gave it the TosLink output from the DDA-100. Using the DAC-100 also supplied me with a line-level subwoofer feed if I needed one. Another option I looked at was NuForce's new headphone amplifier, the HAP-100, but it only has analog inputs. You will need a headphone amp that has a DAC and a TosLink input to interface with the DDA-100.

At 50W RMS (8 ohms) the DDA-100 is far better suited for speakers, even desktop speakers, that are at least 88dB sensitive. With some of my less sensitive monitors, such as the Aerial Acoustics 5B's (86dB), I could hear the amplifier section beginning to strain during dynamic peaks. And because the DDA-100 is such a low-noise device (true 95dB S/N from digital input to analog power output) variations from its optimal operating range were readily apparent.

For computer sources NuForce supplies a basic USB interface that supports up to 96/24. For higher resolutions you must use either the RCA S/PDIF input or TosLink. Unfortunately for us high-resolution addicts, 176.4/24 is the maximum resolution supported by the DDA-100. If you try playing full-resolution 192/24 files through the DDA-100 all you will hear is modulated noise through your speakers.

EQUIPMENT REVIEW - NuForce DDA-100 Integrated Amplifier

Sound

The DDA-100 was my first encounter with a PWM amplifier, and I was impressed by its lack of coloration and the absence of electronic noise. In my desktop system, regardless of what speakers the DDA-100 was tethered to, it always produced a more convincing soundstage than I've experienced before. Locational cues were simply easier to decipher, as was all sonic information.

During the initial stages of my review I used the DDA-100's USB input, and while it didn't sound bad, the USB input is certainly not the DDA-100's "best" input. Through the USB the sound had a slight but pervasive opaqueness when compared to better, lower-jitter sources coming from the S/PDIF input. I used several outboard USB-S/PDIF converters with the DDA-100, and in every case the inclusion of a dedicated outboard USB converter in the signal chain rewarded me with a better and more transparent sound.

Since this is a review of the DDA-100, not USB converters, I will not go into great detail enumerating differences between various USB boxes through the DDA-100, but I will tell you that the DDA-100 offers sufficient resolution to easily hear that a Bel Canto RefLink or Empirical Audio Off-Ramp 5 delivered better low-level detail and resolution than a \$60 Matrix converter.

But how does the DDA-100 sound different than more conventional amplifier designs? During listening sessions I was continually aware of the DDA-100's lack of haze and homogenization in the "black space" between instruments. The edges and dimensions of each instrument were defined in a more concrete manner through the DDA-100 than any amplifier I've heard near its price. On my recently recorded "field recordings"

of Chris Thile, Chris Eldritch, and Gabe Witcher from a Rockygrass Academy workshop on improvisation, not only did the DDA-100 place each musician in a cohesive and dimensionally convincing soundstage, it also allowed me to hear into the background so well that I could clearly identify Pete Rowan's vocals coming from another tent 75+ feet away.

As for any traces of a "characteristic" sonic signature in the DDA-100, I have yet to hear one. Unless driven into clipping, I could not identify any additive colorations that I could attribute to the DDA-100. As for subtractive colorations, compared to a traditional tube design, the DDA-100 will not be as warm or harmonically rich in the lower midrange, but I wouldn't call this a subtractive coloration as much as a lack of an additive one. The bottom line was that for me, with current sources, the DDA-100 was sufficiently transparent and uncolored to be used as a reference device as long as it was mated with sufficiently sensitive and unproblematic transducers.

Final Thoughts

You can view the NuForce DDA-100 in two ways—it's either a supremely high-value entry-level integrated amplifier or it's a component that lacks just a few vital features needed to make it into a devastating price-no-obstacle-to-performance component.

The issues with the DDA-100 are primarily ergonomic. It can play 176.4/24, but lacks the ability to play 192/24 files. Through USB it can support only up to 96/24, but will handle up to 176.4 through S/PDIF. It also has no analog outputs for headphones or subwoofers, and

is only 50W RMS (into 8 ohms). And while you can remedy the paucity of analog outputs by linking the DDA-100's sole digital output (which is TosLink) to a second DAC with headphone and analog line-level outputs, this adds substantially to the complexity and cost of a system.

But the sound of the NuForce DDA-100 is so impeccable, up to the point when it runs out of power, that even after adding a NuForce DAC-100 to augment the ergonomic flexibility of the system, the final cost is still a sonic bargain. I haven't heard any integrated amplifier with DAC capabilities priced near this combo that offers any serious sonic competition.

If you have sensitive speakers, at least 88dB,

and can work around the DDA-100's ergonomic limitations, you may find that the DDA-100 is simply the best integrated amplifier solution that you've ever heard. And for those readers who still firmly believe that all-digital amplifiers are for someone else's system, listening to the DDA-100 will be, as it was for me, a revelation. **tas**

Why the DDA-100 Isn't a Conventional Class D Amplifier

A true digital amplifier such as the NuForce DDA-100 is not a conventional Class D switching amplifier. In a conventional switching amplifier, analog input signals are converted to a series of pulses that turn the output transistors fully on or fully off. The signal's amplitude is contained in the pulse widths, and an output filter smooths the pulses into a continuous waveform.

But in the DDA-100 PCM digital signals fed to the amplifier's input (such as from a music server, or other source) stay in the digital domain and are converted by digital-signal processing (DSP) to the pulse-width modulated signal that drive the output transistors. This is an important distinction, because the true digital amplifier (the DDA-100) eliminates from the signal path the DAC and its associated

SPECS & PRICING

Digital input: Two TosLink, RCA coaxial 75-Ohm, USB 2.0 adaptive mode

Sampling rates: USB: 44.1, 48, and 96kHz; S/PDIF: 44.1, 48, 88.2, 96, 176.4kHz

Resolution: 16-24-bits

Power: 75W (4 ohms), 50W (8 ohms)

Frequency response: 20 to 20kHz +/- 0.1dB

SNR > 95dB A-weighted

Dimensions: 9" x 2" x 8.5"

Weight: 2.64 lbs.

Price: \$549

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Wyred4Sound mINT (Mini-Integrated Amplifier)

Mighty Mite

Wayne Garcia



These days we take it for granted that our smartphones have more computing power than most desktop rigs of the not-too-distant past—not to mention far more elegant graphics, user interfaces, and once-unimaginable flexibility from something slimmer than a pack of playing cards. Hell, now and again some of us even use them as telephones. But high-end audio is still largely a land of behemoth gear, and understandably so. It takes a lot of juice and air power to reproduce a full symphony orchestra, jazz ensemble, or the aural assault of, say, Neil Young and Crazy Horse.

That said, small monitor speakers have long held a place in the hearts of audiophiles, despite their limited dynamics, low-frequency range, and dollhouse-like soundstaging. And though Class D technology has allowed designers to radically shrink the size of power amps, the sound of such amplifiers is still evolving, and it's rare to find units that compete with their conventional tube and transistor counterparts.

Now comes California-based Wyred4Sound with its nifty and quite good-sounding \$1499 mINT, or Mini-Integrated Amplifier, a component so tiny (8" x 3.5" x 8") that its footprint is just a whisker smaller than that of an iPad.

(Note that Wyred4Sound is not simply in California; its ever-expanding line of gear is designed and built at the company's headquarters in the town of Atascadero, which heretofore was best-known for its maximum-security psychiatric hospital.)

Rated at 100Wpc and featuring a pair of analog inputs and a dedicated headphone amp, the \$1499 mINT isn't simply an integrated amp; it also sports a built-in DAC with three digital inputs: USB, TosLink, and coax. If by chance you read Steven Stone's in-depth review of Wyred4Sound's DAC-2 in Issue 210, you'll recall his praise for designer EJ Sarmiento's work in the digital domain. Other mINT-y features include the option of using the Auxiliary 2 inputs in the home-theater-bypass mode (from a rear-panel switch) to loop in a multichannel processor. A preamp output can feed a powered subwoofer, while fixed outputs can drive signals to either a second system or to a recording unit. You can also insert a digital crossover while

EQUIPMENT REVIEW - Wyred4Sound mINT

looping back into the main input.

Given its pipsqueak chassis the innards are chockfull of parts—all quite nicely laid out, by the way. The Class D amplifier section comprises a pair of third-generation ASX2 ICEpower modules wedded to Sarmento's Class A input stage. The miniscule amplifier modules piggyback the power supply on the same circuit board, and the new power supply is said to significantly reduce the “pumping” effects that plagued many past Class D units.

Volume is controlled by a “true-resistive ladder,” which Wyred4Sound believes “results in linear control, excellent channel matching, and impressive sonic quality. Rather than passing the signal through the pot, it is only used as a position reference.”

The mINT's built-in DAC runs on an ESS DAC chip and is similar to, if reportedly not as refined as, the chip in Wyred4Sound's DAC-1. The same design can also be purchased as an affordable outboard unit for \$399. The coaxial and TosLink inputs support 24-bit/192kHz resolution files, and the asynchronous USB interface manages 24-bit/96kHz resolution files.

The front panel is simplicity itself. Left of the centrally placed volume knob are three buttons for digital input selection, while AUX 1, AUX 2, and mute are to the right. A slightly protuberant black cowl contains a ¼" headphone jack and the on/off switch.

I'm not sure if I would call the mINT “attractive,” but it certainly is distinctive looking in a Bart Simpson sort of way— yellow coloring, of course—meaning the cosmetics have a nice youthful look.

As noted earlier, the mINT is an impressive-

sounding design, and quite musically involving, too. That's a trait I find of more long-term value than merely impressive sonics, as my description of this model's sound will explain.

And though it's perfectly fine straight-from-the-box, as with all components the mINT will open up, cohere, and lose its edge with several hundred hours of playing time. (Wyred4Sound suggests 300 hours.)

The first thing that struck me while playing Jeff Buckley's *Live at Sin-e* [Columbia Legacy] was the mINT's easy, natural presentation. Though it would improve over time in all the ways stated above, the mINT immediately offered the familiar brightly chiming, yet harmonically rich presentation of Buckley's Fender Telecaster/Twin Reverb combo, with a nice sense of sustain and “bloom” as he played with different sonic voicings and dynamic shadings. Buckley's famous multi-octave voice, too, came through with an excellent sense of his distinctive phrasing—from a tender croon to raw passion—and sometimes goofy humor. The mINT was also good at defining the reverberant acoustic space of this recording, though imaging wasn't as exact as it might be, and the reproduction of the venue's air was not quite as billowy as I've heard.

Streaming the same tunes from my MacBook Pro to the mINT showed why Wyred 4 Sound's DACs have gained such a solid reputation. Though there were slight differences in balance and overall presentation, the streamed files had a smoother, slightly richer quality, if not quite the immediacy heard via CD.

An original vinyl pressing of the Stones' *Exile on Main Street* [RS Records] showed the mINT's rock swagger. The music had a fine sense of

pace and drive, with crunching guitars and a quick snap to drums. Of course the recording quality on this woozy if brilliant classic is variable, but vocals were again right “there,” and I found myself so pulled into the LP that I played it twice straight through before my wife said, “Basta!” But there is a threshold—albeit a pretty loud one—where the amp starts to get a touch ragged around the edges. So do pay heed to speaker sensitivity as well as your own volume needs.

With a fine classical recording such as Reference Recordings Mastercuts' (reviewed elsewhere in this issue), specifically Strauss' “Dance Of The Seven Veils” from *Salome*, the mINT displayed this recording's overall excellence, you-are-there perspective, and remarkable clarity. Instrumental tone and texture were likewise good, but the dynamic range was not quite as wide or finely shaded as it might be.

Let me emphasize that these shortcomings are simply that when compared to what I'm used to. My job is to describe the up as well as the not-so upsides of the gear that comes my way. Ultimate power, dynamic nuance, and refinement are not to be expected from components in this range, though naturally there are degrees of variation-from-ideal. At the end of the day the mINT's strength's far outweigh its imperfections. And most importantly, this baby constantly drew me into the music, no matter what type.

Here is a most versatile and satisfying performer that I can see as the heart of a fine computer-driven desktop system, or, as I used it, as a small office system with both analog- and computer-derived sources. Oh, and let's also not forget that all of this comes in a package you can practically balance in the palm of your hand. **tas**

SPECS & PRICING

Type: Compact integrated amplifier

Power output: 100Wpc

Inputs: Two line-level, three digital (TosLink, coax, USB)

Outputs: Two digital (S/PDIF, optical), processor, 5-way binding posts

Dimensions: 8" x 3.5" x 8"

Weight: 8 lbs.

Price: \$1499

WYRED 4 SOUND

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ASSOCIATED EQUIPMENT

Acoustic Signature Challenger turntable, Funk FX-R Pickup Arm, and Transfiguration Phoenix moving-coil cartridge; Sutherland 20/20 and Simaudio Moon 310LP phonostages; Cary Audio Classic CD 303T SACD player; Magnepan 1.7 loudspeakers, Tara Labs Zero interconnects, Omega speaker cables, The One power cords, and BP-10 Power Screen; Finite Elemente Spider equipment racks; Rega RP6 and Exact 2 moving-magnet cartridge; SimAudio 310LP/320S phonostage; Electrocompaniet PC-1 CD player and EBS 1 loudspeakers; Apple MacBook Pro; AudioQuest Diamondback interconnects and Type 2 speaker cable



Plinius Hautonga Integrated Amplifier

Drive and Force

Paul Seydor

The name “Hautonga,” given by the New Zealand-based Plinius company to its new integrated amplifier, is a coinage of two Maori words that together are meant to suggest “a strong clean wind” or “breath of fresh air.” Not an inapposite moniker, as it turns out, for control, resolution, and strength triangulate the virtues of the Hautonga, to which can also be added high transparency, low noise and distortion, and an impression of immediacy that commands attention. I’ll anticipate my conclusions by saying that it is exactly what it appears to be: a wholly contemporary solid-state design of impeccable behavior that brooks no quarter to the tube contingent.

But first, a trip around and through the unit, which retails domestically for \$5750 and generates 200 exceptionally robust and stable watts per channel into 8 ohms. Styling follows Plinius’ fashion these past few years with a thick aluminum fascia that curves around the sides to mitigate an otherwise severe industrial look and, it is claimed, provide increased strength, the chassis is impressively solid, rugged, and heavy (also deep enough to render shelf installation impossible unless it’s a shelf considerably deeper than any bookcase I’ve ever seen). This severity carries over into the control complement: only one knob (for volume) and several identical pushbuttons for sources, one labeled “Phono,” another “CD,” and the rest identified only as “Line,” plus a number and an indicator light (mercifully dimmable, as the default is bright enough to be annoying). Phono and CD are likely to

be the most frequently used, but if you have an SACD player and also want to use an outboard DAC plus some other sources like a tuner or an outboard phono preamp, you’re going to have to remember which component is assigned to which input. Jacks are RCA except for the CD input, which can be switched to XLR if desired; the audiophile-caliber speaker terminals accept bananas.

A choice of black or silver finishes is available, the black very svelte but with labeling that is difficult to read even close to the unit, so if this is a concern the silver may be a better alternative. The ruggedness of the unit extends to the handset, which seems to be milled out of a solid piece of aluminum and is the size and weight of a three-cell Maglite. (Like that product, perhaps it should also be registered at the police department as a deadly weapon—I wouldn’t want to drop this thing on an unprotected foot, though it would certainly prove handy in the event of an unwanted intruder!) The remote also controls the Plinius CD player.

Taking cognizance of the rising popularity of vinyl these last several years, the Hautonga comes outfitted with a phonostage that can be made high or low gain via internal jumpers (in other words, you have to remove the top cover, which requires undoing *nine* screws); loading is fixed at 47k ohms, which means that no low-output moving coil known to me can be absolutely correctly terminated (I am aware that many audiophiles prefer to run mc’s this way, but I am not among their number). The Hautonga also lacks a balance control, which seems to me a mistake in *any* control unit, particularly one with a phonostage (given how many pickups, even very expensive ones, do not have equal

EQUIPMENT REVIEW - Plinius Hautonga Integrated Amplifier

channel-to-channel output, to say nothing of the LPs themselves). But the Hautonga does have a number of useful features, including the ability to operate the preamp and power amp sections independently, a bypass for home-theater setups, and remote mute and volume functions. One especially sensible decision places the main on/off switch on the rear panel, while a button on the handset puts the unit into standby mode, powering down the circuit (thus reducing power consumption) while keeping critical components charged so that the need of a lengthy warm-up is obviated for the next listening session. Plinius' literature doesn't say much about the circuit of the Hautonga, but this is a company that has built its reputation on the excellence of its designs and has an extremely good record for both high performance and reliability. Suffice it to say the unit performed flawlessly during the review period and provided countless hours of musical enjoyment.

I am writing this just three days after returning from Kansas City where I heard a glorious performance of Brahms' Fourth Symphony by the Kansas City Symphony in Helzberg Hall. Still in a Brahmsian mood, I am now playing the Bruno Walter recording from his famous Indian summer sessions in Los Angeles with the Columbia Symphony Orchestra (a label orchestra consisting mostly of players from the Los Angeles Philharmonic) on my Marantz 8004 CD/SACD player going through a Benchmark DAC, feeding Quad 2805 speakers. Despite the experience of the past weekend still resounding in my ears, what I am hearing is a very convincing simulacrum of an orchestra. This is a kind of acid test, I think, for any component or system. Of

course, the recording does not, nor should it, sound like that specific concert performance, but this is not the point. The point, rather, is that on its own terms the home experience does not disappoint in the comparison. It helps too that these Los Angeles sessions yielded some absolutely magnificent recordings sonically. In particular, the strings, so often too bright in Columbias of that period, are here rich, sweet, and lovely; and I hear virtually no trace of that presence boost, again typical of Columbia in those days, while the bass response is satisfyingly full and well balanced. Soundstaging and imaging dovetail width and depth without exaggerating either; the impression of a concert hall is very persuasive.

For comparative purposes, and to see how the Plinius handled a very different recording, I put on the SACD release of Bernstein's performance of *Appalachian Spring*, also on Columbia. For me this is by far the greatest performance of the suite ever recorded, but for all Bernstein's fervor and lyricism and the color, liveliness, and dynamism of the orchestra, the strings and brass remain very brightly lit (one reason I continue to prefer preamps and integrateds that have bass and treble controls). The soundstage here is notably wide, even a bit exaggerated—though this makes a very exciting affair of the gunfight section in the companion piece, *Billy the Kid*—with depth somewhat shallow. However, owing to the multimiking, the imaging—that is, the placement of individual instruments, winds in particular—is impressively precise. I'll have more to say about the Hautonga and this recording later.

These impressions suggest that the Hautonga's tonal profile is basically one of neutrality, which

held up through dozens of recordings. This is to be expected from a contemporary solid-state design that doesn't aim for a specific character (e.g., Bob Carver's Sunfire amplifiers), and it's evident on voices as well. For example, Ella Fitzgerald on "Do Nothing 'Till You Hear from Me" has the right combination of lightness and richness, and when Ben Webster's sax comes in, it's recognizably big, fat, and voluptuous. This is a mono recording, but despite their proximity the mikes still caught a good deal of air and atmosphere, especially when Webster comes in, and the sense of immediacy is tactile. On a real torture test for midrange resolution like the Anonymous Four's *Gloryland*, where you have four similar-sounding voices, the Plinius resolves them with respect to position and timbre: You can easily point to each singer and concentrate on her to the exclusion of the others if you like, yet also sit back and enjoy the blend. By the way, there is a character to the sound on this recording that is vital to the music and the performances, a certain cold, sometimes even chilly quality: If it sounds warm as such, let alone too warm, it is not being reproduced accurately. This coldness is in fact an effect of the material and part of what makes it so beautiful—think a gray late autumn day in Appalachia or the Deep South and this recording should sound its equivalent. The Plinius passes this crucial test impeccably.

In the areas of rhythmic drive and sheer force the Hautonga can comfortably advance to or very near the head of the class. Stokowski's scintillating Liszt and Enesco rhapsodies on his *Rhapsodies* album (vinyl, Classic Records reissue) offer staggeringly powerful reproduction of a full nineteenth-century symphony

orchestra, recorded with extraordinary dynamic wallop and stunning definition, especially in the lower registers—the Hautonga's bass is truly prodigious. And the way the Hautonga reproduces Stokowski's inflection of the rhythms will have your toes tapping to a fare thee well. Rock music doesn't figure much in my listening and headbanging never, but I had a great time with the likes of classic Rolling Stones, Simon and Garfunkel, and Simon alone. "Paint it Black" the Plinius dispatched with spine-tingling verve and vigor, and it unraveled the thick textures of "You Can't Always Get What You Want" with

SPECS & PRICING

Power output: 200Wpc, 20Hz–20kHz at 0.05% THD

Number and type of inputs: One phono (mc or mm selectable), four single-ended inputs, one single-ended/balanced input (selectable), theater-bypass, preamplifier output, trigger in/out.

Phono input impedance: 47k ohms

Gain: Line, 40dB; phono low, 60dB; phono high, 66dB

Dimensions: 17.75" x 4.75" x 15.75"

Weight: 30 lbs.

Price: \$5750

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EQUIPMENT REVIEW - Plinius Hautonga Integrated Amplifier



welcome clarity yet without sacrificing timing or pulling it apart.

I mentioned at the outset that the Hautonga brooks no quarter with tubes. By this I mean, first, that the Hautonga generates absolutely no bogus warmth. It will reproduce warmth if it's in the recording—as the Walter Brahms demonstrated—but it will not add any of its own, which means that if you're one of those audiophiles who likes a little extra warmth or romance, a careful listening is recommended, and equally careful component-matching. Second, to draw upon Harry Pearson's continuingly useful metaphor, the Plinius is unquestionably on the Yang side of the Yin/Yang continuum, i.e., the light, clear, and “masculine” as opposed to the dark, warm, and “feminine.” It's not edgy, hard, or cold, but there is something ever so slightly

cool and subtly forward about the reproduction that results in a presentation notable for its crispness, clarity, and brilliance, in addition to the strength and power I've already observed. For example, the Bernstein *Appalachian Spring* is brighter with the Plinius in the system than with some of my reference electronics. The same is true of Doris Day on *Hooray for Hollywood* (vinyl and CD): Day's voice sparkles, all lightness and clarity, though, again, with the Hautonga it is also subtly brighter and her sibilants are a little accentuated, not offensively so, but noticeable in critical listening.

Although this characteristic of the Hautonga is by no means consistently in evidence, I heard it enough throughout the evaluation period to be convinced that it is real. Nor do I think this residual brightness, if it is that, is necessarily a

tonal aberration; the effect, rather, is of moving somewhat closer to the performers, which will always make them sound a little brighter. In all of this, of course, the Hautonga is very much in line with contemporary tastes for an upfront, immediate, and incisive presentation. And I may be overly sensitive to it because most of my current reference units are either dead neutral or go a bit in the opposite direction.

What about the phonostage? Well, from a certain point of view, the specs cited earlier tell the story: no provisions for loading apart from a constant 47k ohms, which, as noted, will not properly load any low-output moving coil I know, including my Ortofon Windfeld. For much of the listening, I used it through the magnificent Zesto Andros phonostage about which I waxed ardently in TAS 222. In some respects, because the Zesto is a tube unit canted in the Yin direction, which slightly softens and warms the overall sound, I found this combination yielded some of the most pleasurable hours in all the listening sessions.

But surely it's not fair to compare a phono preamp costing about eighty percent the price of the *entire* Hautonga to its built-in phonostage. Perhaps not, but before you cry, “Foul,” let me point out that it was by no means humiliated in the comparison. There's a certain sacrifice in sheer presence and dynamic range, the noise is higher (though not all that much), Day's voice has slightly less body and more top end, with sibilants more pronounced and a little more nasality. But I'm not talking gross effects here. Going to back to Stokowski's *Rhapsodies*, I found the strings brighter than they should be, but also the same strength, power, and rhythmic alertness. The tonal anomalies, in other words, are textbook

frequency-response aberrations that result from not loading a moving coil, which is perhaps another way of saying a moving magnet would likely yield more consistent results (but I didn't have one on hand).

But I must stress that, once I got the evaluations out of the way and began listening just for pleasure, I found the phonostage perfectly acceptable and perfectly enjoyable and I didn't think much about the reproduction as such. Running a low-output mc straight in requires the volume control be fairly well advanced, but it's an indication of how really low in noise the Hautonga's circuitry is that this didn't seem to matter. And keep in mind that my observations obtain only as regards low-output moving coils: They might vanish with a moving-magnet pickup (indeed, some them might vanish with a different moving coil).

It's obvious that the Hautonga joins the ever-expanding list of high-quality integrated amplifiers that warrant serious attention by anyone contemplating separates but attracted by the ease of setup and the convenience. If its particular collection of features, styling, price, and performance characteristics appeals to you, put it on your short list. It does most things right, nothing wrong, and its ability to grip, control, and reproduce music with extraordinary power and clarity is impressive by any standard. **tas**

Peachtree Audio nova125 Integrated Amplifier/DAC/Headphone Amp

Chris Martens



Some years ago, Peachtree recognized that a seismic shift in the high-end audio universe was at hand—a shift wherein PCs would step outside of their traditional roles as office tools to become full-fledged digital audio source components. Thus, long before others began to pursue the idea, Peachtree was hard at work to develop integrated amplifiers fitted with easy-to-use, built-in, high-performance DACs. In retrospect, the concept not only seems brilliant, but downright prescient. Peachtree also understood that with the rise of interest in computer audio there would come a golden opportunity for high-end manufacturers to reach out to young music lovers who might never otherwise have considered owning high-performance audio systems of any kind. As a result, Peachtree has always sought to build components clever enough, hip enough, and accessible enough to appeal to young, computer-centric music lovers, but that also offered credible high-end features that would appeal to veteran audiophiles. This requires, of course, finding a balance between simplicity and sophistication and between price and performance—a point of balance many Peachtree components have struck in a successful way.

If there is any drawback, I think it may involve the fact that some Peachtree components may suffer from a perception problem: Are they mid-fi (albeit very *good* mid-fi), or are they the gateway to the serious high end, or perhaps both? What causes these questions to be raised is the fact that earlier generation Peachtree amp/DACs traditionally have had front-end sections (typically comprising a preamp, DAC, tube buffer stage, and headphone amplifier) that offered considerably stronger and more sonically sophisticated performance than their associated power amplifier sections did. In fairness, the power amplifier sections of those earlier generation Peachtree amps could perform pretty well when matched with relatively easy-to-drive loudspeakers, but they offered limited current drive and power output capabilities and thus were not suitable for driving some of today's best, but also most demanding, value-priced speakers (e.g., Magnepan's excellent but power-hungry model 1.7s). Faced with this dilemma, Peachtree Audio founders Jim Spainhour and David Solomon did what high-enders have always done: they've upgraded, and in a big way.

Accordingly, Peachtree has revised its entry-level integrated amps by improving their already very good front-end sections and then by equipping their new models with powerful, high-current Class D power amplifier sections. Consider, as an example, Peachtree's new nova125 amp/DAC (\$1499), which is the subject of this review. The old Nova put out 80Wpc into decidedly benign 6-Ohm loads. By comparison, the new nova125 belts out a generous 125Wpc at 8 Ohms and an even more impressive 220Wpc into 4-Ohm loads. Moreover, Peachtree claims the nova125's "high current output stages can comfortably drive any speaker load from 2 ohms" (something that could never have been said of the earlier Nova).

Then, where the original Nova provided a 24/96-capable DAC with an isochronous USB input and four S/PDIF inputs, the nova125's onboard ESS Sabre 9023 upsampling

EQUIPMENT REVIEW - Peachtree Audio nova125 Integrated Amplifier/DAC/Headphone Amp

DAC offers 24/192 resolution (except for the optical input, which is limited to 24/96), with an asynchronous USB input and three S/PDIF inputs (two coaxial and one optical). Peachtree points out that the ESS 9023 DAC uses “a patented process called Hyperstream™,” which “buffers the incoming digital bitstream and reclocks it from thousands of picoseconds of jitter to less than 3 picoseconds.” Expanding on this theme, the firm says the new 24/192-capable asynchronous USB input, “keeps digital jitter at bay by not relying on the audio clock in the computer, which can get thrown off time by the thousands of processes running in your operating system’s background.” Finally, the nova125’s DAC section is backed by a decidedly performance-minded new Windows device driver, which is provided on an included CD ROM. In addition to its many digital inputs the nova 125 also provides one analog input to support any legacy analog components the owner may wish to connect.

Astute Peachtree observers will notice that the old Nova did have a somewhat more generous mix of inputs than the nova125 does (the old Nova offering five digital and three analog vs. four digital and one analog for the new model). But, given that the new DAC supports higher resolution formats and asynchronous USB backed by more sophisticated device driver software, there is every reason to think that the sonic performance of the nova125 should be significantly higher than that of the old Nova.

To give users a measure of control over amplifier voicing, the nova125 can be run purely in solid-state mode, or, when desired, with a triode 6N1P tube buffer section engaged (the tube buffer can be switched on directly from the nova125’s remote control). The tube buffer also provides a Class A tube-powered output for the nova125’s headphone amplifier. According to the manufacturer, the nova125 power amplifier section uses “the newest generation of Class D technology” with benefits said to include, “extended bandwidth, improved dynamic range,

and exceptionally low distortion,” plus the aforementioned ability to handle low impedance loads. The bottom line is that, apart from a modest reduction in the net number of inputs supported, the new nova125 appears to be better than its predecessor in every way, but costs only about \$300 more. All of this, of course, sounds good on paper and in theory, but how does the nova125 sound in real life?

Well, let me come right out and say it: Peachtree’s nova125 sounds terrific. Taking nothing away from the original Nova (and iNova) designs, I would say this new amp sounds like it belongs in any entirely different and better class of equipment than the original Novas did. The original Nova had a warm, friendly, inviting sound, but a sound that in truth did not provide the last word in resolution, definition, or focus. What is more, the original Nova’s dynamic capabilities were highly load dependent. By comparison, the nova125 sounds as if someone has turned its conceptual resolution, definition, and focus “knobs” up to 12, yet without in any way causing the amp to sound sterile, mechanical, or edgy. More importantly, the nova125 sounds powerful (and *is* powerful) in a way no previous generation Peachtree Nova-series amp has ever been. In short, this thing flat-out rocks yet in a quite sophisticated way.

Some will surely ask, “Yeah, but can it actually drive truly demanding speakers?” To settle the question once and for all, I connected the nova125 to my undeniably power-hungry Magnepan 1.7s, put on a dynamically challenging track and let things fly. And man, did they ever fly. The track I am speaking of is the exuberant and boisterous all-percussion cut “Stank” from Jamey Haddad’s *Explorations in Space and Time* [Chesky, Binaural+ series recording]. “Stank” features some low percussion drum thwacks that are likely to loosen your molars, plus a plethora of (somewhat) more delicate higher percussion voices that supply piquant commentary and textures, with the

SPECS & PRICING

Power Output: 125Wpc @ 8 Ohms, 220Wpc @ 4 Ohms

Inputs: One asynchronous USB, two coaxial S/PDIF, one optical S/PDIF, one stereo analog, one 12V control signal.

Outputs: Speaker taps, ¼-inch headphone jack, one variable level stereo preamp output.

DAC: ESS Sabre 9023

Jitter: <3ps measured at master clock.

Resolution levels supported: MP3, 16/44.1, 16/48, 24/88, 24/96, 24/176, 24/192

USB: Asynchronous up to 24/192

Optical: Up to 24/96

Coax: Up to 24/192

Tube complement: One 6N1P (used for headphone amp, switch selectable tube buffer stage)

Frequency response: 20Hz-20kHz +0.5dB

S/N: 96dB

Dimensions (HxWxD): 4.37" x 14.8" x 11.5"

Weight: 21.65 lbs.

Price: \$1499

PEACHTREE AUDIO

2045 120th Avenue NE

Bellevue, WA 98005

(704) 391-9337

peachtreeaudio.com

ASSOCIATED EQUIPMENT

Digital Sources: AURALiC VEGADigital

Processor, Rega Isis CD player/DAC, Musical Fidelity kW SACD player, Oppo BDP-105 universal/Blu-ray player. Windows PC feeding the DAC sections of the above devices with uncompressed digital audio files.

Lineage Preamplifiers: Burson Audio Soloist, NuForce Reference P8, AURALiC TAURUS MkII

Power Amplifiers: NuForce Reference 9 Special Edition monoblocks

Integrated Amplifier: Rega Osiris

Speakers: GoldenEar Triton Seven, Magnepan 1.7.

Headphone Amplifiers: Auralic Taurus MkII, Burson Audio Soloist, HiFiMAN EF-6, and more.

Headphones: Audeze LCD-3 and LCD-2 with Rev2 drivers; HiFiMAN HE-400 with Rev2 drivers, HE-5LE, HE-500, and HE-6; and more.

Cables: Furutech Flux-series interconnect, speaker, and power cables; Kimber B Bus Ag USB cables.

A/C Power: Furutech Daytona 303 power filter/distribution system, power cable as above, PS Audio Soloist in-wall power conditioner.

Equipment Racks and Room Treatments:

Auralex Studiofoam panels, RPG B.A.D. panels, Solid Tech Rack-of-Silence Reference racks with various vibration control accessories

EQUIPMENT REVIEW - Peachtree Audio nova125 Integrated Amplifier/DAC/Headphone Amp

proceedings as a whole captured in a wonderfully reverberant, natural acoustic space. In short, it's the sort of track where there is a lot going on at once, serving up everything from bombastic, brute-force dynamics to multiple layers of delicate textural and transient detail. There is, quite simply, no place for amplifiers (or transducers) to hide.

Happily, the nova125 has no need or desire to hide from any types of music or loudspeakers because on "Stank" it rolled up its figurative sleeves and pushed my Magnepans with serious authority and a welcome dash of brio. The big drums on the track crackled and thundered as they should, while the higher pitched drums exhibited excellent transient "snap" and beautiful, variegated skin sounds that conveyed an impression of real players deftly varying the intensity of their touch and attack from note to note. Through all of this, the Peachtree did not whimper, whine, or wilt; instead, it just cranked out the song's ultra-funky groove for all it was worth. In my view, this is something the old Nova could never, ever have done—at least not with Maggie 1.7s. With the nova125, then, Peachtree has cooked up a sensibly priced amplifier that possesses, in roughly equal measure, both serious dynamic muscle and a generous measure of finesse.

To explore the finesse dimension more fully, though, I decided to put on one of my favorite orchestral recordings: namely, the Michael Tilson Thomas/San Francisco Symphony performance of the Henry Brant-orchestrated version of Charles Ives' *A Concord Symphony* [SRS Media, multi-channel SACD]. In particular, I focused on the third movement of the symphony, entitled "The Alcotts" (each of the symphony's movements is named

for an important figure or figures in the American Transcendentalist movement). What I've found appealing about this live recording (captured in Davies Symphony Hall in San Francisco) is the way it provides rich but believable amounts of orchestral detail, while also placing the orchestra within the context of a naturally resonant, three-dimensional performance space (or at least that is what *should* happen with good electronics driving one's music system).

Happily, the nova125 did not disappoint. It did a lovely job with the voices of the various orchestral sections at hand, offering a particularly fine rendition of the winds and brass. Indeed, the brass theme introduced about three minutes into the movement sounded heart-meltingly beautiful, conveying that elusive mix of transient bite and blooming, burnished "glow" so characteristic of brass at its best. Throughout the movement, the nova125 also revealed enough low-level detail to remind me that the recording was captured live, yet without pressing details forward so insistently as to make a nuisance of itself. While the nova125 can and does sound very focused—much more so than the original Nova did—there is also about this amp/DAC combo an over-arching quality of "just-rightness" that reminds me of the old adage regarding the importance of enjoying all good things in balance and moderation.

How did the nova125 fare as a DAC? To find out, I used an Oppo BDP-105 as digital transport to test the S/PDIF inputs and a Windows PC loaded with 100% uncompressed digital audio files to try out the asynchronous USB input. As a comparison standard, I used my reference Rega Isis CD player/DAC. What I discovered was that the nova125's DAC and S/PDIF inputs sounded,

again, more detailed and focused than the DAC section of the original Nova did. However, I felt that the DAC section's best performance of all was realized through the asynchronous USB input, which I felt sounded even more refined, tightly focused, and generally more spacious and three-dimensional than the S/PDIF inputs did. While the nova125 could not match the even higher levels of resolution and all-round refinement of my Rega Isis, I felt it acquitted itself admirably given the huge price differential between the two components.

What of the nova125's 6N1P tube buffer? Frankly, I came into this review thinking that I might enjoy using the buffer, since I have been a proponent of hybrid tube/solid-state amplifiers in the past. However, in doing some admittedly crude "blind testing" with and without the tube buffer, I consistently found that I preferred the clearer and, to my ears, more explicit and less colored sound of the nova125's solid-state circuitry. Your mileage, of course, may vary, but for the bulk of my listening tests I felt more comfortable with the tube buffer disengaged (though I continued to try it from time to time, just to keep an open mind).

Finally, I wanted to check out the nova125's headphone amplifier section and for this purpose I listened through my reference Audeze LCD-3 planar magnetic headphones, comparing back and forth between the nova125 and the superb Burson Audio Soloist headphone amp (the Burson is essentially a handmade Australian headphone amp/preamp that sells for just under \$1000). What I found was that the nova125 sounded very good, with plenty of output for powering the Audezes (which are not the easiest-to-drive headphones around), a reasonably low noise floor, and a

rich (but not overly rich) and articulate sound. Nevertheless, the Burson sounded even better, with more detail, superior three-dimensionality, and even quieter noise floors. In fairness, though, let's acknowledge that the Burson costs two-thirds what the nova125 does, yet provides only a fraction of the nova125's functionality. Once you throw that consideration into the mix, I think the nova125's headphone amp section has got to be considered icing on the cake.

To sum things up, I would say that Peachtree has taken the nova125 forward, not just by a small incremental step, but by a giant leap. Relative to the original Nova, which was a very high-value product in its own right, the nova125 offers a front-end DAC section that is better, an asynchronous USB input that is much better than the original Nova's USB section, and a power amplifier section that is just light years better than the original Nova's amp. Perhaps best of all, the nova125 has lifted many of the equivocations and qualifications that applied with the original Nova; at last, Peachtree has given us an affordable amp/DAC that can drive fine but power-hungry speakers in an effective way. This means that value-minded listeners can use the nova125 without worrying about whether it has enough refinement or power to handle their speakers of choice. In truth, it's got both qualities in spades, and for a very sensible price. **tas**

Rogue Audio Sphinx Tube Hybrid Integrated Power Amplifier

Class D With A Difference

Ron Doering



“Rogue” is one of those lovely, elastic words that give so much lyricism and color to the English language. Five hundred years ago a “rogue” would have been a low-level thief or beggar. And now? Well, Nissan certainly didn’t have *that* meaning in mind when it named its little cross-over. Like many other words whose meanings have evolved over the years, “rogue” now could mean a slightly dishonest person, but more commonly someone who has a bit of a devilish (but not harmful) side. And there are those who may normally act under orders but then “go rogue” and do their own thing.

This last connotation is what Rogue’s owner and designer Mark O’Brien had in mind when he started the company 17 years ago, and all Rogue products reflect the moniker, especially in their refreshing design approach, price, and value. The Sphinx integrated amplifier, subject of this review, may be the most roguish of the lot. Tubes? One hundred watts per channel? U.S. design and manufacture? For \$1400? Come on!

’Tis true. And nothing, as far as I can tell, is obviously traded away in build- and parts-quality. I’m still scratching my head over how Mark can do it. Throw in the facts that each and every Rogue component is hand-built or that Rogue calls Pennsylvania home and not Rick Perry’s business-friendly Texas—or China, for that matter—and the company seems all the

more amazing. Like the bumblebee that the experts say should not be able to fly, perhaps Mark just doesn’t know any better. Or maybe he’s a bloody genius. After visiting Rogue’s facilities in Brodheadsville, I have to say my money’s on the latter.

Equally well known for affordable all-tube components, Rogue also offers a growing line of hybrid power and integrated amplifiers, which meld tubes and Class D outputs. The Sphinx is one of the latter. I’ve come to respect Class D for its efficiency but, thus far, cannot say it has equaled a good transistor, much less all-tube, design in sonics. What Rogue has achieved, judging from the very affordable Sphinx, is not only demonstrably world-class sound, but the strongest argument I’ve yet come across for Class D topology.

Yes, the Sphinx is by nature energy-efficient, so I really was not surprised that it ran cool (barely warm to the touch even on the hottest summer days). More to the point for us audiophiles is that this is one ballsy amplifier. With 100 watts on tap into 8 ohms and 200 watts into half that impedance, this thing is powerful and can swing current. And with a damping factor of greater than 1000, woofers will love it. Damping factor is a specification which seems to have gone out of fashion over the years, but this doesn’t

EQUIPMENT REVIEW - Rogue Audio Sphinx Tube Hybrid Integrated Power Amp

diminish its importance. In simplest terms, as the ratio of a connected speaker's impedance to the amplifier's output impedance, it's an indication of control. The higher the damping factor, the more control the amplifier is projecting on the loudspeaker driver(s), especially the woofer(s). This control translates into bass accuracy and speed, sometimes described as "slam," a quality which the Sphinx easily demonstrated in my auditioning.

Still, I get the sense that Mark O'Brien is not yet convinced that the perfectionist audio world is completely ready to speak of "Class D" in the same breath as "tubes" or "Class A"; the circuit topology used isn't mentioned at all in the sales materials I've seen or in the owner's manual. I sympathize, but this only reflects the less-than-fully realized promise of the circuit in the designs of others. In my experience Rogue is the first to bring Class D to a world-class performance level, but I think Mark knows he is going to have to do a lot of convincing.

Use and Listening

I'll be honest. I don't have a clue why the Sphinx sounds as good as it does. The obvious non-answer is good design and carefully chosen if not super-premium parts. Mark uses a pair of JJ Electronic 12AU7 tubes in the preamp section and Hypex UCD180 Class D modules for the output stage. Important to making this all work well is the power supply, according to Mark, who uses a fairly hefty toroidal transformer from Avel Lindberg. The headphone circuit has its own discrete amplifier section and is the same one used in Rogue's more expensive preamps.

While there are none of the sometimes very

steep tradeoffs I've learned to accept if I want cheap *and* good sound, the need to make some accommodations with respect to the user interface is still present. The materials and fit-and-finish of the Sphinx's faceplate and controls are competitive for this price sector, but anyone who has had even the briefest experience with, say, a McIntosh or Accuphase control amplifier will be reminded of the massive engineering effort that can be devoted to issues that have nothing to do with sound.

So soft-touch controls and microprocessors are absent. Instead, the stand-by power switch is a hefty spring-loaded affair, while the source-selector feels both stiff *and* a bit spongy due to the long torque tube spanning the deep 17" chassis. Sorry, there is no tape loop, but the Sphinx does accept up to three line sources and has a moving-magnet phono input. A balance control is welcome, as is the optional motorized volume control, which quite commendably worked without overshoot. With this option, the all-metal dedicated remote volume control is large, heavy, and all business. Drop it on your big toe and you'll know it!

The EIC power socket, the main power switch, widely separated three-way binding posts, and surface-mount RCA connectors on the back panel make good use of the plentiful acreage found there. Nearby is a pair of fixed and variable line-level outputs suitable for processors, subwoofers, external headphone amplifiers, or power amplifiers. Speaking of headphones, I found the built-in headphone circuit to be sweet sounding and very refined, yet I could have used a little more gain to better suit my power-hungry Sennheiser HD 600s.

Some operational notes before I get into the sound. Mark designed the Sphinx to be energized in stand-by mode, but that doesn't apply to the two input tubes, which only see current when you throw the front-panel "power" switch, and are then slowly ramped up to full power—a process that takes about 20 seconds. It might not be the craziest thing to buy the Sphinx for its phonostage alone, for it really is that good. Dynamic, spacious, quiet, possessing very good resolving power, it is a simplified version of the circuit used in Rogue's solid-state Triton phono preamp, and it made for a splendid fit with either of my moving-magnet cartridges. Be forewarned, though, as you may find some of your old vinyl favorites no longer listenable. I had to chuck up the dough for a fresh pressing of *Dark Side of the Moon* [Harvest SHVL 804] thanks to the Sphinx's ability to demonstrate just how noisy my three-decade-old edition had become. Annoying, but I can't shoot the messenger. So how does the Rogue sound on the new record? Well, DSM is, of course, a creation of studio wizardry but its fame as *the* hi-fi demo record for the last 40 years is justified. Floor shaking heartbeats? Jet airplanes leaving the tarmac? A cacophony of alarm clock bells? Gorgeous, orgasmic female vocals? They were all there, fresh as the day I first heard this masterpiece of 1970s pop-art. The Sphinx also found a way to make my mono soundtrack of *Porgy and Bess* [Columbia] sound fresh, vibrant, and vital, even after 54 years. Adele Addison's performance of "I Loves You, Porgy" (her voice was used to dub that of the film's star Dorothy Dandridge) is brief but oh so devastatingly lovely.

If you have no use for a phonostage, the Sphinx

SPECS & PRICING

Class of operation: Tube input stage and Class D output stage

Tube complement: Two 12AU7

Output power: 100Wpc into 8 ohms, 200Wpc into 4 ohms

Frequency response: 5Hz-20kHz +1dB

Total harmonic distortion: <0.1% typical; <1% at rated power

Input sensitivity: 1V RMS

Dimensions: 15.5" x 17" x 5"

Weight: 25 lbs.

Price: \$1295 (\$1395 with remote)

ROGUE AUDIO, INC.

3 Marian Lane
Brodheads ville, PA 18322
(570) 992-9901
rogueaudio.com

Associated Equipment

NAD C325BEE integrated amplifier; Kenwood KT-8300 AM-FM tuner; Rotel RDD-980 CD disc drive; Meridian 203 DAC; Dell Inspiron 530 PC running Windows Vista, J River Media Center 15; Hegel HD2 USB DAC; Thorens TD309 turntable; Dual CS 5000 turntable (78s Only); TP 92 tone arm; AudioTechnica AT-95B cartridge; Ortofon OMB 78 cartridge; Bellari VP129 phonostage; Snell EII loudspeakers; JPS Labs Ultrconductor 2 interconnects; Kimber Kable KWIK-12 loudspeaker cable; Staples 5 meter USB cable; Have Canare DigiFlex Gold coaxial digital cable

EQUIPMENT REVIEW - Rogue Audio Sphinx Tube Hybrid Integrated Power Amp

would still be a bargain for the price. (Mark might even change out the phono circuitry for an extra line-level input if you ask him nicely.)

On CD and high-resolution computer audio, this amp, for a lot less money, reminded me in many ways of the very good Musical Fidelity M6, even though the two amplifiers are about as different in concept and execution as you can find. Sonically though, if not twins, they share an ease in presenting dynamics, both micro and macro, which I have found to be the cornerstone to realistic and/or involving audio reproduction. Vanishingly low distortion? Ultra-high resolving power? Wide bandwidth? I'll take 'em all—as long as the life and excitement is not sucked out of the sound, which can be the case when these attributes are pursued with a little too much zeal.

I don't have the instruments to measure such things so I really don't know if the Sphinx is meeting its claimed THD or frequency-response specifications. What I do know is that I thoroughly enjoyed the added blast of loose and "rangy" bass, drums, and guitar at the beginning of "Black" from *Ten* [Epic], Pearl Jam's first studio album. This is *big sound* music that is believable only if the supporting electronics are both quick and powerful.

I was as impressed with that performance as I was with the delicacy that the Sphinx brought to Glenn Gould's almost superhuman rendering of the *Goldberg Variations*. Where is the separation between human (Gould) and machine (piano)? Sony's beautifully packaged *A State of Wonder* [S3K 87703] explores this question using a singularly brilliant score and its greatest interpreter—first as a 22-year-old musical wunderkind, and then a seasoned middle-

aged master, just days before the stroke that would take his life. Over a quarter of a century separates these recordings (1955–1981) and the differences are both expected (mono versus stereo) and unexpected (the later recording is over 12 1/2 minutes longer). But comparing Gould youthful and mature is not what makes this recording meaningful for me. The later (possibly last) recording of Gould is my favorite; full of the craft, technique, and eccentricity that made this artist so special. Gould was one of the best at finding the beauty in Bach, and the Sphinx did not betray him.

Conclusion

To put it simply, I think the Sphinx has the goods and is worthy of all the positive buzz generated since its debut at the 2013 Consumer Electronics Show. One of the few amplifiers that can claim to be both "green" and "good" in the audiophile sense of the word, I'm all over this thing. Recommended, and I've purchased the review sample. So there! *tas*

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Paul Seydor, *The Absolute Sound*, September 2013



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EQUIPMENT REVIEWS

Power Amps



GamuT D200i Stereo Power Amplifier

A Classic Reimagined

Kirk Midtskog

GamuT Audio, a Danish company, has recently established a U.S. subsidiary for North American distribution, headquartered in Sturtevant, Wisconsin. After what seemed like some fits and starts with a North American presence a while back, this is good news for audio folk on this side of the pond. I happen to be of the view that GamuT power amplifiers, in particular, deserve our attention—especially since they’ve been updated recently.

The first versions of the amplifiers were designed by Ole Lund Kristensen in the early 1980s and were sold mostly in the professional studio market in Denmark. In the early 90s, the amplifiers were more widely sold in the home specialty-audio market under the brand Sirius,

whose name was subsequently sold to the American satellite radio company XM/Sirius in 2000. From then on, GamuT has been the brand on the company’s products, which also includes a CD player and preamp (added by the late 1990s), and three speaker lines (launched in

2003). GamuT is now owned by Kvist Industries A/S, a high-end-furniture and speaker-cabinet supplier located in Årre, Denmark. (Please see the accompanying sidebar about my GamuT factory visit.)

My own experience with GamuT power amplifiers goes back to 2006 when I had the pleasure of living with a D200 MkIII stereo amp—the predecessor to the subject of this review—for about a month. Shortly thereafter, I bought a pair of M200 MkIII mono amps, which I still own. What struck me so vividly about both models was their lack of obvious solid-state character

compared to almost all other SS amps priced near their respective levels at that time: \$8500, stereo; \$11,500, mono pair. Up to that point, my experience with SS amps left me thinking that nearly all other similarly-priced SS amplifiers had relatively poor depth and somewhat dry and grainy qualities, and were often not very musically compelling. Solid-state amps which largely mitigated those qualities usually came with much higher prices. As I’d been a confirmed tube-amp guy for 20 years, the GamuT amps were a revelation. Here were reasonably priced solid-state amplifiers with a neutral tonal balance, good image density and soundstage depth, relatively little telltale graininess, and a high “musical interest” factor.

The new D200i stereo (\$12,500) and M250i mono amplifiers (\$23,000, please see the M250i sidebar) look almost the same as the earlier versions, and they retain much of the Kristensen-designed circuit and features of the previous, non-*i* models. The main cosmetic update lies in the center inset of the faceplate. It now has a pale gold, mirror finish (as opposed to anodized aluminum) and the on/off button at the top of the inset is now a more subtle round metal disc instead of the larger, more utilitarian-looking black rocker-switch of the earlier models. I like the new look but prefer the more positive on/off feel of the older switch. On the inside, some of the improvements involve a new layout of the power supply, which now better isolates the A/C mains from the signal-carrying circuitry. The power supply’s maximum current draw has been increased through the use of two bridge rectifiers, one each for the positive-going and negative-going legs. The main circuit board has been adjusted to accommodate the increased power levels and some of the parts values and materials

EQUIPMENT REVIEW - GamuT D200i Stereo Power Amplifier

have been optimized for improved performance. Internal hookup wire is now GamuT's own "WormHoles Signature" brand (in critical junctions). The D200i's rated output is 200 watts per channel into eight ohms, 400 into four ohms, and 700 into two ohms. It has both XLR and RCA inputs. All GamuT amplifiers have a four-position input-sensitivity switch inside the case: -0dB, -6dB, -12dB, and -14dB. This useful feature allows users to tailor the amplifier's gain to better match the output level of the partnering preamp. (Dealer assistance is recommended.) I tried a couple of different settings but settled on the factory -6dB setting on all three GamuT models on hand: M200 MkIII, D200i, and M250i.

All GamuT amplifiers have an error-checking startup sequence that goes through several condition checks, lasting a few seconds, before it will allow full operation. My M200s have never failed, malfunctioned, or even blown a fuse in the six years I have used them. Likewise, the D200i and M250i did not present any problems during the review period. The D200i is completely dual-mono internally. That is, all internal parts (except the A/C mains feed) are dedicated to each respective channel, including separate 800VA transformers.

There are two pairs of output binding posts per channel, but there is more to them than the provision for bi-wiring. The inner pair is called "normal" and has an inductor in parallel with a resistor between the output section of the amplifier and its corresponding binding posts. The outer pair is called "direct" and has no added inductor and resistor (Zobel) circuit. The "normal" Z-circuit pair is offered to help handle low-impedance speakers or highly capacitive cable loads. Provided the speaker has two pairs of binding posts (i.e., it is bi-wireable) GamuT recommends connecting the inner/normal pair to the speaker driver's terminal with the trickiest impedance—the bass driver terminals, in the case of a typical dynamic cone type speaker, or the tweeter driver terminals, in the case of an electrostatic speaker. I experimented with both the inner and outer pairs and preferred the outer/direct pair.

Using live acoustic music as a tonal reference, the D200i essentially walks the middle ground. It is neither bright nor dark. It captures the overall tonal balance of a live orchestral performance

beautifully. It also conveys a measure of speed and airiness in the upper frequencies as well as richness and full-bodied weight in the lower midrange and bass. Unlike some amplifiers, which can jumble the timing of closely occurring events, the D200i tracks these overlapping cues in ways that are reminiscent of a live concert. Dynamic timings just seem to unfold with unforced ease as they continue their arc from propagation to decay with no obvious smearing. On the whole, then, the D200i captures the gestalt, the overall sound and feeling of a live performance, admirably—insofar as a \$12,500 power amplifier can be expected to do so.

Compared to other similarly priced solid-state amplifiers, the sound of the new D200i can be summarized as continuous, neutral, smooth, and fairly revealing but without etch or stridency. It sounds like it comfortably combines the liquidity and three-dimensionality of a decent tube amp with the even-handedness—throughout its bandwidth—and "quickness" of a good solid-state amp. For lovers of tube amplifiers, the D200i may offer a viable SS alternative in the form of a fairly powerful, easy-to-use, cool-running, averaged-sized amp which sounds pretty consistent from top to bottom—something that some tube amps have trouble doing. (When I refer to "tube amps," I mean a typical push/pull type using beam output tubes.) For SS users in the market for a more liquid-sounding amp in the \$10,000 to \$14,000 range, the D200i offers very good image depth and solidity as well as a sense of an uninterrupted soundstage from side to side and, especially, from front to back—things that SS amps do not usually do as well as their tubed cousins. It cannot be the amplifier for everyone, though. The D200i has good power reserves, but it is most likely not an optimal match for very difficult speaker loads or for generating high volume levels in very large rooms—unless the speaker is fairly sensitive. Can one find a better sounding SS amp in certain performance areas for \$12,500? Probably, but I would be hard pressed to think of one at the moment that would sound as complete and competent on the whole as the D200i.

What accounts for the GamuT's ability to make its SS power amps sound almost as continuous and 3D-like as tubes while still retaining many SS strengths? GamuT's explanation: The output section

uses only one output device per phase, one for the positive-going phase, and one for the negative-going phase, for a total of two per channel. That's it. No rows of multiple bi-polar transistors. The very robust MOSFET GamuT employs can handle 500 watts and a peak current demand of 300 Amperes and 100A continuously. (MOSFET stands for metal-oxide semiconductor field-effect transistor, even though polysilicon is now used instead of metal.) According to

SPECS & PRICING

Power output: 200Wpc (8 ohms), 400Wpc (4 ohms), 700Wpc (2 ohms)
Inputs: One unbalanced (RCA), one balanced (XLR)
Outputs: Two speaker terminal pairs
Dimensions: 17" x 6.5" x 18.5"
Weight: 68 lbs.
Price: \$12,500

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 GamuTaudio.com
 fischer.h@sbcglobal.net

ASSOCIATED EQUIPMENT

Analog Source: Basis Debut V turntable with Vector 4 tonearm, Benz-Micro LP-S cartridge
Digital Sources: Ayre C-5xeMP universal disc player, Sony VAIO VGN-FZ-490 running JRiver MC 17, Hegel HD2 and HD20 DACs
Phonostage preamp: Ayre P-5xe
Linestage preamp: Ayre K-1xe
Integrated amplifier: Hegel H200
Power amplifiers: GamuT M-200, GamuT M250i
Speakers: Dynaudio Confidence C1 Signature, Aerial 7T
Cables: Shunyata Anaconda signal cables, AudioQuest Coffee USB and Hawk Eye S/PDIF, Shunyata Anaconda and Cobra ZiTron power cables
A/C Power: Two 20-amp dedicated lines, Shunyata Triton power conditioner
Room Treatments: PrimeAcoustic Z-foam panels and DIY panels

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EQUIPMENT REVIEW - GamuT D200i Stereo Power Amplifier

GamuT, using only one output device per phase greatly reduces the vagaries of matching operational variances which exist among the transistors in a typical bi-polar array, sometimes with as many as 48 transistors per channel. Sonic smearing and dynamic discontinuities are, theoretically, much harder to reduce when many output devices are employed. GamuT says its topology results in a purer and more lifelike sound because the signal is not as altered by so many difficult-to-fully-match transistors trying to “sing together.” I really did not factor in any such claims when I first auditioned the D200 and M200 in 2006. Obviously, something struck me as very good about the GamuT sound back then. Maybe there *is* something to GamuT’s claims of sonic purity directly resulting from its application of single MOSFET technology.

Another way to flesh out more of the D200i’s qualities would be to compare it to the older M200 MkIII in some detail. Right off the bat, the older M200 has more bass clout and a bit more dynamic drive. The two amps have the same power rating (200 watts), but just like the differences between the D200 stereo amp and the M200 monos I had compared some years ago, the mono version also had beefier bass and a wider dynamic range. Not surprisingly then, the older M200 mono amp still sounds more powerful than the present-day D200i stereo version. Do I prefer the current D200i over the older M200? Yes, and here’s why. Even though the M200 has

the sort of bass and dynamic performance I tend to favor, almost everything else about the D200i is nearly as good or better than the M200. First, the D200i throws a soundstage that is almost as wide as the M200’s—pretty nifty for a stereo amp, as monos usually cast a larger soundstage, all other things being equal. Second, the D200i’s rendering of depth is more fully developed, both individual images and the soundstage envelope itself. Third, the D200i has a more continuous or liquid quality, and this helps promote a sensation of the various musical elements being linked together on a continuum rather than separate, discrete elements. Fourth, the D200i has a closer-to-neutral tonal balance than the M200. The M200 can veer towards a bit of leanness in the upper midrange, which can show up more prominently with speakers like the neutral-sounding Aerial 7T. Fifth, the D200i has a more coherent portrayal of timing. The M200, by contrast, can sound almost as if it is slightly “forcing” the pace of some of the dynamic elements. Mind you, this could actually aid some systems in need a bit of “dynamic presence” to help things come alive. And finally, the M200 has a more forward listener’s seating perspective, but—almost counterintuitively—the front of its soundstage actually begins farther back than that of the D200i. The D200i, on the other hand, has a more mid-hall listener’s seating perspective, and—here is the neat part—the front of the soundstage seems to be a little less restricted to a

GamuT M250i Monoblock

The next model up from the D200i is the more powerful M250i monoblock. At 250 watts per channel, it sounds a lot more powerful than the modest 50 watt increase over the D200i stereo amp would suggest. The M250i also has several important improvements to make it perform at a significantly higher level. The jump in price is also considerable: \$23,000 per pair. Double the price to go from 200 watts to 250 watts? All other things being equal and when driving typical speaker loads, this is not an appreciable power increase. Even so, there is much more going on, sonically (and technologically), than a bit more power and two chassis instead of one.

In a nutshell, what you get sonically from the M250i is considerably more of the positive performance characteristics of a D200i and fewer of that amp’s forgivable weaknesses. The M250i casts a much larger and more open soundstage as well as exhibiting a lower noise floor. Please keep in mind, the D200i stereo amp does not suffer from undue noise levels at all; my point is merely that the M250i’s ability to enlarge the soundstage and reveal more details—as well as sound more relaxed and natural in the upper frequencies—yields significant sonic benefits. The M250i expands the whole presentation and invites you to discern the musical constituents more easily and become more involved. On the intellectual level, you can more readily follow various parts in the mix, hear venue space and reverberation cues, and discern recording quirks. On the emotional level, you can more readily follow the subtle differences in dynamic intensities (which musicians use to impart meaning), more easily forget about system playback, and simply become more immersed in the artistic world conjured by the musicians.

The 250i also promotes a greater sense of physical presence through larger, snappier dynamic swings and more power in the bass. I think that the particular way the 250i uses its output power invests everything with greater solidity and dramatic life. (Its output increases to 480 watts into 4 ohms, 900 into 2, and 1700 [peak] into 1.) Marshaling increased current output behind the watts, separating each channel with its own chassis, and a few other improvements really do seem to work together to elevate the M250i’s performance to a higher level.

Some of those improvements include the following: First, the M250i has thick aluminum bars running along the inside length of the sides and across the inside back of the case. These bars hold a MOSFET, or the main driver stage PCB, respectively, on more rigid structures and provide additional cooling. The aluminum bars also conduct heat to sensors in the MOSFET bias controllers so operating bias can be lowered as heat increases. The D200i mounts its MOSFETs directly on two shared cooling fin banks, and the main PCB is mounted to the chassis base without the extra aluminum bar. Second, the M250i has 100,000uF of energy storage capacity; the D200i has 36,000uF (Swedish-made Rifa PEH 169 capacitors in both models). Third, the M250i uses a huge 1250VA toroidal transformer, whereas the D200i uses a 800VA toroid (per channel). Fourth, all hook-up wire inside the M250i is GamuT’s WormHoles Signature; the D200i uses this wire only in critical areas.

The GamuT M250i strikes me as a solid contender in its price category. It is revealing, well balanced, dynamically alive, and remarkably expressive of music’s natural appeal. It’s not inexpensive, but its level of refinement and musical realism is almost addictive. —KM

EQUIPMENT REVIEW - GamuT D200i Stereo Power Amplifier

particular plane, relative to the speakers. The result of this kind of soundstaging is greater overall depth and a sense that the music is allowed to “breathe” and take up more listening room space, from front to back, in response to a particular recording’s characteristics. Do I still like the M200? Yes, very much. In some ways, it can make some recordings sound more exciting. At the end of the day, though, I find the D200i to simply sound more refined and accurate.

My only very minor reservations about the D200i are that it could deliver an even more spacious soundstage, reveal even more nuanced details, and reduce the slightest wisp of spurious noise in the upper frequencies—things the M250i improves upon. I am really searching for something to criticize, here, and feel a bit petty when I mention them. After all, the D200i is not priced as a “super amp”; nor does it have pretensions of being state of the art. Instead of struggling to find more flaws, I simply enjoyed the D200’s ability to dig into recordings and bring out meaningful musical details. The new Melody Gardot album, *The Absence* [Decca] on either LP or 24/96k download, is rendered so clearly and beautifully by the D200i that various songs stuck in my head for weeks after playing them only a few times. Gardot’s delicate voice and the various instrumental parts were easy to follow, including the clicks on the song “So Long,” to which some people have objected as an assumed recording defect. The clicks follow a syncopated Latin rhythm and are an intended part of the mix. The D200i helped delineate this quite clearly. The ending refrain of the more cabaret-styled “Impossible Love” has some sliding, almost ghost-like wailing by Gardot. Her

voice sounds as if it is coming from far off to the extreme right and left in the soundstage. In my setup, Gardot’s voice eerily projects from off to the side of my right ear as the song starts to fade at the end.

Sometimes a company’s new model doesn’t always live up to our expectations of substantial advancement over the older one. Not so in the case of the D200i. GamuT is really on to something with its new approach. The changes may not be many in number, but the updates deliver significant sonic improvements, nevertheless. While not inexpensive, the GamuT D200i is a fantastic-sounding all-around performer with sonic qualities that almost defy handy SS vs. tubes characterizations. If you are looking for an amplifier that combines many strengths associated with both solid-state and tubes, the D200i would be good place to start your quest. I am impressed by the wonderful balance the D200i strikes between its ability to perform well in areas like imaging, dynamics, resolution, and tonal balance, as well as its ability to deliver a truly musically enjoyable experience. After all, if an amp doesn’t allow the music to sail or sing, what’s the point?

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- Neil Gader -



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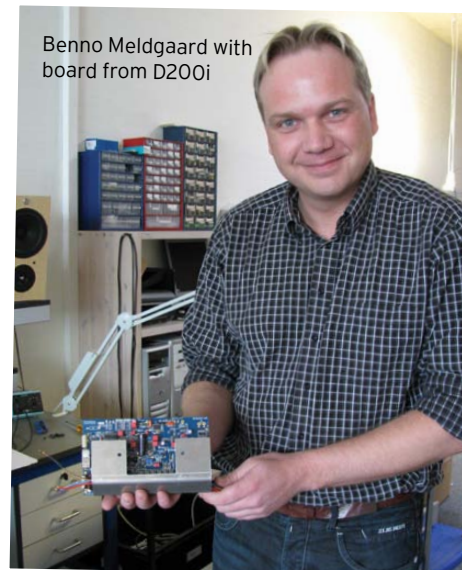
Inside the GamuT Factory

In early October, I traveled to Denmark to spend a few days at the GamuT headquarters in Årre, a small, mostly agricultural town located about 20 miles northeast of the western coastal city of Esbjerg. GamuT occupies part of its parent company's factory space, so a visit to GamuT means a visit to Kvist Industries, a furniture-and-speaker-cabinet-making company. Kvist bought GamuT in 2010 after a two-year cooperative business relationship, which developed through Kvist's role in supplying the cabinets for GamuT's top speaker line, *El Superiores*. Apparently, Kvist also made cabinets for B&W's 800 Diamond Series (and for a few other speaker companies as well) for several years until relatively recently.

Torben Søndergaard, GamuT Sales Manager, was my gracious and affable host and saw to it that I was taken care of well and kept my schedule on track. Carsten Jespersen, a member of Kvist's Advisory Board and former Production Manager, showed me around the speaker cabinet part of the operation, and Benno Meldgaard, Quality Assurance Manager, showed me around on the electronics side. Benno shared with me some of the design features of the D200i and M250i amplifiers and pointed out some of the internal parts as we talked. (I relay most of the details in the D200i review and M250i sidebar.) I also met with GamuT's speaker designer Lars Gollar, a former speaker-driver designer with ScanSpeak for several years before joining GamuT in 2005.

He studied psycho-acoustics at university and incorporates much of the knowledge gleaned from his studies into practical applications in GamuT's speaker designs. Gollar apparently also played a role in fine-tuning the sound of the *i* version amplifiers.

On the business side, I had the pleasure of meeting, on separate occasions, both the Director of Production Søren Kvist and CEO Michael Kvist. They each spoke of their commitment to GamuT and the synergy between the two companies. The resources of Kvist Industries being marshaled behind GamuT helps provide additional support for further R&D, not to mention foster more robust distribution and sales in the U.S. and other



markets. The Kvist offices and manufacturing facilities were neat and tidy, and workers, at all levels of the operation, seemed to apply great fastidiousness to their work.

On a side note, I was able to see quite a bit of the Danish countryside from the central and mid-west coast of Jutland and across the midsection of the country to Copenhagen on the east coast. All of Denmark, even rural areas, appeared to be very tidy and well organized. The cities were clean, beautiful, and *gemütlich* (to borrow a German word for "atmosphere of warmth and friendliness"). Denmark seemed to epitomize competence and cooperation, rather like Japan—a country I admire—with a measure of relaxed, Occidental "give and take" thrown in.

After meeting with the people at GamuT and seeing firsthand how the GamuT/Kvist operations work, I came away with a sense that GamuT is on

track to support a sustained presence in North America. Music lovers who favor using high-end gear from a single company, for the sonic (and visual) synergy, have GamuT as another viable choice, along with MBL, Burmester, Naim, Music Culture, BMC, Gato, Electrocompaniet, and Linn (apologies to others I am neglecting). While GamuT has been available in the States nearly continuously since the late 1990s, it has not always had a consistent presence in the last few years. The "new GamuT," with Kvist's backing, should change that. I am looking forward to further developments from GamuT. **KM**

Triode Corporation TRX-M300 Monoblock Amplifier

A Legend Reborn

Dick Olsher



Western Electric had a banner year in 1936. The introduction of the 300A, the mother of all triode power tubes, and the 91A cinema amplifier, a single-ended design based on the 300A, meant commercial success in the 1930s and 40s. The essentially identical 300B was introduced in 1938. It would have been impossible to predict then that these products would play pivotal roles in the directly heated single-ended-triode (SET) renaissance that began in the 1970s, mainly in Japan, and slowly moved westward. All things Western Electric (WE) became valuable in Japan. Old movie theaters were scoured for 91A and 91B amps that would then depart the USA. I would guess that just about all the extant original WE amps now reside in Japan.

It's not surprising therefore that when Yamazaki-san, Triode Corporation's designer, decided to design a reference-caliber 300B amplifier, he looked toward the WE 91A for general guidance—a decision that deserves a standing ovation. Think of Triode Corporation's new M300 as a modern version of the WE 91A. This explains a tube complement identical to that of the original: a 274B rectifier, a pair of 310A receiving pentodes, and of course a 300B. However, paying homage to a vintage 1930s design should only go so far. For example, the gain of the 91A amplifier was colossal at 92dB due to the use of an input transformer and the cascading of two pentode gain stages. But that's way too much gain for an audio amplifier nowadays partnering a typical preamp, which is capable of delivering at least a 2V signal. The M300 addresses this by dispensing with an input transformer and by using local feedback from anode to grid of the first pentode stage to decrease its gain and increase its effective headroom. In addition, the second 310A is connected as a triode in order to further reduce the overall gain. As a result, the input sensitivity is a reasonable 0.8V. The power supply has also increased in sophistication, following a high-end trend started by Audio Research in the 1970s. The 300B's 5V filament supply is DC, because that's the most effective means of lowering residual hum to acceptable levels when driving a high-sensitivity speaker. And for the record, the M300 is about as quiet as possible for an SET amplifier. Residual hum was simply not an issue even when driving a 96dB-sensitive loudspeaker. Likewise, the 310A filament voltage is rectified and actively regulated at 10V.

No global negative feedback (NFB) is used. The option of adding a 3dB global NFB switch was

considered during the final design stage but was ultimately rejected on the basis of sound quality. There is usually no major incentive for using global NFB in the context of an SET amplifier as the output-stage source impedance is already fairly low and decent bandwidth and distortion figures can be achieved using a good-quality output transformer. The measured source impedance off the 6- and 8-ohm taps was 2.7 to 2.8 ohms, within the range of 2 to 3 ohms typical for such designs. The situation is of course considerably different for push-pull pentode and ultra-linear tube amps where large amounts of NFB, usually on the order of 20dB or more, are required to obtain a low output impedance and decent damping factor.

Both RCA unbalanced and XLR balanced inputs are provided. However, keep in mind that this is, after all, a single-ended amplifier. Hence, the XLR input should be considered strictly as a convenience in interfacing with a preamp or linestage lacking a single-ended output. The XLR input is routed through an op-amp buffer stage in order to reduce it to a single-ended input, so it's best to avoid it if possible. Build-quality and finish are exceptional and speak to the care and reverence bestowed on what is intended to be a reference amplifier.

The M300 is shipped with a Psvane (aka Pavane) WE300B. The Psvane brand name is owned by a consortium of audiophiles within and outside of China and has gained a fine reputation for sound quality. This 300B is said to be a faithful replica of the original WE 300B in all respects, including materials and structure. That was good news since I'm the proud owner of two pairs of the Westrex Corporation 300Bs manufactured in the U.S. in 1997. (They are now temporarily unavailable, but Westrex is said to resume production sometime during 2014.) I was looking

EQUIPMENT REVIEW - Triode Corporation TRX-M300 Monoblock Amplifier

forward to a sonic shootout between these two purported exact replicas of the original. To that gladiatorial mix I added a TJ-Full Music mesh plate from the TJ factory in Tianjin province, China. This is a 300B variant that I've enjoyed very much over the years due to its vivid tonal colors and dynamic sound.

Detail with Ease

The M300 delivered what can only be described as magical image solidity. Solid-state amps

would kill for it, and even tube push-pull designs can't quite compete. Image outlines were sculpted with palpable presence and anchored firmly within a spacious soundstage. In my experience, the sensation of reaching out and touching someone engendered by this amp has only been matched by a handful of SET-design tube amps. This spatial attribute should not be understood to merely denote static precision but to also encompass the ebb and flow of the harmonic envelope of each instrument. The end

result was a convincing, breathing, 3-D spatial expanse. An illusion to be sure, but with my eyes closed, the impression felt about as real as it gets from a two-channel audio system.

Bandwidth and transient speed were pretty impressive for an SET amplifier, and this speaks to the quality of the output transformer. The single-ended output tranny has traditionally been a weak spot in many designs, accounting for a bandwidth barely exceeding 20kHz and consequently textures that are overly liquid with the consistency of maple syrup. By contrast, the M300 sang sweetly but with transient clarity and sufficient transparency to penetrate deeply into a complex mix. There was a fabulous amount of detail to behold, and I'm talking about detail that floated naturally to the surface rather than detail that was artificially highlighted by an excess of textural brightness and glare. What was so consistently wonderful about this amp was its relaxed manner, its fluidity of motion, and its ease of expression. It never appeared to work hard or complain even when driven to loud volume levels. It sounded far more powerful than its 8 watts power rating would suggest, but keep in mind that it was mated with a 96dB-sensitive load throughout the evaluation period. In fact, I would hesitate to recommend a less-sensitive load. There may be exceptions, however, especially if you plan to listen in a small room at low volume levels. In any case, I would not breach a sensitivity threshold of 92dB. I experimented with both the 6- and 8-ohm taps and preferred the 8-ohm set for its better bass damping and definition. When multiple taps are available, it's always wise to try at least a couple of the available options to determine which sounds



SPECS & PRICING

Power output: 8 watts into 8 ohms

Output impedance taps: 4/6/8/16 ohms

Frequency response: 10Hz-50 kHz (0, -3dB)

Total harmonic distortion:

< 0.1% (1kHz)

Signal to noise ratio: 87dB

Input sensitivity: 800mV

Input impedance: 100kOhms

Weight: 60 lbs.

Dimensions: 430 x 340 x 185mm

Price: \$14,000/pr.

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ASSOCIATED EQUIPMENT

Basszilla Feastrex and Platinum mk2 DIY speakers; Yoshino-EAR DAC, April Music Eximus DP1 DAC, Sony XA-5400 SACD player with ModWright Truth modification; Kuzma Reference turntable; Kuzma Stogi Reference 313 VTA tonearm; Clearaudio Da Vinci V2 MC phono cartridge; Pass Labs XP-25 phono stage; Pass Labs XP-30 line preamplifier; FMS Nexus-2, Wire World, and Kimber KCAG interconnects; Acoustic Zen Hologram speaker cable; Sound Application power line conditioners

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EQUIPMENT REVIEW - Triode Corporation TRX-M300 Monoblock Amp

best in your system. Bass lines flowed with plenty of boogie factor and possessed a tuneful character that blended nicely with the core of the midrange. I didn't expect nor did I obtain the bone-crushing low end typical of high-current solid-state amplification, but I was constantly surprised by the M300's dynamic prowess. The ability to accelerate an orchestral crescendo from soft to loud was simply breathtaking, and in this respect it exceeded the macrodynamic performance of high-power push-pull amplifiers. The M300 offered a fitting testament to the potency of the first watt. It's the first watt that sets the stage and ignites the microdynamic palette. And if the first watt doesn't get the job done, there's not much need in my book for another 99 watts like it.

Subtle Differences

As for tonal balance and timbre fidelity, there were noticeable differences among the three competing 300Bs. It was all the more surprising in the case of the Westrex and Psvane 300B since both are said to be exact replicas of the original WE design. The inescapable conclusion is that there must be some subtle construction and/or material differences between these two copies of the original. The Westrex possessed the best spatial resolution and on properly miked recordings delivered startling focus. It was able, for example, to resolve a naturally recorded drum kit without spatial smearing. It was also the sweetest and most refined-sounding of the bunch. If music were a beauty contest, the Westrex 300B would surely be the winner. However, there's more to music than beauty and the Psvane delivered a slightly more forward and

energetic presentation, highlighting the fact that the Westrex is simply a bit too laid-back. When it came to timbre, the Psvane was nothing short of amazing, superbly rendering soprano voice with vivid colors. As you can surmise, the Westrex was far more forgiving of less-than-ideal recordings. The TJ 300B was no sonic slouch, but it was outgunned when it came to textural purity and timbral fidelity. Its major sonic calling card was a punchy big-bodied midrange that could generate plenty of visceral excitement. To confess, I could live happily ever after with the Psvane WE300B, though your ultimate 300B choice will no doubt be impacted by the associated front end and matching loudspeakers.

At its best, partnered by a first-rate front end, the M300 is capable of spooky dimensionality and image outlines that are palpable to the max. If at the end of a long day, you simply wish to kick back and enjoy the music with your favorite beverage in hand, I can't think of a finer amplifier with which to unwind and forget your troubles. It is a superlative achievement from the prolific mind of Yamazaki-san and one that will do wonders for your mental health without devastating your bank account. The 300B has often been thought of as a civilized and refined member of the directly heated triode family. But as the TRX-M300 clearly demonstrates, there is much more to its story than that. The Triode TRX-M300 showcases the beauty and dynamic power that is the full potential of the much-venerated 300B, and therefore earns my highest recommendation. **tas**

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Best Buy!

Jonathan Valin



Until a review in this stupid magazine persuaded me to sell it and buy, sight unseen and sound unheard, a Marantz 500—which blew up the moment I plugged it in, before I'd heard a single note of music through it, in fact before I'd even turned the power switch on—Bob Carver's Phase Linear 400 was my favorite amplifier. I'd gone through my first Audio Research phase, owned D75s, D76s, and D76a's, but the Phase 400 seemed to me (at least at the time) to have most of what the D76s had plus superior resolution, superior dynamics, superior transient response, superior power, and far superior bass. It was a great amplifier, and I should've kept it. Let this be a lesson to you: Never trust a review; only trust your ears.

Of course, there is a silver lining to this old cloud. If I'd kept the Phase 400 I would've missed out on the c-j Premier One, the c-j Premier Four, the c-j Premier Five, the ARC D79B, the ARC D600, and the slew of classic Marantz and McIntosh amps I owned and used after Elvis left the building. Who knows? I might not've become an audio reviewer if that butterfly wing hadn't fluttered back in the late 70s. Which, among many other things, means that I would not have had the chance to review Bob Carver's latest amplifier, the Black Beauty 305.

Ain't life strange?

I'll tell you what else is strange. After he spent the better part of the eighties and early nineties trying to make transistor

amps sound like then-celebrated tube amps, turns out Carver's latest effort is a tube amp.

The aptly named (and not just because it's painted black) Black Beauty 305 is a—surprise!—305W (into 8 ohms) monoblock amplifier that uses three pairs of KT120s in its output stage in a push-pull (Class AB) configuration, with a 12AX7 input stage directly coupled to a 12AT7 pre-driver stage, and a 6AL5 for bias voltage. In addition to the complement of tubes, a volume-control pot (haven't seen one of these on a power amp in a while) and a toggle switch with the words “Classic” and “Contemporary” are mounted on the top of the chassis. This switch changes the amount of negative feedback from 20dB

EQUIPMENT REVIEW - Carver Black Beauty 305 Power Amplifier

(a value used by “vintage amplifier designers”) to 11dB (a value representative of many “modern-day” amps). In the excellent user manual, Carver says he prefers the 20dB “Classic” setting, which is one of several hints he drops about the sound of his new amp.

Speaking of which, if you were guessing (as I was) that the Black Beauty 305 would sound like a latter-day Phase 400, guess again. What it sounds like—almost exactly—is a latter-day version of a Marantz 9. Oh, it certainly has better bass (more on this in a moment) and treble (ditto) than a Marantz 9, and it is considerably higher in midband resolution (double ditto) and much tighter and better defined in image focus (triple ditto). But the basic vibe is Old School tube sound—dark, sinfully rich in timbre, liquid, gorgeous. A black beauty in fact as well as in name.

Obviously, this is not the ideal amp for a “transparency to sources” listener like me, in that it makes virtually everything, no matter how recorded, sound some shade of dark and ravishing. And yet...and yet. The Black Beauty has the kind of midrange resolution and presence that make voices and instruments sound not merely beautiful but quite real and quite “there.” On something like Melody Gardot’s Brazilian dreamscape of an album, *The Absence* [Verve], you get the selfsame plethora of detail—the little cues to the way she is shepherding her breath, using her mouth, nose, throat, and chest to add expressive color and texture to the lyrics—that you get with ultra-high-resolution solid-state amplifiers from Constellation, Soulution, and Technical Brain or high-res contemporary tube amplifiers like ARC’s Reference 250. In others words, you get *Gardot*, albeit a somewhat richer,

darker, more beautified version of her. Ditto for Leonard Cohen’s dusky, world-weary voice on *Songs From The Road* [Columbia]. To hear the timbral beauty and speed of attack the Black Beauties bring to Cohen’s *sprechstimme* or the loveliness and liquidity with which they reproduce the voices of his backup singers (without, once again, losing a jot of fine, expressive detail) is to hear a presentation that only an ingrate (or an audiophile heavily invested in another brand of amplifier) could complain about.

In the user manual, Carver says unequivocally that dark and gorgeous was precisely the kind of performance he *wanted* from his Black Beauties. He was looking to provide “a warm, rich sound with a sumptuous soundstage, great front-to-back depth of field, and very tight, pin-point imaging within that larger acoustic,” and in doing this he was looking to please the “serious music lover.”

After several months of listening to the Black Beauties with a variety of speakers, I would have to say that he has succeeded wonderfully in achieving every one of his goals. Like Marantz 9s, these things cast a magical spell, even over a jaded old transparency freak like me. Yes, they are more “forgiving” than the kinds of amps I usually gravitate towards, but they are so incredibly easy to listen to, so satisfyingly musical, and at the same time so finely detailed in timbre and texture throughout the midband that the sense of “realism” we all hunger for is never scanted. Call it “realism enhanced.”

Like the classic tube amps it successfully emulates (and improves upon), the Black Beauty 305 is at its very best in the midrange, where it truly does mate “pinpoint” image focus (anything

SPECS & PRICING

Line inputs: One RCA
Input impedance: 100k ohms
Input stage: 12AX7
Pre-driver stage: 12AT7
Automatic DC restoration: 6AL5
Output stage: Three complementary sets of KT-120s in a push-pull configuration (6 total)
Nominal voltage gain: 30dB (into 9 ohms)
Rated power: 305W (8 ohms), 330W (4 ohms), 290W (2 ohms)
Noise: <110dB A-weighted into 8 ohms
Frequency response: 2Hz–85kHz
Power bandwidth: 24Hz–28kHz
Distortion: Less than 0.5%
Dimensons: 12" x 7.2" x 14"
Weight: 43 lbs./chassis
Price: \$12,900/pair

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JV’s Reference System
Loudspeakers: Raidho C11, Estelon X Diamond, MartinLogan CLX, Magnepan 1.7, Magnepan 3.7, Magnepan 20.7
Linestage preamps: Constellation Virgo, Audio Research Reference 5 SE, Technical Brain TBC-Zero EX

Phonostage preamps: Audio Research Corporation Reference Phono 2SE, Technical Brain TEQ-Zero EX/TMC-Zero
Power amplifiers: Constellation Centaur, Audio Research Reference 250, Lamm ML2.2, Soulution 501, Carver Black Beauty 305, Technical Brain TBP-Zero EX
Analog source: Walker Audio Proscenium Black Diamond Mk III record player, AMG Viella 12, Da Vinci AAS Gabriel Mk II turntable with DaVinci Master’s Reference Virtu tonearm, Acoustic Signature Ascona with Kuzma 4P tonearm
Phono cartridges: Clearaudio Goldfinger Statement, Ortofon MC A90, Benz LP S-MR,
Digital source: Mac Mini/Wavelength Audio Crimson USB DAC, Berkeley Alpha DAC 2
Cable and interconnect: Synergistic Research Galileo, Crystal Cable Absolute Dream
Power Cords: Synergistic Research, Shunyata King Cobra
Power Conditioner: Synergistics Research Galileo
Accessories: Synergistic ART system, Shakti Hallographs (6), A/V Room Services Metu panels and traps, ASC Tube Traps, Critical Mass MAXXUM equipment and amp stands, Symposium Isis and Ultra equipment platforms, Symposium Rollerblocks and Fat Padz, Walker Prologue Reference equipment and amp stands, Walker Valid Points and Resonance Control discs, Clearaudio Double Matrix SE record cleaner, HiFi-Tuning silver/gold fuses



EQUIPMENT REVIEW - Carver Black Beauty 305 Power Amplifier



but a strength of amps like the Marantz 9 or the McIntosh MC 275) with wide, deep soundstaging (although I've heard wider and deeper) and a tonal palette to die for. But what about the bass and treble?

Well...the bass is pretty darn good, surprisingly well-resolved and deep-reaching with gorgeous tone color and fine detail on cello, bassoon and contrabassoon, trombone and tuba, doublebass, Fender bass, and bottom-octave piano, with the same three-dimensional solidity and presence the Black Beauty brings to the midband. Tightness of image focus varies a bit depending on pitch and power, with certain bass-range instruments in certain octaves showing a bit more plummy than you might get from top-flight solid-state or ARC. But this is anything but the wooly, poorly-

defined presentation we used to get from tube amps back in the day (or even, sometimes, today). Moreover, the bass mates perfectly with the midband, thanks in large part to the Black Beauties' lifelike fullness in the so-called power range, where bass transitions to midrange. There is none of the suckout here that can make electronics sound "ultra-transparent" at the price of deracinated tone colors, and thinned-down dynamics. This is a robust amplifier.

To my ear, the Black Beauties' top octaves are a little soft and sweet and gently rolled-off (as you might expect from an amp with this one's overall darkish character). But as in the bass, speed, definition, and focus are still pretty darn good. Oh, you may lose a little metallic sting on hard transients like cymbal strikes, but upper-octave strings (including harmonics) or top-register piano have everything you'd expect to hear, including the sense of articulation and touch that brings a performer to life.

There really isn't much more to say about these Carvers. For most of their range, they are at once beautiful and realistic, and I've fallen in love with them. While they may not have much in common with the Phase 400 sonically, they do share one thing with that great amp from the early 70s: They are incredibly good deals. A three-hundred-watt tube amp with this pedigree, build-quality (every component is hand-wired, star-grounded, with no circuit board traces or unpluggable parts), and medley of sonic virtues is a rarity. Which earns the Carver Black Beauty 305s not just my heartfelt recommendation (particularly if you are an "as you like it" or beauty-loving "absolute sound" type of listener) but also one of my upcoming nominations for Amplifier of the Year. **tas**

Carver Black Beauty 305 Setup

The Carver Black Beauties are not only designed for easy, enjoyable listening but also for easy, enjoyable use. This is not the kind of tube amp that you have to constantly twiddle with or fret over. Tube-biasing is a one-time set-and-forget process, using the front-panel bias meter and a screw-driver-adjustable bias pot on the rear panel of each amp. After twenty or thirty minutes of warm-up (with that top-panel volume control turned all the way down), all six output tubes are biased at once (the meter reads their combined current) at a meter-setting between 60mA and 150mA, with 100mA being the nominal reference point. (More bias increases damping factor, less provides a "softer, more tube-like" sound. Not unexpectedly, Carver himself prefers the amps biased a little lower—to between 80mA and 100mA—but you should be the judge of what's right for your own system.)

I've already mentioned the NFB toggle-switch on the top panel. Switching it to "contemporary" does make for a little more "modern" sound, with somewhat tighter bass and more extended treble and a little less darkness in overall balance, but, frankly, the appeal of this amp is precisely its "retro" sonic vibe (combined with anything-but-retro resolution and focus). If you're looking for a latter-day, high-powered tube amp with greater neutrality and transparency to sources than the Black Beauties, there are much better options than flicking that "classic/contemporary" switch, whereas no other options I've heard give you the magical mix of beauty, detail, and power that the Black Beauties have in their "classic" (Carver-designed-and-approved) mode.

Because Carver uses a DC restorer circuit (which adjusts current to each tube), you do not need to buy a matched set of output tubes for the Black Beauty when it comes time for re-tubing, although Carver does recommend using tubes from the same manufacturer (and, of course, of the same type).

The Black Beauty has one single-ended input on the back of its chassis (no XLR) and four speaker taps—one common (ground), one 2 ohm, one 4 ohm, and one 8 ohm. Carver recommends using the tap that matches your loudspeaker's rated impedance, although past experience suggests that (unless you're dealing with a really difficult load) experimentation may be in order.

Since each monoblock uses nine tubes (including six output tubes) the Black Beauties do generate some heat (although nothing that would drive you out of the room, even on a warm summer day). However, the Black Beauties have no cage over their tubes, meaning that users with children, curious pets, or idiot friends and relatives will want to keep these amps elevated, well-ventilated, and out of easy reach. **JV**

Lamm ML2.2 Single-Ended Triode Amplifier

Can an 18W Amplifier at 3% Distortion be World Class?

Robert Harley



The highest praise I can give the Lamm ML2.2 is that it doesn't sound like a single-ended-triode amplifier. That may seem like an odd way to start what you'll soon see is a rave review of an SET amp, but it reflects the fact that the ML2.2 is far more than just another low-powered SET. In fact, it is singular in its ability to deliver SET virtues while minimizing their limitations.

The ML2.2 is the latest upgraded and refined version of Lamm's famous ML2 introduced in 1998, and the ML2.1 launched in 2004. This latest iteration benefits from having been designed after Lamm's groundbreaking ML3 Signature, a \$139k four-chassis 30W SET whose sound (when driving the right loudspeaker) can only be described as magical. The new ML2.2 features design elements Vladimir Lamm developed

for that reference amplifier, including a new input stage that is similar to that of the ML3. Compared with the ML2.1, the ML2.2 also offers an entirely new power transformer, five filter chokes in the power supply (versus two chokes in the ML2.1), and a new, better-sounding circuit-board material.

The ML2.2 is solidly built but decidedly utilitarian in appearance. This is a serious piece of audio engineering, not living-room jewelry. The black chassis houses the power and output transformers at the rear, with the tube complement at the front. Those tubes include a 12AX7 in the input stage, 6N6Ps as the drivers, and a 6C33C output tube to deliver 18W of output power. A second 6C33C serves as the series-pass element in the fully regulated output-stage power supply. (A 6AK5 and 5651 are also part of the power supply.)

The power transformer has no direct mechanical contact with the chassis or covers; it is instead suspended in a vibration-absorbing encapsulating material. The output transformer (a critical component in any tubed amplifier, particularly an SET) is a custom, hand-wound design with a very low turns-ratio, designed specifically for the 6C33C output tube. This transformer has three taps that correspond to the three output terminals, allowing you to select the one that best matches your loudspeaker's impedance. The power supply includes a soft-start circuit that slowly ramps up the plate voltage to extend tube life. It takes about two minutes after turning on the amplifier for the front-panel red light to stop blinking and glow solid red, indicating the amplifier is operational. A pair of test points and trimmers on the top panel allows the user to correctly set the plate voltage and plate current. (You'll need an accurate voltmeter along with the supplied screwdriver to perform these tasks.)

I've had the ML2.2s for some time but have been waiting to write about them until I mated them with a loudspeaker of appropriate sensitivity and impedance characteristics for their 18W of output power. Ideally, the ML2.2 will drive a loudspeaker with a sensitivity of at least 94dB, one that has a fairly flat impedance magnitude across the audio band and no severe swings in its phase angle (that is, a speaker whose impedance is

EQUIPMENT REVIEW - Lamm ML2.2 Single-Ended Triode Amplifier

more resistive than reactive). I found that speaker in the Magico Q7, reviewed in the previous issue. With a sensitivity of 94dB and what is apparently a benign impedance, the Q7 allowed me to hear the ML2.2 at its best. The Q7's extreme resolution and transparency also provided a clear window on the ML2.2. Incidentally, other loudspeakers with similar sensitivities (the 93dB Venture Ultimate Reference and 94dB Lansche No.7) didn't fare nearly as well with the ML2.2. This isn't casting aspersions on these two loudspeakers. Rather, it just happens that they are more difficult to drive than the Q7 despite their similar sensitivities. There's no substitute for auditioning the amplifier/loudspeaker pair before making a purchasing decision, particularly where low-power SETs are involved.

I started this review by stating that the ML2.2 doesn't sound like an SET. If I brought an experienced listener into my room blindfolded and played a wide range of music for a couple hours, that listener would never be able to identify the amplification as single-ended triode. For starters, the ML2.2 has an absolutely luscious rendering of tone color, yet it never crosses the line into a syrupy romanticism that would soon grow tiresome. The amplifier lacks the typical SET signature of an overly warm and ripe midband that directs the musical focus to certain instruments. And then there's the bass, the Achilles' Heel of SET. The ML2.2's bottom-end extension, control, dynamics, and articulation wouldn't be mistaken for a solid-state dreadnought design, but neither would you think that this 18W SET could deliver the kind of bass control and dynamic drive it exhibited driving the Magico Q7.

The ML2.2 is so natural, organic, and musically

right—and so greatly minimizes an SET's traditional shortcomings—that the amplifier caused me to question the modern paradigm of high-powered solid-state amplification (see my editorial "The Single-Ended Triode Paradox" in Issue 223). Have the last fifty years of amplifier design been a detour down the wrong path? Listen to, say, the new Analogue Productions 45rpm reissue of *Time Out* by The Dave Brubeck Quartet through the ML2.2 and you'll be asking that question as well, no matter what your technical persuasion. Joe Morello's ride cymbal just hangs in space with startling realism that makes it sound like it was recorded yesterday; Paul Desmond's alto glows with a gorgeous liquidity and richness of tone color; and Brubeck's intricate piano lines between the melody phrases on "Blue Rondo à la Turk" are conveyed with a newfound clarity that deepened my appreciation of this brilliant composition and performance. I defy even the most hardened anti-SET technocrat to listen to the ML2.2 driving the Q7 and conclude that a vacuum tube amplifier with 18W of output power at 3% THD is an anachronism and an abomination. And the argument that SETs sound good *because* of their high harmonic distortion rather than *in spite of* it simply doesn't wash under careful listening. The ML2.2 sounds like whatever the source sounds like, with no common editorial signature from recording to recording.

What makes the ML2.2 different from other amplifiers—tubed or solid-state, single-ended or push-pull—is a sense of palpable realism and the feeling that music is being brought to life contemporaneously. The ML2.2 doesn't sound like just a great tubed amplifier, only a little better; it provides a fundamentally different listening

experience. This amplifier's sound is qualitatively superior, not quantitatively. As I discussed in my review last issue of the Q7, realism is the ultimate goal of high-end audio, and therefore the ultimate reference standard for judging audio products. And realism is what the ML2.2 delivers, in spades.

Instruments and voices sound realistic in timbre, in dynamic shading and expression, in their spatial presentations, and in the joyous feeling of people creating music before you.

The ML2.2 sounds so real in part because of a few specific qualities that can be identified and

SPECS & PRICING

Type: Single-ended triode monoblock power amplifier
Power output: 18W continuous into 4, 8, or 16 ohms at 3% THD
Tube complement: 12AX7, 6N6P (x2), 6C33C (x2), 6AK5, 5651
Frequency response: 20Hz-20kHz (-0.3dB) at 18W into 16 ohms
Signal-to-noise ratio: 90dB A-weighted at 4V into 16 ohms
Inputs: Pseudo-balanced on XLR jacks, unbalanced on RCA jacks
Output taps: 4, 8, 16 ohms
Input impedance: 41k ohms
Output impedance: 0.84 ohms, 30Hz-20kHz (8-ohm tap)
Damping factor: 9.5 at 1kHz
Power consumption: 245W at rated output
Dimensions: 16" x 8.25" x 20.375"
Weight: 81 lbs. each (net)
Price: \$37,290 per pair

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Equipment Racks: Stillpoints
Isolation: Stillpoints Ultra SS and Ultra5
Acoustics: ASC 16" Full-Round Tube Traps, 10" Tower Traps
Accessories: VPI 16.5 record-cleaning machine; Mobile Fidelity record brush, cleaning fluid, stylus cleaner



EQUIPMENT REVIEW - Lamm ML2.2 Single-Ended Triode Amplifier

described, but also by qualities that are ineffable. The specific qualities include, first and foremost, grain-free, ultra-liquid, and deeply saturated tone colors. The brass and woodwinds on *88 Basie Street* [JVC XRCd], for example, just sounded that much closer to the sounds of those instruments in life. Listening to the ML2.2 pointed out to me that even the great amplifiers overlay instrumental textures with a slightly synthetic tincture that hardens the timbre and reduces the sense of ease and involvement. The ML2.2 is utterly natural, organic, and free from any hint of electronic haze. Significantly, the ML2.2's liquidity and ease aren't the result of softening the treble, slightly reducing resolution or rounding transient information. In fact, this amplifier has a full measure of treble energy, is ultra-high in resolution, and has whip-fast transient performance. The difference is that the ML2.2 doesn't make the treble sound as though it's a separate component of the spectrum. Neither does it artificially hype detail or add etch to transient leading edges. It simply presents music in a way that sounds closer to the way live instruments sound, and less like a hi-fi recreation of them.

Another of the ML2.2's strengths is its ability to make crystal-clear subtle musical lines that, through other amplifiers, become part of a homogenized background. The ML2.2 allowed me to hear, without effort, what every musician is doing at any time. Countless times I found myself discovering nuances of expression in "background" parts that turned out to be essential to the piece's presentation. This quality is in part aided by another of the ML2.2's great attributes, the impression that the instrument exists in tangible space, not in a freeze-dried

vacuum. I could hear a halo of air around the image, and that halo expand outward with its dynamic envelope, a quality for which Jonathan Valin coined the term "action." Not only that, but the ML2.2 portrayed the reverberation around the instrument with a density and complexity that one hears in life. The decay surrounding the piano of *Nojima Plays Liszt* on Reference Recordings was richly portrayed, and with it came a heightened impression of a piano in a hall, "lighting up" the acoustic. When these qualities are combined simultaneously as they are in the ML2.2, the result is an extremely powerful connection with the musical expression.

When driving the Q7, the ML2.2 was my amplifier of choice with about 75% of my music collection. With the other 25% I would sacrifice the ML2.2's unique qualities for greater bass extension and control, wider dynamics, and the ability to reproduce musical climaxes without strain. If you want to hear the Q7's spectacular bass extension, bottom-end power and drive, and bass impact, the ML2.2 probably isn't the amplifier for you. The ML2.2 won't reproduce orchestral climaxes with the same authority and lack of strain as a big solid-state amplifier. It also fails to fully convey the powerful rhythmic drive of rock, blues, and some jazz. My 75%-to-25% ratio will vary from listener to listener depending on musical taste. If your proclivities lean toward chamber music, acoustic jazz, and vocals, the ML2.2 will likely be perfectly suited to 100% of your collection. And keep in mind that the higher the loudspeaker's sensitivity, and the more benign its impedance, the less the ML2.2 will be limited in bass and dynamics. With a loudspeaker of 98dB sensitivity and a flat impedance magnitude



and phase angle, the ML2.2 will sound like a powerhouse. Nonetheless, I must reiterate that it would be a mistake to think of the ML2.2 as just another SET amplifier with all of that technology's limitations in the bass. No other SET I've heard has the ML2.2's control, dynamics, and authority in the bottom octaves.

Conclusion

The Lamm ML2.2 surely belongs in the pantheon of the world's greatest amplifiers—of any price or technology. This amplifier delivers the kind of special listening experience that you must hear for yourself to understand just how special it is—and how it can make other amplifiers, even the most highly regarded tube and solid-state designs, sound somewhat flat and sterile by comparison.

As I thought back on my listening experience to write this description of the ML2.2's sound, I found that the memory of the listening sessions with the

Lamm was more vividly etched in my mind than listening sessions with other amplifiers. Recalling specific pieces of music, I relived the sense of musical discovery, of communication from artist to listener, that is the hallmark experience of living with this special product.

As great an amplifier as the ML2.2 is, it's not for everyone or for every loudspeaker. You must match it with an appropriate loudspeaker and be aware that it won't deliver the bass extension, control, and dynamics of less expensive solid-state designs. You must also be prepared to make front-panel adjustments using a voltmeter, as well as to replace tubes periodically.

But the caveats end there; in every other respect—and I mean every respect—the Lamm ML2.2 is stunningly great. Once you hear the ML2.2 under the right conditions, your world will be forever changed. I know that mine has been.

tas



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Musical Fidelity M8 Preamplifier and M8700m Amplifier

Power to Spare

Jacob Heilbrunn



For over three decades Musical Fidelity, a company based in the United Kingdom and led by the clarinetist Antony Michaelson, has been among the leading purveyors of a startling variety of audio equipment. It has produced everything from buffers to CD players to amplifiers, sometimes employing exotic tubes like the 6112 twin-triode Mu-vista. Perhaps its most intriguing flagship product has been its Titan amplifier, an unusual kind of monoblock that contains the amplification in one chassis and the power supply in a separate one, with each linked to the other by a special control cable. About a year ago I had the chance to demo the Titan briefly and contrast it with the Classé CA-M600. The Titan acquitted itself admirably, coming out on the somewhat sweeter more refulgent side along with plenty of power to spare.

So upon learning that Musical Fidelity was coming out with a new monoblock amplifier and a preamplifier to accompany it, I was eager to audition them, both on my main speakers and subwoofers. While Musical Fidelity tends to be somewhat sparse about supplying technical specifications, it's clear that, like the Titan, the M8700m puts out plenty of juice—a whopping 700 watts into 8 ohms. Whether it doubles up into 4 ohms the company does not say. It also claims a superlative signal-to-noise ratio of 120dB, a number that seems to be increasingly common among high-end amplifier manufacturers as they seek to create blacker backgrounds from which the music can emerge. One other notable feature is that the company has also banished output-protection circuitry from the amp, which means that you need to be doubly careful about making sure that you don't cross speaker cables at the terminals and risk frying the amplifier (or speakers). Finally, the amp does run in an internally bridged configuration, so you need to think twice before you connect a subwoofer like the REL to it, as you can create a common ground that also risks a fireworks display.

One of the first things that became evident upon firing up the amps was their fundamental prowess in the bass region, one that translates into a warm and resonant sound throughout the frequency spectrum. We're talking death grip on the bass notes. This, friends, is take-no-prisoners territory. When it was first deployed on Wilson Audio's Hammer of Thor subwoofers, I'd wondered how much difference power amps could make in the 30Hz-on-down region. Well, it only took a few seconds for me to stop wondering and a big and somewhat incredulous grin broke out on my face as those darned amps appeared to take the subs down another octave or so in depth. This wasn't

a matter of minor nuances. It was directly and audibly palpable. You could feel the molecules in the room vibrating as this amplifier immediately took command of the woofers.

Take the track "Mo Better Blues" on pianist Jacky Terrasson's contemplative CD *Smile* [Blue Note]. The electric bass had always been impressive in a wide range of iterations over the years, whether it was with Classé or Nagra amplification. But with the M8700m, it achieved a different quality of solidity and sheer force. My room had never been pressurized to that extent before with these subwoofers—the impact was right in the gut, but never crude or thudding. On the contrary, the speed and control in the bass region was sensational.

Nor was this attribute confined to the subwoofers. When I ran the amplifiers on the main Wilson XLFs, I was once again impressed at their authority. On piano and acoustic bass, the amplifiers manifested both a clarity and power in the bass region that was second to none. The bass oozed out of the speakers without conveying any sense of time lag—the interstitial black space between the notes was final and absolute.

In focusing so intently on the bass, I don't mean to convey the impression that this, and this alone, is what makes the amplifiers exceptional. It is not. Apart from their grip and control, the other particularly impressive quality is their low noise floor. In this regard, I believe that the M8700m surpasses its predecessor the Titan. The Titan had a somewhat rolled off top-end in comparison with the Classé amps, which seemed to extend into the ether. While the M8700m has a fuller and warmer sound than the Classés, I don't think that they are truncating the treble region. Instead, it's fascinating to observe how far you can hear into the recording. On Christian McBride's CD

EQUIPMENT REVIEW - Musical Fidelity M8 Preamp and M8700m Amp



Conversations With Christian [Mack Avenue Records], the final track “Chitlins and Gefiltefish” ends with him shouting, “Yeah!” Which is what you’ll feel like yelling back when you hear how vivid his voice sounds, reverberating off the walls of the recording studio. The low noise floor is also conducive to conveying a sense of the silky flow in Andras Schiff’s new and much-heralded recording of Bach’s *Well-Tempered Klavier* on the ECM label. Schiff explains that he believes it is unduly intrusive to employ the pedal when playing this piece, and he relies solely on his own fleet hands to create a sense of line. The Musical Fidelity’s lack of strain and quiet backgrounds allow Schiff’s unique interpretation to emerge in all its subtlety, refinement, and complexity. Naturally, the dCS Vivaldi played no small part in recreating Schiff’s piano playing. But what I hope to convey is that the combination of the two pieces, the M8 preamplifier and amplifier, create a believable and intriguing representation of the original event.

On the old Columbia mono LP *Little Susie*, which features the jazz pianist Ray Bryant and was dedicated to his then little daughter, the combination of preamp and amplifier did a fantastic job of capturing the acoustic envelope of the drum and you could hear wooden blocks being clapped together way back in the studio. They were simply crystal clear even as Bryant pounded away with his indomitable left hand laying down one propulsive line after another. By getting out of the way of the music the MF gear allowed Bryant’s

performance to emerge that much more convincingly. Throughout, it was abundantly plain that the preamp and amplifier laid down a rock-solid rhythmic foundation that is perhaps one of the attributes of solid-state gear that has not been sufficiently discussed. Which is to say that the resolute grip of excellent solid-state banishes any sense of flabbiness. The notes not only start and stop with finality, but this precision showcases the utter rhythmic certainty—the foundation of music, after all—of professional musicians, who never waver or fall behind or ahead of the beat unless, as in jazz, they are doing it deliberately.

Of the two pieces, however, I have to say that the amplifier impressed me more than the preamplifier. While the preamp didn’t do anything wrong, I felt that it was somewhat thinner-sounding than the amplifier, at least on larger-scale classical music, whether it was a Bach cantata or chamber orchestra. On more popular music, jazz or rock, this quality simply wasn’t as noticeable, and the preamp performed particularly well in recreating the swish of air in the hi-hat and the twang of guitars. It could be that the amp with its relentless drive sets such a high standard relative to its price that the preamp just didn’t quite match up to its stellar performance, at least in the treble region.

What the low noise floor of the preamp and the prodigious power of the amp buy you, however, is a vast and deep soundstage with the ability to latch on to almost every shading and nuance imaginable. These characteristics were clearly apparent on a new recording for Harmonia Mundi by Bruce Dickey of the cornetto, the precursor of the trumpet, on a series of renaissance songs composed around 1600. But they came home to me most vividly in listening to Leonard Cohen’s new album *Old Ideas* [Columbia], which my TAS colleague Neil Gader either inadvertently left behind or bestowed upon me during his last visit. There was a heft, a sense of Cohen’s voice, at once plangent and gruff, that was riveting. Whether it was the song “Going Home” or “Amen” or “Darkness,” the authority and precision were overwhelming, both on Cohen’s vocals and on the backup instruments, whose size was spot on. Need I mention that the electric bass was subterranean in its power and depth?

To my mind, the amplifier in particular is an exceptional value,

one of the most authoritative solid-state products that I have had the chance to hear. No, it doesn’t quite have the very last degree of transparency that the similarly priced Classé offers, but it appears to be even more powerful and sonically fleshed out. To my ears, Musical Fidelity offers a level of sound quality that is most enticing. Or, to it more bluntly, as a friend of mine announced to a group of us listening the other night, “Dude, this [expletive deleted] rocks!” You bet it does. **TAS**

SPECS & PRICING

M8 PREAMPLIFIER

Inputs: One switchable mm/mc RCA; two XLR balanced; five RCA
THD+N: Single ended, <0.005%; balanced, <0.004%
Signal-to-noise: >118dB, A-weighted
Frequency response: +0, -1dB, 5Hz to 100kHz
Dimensions: 440 x 162 x 400mm
Weight: 17 kg
Price: \$4999

Weight: 30 kg
Price: \$12,500/pr.

MUSICAL FIDELITY NORTH AMERICA
P.O. Box 51206
Phoenix, AZ 85076
(480) 297 4053
randy@musicalfidelity.com

M8700 AMPLIFIER

Power output: 700 watts per channel into 8 ohms (28dBW)
THD+N: <0.005% typical
Signal-to-noise: >120dB
Frequency response: +0, -1dB, 10Hz to 80kHz
Inputs: Two RCA; one XLR balanced; one trigger input 3.5mm mono jack
Dimensions: 440 x 160 x 460mm

ASSOCIATED EQUIPMENT

dCS Vivaldi digital playback system, Continuum Caliburn turntable with two Cobra tonearms, Ypsilon PST Mk. II preamplifier, VPS 100 phono preamplifier, SET 100 Ultimate mono blocks, Wilson Audio XLF loudspeaker and Hammer of Thor subwoofers, Lyra Atlas and Titan mono cartridges, Transparent MM2 Opus cabling, and Minus K isolation platforms



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Absolare Passion Preamplifier and Passion 845 Single-Ended-Triode Power Amplifier

Boutique

Robert Harley



The term “boutique” as applied to an audio product or company is almost always pejorative. That’s because the industry has seen so many companies produce ultra-high-end-looking products aimed at the very wealthy that offer mediocre performance at best—“all show and no go.” Boutique products are cynical in that their purveyors are not interested in sound quality, but rather in exploiting a lucrative market.

But imagine a high-end company that combines the very highest musical, technical, and aesthetic values with the luxury looks and buyer appeal of the world’s finest boutique brands. That convergence is realized in the form of a relatively new firm called Absolare. To give you an idea of how dedicated Absolare is to satisfying its customers, consider that you can order its gorgeous leather-clad Passion preamplifier and Passion 845 single-ended-triode power amplifiers in a wide range of premium leathers. Rather than selecting the leather from looking at the color on a computer screen, Absolare sends you large swatches of the actual leather. If you can’t decide between colors Absolare will build the product’s entire leather-clad panels in up to three colors and ship them to your home so that you can live with the samples before choosing one. And to keep that leather in perfect condition, Absolare supplies not just a generic leather-care kit, but a state-of-the-art system from Swissvax, including museum-grade leather conditioner.

There’s more. If you are considering buying Absolare’s acoustic panels and equipment stands, the company will create computer renderings of the entire system and merge those renderings with photographs of your room and your existing associated equipment so that you can see how the finished system will look. The

EQUIPMENT REVIEW - Absolare Passion Preamp and Passion 845 Power Amp

company will set up the system in your home and help you choose just the right tubes. And speaking of tubes, Absolare has scoured the world for the finest vacuum tubes and has purchased large supplies of what it considers the best, including some rare vintage New Old Stock (NOS) units. My review sample was fitted with NOS 6SN7s from 1943, for example.

This over-the-top dedication to the buying and ownership experience would mean nothing if the circuits were not designed and executed with a commensurate level of commitment. I can report that the Passion preamplifier and Passion 845 power amplifier are designed and built as though they were cost-no-object products. Every single component inside them has been chosen from the best vendors around the world. The Italian output transformers—crucial in a single-ended power amplifier—are designed specifically for the amplifier and wound with high-purity 7N copper. The vibration-isolation feet are custom-designed in Korea by a man who has spent the last 25 years designing and building anti-resonant feet for audio components. The feet are specific to each product, and even to their respective positions beneath the products. The custom gold-plated tube sockets are handmade in Japan by Yammamoto. Internal wiring is Echole Obsession Signature (Echole is Absolare's sister company). And it's not just the parts that are international; in its quest to make statement-level products, Absolare put together a global design group, including the venerated Japanese single-end-triode artisan Noriyasu Komuro.

In a nutshell, Absolare's approach is to assemble an international team of the best engineers, find the highest-grade parts from vendors around the world, pursue absolute minimalism in the sig-

nal path, exploit synergies between components, wrap all this up in lavishly made and easy-to-use designs, and provide a level of customer service commensurate with that of the world's finest luxury brands.

Absolare also builds equipment racks, amplifier stands, and acoustic panels. The stands and racks are made from very thin layers of African rosewood bonded with a glue developed specifically for these stands. The type of wood, number of layers, bonding technique, and adhesive were chosen for their resonant properties. Each piece of furniture is finished in a palisander veneer for aesthetics. The equipment stands are built in a Turkish factory that makes furniture for the world's most exclusive luxury hotels. My review system was supplied with two amplifier stands shaped like inverted and truncated pyramids; the preamplifier stand has the same form factor but upside-down. The three stands thus nest into each other when the preamplifier is flanked by the pair of power amplifiers, conveying the impression of one continuous system. The stands' craftsmanship is first-rate.

The review system also included Echole's top-of-the-line Obsession Signature interconnects and loudspeaker cables. Echole spent several years developing the metallurgy in these cables, reportedly auditioning more than 90 different combinations of metals before deciding on a mixture of silver, gold, and palladium. Even different formulations of solder were auditioned until Echole had created its own solder that incorporates the metals in the conductors. The cables are fitted with an anti-resonant device machined from a solid aluminum block into which a cosmetic layer of bobinga wood has been inset. The device can be

SPECS & PRICING

PASSION PREAMPLIFIER

Type: Single-ended

Inputs: Three stereo single-ended on RCA jacks

Outputs: Two stereo single-ended on RCA jacks

Tube complement: Two 12AU7 dual triodes

Bandwidth: 10Hz-45kHz

Input impedance: 120k ohms

Volume control: Analog 24-step attenuator

Gain: 18dB

Dimensions: 15" x 5.75" x 21.5"

Weight: 41.6 lbs, net

Price: \$25,000

PASSION SINGLE-ENDED POWER AMPLIFIER

Architecture: Single-ended

Output power: 52W

Tube complement: Two 6SN7 input and driver, two 845 output (in parallel)

Inputs: One single-ended on RCA jacks

Outputs: 8-ohm and 4-ohm transformer taps

Input impedance: 75k ohms

Bandwidth: 15Hz-35kHz

Dimensions: 15" x 11.6" x 25.8"

Weight: 88.7 pounds each, net

Price: \$37,500 per pair

ABSOLARE

40 Pemberton Road

Nashua, New Hampshire 03063

(603) 835 3362

absolare.com

ASSOCIATED COMPONENTS

Digital Sources: dCS Vivaldi system (transport, upsampler, clock, DAC); Berkeley Audio Design Alpha DAC Series 2; iMac server with Berkeley Alpha USB interface, MacBook Pro; Pure Music and Audivana playback software

Analog Source: Basis Inspiration turntable with Basis Vector 4 tonearm, Air Tight PC-1 Supreme cartridge; Simaudio Moon 810LP phonostage

AC Conditioning and Cords: Shunyata Triton and Talos, Audience aR6TS conditioners; Echole Obsession Signature, Shunyata Zitron Anaconda and Audience Au24 AC cords

Cables: Echole Obsession Signature interconnects and AC cords; MIT MA-X SHD loudspeaker cables; AudioQuest Wild AES/EBU, AudioQuest EagleEye BNC clock cables, AudioQuest Diamond USB, WireWorld Platinum Starlight USB

Equipment Racks: Stillpoints, Absolare amplifier and preamplifier furniture

Acoustics: ASC 16" Full-Round Tube Traps, 10" Tower Traps

Accessories: VPI 16.5 record-cleaning machine; Mobile Fidelity record brush, cleaning fluid, stylus cleaner

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EQUIPMENT REVIEW - Absolare Passion Preamp and Passion 845 Power Amp



moved along the cable length for fine tuning. The RCA connectors are custom-made by Oyaide from palladium coated in silver. Absolare also supplied me with its Obsession Signature AC power cords, which feature this same exotic mix of metals. The Absolare-branded AC power conditioner (not part of my review system) was developed by Jack Bybee, and incorporates his proprietary technologies.

This comprehensive approach reflects Absolare's belief that audio components that have been engineered to work together synergistically as a complete system will outperform a collection of individual products. In fact, Absolare can supply an entire audio system except sources and loudspeakers.

Absolare is the brainchild of Kerem Kucukaslan, a Turkish native who attended college and later worked in the U.S. He coordinates the company from Istanbul, but the products are manufactured in New Hampshire. In an industry full of passionate

individuals pursuing an aesthetic vision, few have the dedication and intensity of Kerem Kucukaslan. That vision is realized in the products reviewed here, which exude a very different "vibe" than just about any other components I've reviewed. From their unusual form factor, to the leather-clad chassis, to the ultra-simple operation and the absence of even front-panel markings, the Passion preamplifier and 845 power amplifier engender a different relationship between the user and the hi-fi system. It is a music-reproduction system stripped down to its most basic function. If you want a preamplifier with six balanced and six unbalanced inputs, gain offset on each input, theater-pass-through modes, a front-panel display showing nameable inputs, and an iPod dock, Absolare isn't for you. The products are not inexpensive at \$25,000 for the preamplifier and \$37,500 for a pair of power amplifiers, but based on their build-quality, the parts inside, and the sound I consider them eminently reasonably priced.

Description

The preamplifier and power amplifiers are minimalist in the extreme, both in operation and in circuitry. The all-tube, single-ended preamplifier has just two unmarked front-panel knobs: volume and input selection. The three inputs and dual outputs are all unbalanced on RCA jacks. No remote control is provided. The preamplifier's form factor is unusual; the rectangular chassis is deeper than it is wide. The circuit's two 12AU7 tubes are recessed in a well on the chassis top. This top panel is clad in gorgeous leather, as is the bottom panel.

The 12AU7s are configured as mu-followers, but with fewer accompanying resistors than traditional mu-follower circuits. The preamplifier can provide a whopping 18dB of gain. The audio circuit is isolated from the power supply in a subchassis with 3mm-thick walls. Sources are selected from the front-panel rotary knob (again, it is unmarked), but the signal routing occurs on the back panel next to the jacks. Similarly, the 24-step, gold-plated, Japanese-made, rotary volume knob adjusts the level right at the gain circuit, keeping the signal path as short as possible. This combination of high gain and only 24 positions on the volume control can result in rather large steps between volume settings, particularly with high-level sources. The input is direct-coupled, and the output capacitor-coupled. If you order the Passion preamplifier with balanced inputs and outputs, the inputs and outputs are transformer-coupled. There are no circuit boards inside; all wiring is point-to-point with the conductors from Echople's Obsession Signature interconnects, and all solder joints are made with the custom blend of gold, silver, and palladium within the solder. The RCA jacks are made from tellurium copper with a gold-plating.

The power amplifier, designed by Noriyasu Komuro, is a single-ended triode design with parallel 845 output tubes producing 52W. A design goal was to bring the magic of low-powered SET amplifiers to a product that could drive a wide range of real-world loudspeakers without compromising dynamics, playback level, or bass definition. Separate 8-ohm and 4-ohm transformer taps are provided on silver-plated copper binding posts. Although you may use a range of 845 output tubes, Absolare recommends (and supplies with the amplifier) matched quartets made by Psavane.

The input and driver tubes are 6SN7 types, but here you have a wide selection of tubes. The 6SN7 tubes supplied as standard are custom-selected NOS Russian military types. Absolare can supply a wide range of other tubes, including rare vintage models such as Tungsols and Sylvania from the 1940s. They have found the new-production Sylvania tubes to be outstanding as well. My review samples were fitted with Tungsol NOS tubes made for the U.S. Navy in 1943. Still in their original boxes, they looked like they had remained untouched for the past 70 years.

The input is directly coupled (once again, the balanced version is transformer-coupled), and the signal path is wired with Echople's Obsession Signature wire. The power section is wired with 7N-purity copper wire. The tube sockets are made from Teflon to reduce vibration, and feature gold-plated contacts. As with the Passion preamplifier, the RCA jacks are gold-plated tellurium copper; point-to-point wiring is used throughout; and all solder joints are formed with the special silver/gold/palladium silver solder.

The chassis construction is unusual. A single sheet of 3mm-thick aluminum is laser-cut, folded

EQUIPMENT REVIEW - Absolare Passion Preamp and Passion 845 Power Amp

into the chassis shape, and then welded to form the chassis. The circuit is mounted on the 14mm-thick (almost half an inch) aluminum top plate. The signal capacitors as well as the power-supply reservoir capacitors are mounted on this thick top plate to minimize vibration. This aluminum structure is clad in two CNC-machined outer shells made from MDF, which are then wrapped in gorgeous German automotive leather. The preamplifier and power amplifier are supplied with the custom-made Korean vibration-isolation feet described earlier.

Listening

I've heard the Passion preamplifier and 845 single-ended-triode power amplifiers in three systems in the past year. The first time was in Absolare's own system in Istanbul, where I spent about two hours in the sweet spot with my own reference tracks. I also heard the electronics briefly at T.H.E. Show during CES last January driving Rockport Altairs, one of my two favorite loudspeakers (the other is the Magico Q7). As good as the Altairs sounded at my home when I reviewed them (Issue 214), they were even better at the show. That's saying something because shows are notoriously difficult environments.

But it was listening to the Magico Q7 driven by the Passion preamplifier and Passion 845 power amplifier for the past four months that convinced me that these Absolare products are some of the most musical and involving electronics I've heard. The Q7 has a sensitivity of 94dB and is fairly easy to drive—a perfect match for the amplifier's 52W. In fact, I never felt as though I encountered the amplifier's output or dynamic limitations; the system plays cleanly at any volume level, and handles dynamic swings with aplomb. It may seem odd to begin praising a single-ended-triode amplifier for its robust output power and dynamic verve (traditionally SET weaknesses), but the Passion 845 belies the stereotypes about SET designs. This is an amplifier with seemingly unfettered dynamic contrasts along with a robust and full bottom-end. Judging from the bass control, bottom-end extension, and dynamics, you wouldn't think that you were listening to an SET design.

In this regard, the Absolare is very much like the Lamm ML2.2 I reviewed in Issue 230. That 18W SET, priced nearly identically to the



Absolare at \$37,290, has surprising bass extension and control for an 18W amp. When the Lamm is operated within its power limitations, it has slightly deeper and better-defined bass than the Absolare—which is saying a lot in itself. But turn up the volume and the Absolare pulls away, courtesy of its much more robust output power. Orchestral climaxes are reproduced with greater authority, and kick drum in rock has greater impact. In fact, the Passion 845's 52W sounded like a powerhouse driving the Q7s. This is an SET that will drive a very wide range of loudspeakers without the traditional limitations of the genre.

These virtues, unusual in an SET, are combined with all the glories of an ultra-minimalist single-ended-triode design. For starters, the system's reproduction of timbre is staggering in its realism—about as good as that of the Lamm ML2.2, an amplifier that in my view is the world reference in reproducing instrumental texture and tone color. Timbres are richly portrayed, with a density of color and warmth that makes even the best solid-state sound very slightly mechanical or artificial. The Absolare electronics totally lack any synthetic patina, instead rendering instruments and voices with a natural and organic quality. It's the kind of sound that as soon as the music starts playing just seems “right”—you don't have to consciously overlook the system's lack of timbral realism to enjoy the music. The Absolare electronics have a directness and realism that conveys a more convincing illusion of live instruments. I noticed this on John Pattitucci's bowed bass playing on the SACD *Speak Low* (with Hank Jones and Jack DeJohnette); the Absolare electronics rendered the instrument as a large wooden body resonating in three-dimensional space rather than as a cardboard cutout.

The overall character of these electronics is gentle, intimate, and emotional, leading to heightened musical expressiveness. It's the kind of presentation that reveals its beauty not in a quick demo, but during a long session late at night when you find yourself deeply immersed in a voyage of musical discovery. These electronics reproduce musical detail in a way that is subtle rather than overt, yet paradoxically they manage to convey more such information—the mechanism by which an instrument makes sound, the nuances of phrasing, subtleties of dynamic expression, and the interplay between musicians. I had many wonderful musical epiphanies, even with familiar recordings. On the track “Tin Tin Deo” from *Art Pepper Meets the Rhythm Section* [Analogue Productions LP] I had never quite appreciated the genius of Red Garland's syncopated comping behind Pepper's melodic playing until I heard this record through the Absolare. These electronics lay bare layers upon layers of musical expression, creating an intense sense of involvement. In fact, these electronics redefined for me the idea that an audio presentation can be highly detailed musically without sounding highly detailed sonically. It doesn't take exaggerated leading-edge transients, brightness, or etch to convey real musical detail. Those sonic qualities get in the way of communicating the kind of musical expression I'm talking about. The Absolare electronics speak more to the heart than to the ear.

Part of this ability to reveal musical expression is due to these electronics' ability to separate instrumental lines rather than congeal them. But part is also owed to the Absolare's special ability to convey rhythms and nuances of dynamic expression, not in the macro sense of slam, but rather in the rhythmic intricacies of great drummers like Jack DeJohnette, Joe Morello, or Lenny White. On the recent double-CD release *Forever* (much of it acoustic trio work with Chick Corea, Stanley Clark, and Lenny White), White's characteristic behind-the-beat style is heightened and more musically “intelligible.”

The Absolare's treble is extremely clean, delicate, and just a little on the soft side. It's not as extended, resolved, or open as the Constellation Centaur monoblocks, for example (the Constellation's strong suit), but the Absolare's treble has a certain beauty all its own. The Absolare electronics don't impose an electronic sheen over the treble, allowing them to reproduce the inner detail of shimmering

EQUIPMENT REVIEW - Absolare Passion Preamp & 845 Power Amp

cymbals with lifelike realism. String tone is beyond gorgeous; to hear massed violins with no trace of artificial edge is revelatory. The Absolare electronics don't achieve this smoothness and ease via a syrupy, overly romantic, or colored rendering. The magic is in presenting high frequencies as they sound in life—without a metallic or synthetic edge. The Lamm ML2.2 is similarly clean and beautiful in the treble, but with just a bit more top-octave air and openness than the Absolare.

As you might expect from a minimalist, pure single-ended-triode signal path, the Absolare's midrange is glorious in timbre, tone color, liquidity, and freedom from grain. It's not just the timbral qualities that make these electronics special, but also the startling sense of directness through the midband. It's as though "something" has been removed between you and the music, laying bare both the sound itself and the musical meaning behind that sound. As wonderful as some solid-state electronics are, they just don't have the visceral immediacy that makes the music seem as though it is being contemporaneously created. Every audiophile should experience this level of midrange transparency and directness at least once.

In the ability to portray a large sense of space, of instruments within that space and the distance between them, and the overall impression of hearing a lifelike three-dimensional rendering, the Absolare electronics are exceptional—perhaps the best I've heard. The soundstage is beautifully resolved, with a tremendous sense of bloom and space between instrumental images. Depth is also outstanding, although I didn't quite hear the same degree of top-octave openness and extension that

I hear with some other electronics. Significantly, the Absolare's soundstage isn't big and bloomy on all recordings, but rather changes dramatically among recordings.

Conclusion

The Absolare Passion preamplifier and Passion 845 single-ended-triode amplifiers are not just superb examples of their genre; they also bring the manifold virtues of single-ended-triode amplification to a wider range of loudspeakers. Those virtues include a directness of expression, immediacy, and musical involvement that are world-class. They not only excel within the niche of a tubed preamplifier and SET power amplifier, but transcend that niche by delivering plenty of output power and outstanding dynamics and bass control. Consequently, they are much more practical in the real world than most SETs.

Their ultra-minimalist orientation will appeal to some listeners more than others. The features and facilities are limited (three unbalanced inputs, no remote control, the 24-step volume control, for examples), but for many the simplicity of operation and purity of the signal will outweigh these shortcomings. There will be no questions, however, about their extraordinary build-quality, exotic parts, and the lavishly luxurious feel conferred by their leather-clad chassis. They exude a completely different aesthetic that you'll either relate to or not.

The aptly named Absolare Passion preamplifier and Passion 845 single-ended-triode amplifiers may be a little hard to find, but are worth searching for. They are truly boutique products in the best sense of those words. *tas*

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Soulution 500 Series Electronics

Phenomenal

Jonathan Valin

The \$26,000 Soulution 520 full-function preamplifier and \$55,000-per-pair 501 monoblock amplifiers are terrific. Sweet in timbre, incredibly fast, and sensationally detailed from top to bottom, they match (or very nearly) the superlative Technical Brain EX and Constellation Performance gear in speed and resolution, although you might not guess this at first because (like their bigger, more expensive brothers, the Soulution 700 Series components) the 500s don't have the laser-like focus of Technical Brain or Constellation. They are "bigger"-sounding than these others, and because they image slightly more diffusely (the difference is almost exactly like the difference between the imaging of a really good planar loudspeaker and a really good dynamic one) you may at first think they are going to be "politer," more laid-back, and less detailed than the competition. I say "at first" because as soon as a hard transient comes along—like those startlingly realistic violin (and piano) pizzicatos in the second movement of George Crumb's *Four Nocturnes* [Mainstream/Time] or the near-string-busting snap of Keb' Mo's *National* guitar on "Every Morning" from his eponymous first album [MoFi] or the tremendous bass drum thwack at the start of Poulenc's delightful *Concerto for Two Pianos* [Decca]—you'll know without question that "polite" and wanting in immediacy and detail are the last things that Soulution's new electronics are. You'll also know without question—particularly from the *Concerto for Two Pianos*—that these 500 Series components have some of the most lifelike bass you've ever heard from mere stereo gear.

Generally I don't get all worked up about the bottom octaves of speakers or electronics. Sure it's swell to have "floor" and "jump" and "slam" and all those good things that you hear in an actual concert hall. The trouble is that it's hard to get those good things in an average listening room without getting a whole bunch of bad ones along with them (like a huge midbass hump at room or port resonance, or a steep roll-off in the low bass, and/or a pronounced suckout in the power range). Getting deep, powerful midbass that also sounds "continuous" (to use Harry Pearson's great, multipurpose word) with the octaves above and below it is a neat trick, and very few loudspeakers can bring it off without a few tricks of their own.

Take my current reference speaker, the Raidho C 4.1 (reviewed elsewhere in this issue). This seven-driver, ribbon/ceramic-cone hybrid, D'Appolito

floorstander uses four 160mm ceramic-sandwich woofers, mounted, as are all of the C 4.1's drivers including the central ribbon, on thick anodized aluminum plates bolted to a tall, slender, tapered-in-the-back, dual-ported-in-the-front reinforced-MDF enclosure. The load this large multiway presents to an amp isn't particularly difficult (a nominal 5.8-ohm impedance with a sensitivity in the upper 80s); nonetheless, meeting the conflicting demands of such a hybrid critter isn't all that easy for any amp to do. To come to fullest life the C 4.1 requires an amplifier that is capable of unusual power and grip in the bass and, at the same time, very low distortion, high speed, and exceptional delicacy in the upper midrange and treble (where that ribbon driver plays).

Generally speaking, most amps are going to be better at one task than at the other. For instance,

EQUIPMENT REVIEW - Soullution 500 Series Electronics



both the Technical Brain and Constellation amps are speed demons, with lightning transient response, tremendous resolution of inner detail, and (given the right source) gorgeous (and highly realistic) midband-to-treble tone color and texture. However, as it turned out, with the C 4.1 neither of them was supplying the grip and impact in the bottom octaves that the Soullution 501/520 supplies.

While the Soullution 500 Series electronics didn't exactly turn the C 4.1 into a thump-in-the-chest machine, they certainly increased its low-end "wow" factor to sensational levels. With the Soullution 501/520, the midbass and upper bass (from about 45Hz to 125Hz)

immediately sounded more prominent and powerful, as if the 501s had seemingly elevated those frequencies by a few dB (although they have not). Suddenly the C 4.1 had floor, jump, slam. And yet the additional mid-to-upper bass energy wasn't overshadowing the very low bass or cheating me of color, power, and heft in the 100Hz to 400Hz power range. Indeed, via the 501s the C 4.1's output between 30 and 40Hz was measurably the same as its output at 1kHz, and so was its output in the power range.

Now the greater prominence of mid-to-upper bass in the Raidho C 4.1 may constitute a bit of a departure from strict neutrality, but

it certainly makes for a very concert-hall-like low end when the amplifier driving the Raidho is capable of supplying enough voltage at a fast enough slew rate and with enough of a damping factor to wring more information about pitch, color, intensity, and duration out of the bottom octaves. The Soullution 501 monoblock and 520 preamplifier do this very thing—spectacularly well.

The word "solid" best describes the Soullution low end—solid not just in a three-dimensional sense (although it is that), but also in a continuous, "of-a-single-piece" sense. Like a chunk of black marble, the mid-to-upper bass seems to have been expertly chiseled to make a perfectly seamless fit with the power range above it and the deep bass below. Getting this kind of weight and sheer exhilarating impact along with superb pitch definition and astonishing resolution of timbre and texture in both the bottom-most octaves and the power range isn't usually in the cards outside of a concert hall, where you hear it all the time on orchestral tuttis or instrumental fortissimos.

One of the secrets to both the 500 Series' and the 700 Series' sonic success is standard-settingly lower distortion, achieved by slightly unusual means. Where every other tube and solid-state amp designer I can think of flees from negative feedback like the plague, Soullution has rushed to embrace it. It is Soullution's contention that negative feedback in itself has gotten a bad rap; it isn't feedback but the time it takes to send the "corrected" signal from the output to the input (technically, propagation delay) that causes the problems. Unless that propagation delay is zero or close to zero, applying feedback will add time-domain errors to the musical signal, since music doesn't sit still for a glamour shot and as time goes by the feedback loop will be "comparing apples at the output to oranges at the input" (in the words of Cyrill Hammer, Soullution's CEO—for more of whose wisdom, see the interview accompanying this review).

In the 700 Series, Soullution's, uh, solution to the propagation delay problem was to increase the amp's bandwidth to the megahertz region and, thereby, increase the speed with which the feedback loop does its thing by a factor of 1000. Most amplifiers and preamplifiers work with a propagation delay of 1–5 microseconds; Soullution's amplifiers and preamplifiers work with an overall propagation delay of 5–10 nanoseconds, reduced to 1–2 nanoseconds in the voltage

EQUIPMENT REVIEW - Soulution 500 Series Electronics

amplification stage—where most of the negative feedback is applied. To quote Hammer again: “Since the timing errors of the Soulution amplifiers are negligible, we have the opportunity to apply as much negative feedback as we need wherever it is required in the amplifier without reducing sonic performance. This is how we can lower distortion to never-before-seen levels.”

Lower distortion certainly helps explain the Soulution 501/520's terrific top-to-bottom clarity and resolution. But the phenomenal distortion numbers alone (THD is less than 0.001% and SNR greater than 120dB) can't explain why Soulution's new 500 Series electronics sound so world-beatingly “real” (and exciting) in the bottom octaves and the power range. You might think that its power delivery was a matter of sheer watts, but, while more than capable of driving the C 4.1s to run-from-the-room levels, the 501s are only rated at 125W into 8 ohms, 250W into 4 ohms, and 500W into 2 ohms. Voltage, amperage, and peak power, however, are different stories.

At a glance, you would never think it—the 501s are actually quite compact, about a quarter the size of the humongous 700s and purely Bauhaus utilitarian in the looks department—but these little Soulutions put out 70V RMS, 45A, and 5000W of impulse power at a slew rate of 900ns with a damping factor that exceeds 10,000!

The sheer, seemingly inexhaustible flow of power from these small, plain-looking

things (fed by the every-bit-as-outstanding 520 preamplifier) unquestionably has something to do with “improvements” that Soulution has made to the power supplies. Unlike the original 700 Series amplifiers, the 500 Series uses “switch-mode” supplies—two of them, electrically isolated from each other (and from the audio circuit) by opto-couplers and transformers, “high-performance-filtered” for noise at the inputs and outputs, and high-speed voltage-regulated. Each of these switch-mode supplies is capable of delivering 600VA, and Soulution claims that, together, they “deliver considerably more stable power than any conventional, transformer-based technology.” (Lest you be confused, the Soulution 501 is not a Class D amp. Though it uses a switch-mode power supply, its gain stages run in Class AB, heavily biased toward Class A. In addition to the switch-mode supplies, the 501 also uses four linear power supplies for other functions.)

The upside of switch-mode supplies as I understand it (make that “as Robert Harley explained it to me”) is that they keep the power supply constantly and fully charged no matter what the signal-demands; they can also be power-factor-corrected (so that wattage and voltage are not slightly out of phase, as they are in conventional supplies).

I know there are switch-mode naysayers, who point out that, even if filtered and shielded, the strong noise (chiefly RF) of the digital switching signal

Operating the 500 Series Electronics

There really isn't a lot you need to know about setting up and using Soulution's new 501 amplifier. Outside of an EIC power-cord inlet, a power-on switch, and XLR connector (no RCA) for the input from your preamp, an XLR output connector (for God knows what), and what Soulution calls its “Link” connector (for slaving the amps and preamps to the remote control) on the back panel, there really isn't much to the 501. On the front panel is a single rotary dial that switches (with a click) among three positions—off, standby, and on. To operate the amplifier you simply turn the dial to the “on” position. You can leave the amp in standby or off when not using it, although I will have a proviso about this later on.

The 501 preamp is quite a bit more complex. Like the 501, it has a multi-function rotary control on its front panel, which can be used to adjust the volume by rotating it, to lower the volume of the preamp to a pre-set minimum by pressing it in (you press it in again to return to the volume set prior to muting), and to program the preamp in certain ways. (All of these functions are duplicated on the handy remote.) To the left of the rotary control are three buttons: Power, Prog (for “Program”), and Mute. And to the left of the buttons is a rectangular LED display, the intensity of which can (and should) be dimmed during playback.

The operating parameters of the preamp can be adjusted in many different ways by pressing the “Prog” button (which puts the preamp in “Program mode”). In this mode, you can adjust balance, volume limits, phonostage subsonic filtering, display dimming, etc. by selecting the parameter you want to change via the rotary dial, which cycles through a list on the LED readout, pressing the dial in to engage program mode for that parameter (three LEDs light on the display when you do this), again rotating the dial to select whatever change you want to make from the options displayed on

the LED screen, pressing the dial in again once you've made your selection (the three LEDs go off), and pressing the Program button again to return to operating mode. It may sound complicated but it becomes second nature once you've done it a couple of times; moreover, it can also be done via the remote.

On the rear panel of the preamp are an EIC power-cord inlet, a power-on switch, four sets of line-level inputs (two XLR-only and two RCA-only), a single set of RCA inputs for the phonostage (with two banks of DIP switches between them for independently setting the loading of the left and right channels), two sets of preamp outputs (one XLR and one RCA, the latter of which is odd since there is no RCA input on the 501 amplifier), and those Soulution Link connectors.

There was and is an operational quirk on my very early pair of 501s. One of the amps would and will occasionally trigger its protection circuit on turn-on, which then requires me (as with a modem) to unplug it from the wall, let it sit for a time, and then re-plug it in. Apparently with these first 501s, the turn-on sequence of the power supplies is being “misread” by the amp's protection circuit, which sees a problem where there is none. I am told that this programming issue was identified and corrected in later-build samples of the 501 (mine are from the first batch, better than a year old). Nonetheless, I am noting the problem, which is annoying, out of due diligence.

Let me also note that as much as I like the 520's built-in phonostage (and I love it), I wish that Soulution had included a second set of inputs (à la ARC and others) for those of us with more than one turntable. I also wish that cartridge loading could be set via the Program mode rather than by DIP switch. It would be more convenient.

EQUIPMENT REVIEW - Soulution 500 Series Electronics

can be radiated throughout the circuit. All I can tell you is that I don't hear this issue. What I am hearing is that when an amp has no droop or phase shift in the supply at any level with any signal, the net effect seems to be equivalent to plugging your speakers directly into a wall socket.

When it comes to dynamic linearity the 501 is simply nonpareil (although I have a feeling that its big brother, the newly redesigned 701, now also equipped with a switch-mode power supply, may be nonpareiler). Here's the thing: Every other amp I've listened to, tube or solid-state, reaches a point where it simply can't get louder or more dynamic without also audibly changing its sonic character. Sometimes, this pivot point comes relatively early on, as it did with the puny ARC Reference 210 monoblocks (less so with the stouter Reference 250s); sometimes it comes relatively late, as it did with the Constellation Centaur. But come it does. And when it comes, the music doesn't just get louder (if it does get louder); it also gets more distorted. Typically, timbres begin to lose their natural sweetness, becoming thinner, more skeletal; with the loss of tone color textural details seem to be planed away, too, so that the resolution of instrumental body and performer articulations is reduced; transients and big dynamic swings often acquire a sharp, unpleasant edge or, alternately, sound flattened out, as if they're being compressed against an invisible loudness ceiling; the soundstage, in turn, congeals, as if it, too, is being pressed against a pane of glass;

what was orderly and beautiful becomes disorderly and clamorous; what was realistic becomes unmistakably the sound of a recording poorly reproduced. Understand that all of these effects set in well before actual clipping. Understand, as well, that this sense of strain is one of the foremost differences between music performed live and music played back on a stereo.

Up until it can give no more and its protection circuits simply shut it down to silence, the 501 is the only amp I've heard that doesn't do any of this. It just keeps getting louder without any change in sonic character—at SPLs so far beyond what you might expect from its nominal 125 watts that its actual output is difficult to gauge. And because it keeps getting louder without strain or outright distortion magical things happen in the bass and power range on big dynamic moments. Tymps, bass drums, gongs, doublebasses, trombones, sarrusophones, tubas, trumpets, bassoons and contrabassoons, bass clarinets, saxophones, pianos, organs acquire the acoustical power that they have in life on big orchestral tuttis—that sense of effortless, seemingly limitless power focused by the hall and projected toward you with enough physical force to be felt like an onrushing wave—and to thrill you with its impact. With the 501s, bass-range instruments *gain* sweetness, texture, solidity, and energy as they get louder, as if the amps were continuously kicking themselves into higher gears—as if there were no end to the gears they could engage.

SPECS & PRICING

Soulution 501 Monoblock Amplifier

Inputs: One analog XLR

Outputs: One analog XLR, one pair of binding posts

Power: 125W@8 ohms, 250W@4 ohms, 500W@2 ohms

Output voltage max.: 70V RMS

Output current max: 45A

Impulse rating: ~5000W

Sensitivity: 1.55V RMS

Voltage amplification: +26dB

Frequency response: DC-800kHz

Slew rate: 900ns

Distortion (THD+N): <0.001%

Signal-to-noise ratio: >120dB

Damping factor: >10,000

Input impedance: 2k ohms

Output impedance: 0.001 ohms

Dimensions: 442 x 143 x 448mm

Weight: ?? lbs.

Price: \$55,000/pr.

Soulution 520 Preamplifier

Inputs: Two balanced XLR, two unbalanced RCA, one phono (five total)

Outputs: One balanced XLR, one unbalanced RCA

Impedance: Balanced (Inputs 1 and 2), 3k ohms; unbalanced (Inputs 3 and 4), 3k ohms; phono (Input 5), adjustable

Output gain: Balanced, +16dB; unbalanced, +10dB

Frequency response: DC-800kHz

THD+N: <0.001%

Signal-to-noise ratio: >120dB

Crosstalk: <120dB

Impedance: Balanced, 10 ohms; unbalanced, 10 ohms

Dimensions: 442 x 143 x 448mm

Weight: ?? lbs.

Price: \$26,000

JV's Reference System

Loudspeakers: Raidho C 4.1, Raidho C1.1, Raidho D1, Estelon X Diamond, MartinLogan CLX, Magnepan 1.7, Magnepan 3.7, Magnepan 20.7

Linestage preamps: Soulution 520, Constellation Virgo, Audio Research Reference 10, Siltech SAGA System C1

Phonostage preamps: Audio Research Corporation Reference Phono ZSE, Innovative Cohesion Engineer-ing Raptor, Soulution 520

Power amplifiers: Soulution 501, Constellation Centaur, Audio Research Reference 250, Lamm ML2.2

Analog source: DaVinci AAS Gabriel Mk II turntable with DaVinci Master's Reference Virtu tonearm, Walker Audio Proscenium Black Diamond Mk V record player, AMG Viella 12

Phono cartridges: Clearaudio Goldfinger Statement, Ortofon MC A90, Ortofon MC Anna, Benz LP S-MR

Digital source: Berkeley Alpha DAC 2

Cable and interconnect: Synergistic Research Galileo, Crystal Cable Absolute Dream

Power Cords: Synergistic Re-search Tesla, Shunyata King Cobra, Crystal Cable Absolute Dream

Power Conditioner: Synergistics Research Galileo, Technical Brain

Accessories: Synergistic ART system, Shakti Hallographs (6), A/V Room Services Metu panels and traps, ASC Tube Traps, Critical Mass MAXXUM equipment and amp stands, Symposium Isis and Ultra equipment platforms, Walker Valid Points and Resonance Control discs, Clearaudio Double Matrix SE record cleaner, HiFi-Tuning silver/gold fuses

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EQUIPMENT REVIEW - Soulution 500 Series Electronics

There is no question in my mind that it is the combination of exceedingly low distortion, astounding speed, almost limitless voltage, amperage, and peak power, and tremendous damping that allows the Soulution 501s to bring a speaker like the Raidho C 4.1s to such incredible life in the bottom octaves and the power range where grip, damping, transient response, and unlimited power are all-important.

But what about the midrange and the treble octaves? What about the delicacy, speed, and sweetness they require?

If you're expecting that other shoe to drop here, you're going to be disappointed. True, their bass/power-range color, definition, and dynamics may be their most salient features simply because in the bass and on big dynamic swings—such as the Catherine Wheel fireworks of the *Feria* that closes Ravel's *Rapsodie espagnole* on Acoustic Sound's marvelous reissue of *The Reiner Sound* or the avalanche power of the Basie band's brass section on "Street of Dreams" from *Sinatra Live at the Sands* [MoFi] or the deep-reaching ostinatos of Paul's Gretsch bass guitar and the slug-to-the-midsection accents of Ringo's tom on the 15ips Puget Sound dub of *Sgt. Pepper*—they sound so unlike other electronics sound when pushed past their comfort zone. That said, the 501 and 520 are almost as good at soft and thrilling as they are at loud and thrilling.

I've mentioned Keb' Mo's National guitar on his eponymous debut album, which the Soulution amp and preamp don't just reproduce with snap and speed, but with a thrillingly lifelike density of color and texture on overtones that is new to Soulution electronics—and quite beautiful to hear. The 500 Series gear is just as good on Keb'

Mo's head-cold of a voice, which (given the right speaker and the right room) it reproduces with jaw-dropping realism, making the Raidho C 4.1s sound very much like a 'stat, which is to say at one and the same time naturally hued, in-the-room present, and see-through transparent (though unlike a 'stat the C 4.1 doesn't flatten aspect and lose three-dimensional body).

On high-pitched instruments (or instruments with strong treble-range overtones), the Soulution 501/520 is just as discerning as it is in the bass and midrange, reproducing upper-octave piano with its ivory-and-felt colors—and the weight of the performer's touch—fully intact. Ditto on cymbals, bells, flutes, piccolos. The Soulution gear not only reproduces these things with natural sweetness; it reproduces the engineering—always a strong point of the ultra-high-resolution Soulution electronics—with utter clarity. As a result, the strings, winds, and percussion on the great, albeit slightly dry Columbia [EMI] recording of Von Karajan's thrilling performance of Bartók's *Music for Strings, Percussion, and Celesta* sound (as they should) slightly dry, where on a richly colored, highly ambient recording like the aforementioned *Reiner Sound*, strings, winds, and percussion have the dark, silken beauty they're supposed to have.

Having said this, I would have to admit that the Soulution 500 Series tends to be a little soft, sweet, and recessed on the very top, perhaps because it is so very strong on the bottom. All that weight and energy in the bass and power range tends to give it a slightly more bottom-up (to use Michael Børresen's phrase) kind of presentation, where the Technical Brain and Constellation gear sound more top-down. I would

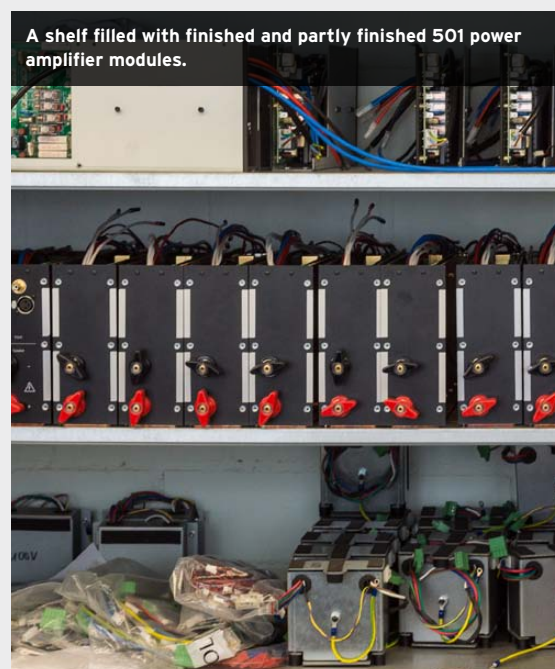
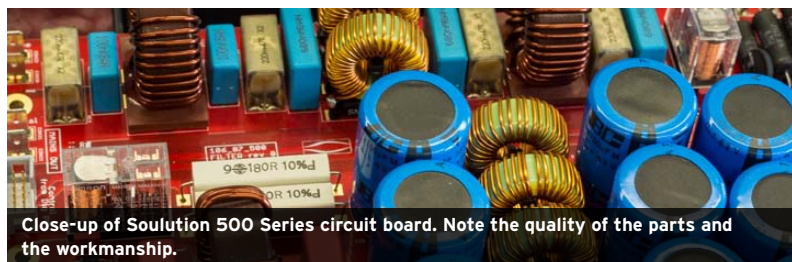
also have to say that in spite of its incredible low-level resolution I've heard a couple of amps that marginally exceed it in this regard—the original Soulution 710, for example, when paired with the ultra-high-resolution MartinLogan CLXes or the original Technical Brain TB-Zero v2 electronics with Apogee speakers, which produced a wealth of inner detail such as I've never heard before (or again) from solid-state electronics. However, the added resolution of both of these ultra-high-resolution products came at a clear and objectionable cost in density of tone color; they were both lean in timbre. The Soulution 500 Series is more natural sounding than both, and the difference between it and TB or Soulution's own earlier amps and preamps in resolution is, honestly, miniscule. Plus, both of these other amps and preamps cost twice the dough of the 500 Series gear.

As for ambience and soundstaging, though the 520—which comes equipped with a marvelous phonostage, with loading that is adjustable via DIP switches on the rear panel and an RIAA IEC subsonic filter that is actually quite effective and relatively inaudible (oh, you do lose a little "floor" on certain power-discs that can be recaptured by simply turning the subsonic filter off)—doesn't reproduce ambience on, say, the richly resonant 45rpm Acousence recording of the Belenus Quartet playing Bartók's *Fourth Quartet* with quite the same cavernous width and depth as the superb stand-alone Audio Research Reference Phono 2 phonostage paired with ARC's superb new, two-box, \$30k Reference 10 linestage, it comes closer than most of the other solid-state competition I've heard (plus it is marginally faster than the ARC combo and, in all respects,

considerably better in the bass than the ARC—or anything else).

Though they aren't the only goodies in Santa's bag, in the sector of the market in which they compete the new Soulution 500 Series (which also includes the 540 CD/SACD/DAC) are unquestionably must-audition products, but then if you've heard them in Munich and elsewhere driving Focal Stella Utopias to previously undreamed-of heights you already know that. Naturally, they come with my highest, warmest, most enthusiastic recommendation. Indeed, until better comes along (from Constellation, Technical Brain, or Soulution itself), the 500 Series are my new solid-state references.

EQUIPMENT REVIEW - Soultion 500 Series Electronics



Building The Soultion 500 Electronics

About a year ago I visited Soultion in Dulliken, Switzerland—a little town outside of Zurich—to see the first 500 Series electronics being built. Soultion shares a building with and is a subsidiary of Spemot AG, producer of extremely high-precision, high-tech electronic devices and electric motors used in automotive and other applications.

The bottom floor of the Spemot factory houses Soultion's parts, testing, assembly, shipping, design, and accounting departments. The Soultion facility is also equipped with a pair of Magico M5s and Q5s for listening tests and a complete lab bench. Soultion's chief engineer, Bonne Ditmar, is largely responsible for the design of the 500 Series and the new 700 Series electronics, both of which now incorporate switch-mode power supplies.

In Dulliken the boards are assembled into finished products by the team of Matthias Duso and Manfred Hasler.



EQUIPMENT REVIEW - Soulution 500 Series Electronics

An Interview with Cyrill Hammer, CEO, Soulution

First, tell us about the new switching power supplies in the 501 amps and the 520 preamp. Who thought them up? How do they work? What do you think they add to the Soulution sound? Are there any downsides?

Switched-mode power-supply technology was part of Soulution's development work from the very beginning. However back in 2000, when we started the Soulution project, there was no switched-mode power-supply module available that could match all technical requirements for a high-end audio amplifier and that would have been reliable in the long run. The technology was widespread and well established for "low" power applications only. Therefore we based the designs of the 700 mono amplifier and the 710 stereo amplifier on linear power supplies with big toroidal transformers and focused in the succeeding years on pushing the performance of this technology to its best level.

However in the past 10 years switched-mode power-supply technology did advance considerably. Especially the power ratings and the switching frequencies increased dramatically. Therefore we reconsidered using them for the Series 5 power amplifiers.

The switched-mode power-supply module of the 501 mono has two regulation stages. A power-factor correction (PFC) and a power-switching pulse-width-modulation (PWM) control, both operating at 70kHz. We use a dual-phase interleaved PFC circuit with feedback. This reduces the total harmonic distortion (THD) induced "backwards" into the input current of the power supply, which is absolutely key in order to minimize "pollution" of the mains with high-frequency noise that could be picked up by other audio devices.

The main advantage of the switched-mode power supplies is the fact that the output voltage is perfectly regulated and remains stable irrespective of the amplifier load. The PWM control, which keeps the output voltage stable, works with soft

waveforms for excellent audio behavior and a fast feedback loop for best performance. A lot of development effort went into the design of the power supply's output stage, which was jointly developed by Soulution and the manufacturer of the power-supply modules. In addition the design of the output filter was fine-tuned to the PWM control protocol. The result is a double-regulated, high-current switched-mode power supply with specifications that cannot be exceeded by any conventional linear power supply. We are convinced that our switched-mode power-supply technology marks a breakthrough in power-supply design for high-end audio products.

The new power-supply technology provides better control over the loudspeakers. This gets very obvious for massive bass impulses. As the bass fundamental is more stable and consequently more precise, the soundstage gets wider and deeper. Overall the amplifier seems to stay "relaxed" even with very complex and demanding music signals.

In the past switched-mode power-supply units have been used for many audio products mainly in order to reduce the space requirements or to reduce the costs, while compromising on performance of the power supply and in the end of the amplifier. In our experience a high-end switched-mode power supply has about the same size and the same or even higher cost than a conventional linear power supply.

The Soulution switched-mode power supply does not have any drawback in our opinion. On the contrary it has many advantages over linear designs!

Second, your previous amps and preamps have used negative feedback in an ultra-fast (ultra-wideband) circuit to lower distortion to vanishing levels. Are the 500s also doing this same thing? If so (and power supplies aside), in what ways do

the 500 Series circuits differ from those of the 700 Series electronics?

Yes, the Series 5 amplifiers do follow the design principles that are similar to those of their bigger counterparts. The voltage amplifier does work with lowest propagation delays (the best conditions for applying negative feedback wherever needed). However, the design of the Series 5 voltage amplifier is less complex. The current stage of the Series 5 amplifier has just five transistors per side (NPN/PNP) whereas the Series 7 amplifier has seven transistors per side. Therefore the current rating of the 501 mono amplifier and 530 integrated amplifier is limited to 45 ampere (where the 700/710 are capable of 60 ampere).

Like the Series 7 amplifiers the 501 and 530 do have a global negative feedback loop. As the Series 5 amplifiers are very precise in the first place, the amount of feedback required in this loop is very low or close to nonexistent. We apply less than 0.1 dB of negative feedback. The stability of the fully controlled switched-mode power supply unit of the Series 5 amplifiers helps to further reduce this value. Very good tube amplifier designs, with low feedback, usually have more than 10dB in the global feedback loop (100 times more!).

Third, though only rated at 125W into 8 ohms (250W into 4 ohms), the 501 mono amps have unusually good dynamic linearity, by which I mean that they continue to get stronger and more powerful without changing their sonic signature or plateauing, right up until the very point where their protection circuits shut them down. Is this owed to their new power supplies? Or to other factors as well?

This is owed to the new power supply technology! Amplifiers give their power supplies a very hard time. The ideal power supply should be as powerful, precise, and fast as the amplifier itself. Big transformers have high voltage drops between low

current delivery and full load. The supply voltage of a 700 amplifier can easily drop by 10% at full load. This leads to lower power output especially for transients. Fluctuations in the mains supply will affect the output voltage as well. Apart from the sonic advantages of having stable power conditions, it also allows us to reduce the required headroom for safe operation of the amplifier. Less headroom in the power supply means less heat dissipation. The chassis of the 501 mono amplifier is much smaller than the one of the 710 for instance. However both amplifiers have about the same power rating.

Fourth, the phonostage that is built into the 520 is a considerably better than the add-on phonostages usually built into preamps. Tell us about it. Is it the same basic ultra-wideband design as that of the phonostage found in the 720? What are the differences between the two phonostages, in sonics and build?

The basic design of the 520 phonostage is the same as for the 720. It is as well an ultra-wideband design using four amplification stages, but the filter functions have been reallocated. The first stage is purely linear and just amplifies the small signal from the cartridge. The second and third stages do the RIAA filtering whereas the forth stage drives the switchable subsonic filter. The sound gets more natural with this design. However, the power supply section for the phonostage of the 520 is less complex and less powerful than the one for the 720. Therefore the 720 phonostage is still the reference design, though the 520 gets very, very close.

Constellation Audio Performance Series Electronics

The Best For Less?

Jonathan Valin



Those of you who've read Robert Harley's review of Constellation Audio's Reference Series Altair linestage preamp and Hercules monoblock power amps in our September issue already know that our Mr. H.—a man not given to the injudicious use of superlatives—considers both to be “benchmark” products to which all other aspirants for the title of “State-of-the-Art Electronics” must be compared. Designed by a constellation of high-end-audio engineering “stars” (including Bascom King, John Curl, Demian Martin, and Peter Madnick), who were given blank sheets of paper and unlimited budgets to create the best circuits they could devise, the Altair and Hercules set new standards “in transparency, resolution, absence of grain, and sheer realism” according to Robert. Of course, they should set standards, given what they cost—\$60k for the preamp and \$140k for a pair of the monoblocks.

Let's face it: At those prices very few of us are going to be buying the Altair and Hercules no matter how wonderful they are. But what if I were to tell you that you can now buy these same circuits (and about 90% of this same “benchmark” sound) for the kind of money that you'd typically spend on Spectral, top-line Pass, mid-line Boulder, and new-gen Rowland gear? Well, folks, say hello to Constellation Audio's littler friends—the Performance Series electronics, comprising the \$24k Centaur amplifier, the \$19k Virgo linestage, and the \$19k Perseus phonostage (with the \$24k Cygnus file player/DAC soon to come). No, they aren't completely identical to the Reference Series gear. You won't get that ultra-cool Pyxis “system controller” with built-in touchscreen display (although you will get a massive back-lit conventional remote and touchscreen panels built into the faceplates of preamp and phonostage), and you won't get those 275-pound, room-dehumidifier-sized 1000W monoblocks (you'll have to settle for a strikingly handsome 100-pound stereo amp that puts out a mere 250Wpc into 8 ohms, 500Wpc into 4 ohms, and 800Wpc into 2 ohms, with the first 10 to 15 of those watts running in Class A), and you won't get all of the cost-no-object resistors, capacitors, and hand-tweaked LDRs (Light Dependent Resistors) that you'll find populating the Altair and Hercules circuit boards (though the circuits themselves are exactly the same). What you will get are the highest-resolution electronics I've yet heard.

After wonderful showings in Munich last year and at CES this, I expected the Centaur, Virgo, and the Perseus to be very, very good. But quite honestly I didn't expect them to be *this* good. From the moment I turned them on and started playing back familiar LPs—first on my reference speakers, the Magico Q5s, and then on the

newly-arrived Raidho C1.1 stand-mount two-ways from Denmark (which themselves have to be the highest-resolution mini-monitors I've had in my home, at least with Constellation's Performance Series electronics driving them)—I not only heard a tidal wave of details I've never heard before on every single album I listened to; I also heard a density of tone color, a three-dimensional solidity of imaging, a complete absence of grit and grain in the upper midrange and treble, and yes, an overall realism (with realistic LPs) that are unexcelled in my previous experience of ultra-high-end solid-state electronics.

Very high resolution and voluptuous tone color generally don't go together in hi-fi gear, and when they do—as in Class A triode tube or Class A solid-state circuits (or Class AB ones that are heavily biased toward Class A, such as the BALabo gear)—they do so at a sonic price. Such amps and preamps seem to have what Raidho's brilliant chief engineer Michael Børresen wittily calls a “bottom-up” kind of sound. That is, their sonic “center of gravity” seems to lie in the bass and lower midrange, which tends to give them a darkish overall tonal balance, a sense of iron-fisted “grip” that can make them sound very solid in imaging and hard-hitting on dynamics but somewhat over-controlled (not particularly airy or bloomy on top or bottom), and a slightly soft, closed-in treble with a somewhat recessed presence and brilliance range. Most Class AB tube and solid-state amps, on the other hand, tend to have a “top-down” sound. Their sonic center of gravity seems to lie in the treble and upper mids, which makes them sound brighter, airier, bloomier, and, often, more freed-up and expansive than Class A amps, at the cost of less grip and control on dynamics (particularly in the bass), less density of tone color in the mids, less solid imaging overall,

EQUIPMENT REVIEW - Constellation Audio Performance Series Electronics

and, sometimes, more audible grain.

Though the Constellation Performance Series would probably qualify as “bottom-up” amps and preamps, in that they have a very strong Class A vibe, tremendous solidity and density of tone color in the mids, and a very slightly darkish balance overall, they don’t trade off as much upper-midrange and treble air and bloom as typical Class A or Class A-like amps do. While still somewhat more recessed than Class AB solid-state and tube amps, they have gorgeous color and texture on top, coupled with an uncanny ability to resolve very fine details without etching or “spotlighting” them as some very-high-res amps do.

Take, for instance, the great Hungaroton recording of Attila Bozay’s “Improvisations for Zither” (about which I’ve written often and at length). This is a fabulous test record because the zither, by its nature and by virtue of the way it is here played (plucked, strummed, rubbed, knocked), is extraordinarily rich in transient and timbral detail. Since the instrument is closely and artfully miked, you can hear every little thing that Bozay—who, as I’ve said before, is rather like the Jimi Hendrix of zitherists—is doing, from pizzicatos that set the whole instrument ringing like a bell (and Bozay often doesn’t sound the next note until that wash of overtones slowly bends into weird, wispy stopping transients and then decays into silence) to strummed chords that swirl through the large wooden body of the zither like the powerful cross currents in a tide pool.

Now I’ve listened to this record on a lot of very fine, very-high-resolution playback systems, both in my home and at trade shows, and thought I’d heard everything there was to hear. But through the Constellation Performance gear, the resolution

of pitches, colors, intensities, and decays was so fine that even the tiniest performance-and-instrument-related details immediately became more apprehensible. For instance, although I could hear through other great preamps and amps that Bozay was on occasion using his fingernails to make various queasy glissandos, through the Constellation components I could tell *precisely* how he was doing what he was doing—how he was deliberately letting his fingernail catch against the “bumpy” high-friction surface of the zither’s roundwound strings to produce those sibilant squeaks and shushes. And, as I just noted, I could hear this without the forwardness and brightness that often accompanies the recovery of such ultra-fine details.

What was true on a micro-level held just as true on a macro one. Take the RCA LP *Venice* (actually a Decca recording made in Kingsway Hall). The record is famous for the beautiful tone of its string sections, and, once again, through other great systems those strings have always sounded dense in number and gorgeous in timbre. But not as individuated or as unflaggingly lovely as they do through the Constellation gear, where you can not only count the heads of the first and second violins; you can also hear their spectacular ensemble playing (and that of the violas, cellos, and basses) much more clearly by virtue of hearing their individual contributions to that ensemble much more clearly.

The sense of ensemble is just as obvious in the explosively dynamic moments for which *Venice* is also famous, where the Constellation Performers clarify exactly who is doing what in the midst of what can often sound like a dark murky roar of low-pitched voices—separating the wall-shaking

strikes of bass drum and tympani, doubled by the blasts of brasses and winds, from the churning ostinatos of doublebass and cello choirs.

These are not trivial differences, folks. Better understanding how and how well instrumentalists are playing their instruments not only increases our enjoyment of the music being performed; it increases our appreciation of the musicians themselves, who, once upon a time (and now again, thanks to the magic of the stereo LP), brought notes on a page to inimitable life. This is the gift of musical time travel that only the finest audio systems are capable of bestowing.

The way I’m describing the Constellation Performance Series electronics may lead you to think that they are primarily analytical components. But once again let me emphasize that this considerably higher resolution of detail is not being purchased at the cost of density of tone color or added presence/brilliance. On the contrary, with the right recordings the Constellation’s timbral palette is so rich and full that, on first listen, you may think that you’re hearing a latter-day descendant of one of those gorgeous-sounding 50s/60s era tube amps and preamps, like the great Marantz 9 and 7C, that have somehow been blessed with the resolution and transparency of great contemporary solid-state amplifiers and preamps, such as the Technical Brain TBP-Zero and TBC-Zero or the Soulution 700 and 720. And, in a way, you are.

Though equipped with all the modern conveniences, such as wide bandwidth (down 0.5dB at 100kHz) and very low distortion (typically less than 0.05%, even at low volumes), the Centaur stereo amp (like the Hercules monoblocks) actually started life as an intriguing

triode tube circuit from the 1930s discovered by the amp’s chief designer, Bascom King. King’s objective was to turn this promising tube circuit into a small, paradigmatic, single-ended, 125W solid-state amplifier that could be used as the “building block” for more powerful amps, in which a number of these “modules” would be ganged together in a bridged array.

The thought was that by using several of these sonically superb 125W amps, rather than one large gain stage with a multitude of transistors, the colors, textures, and microdynamic details that simpler, smaller, lower-powered amps are famous for (and that larger, more complex, higher-powered amps sometimes sacrifice for sheer drive) would be better preserved—and so they have been. However, since bridged amps have phase issues that smaller amps with single gain stages don’t, every effort was made to ensure that the two phases of the signal remained perfectly matched from input to output. To this end, the Centaur’s unique, balanced, fully complementary output stage uses the same N-type MOSFET output transistors for both the positive and the negative halves of the signal, rather than (as is typical in complementary circuits) using N-types for one half and P-types for the other (which makes the perfect matching of transistors next to impossible to achieve).

To further ensure perfectly balanced, perfectly phase-accurate output, the Centaur (like the Hercules) has a “Constellation Direct” input that allows the user to bypass the amp’s input stage and drive the Centaur’s output stage directly from the Virgo preamp’s output stage (which is identical to the input stage of the amplifier). Though there is a 12dB loss of gain via the

EQUIPMENT REVIEW - Constellation Audio Performance Series Electronics

Constellation Direct input (meaning you'll have to turn the volume up more to achieve the same SPLs you'd get via the amp's balanced or RCA inputs), the elimination of an entire gain stage has obvious advantages and is clearly sonically superior.

The primary difference between Constellation Audio's Reference Series and Performance Series products is parts-quality. In the Reference Series cost was no object; in the Performance Series it was. While the circuits used in the amplifiers (or, rather, in the single-ended 125W "modules" that the amplifiers are made up of) are identical, the parts are not. The same holds true for the preamplifiers. Though the Peter Madnick-designed Virgo does use the same costly hand-tweaked LDRs in its volume control that are found in the Altair to eliminate mechanical contacts and the low-level losses that such contacts entail, it uses fewer of them.

The Perseus phonostage—which has to be the most transparent, highest-resolution, most purely beautiful-sounding solid-stage phono preamp I've yet heard—has the same all-JFET John Curl-designed circuit found in the Reference Series' \$60k Orion phonostage, but once again with less highly select parts. As is the case with the amp and preamp (in both the Reference Series and the Performance Series), all circuit boards are mounted on metal "rafts" that float on elastometric suspensions, isolating the circuits from the effects of vibration (which is especially critical in a phonostage, given the very-low-level signals it is amplifying).

Engineering by committee isn't always a great idea. Here, the results have proven to be uniformly sensational. All three of these Performance

Series components—amp, linestage, and phonostage—share the same sonic "character" (and, I'm told, much the same sonic character as the Reference Series components, with which they can be freely mixed and matched). All three are a little dark in balance, a little

recessed (as opposed to forward) in the upper midrange and treble. All three are incredibly high in resolution, top to bottom, and (because of this) in transparency to the sources ahead of them. All three of them are (once again with the right sources) exceptionally beautiful in tone color—

and yet, magically, that rich timbre doesn't seem to get in the way of the clear reproduction of fine textures or small-scale dynamics or, for that matter, large-scale dynamics. As I said, it's like getting a Class A triode amp and preamp with the low distortion of a Soulution and almost the same

SPECS & PRICING

Centaur Stereo Amplifier

Inputs: Two XLR (one for Constellation Link); one RCA
Outputs: Metal binding posts
Power output per channel: 8 ohms (1kHz @ 1% THD+N), 250W;
 4 ohms (1kHz @ 1% THD+N), 500W;
 2 ohms (1kHz @ 1% THD+N), 800W
Frequency response: 10Hz to 100kHz, +/-0.5dB
Gain: 14dB (Constellation Direct)/26dB (balanced and RCA)
Output impedance: 0.05 ohms
Damping factor (8-ohm load): 160
Input impedance: 100k ohms unbalanced, 200k ohms balanced
Dimensions: 17" x 11" x 20"
Weight: 98 lbs.
Price: \$24,000

Virgo Linestage Preamplifier

Inputs: Four XLR stereo, four RCA stereo
Outputs: Two XLR stereo, two RCA stereo
THD + Noise: <0.001%, 20Hz-20kHz @ 2V out
Frequency response: 10Hz to 200kHz, +/-0.5dB
Input impedance (balanced): 200k ohms
Input impedance (unbalanced): 100k ohms
Volume control resolution: 0.5dB from 0dB to -90dBFS

Dimensions: Preamp, 17" x 5.5" x 15.75"
 Power supply, 6" x 5" x 14.5"
Weight: Preamp, 35 lbs.; power supply, 22 lbs.
Price: \$19,000

Perseus Phonostage

Inputs: Three XLR stereo, three RCA stereo
Outputs: One XLR stereo, one RCA stereo
Gain: 65dB max.
THD + Noise: <0.005%, 10Hz to 20kHz
Load impedance, mc inputs: Zero ohms to 1000 ohms
Load impedance, mm inputs: 10k ohms to 100k ohms
Load capacitance: 100 to 400pF
EQ curve: RIAA
Dimensions: Preamp, 17" x 5.5" x 15.75";
 power supply, 6" x 5.5" x 14.5"
Weight: Preamp, 35 lbs.; power supply, 22 lbs.
Price: \$19,000

JV's Reference System

Loudspeakers: Magico Q5, Raidho C1.1, MartinLogan CLX, Magnepan 1.7, Magnepan 3.7, Magnepan 20.7
Linestage preamps: conrad-johnson GAT, Constellation Virgo
Phonostage preamps: Audio Research Corporation Reference Phono ZSE, Constellation Perseus

Power amplifiers: conrad-johnson ART, Lamm ML2, Constellation Centaur
Analog source: Walker Audio Proscenium Black Diamond Mk III record player, Da Vinci AAS Gabriel Mk II turntable with DaVinci Grand Reference Grandezza Mk II tonearm, Acoustic Signature Ascona turntable with Kuzma 4P tonearm
Phono cartridges: Clearaudio Goldfinger Statement, Ortofon MC A90, Benz LP S-MR
Digital source: Mac Mini/Wavelength Audio Crimson USB DAC
Cable and interconnect: Synergistic Research Galileo
Power Cords: Synergistic Research Tesla, Shunyata King Cobra
Accessories: Synergistic ART system, Shakti Hallographs (6), A/V Room Services Metu panels and traps, ASC Tube Traps, Critical Mass MAXXUM equipment and amp stands, Symposium Isis and Ultra equipment platforms, Symposium Rollerblocks and Fat Padz, Walker Prologue Reference equipment and amp stands, Synergistic Research Tesla 2 power conditioner, Walker Valid Points and Resonance Control discs, Clearaudio Double Matrix SE record cleaner, HiFi-Tuning silver/gold fuses

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EQUIPMENT REVIEW - Constellation Audio Performance Series Electronics



speed of attack as a Technical Brain. Frankly, I've never heard electronics quite like these, which might have been designed to appeal equally to all three of my different types of music lovers—"fidelity to mastertapes" listeners because of their resolution and transparency, "as you like it" listeners because of their timbral beauty and dynamic range, and "absolute sound" listeners because of the way that these virtues combine to enhance realism.

Beyond categories, the Constellation Audio Performance Series electronics are simply a delight to listen to. Just put on "Lover, Lover,

Lover" from the wonderful Leonard Cohen LP *Songs From The Road* [Columbia], and feel those goosebumps along your arms as the Constellations reproduce Cohen's craggy voice and that inimitable *Sprechstimme*-like delivery, those sweet-as-sugar backup singers across the stage to his right so beautifully miked that there is not a hint of edginess in their pearl-drop-perfect voices, the musicians surrounding him (particularly Javier Mas on the chiming, plum-colored, mandolin-like Spanish instrument, the *bandurria*), and in the distance behind them, stretching from wall to wall in my listening room,

the huge happy Tel Aviv Stadium audience (the cuts on this album were recorded live throughout Cohen's 2009-2010 world tour) clapping, not-always-quite-in rhythm because of the delay, and roaring approval at song's end. It's like being there.

Since I've only had the gear in my system for a relatively short period at this writing, there are a few questions that will require more time and play to answer. First, there is the matter of bass. Personally, I find the Performers' bottom octaves, like Goldilocks' porridge, to be neither too warm (all right a little dark and warm) nor too cool but

just right—phenomenally articulate, rich in color, and lifelike on classical music, from the LSO going all-out on *Venice* to the Juilliard Quartet going all-out on the Bartók Third Quartet, and equally impressive on powerful deep-reaching Fender bass licks, such as Tina Weymouth's thrilling *ostinato* at the start of "Take Me to the River," or the floor-rattling synth pulses of Blue Tofu's "A Battle Between." However, I can see where some of you may (repeat "may") prefer "bigger" bass (more volume and slam—resolution and color will not be issues) than the Performers offer. Let me put it this way: If the Performance Series components were loudspeakers they would be Magicos rather than, oh, Focals or Wilsons, so be advised.

At this point I'm also not sure how the Performers will fare with speakers that don't benefit as clearly or felicitously as the beryllium-tweetered Magico Q5s and ribbon-tweetered Raidho C1.1s do from their sweet, soft, edgeless treble and upper mids, although, frankly, I can't imagine any speaker that wouldn't sound great with these solid-state marvels.

There is one thing I *am* completely sure about (and was from the first notes I heard played back): These are truly superb electronics, competitive with and in many regards superior to anything I've yet heard at *any* price, tube or solid-state. For the money that is being asked for them, they are also incredibly good deals. Which is precisely why I'm going into print about them so quickly and enthusiastically. Naturally, Constellation Audio's Virgo, Centaur, and Perseus get my highest recommendation. Until and unless you hear differently, they are my new reference electronics. **tbs**

EQUIPMENT REVIEW - Constellation Audio Performance Series Electronics

Using the Performance Series Electronics

Like their far costlier big brothers, the Constellation Virgo, Centaur, and Perseus come in thick, gorgeous, and gorgeously finished aluminum chassis (designed by Alex Rasmussen of the Neil Feay Company and fabricated by the Feay Company). Both the amp and the phonostage have outboard power supplies that link to each of the preamps via two supplied Hypertronics cables. Why two cables per preamp? Because both the outboard supplies actually house two separate supplies—one a linear R-Core transformer for the analog circuitry, the other to power the control circuitry. The non-directional Hypertronics cables have locking connectors at either end that plug into inputs on the supplies and the preamps. Happily the cables are long enough to keep the power supplies at a fair distance from the preamplifiers.

In addition to balanced and RCA and Constellation Link inputs and outputs, all three components have IEC power inlets on the backs of their chassis, and I would advise using the best power cords you can, as the Performance Series deserves them. Both of the preamplifiers have 432 x 230 pixel touchscreens on their front panels, which allow you to set them up and optimize their functionality.

With the Perseus phonostage you will want to select the input (there are three, any two of which can be configured for moving magnet or moving coil), and then adjust loading via the two knobs on the back of the chassis, which vary impedance in each channel separately and continuously from zero to 1000 ohms for moving coils; moving magnets can be loaded via the front-panel touchscreen at one of four settings from 10k ohms to 100k ohms for both channels, while capacitance can be set at one of five options from 100 to 400 picofarads.

Unfortunately the loading that you set for any given input on the Perseus (be it moving-coil or moving-magnet) will automatically be applied to other inputs of the same type. Unlike the marvelous Audio Research Corporation Reference Phono 2SE phonostage, which allows you to adjust the loading of its two inputs individually (and has a far wider range of loading options for moving coils than the Perseus), the Constellation unit forces you to use the same parameters universally. Speaking purely as an analog hound, if there is one thing I would change on this marvelous phonostage it would be to allow individual loading of each phono input. (Of course, as Peter Madnick pointed out when he visited me, not many listeners are going to be listening to three different world-class turntables equipped with three different world-class cartridges, as I do.)

I guess I should also note that the Perseus, unlike the ARC Reference Phono 2SE, does not have different equalization curves for RIAA, Decca, and Columbia LPs. It is an RIAA-only preamp. As far as I'm concerned this is no great loss, for, as I explained in my ARC Reference Phono 2 review, there is no persuasive evidence that different eq curves were being used by different recording outfits in the stereo era (though they were used throughout the 78 era and probably the first part of the mono era). However, there are true believers out there who simply cannot be convinced that Decca FFSS and Columbia Six-Eye stereos don't sound better using Decca and Columbia curves from the early 1950s. Let them believe what they want, and just listen to the Perseus.

With the Virgo linestage, you will again want to select the input (there are four pairs of them on both XLR and RCA connectors) via the touchscreen front panel. And if you are

using the Virgo with the Centaur stereo amp, you will want to come out of the preamp to the amp via the Constellation Direct output and input, which, as noted in the review, allows you to bypass the amp's input stage.

The Centaur amplifier has a horizontal bar on its front chassis that, when pressed and held until you hear a click, takes the amp out of standby and puts it in operational mode. You can tell what mode the amp is in by the color of an LED built into the press-bar: Red indicates standby; green indicates power-up; solid blue indicates that the amp has detected an active source from the preamp and is ready to play, flashing blue indicates muted. (The amp's mute can be accessed by simply pressing the bar lightly after powering up.)

Although none of the Performance Series electronics came with a User Manual (an omission that I hope will be corrected in production models), the touchscreen menus were so intuitive, the choice of inputs and outputs so obvious that I had no problem figuring out how to hook things up and get them going (although the advantages of the Constellation Direct I/Os came as news to me).

Audio Research Corporation Reference 5 SE Linestage Preamp, Reference Phono 2 SE Phonostage Preamp, and Reference 250 Monoblock Power Amp

Back On Top

Jonathan Valin



William Zane Johnson, God bless him, may be gone and his pathbreaking company, the Audio Research Corporation, may now be owned by an Italian holding company, but in spite of the loss of its founder and the change in proprietorship (which, let me be clear, has not affected the way things are done at Audio Research—all of whose products are still manufactured in the good ol' USA), ARC has done anything but lose its way over the last few years. Indeed, its latest electronics are better than ever.

While two of the three items I'm about to review are "Special Editions" of previously released components, don't let the moniker fool you. Both are improved enough to qualify as entirely new pieces of gear. Indeed, the first of the two I'll discuss, the Reference 5 SE linestage preamp, is a far bigger sonic leap ahead of the Reference 5 than the Ref 5 itself was over the Ref 3 that preceded it. I'd go so far as to say that the 5 SE sounds more like a slightly less holographic Reference 40 (ARC's late, lamented, \$25k two-chassis flagship) than a "souped-up" Reference 5.

As is the case for all three components under review, technical advancements—much higher power-supply capacitance, proprietary Teflon capacitors in key spots, and circuitry and board-layout improvements borrowed from the Reference 40—have resulted in substantial sonic gains. With the Ref 5 SE you hear them primarily in four specific areas.

First, the 5 SE is much denser in tone color than the Reference 5 (or any previous ARC preamp save for the Reference 40). As is the case with the Reference 250 (see below), this increase in tone color is particularly noticeable in the so-called power range from about 100Hz to 400Hz, where ARC preamps and amps have traditionally been lean.

Given the relatively recent seismic shift in the tonal balance of ARC gear—which, IMO, can be attributed largely to Warren Gehl, who does the voicing of all ARC products—it is easy to forget that this characteristic ARC leanness in the upper bass and lower midrange wasn't an altogether bad thing, at least in comparison to the gross overripeness of contemporaneous tube gear in this same region and in the midbass. Indeed, along with ARC's also-characteristic forwardness

and added energy in the transient-rich midrange and upper midrange, it was a large part of the reason why ARC preamps and amps sounded so different than their competition—what gave them that sense of solid-state-like neutrality, liveliness, detail, and transparency.

This said, ARC's traditional slightly lean, slightly brightish balance rather threw the baby, or part of him, out with the bathwater. Too many of music's fundamentals and harmonics—and too much musical energy (hence the name "power" range)—reside in the very area that ARC gear leaned down, and while ARC's slight power-range suckout and added midband brilliance may have created a greater sense of apparent detail and transparency (precisely as these same things do with loudspeakers), they also robbed music of some of its foundation.

That is no longer the case. Indeed, the difference the 5 SE makes in overall balance is so dramatic that, at first, you may think that ARC has gone over to the "dark" side, as opposed to the bright, light, airy one where it has long resided. In all honesty, the 5 SE is darker in balance than the 5, but that is because it is also, as noted, substantially fuller, richer, and more realistic in timbre than the Ref 5. Moreover, the sense of a darker balance diminishes with break-in and use, although it doesn't completely disappear.

You won't have any problem hearing the difference the 5 SE makes in timbre, particularly in the power range. Just put on any decent piano recording. Where upper-bass/lower-midrange notes and chords would sound quite clear but a bit too insubstantial via the Reference 5 on, say, the Nova LP of Paul Dessau's First Piano Sonata—as if the concert grand had suddenly turned into a spinet—with the Ref 5 SE all that lifelike color is restored, as are the majesty of the

EQUIPMENT REVIEW - Absolare Passion Preamp and Passion 845 Power Amp

instrument, the passionate Romanticism of the score, which fluctuates between the kind of melancholy lyricism that only a young man could summon up and the chromatic pounding of Fate (ditto), and the sheer power of Siegfried Stockigt's performance (particularly on the *sforzando* chords in the piano's lower and bottom octaves, without which, as I just said, the sonata loses half of its youthful fervor).

Those *sforzando* chords bring us to the second of the Ref 5 SE's major improvements: the bottom octaves. Though ARC has steadily been acquiring better control in the bass and midbass, the Reference 5 SE is a new high point. In combination with the Reference 250, it reproduces the bottom octaves with better grip, definition, and extension than any previous ARC preamp save, perhaps, for the Ref 40, although I'm not completely sure of this.

It's at this point that I usually play the transistor card and say that the 5 SE has come even closer to solid-state's virtues in the bass than previous ARC preamps, but, even though it has, it doesn't really sound like solid-state on the bottom. It is bloomier (not plummier, mind you), more freed-up, richer in timbre, more immediate, less tightly wound, more like the real thing (at least on acoustic instruments) than much solid-state, with better presence and texture on instruments like piano, percussion, and low-pitched brass, winds, and strings

SPECS & PRICING

Reference 5 SE

Type: Tube linestage preamplifier

Tube complement: Four 6H30P dual triodes, plus one 6550C and one 6H30P in power supply

Frequency response: +0-3dB, 0.5Hz to 200kHz at rated output

Distortion: Less than .01% at 2V RMS BAL output

Gain: 12dB, balanced output; 6dB, SE output

Input impedance: 120k ohms, balanced; 60k ohms, unbalanced

Inputs: CD, Tuner, Video, Phono, AUX 1, AUX 2, Processor (XLR and RCA connectors)

Output impedance: 600 ohms, balanced; 300 ohms, unbalanced

Outputs: 2 main, 1 tape (XLR and RCA connectors)

Maximum input: 20V RMS, balanced

Dimensions: 19" x 7" x 15.5"

Weight: 30.4 lbs.

Price: \$12,995

Reference Phono 2 SE

Type: Tube phono preamplifier

Tube complement: Four 6H30 dual triodes, plus one 6H30 and one 6550C in power supply

Frequency response: $\pm .2$ dB of RIAA, 10Hz to 60kHz; 3dB points below 0.3Hz and above 300kHz

Distortion: Less than .002% at 1.0V RMS 1kHz output

Gain: Selectable, 51dB (Low), 74dB (High) at 1kHz BAL; 45dB (Low), 68dB (High) at 1kHz unbalanced

Selectable loads: 1000, 500, 200, 100, 50 ohms and Custom

Phono eq: RIAA, Columbia, Decca

Output impedance: 200 ohms unbalanced, 400 ohms balanced

Maximum inputs: 250mV RMS at 1kHz (680mV RMS at 10kHz)

Dimensions: 19" x 7" x 15.5"

Weight: 27 lbs.

Price: \$12,995

Reference 250

Type: Tube monoblock power amplifier

Tube complement: Three matched pairs of KT120 (power output); one matched pair KT120 (driver); two 6H30 (gain stage and regulator); one 6550C (regulator)

Power output: 250 watts per channel continuous from 20Hz to 20kHz

Harmonic distortion: Typically 0.5% at 250 watts, below .04% at 1 watt

Power bandwidth: (-3dB points) 5Hz to 70kHz

Frequency response: (-3dB points at 1 watt) 0.5Hz to 110kHz

Input sensitivity: 2.4V RMS balanced for rated output

Input impedance: 200k ohms balanced

Output taps: 4, 8, 16 ohms

Overall negative feedback: 8.8dB

Slew rate: 20 volts/microsecond

Rise time: 1.5 microseconds

Dimensions: 19" x 8.75" x 19.5"

Weight: 73 lbs.

Price: \$25,995

JV's Reference System

Loudspeakers: Raidho C 4.1, Raidho C1.1, Estelon X

Diamond, MartinLogan CLX, Magnepan 1.7, Magnepan 3.7, Magnepan 20.7

Linestage preamps: Constellation Virgo, Audio Research Reference 5SE, Technical Brain TBC-Zero EX

Phonostage preamps: Audio Research Corporation Reference Phono 2SE, Technical Brain TEQ-Zero EX/TMC-Zero

Power amplifiers: Constellation Centaur, Audio Research Reference 250, Lamm ML2.2, Soullution 501, Carver Black Beauty 305, Technical Brain TBP-Zero EX

Analog source: Walker Audio Proscenium Black Diamond Mk III record player, AMG Viella 12, Da Vinci AAS Gabriel Mk II turntable with DaVinci Master's Reference Virtu tonearm, Acoustic Signature Ascona with Kuzma 4P tonearm

Phono cartridges: Clearaudio Goldfinger Statement, Ortofon MC A90, Ortofon MC Anna, Benz LP S-MR, **Digital source:** Mac Mini/Wavelength Audio Crimson USB DAC, Berkeley Alpha DAC 2

Cable and interconnect: Synergistic Research Galileo, Crystal Cable Absolute Dream

Power Cords: Synergistic Research Tesla, Shunyata King Cobra, Crystal Cable Absolute Dream

Power Conditioner: Synergistics Research Galileo, Technical Brain

Accessories: Synergistic ART system, Shakti Hallographs (6), A/V Room Services Metu panels and traps, ASC Tube Traps, Critical Mass MAXXUM equipment and amp stands, Symposium Isis and Ultra equipment platforms, Symposium Rollerblocks and Fat Padz, Walker Prologue Reference equipment and amp stands, Walker Valid Points and Resonance Control discs, Clearaudio Double Matrix SE record cleaner, HiFi-Tuning silver/gold fuses

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EQUIPMENT REVIEW - Audio Research Reference 5 SE, Phono 2 SE, and 250

than some solid-state. It is even quite remarkable on rock combos like Fender bass and kick drum, which it sorts out without (as in the past) leaning down tone color or cheating you of realistic speed, weight, definition, and impact.

Third, there is the Ref 5 SE's magical way with the duration of notes. While tube circuits don't literally slow music down, they can have the peculiar effect of seeming to stretch time out, where much solid-state—with its more discontinuous, on/off power delivery—sometimes seems to abbreviate it. When details flow at this seemingly more expansive pace, our appreciation of the sequence of musical events, of how one thing leads to another—the horsehairs on a bow, say, catching the ridges of a violin string and setting it into motion—is curiously expanded. It is almost as if we have greater leisure to hear the little details, as if tubes were “lingering” over them just a touch longer, making them more present.

The Ref 5 SE is superb at delivering this more expansive sense of time and the heightened resolution of micro-details of timbre, texture, dynamics, and performance that accompanies it. As I point out in my review of the Crystal Cable Absolute Dream (which is a superb match with ARC's new gear, BTW), tiny touches like the whispery vibrato that Melody Gardot adds to the tail ends of certain notes as she runs out of one breath before taking another are simply clearer here because of the Ref 5's more finely detailed and (to my ear) more naturally paced presentation. This is how live music sounds if you sit moderately close to the performers in a good hall.

Fourth, that the Ref 5 SE is superb at low-level



resolution and duration (bespeaking very low distortion and coloration) does not mean it lacks punch. This is also the hardest-hitting Reference Series preamp I've heard, with (because of the improvements in power-range color and weight, and control in the low bass) tremendous speed, slam, and articulation on big orchestral tuttis or, for that matter, Chris Franz's rifle-shot drumming at the close of “Life During Wartime” from *Stop Making Sense*.

While it may not have quite the same three-dimensional imaging of the Ref 40 (nothing I've yet heard has, although I haven't heard ARC's latest flagship, introduced at RMAF, the Ref 10, in my system), the Ref 5 SE certainly comes a lot closer to that kind of sonic holography than the Ref 5 did, with less persistent forwardness and an even broader, deeper soundstage. In fact, there isn't an area of performance where the Reference 5 SE isn't either a little or a whole lot better than the Reference 5, making it a no-brainer upgrade

for Ref 5 owners, a must-audition for those of you in the market for a world-class linestage, and my new tube preamp reference.

Let me turn now to the Ref 5 SE's companion piece, the Reference Phono 2 SE phonostage preamplifier.

Not only does the 2 SE look different than the Ref Phono 2, with its new circular push-button faceplate and special damped plastic (as opposed to metal) top plate—design features it shares, BTW, with the Reference 5 SE, and that are derived from the rather unbelievably short-lived Reference 40 Anniversary linestage preamp—but it sounds different, too. One look inside—and you will have to take the top plate off (and I advise you to leave it off, if kids, pets, or spouses don't make that impossible) to install the tubes—tells you why: lots of large Teflon capacitors that weren't there before. My first thought on seeing these caps was, “This is going to sound like a Ref Phono 2 on steroids.”

But the difference in sonics actually goes beyond the massively beefed-up power supply, which now has twice the energy storage of the original Ref Phono 2. The thing isn't just faster (although it is faster), harder-hitting (although it is harder-hitting), or more extended in the bass and treble (although it is these things, too), with excellent bass-range grip and explosive impact on big transients—the benefits you might expect from a stiffer power supply. It is also markedly lower in noise and grain, higher in resolution (and the Ref Phono 2 was no slouch in the detail department), richer and more natural in tone color, more tightly defined in imaging, and more immersive when it comes to ambience retrieval. It is, in short, less tube-like (in the “coloration” sense), more neutral, less there-in-its-own-right than any previous ARC phonostage I've heard. (A further important word about the 2 SE and ambience retrieval: With the right speakers and electronics, this phonostage—along with the Ref 5 SE linestage that I just covered and the Reference 250 monoblock that we will come to in a few paragraphs—has the uncanny ability to reproduce voices and instruments as if they are embedded within an acoustic space that is audibly different than that of your listening room. These instruments and voices don't sound, as they so often do with less high-resolution gear, as if they are standing in front of an acoustical scrim that stretches out behind them, like actors filmed in front of a projected backdrop in a 40s film. They are, instead, reproduced *within* the space, like actors filmed in a location shot. In order to reproduce the very air of a hall or club in this utterly realistic immersive way, a component must be capable of extraordinary resolution, as

EQUIPMENT REVIEW - Audio Research Reference 5 SE, Phono 2 SE, and 250

Using the ARC Trio

Of all the tube gear I've tried, ARC's is perhaps the most convenient to use—that is, if you don't consider the sheer number of those damned little screws you've got to remove/replace in the top plates of chassis when installing tubes. Once you get the top plates off, you'll find the tubes securely packaged inside. Each tube is labeled with the number of its corresponding socket (and the sockets are clearly labeled on the circuit board).

With the phonostage and preamp, all you do is install the tubes firmly in their sockets and you're ready to roll. (If possible I would leave the top covers off the phonostage and linestage—they seem to sound a little better that way, and tube rolling is a helluva lot more convenient.) With the amplifier, after installing the tubes you're going to want to check/adjust bias after 30 minutes to an hour of play time. The amp has big meters on its front for doing this (and also for registering power output), with markings for proper bias. The process is simple: Just turn each of the two set screws below the meter (with the supplied tool) until the meter's needle is reading the proper value for bias. Each of the set screws controls the bias for one entire “bank” of KT120s, so you only have to do this twice to bias all six output tubes. (I play the Reference 250s with their lids on, though you can leave them off if you want.)

As with any piece of electronics with a lighted display, all three of these ARC components sound better when their lights are dimmed. Happily this is easily done via the remote controls for each item, which have buttons that both lower and raise front-panel illumination.

Speaking of remotes, ARC has been a pioneer of remote-controllable tube electronics, and everything you might want to do to any given component—from choosing inputs to raising or lower volume to adjusting balance to switching polarity (and a good deal more)—can be accomplished without leaving your listening chair. The phonostage actually gives you the incredibly convenient option of choosing cartridge-loading (47k, 1k, 500, 200, 100, 50 ohms, and a user-determinable Custom setting) via pushbuttons, as well as picking one of three EQ options—RIAA, Decca, or Columbia. (I would leave EQ on RIAA unless I was playing back a mono from the early 1950s.) **JV**

well as very very low noise. The Ref Phono 2 SE fits this bill better than any previous ARC phonostage or, frankly, any other phonostage I've yet tested.)

As is always the case when the presence of electronics (and if you've got good ones, source components and speakers) is diminished, the presence of what is actually on the recording is proportionately increased. For a fidelity-to-mastertapes/absolute sound listener like me this is paradise. With great LPs, you not only hear more of what is actually in those grooves (and recent experience suggests that we haven't come close to the end of mining that vein, yet); what is in those grooves will, if the augurs are right, sound significantly more realistic.

I've already mentioned in previous reviews of turntables and cartridges the fine detail about instruments and engineering that the ARC Ref Phono 2 SE is capable of reproducing (when sourced by a truly low-noise, high-resolution front end like the Ascona/Kuzma 4P/Ortofon MC A90 or the Walker Black Diamond Mk III/Clearaudio Goldfinger Statement or the Da Vinci Mk II/Benz LP S-MR). This subtle but significant bonanza of added musical and recording detail is probably owed to the fact that, unlike the original Ref 2 Phono, the Ref Phono 2 SE isn't very slightly softening (with very fine grain, somewhat less incisive focus, and reduced energy) and warming (with tubier bass) the astonishingly neutral and high-in-resolution (some might say slightly clinical) signature of the Ortofon MC A90 or, for that matter, the near equally high-in-resolution but more robust, more energetic, more *gemütlich* signature of the Clearaudio Goldfinger Statement or the sweet, gentle, diaphanous one of the Benz. It is reproducing what comes ahead of it with greater discernment and less editorialization than previous ARC phonostages.

As has long been the case with every successive iteration of ARC products, the Ref Phono 2 SE appears to be incorporating more of solid-state's undeniable virtues (*there*, I said it)—its lower noise, its wider bandwidth, its superior transient speed, its dynamic impact, its tighter focus, its more neutral tonal balance—without sacrificing the tube's ability to more fully and



naturally reproduce very low-level details about instrumental and vocal timbre, texture, and dynamics, or its ability to see into the stage without flattening images or dimming the lights, or its magical way with instrumental bloom. When you can not only hear the obvious differences between the “chick” and the “shimmer” of percussionist Butch Miles' stickwork when he plays with his hi-hat closed and open (on Reference Recordings' swell *From the Age of Swing* LP), but can also actually hear him opening and closing that hi-hat as he plays, you're getting the kind of resolution of instrumental detail, playing style, and lifelike timbre, texture, and dynamic that makes for astonishing realism. Ditto for Attila Bozay's harp-zither on the Hungaroton LP that I've talked about in various reviews (sorry, Wayne). Double ditto for Joan Baez and her guitar on *Joan Baez in Concert Part 2* [Vanguard]. Her occasional head movements (toward and away from the central vocal mike, which cause her voice to shift a bit right and left as it is picked up by the mikes on the audience/hall and on her guitar) are more apparent than ever before, as are her fingerwork and the timbre and texture of the separately miked guitar's strings and resonant body. Triple ditto for the delicate harp pizzicatos in the second movement of Stravinsky's Three Movements for Orchestra [Decca] or Steven Hunter's marvelous chucking rhythm guitar on “Rock 'n' Roll” from *Rock 'n' Roll Animal* [RCA].

The new Ref Phono 2 SE is exactly \$1k more than the

EQUIPMENT REVIEW - Audio Research Reference 5 SE, Phono 2 SE, and 250

original Phono 2—\$12,995 instead of \$11,995. As with these other ARC components, the sonic improvements are well worth the difference in price. So's you know, the features of the original Ref Phono 2 remain the same, i.e., the unit still allows you adjustable RIAA curves (RIAA, Decca, and Columbia) and the convenience of remote-control operation and remote-controllable loading of moving-coil cartridges.

We come now to what might be the most improved component of this marvelous trio, the Reference 250 monoblock amplifier.

ARC has been designing, building, and marketing a roughly 200W amp for decades (its reputation was, in part, made by the D150, the first “high-powered” Audio Research amplifier), but it has never built a better one I've heard than the new Ref 250, which is everything that its most recent predecessors—including the Reference 210—were not.

I reviewed the Reference 210 and, like all contemporary Audio Research amplifiers, it was an excellent pentode power amp. It had the traditional ARC virtues of neutral balance, lifelike bloom, and mid-to-treble-range air and light, plus, like all ARC products from the SP-3 on, it was able to “breathe” life into instruments and voices in the midband and top end almost like an acoustic bellows, changing image size, projection, and presence with the ebb and flow of dynamics, just as instruments and voices do in a concert hall.

However, all you had to do was compare the Ref 210 side by side (as I did) with a really good triode amplifier, like the then-current Convergent Audio Technology, to hear what the ARC amp didn't do. In spite of the fact that at

90W the CAT amp was, on paper at least, half as powerful as the Ref 210, it simply blew the ARC out of the water when it came to transient speed, dynamic range, midbass and low-bass definition and slam, density of tone color top to bottom, image focus, and ultimate SPLs. Of course, Class A triode and Class AB pentode amplifiers and the different tubes they use have fundamentally different presentations (the CAT for all its dynamo-like power and gorgeous tone color lacked the midrange-to-treble bloom, air, and lifelike “action” that I just commented on); nonetheless, the Ref 210 sounded like a wimp beside the CAT. It was also considerably grainier than the triode amplifier, producing sonic images that sounded the way “half-tone” photographs look, where the CAT's images sounded the way “continuous tone” images look.

If you were to combine the virtues of the CAT amp with those of the Reference 210, while subtracting the flaws of each and adding even higher resolution of low-level detail and lower noise than either was then capable of, you would end up with something very close to the sound of the new Reference 250. Everything that I didn't like about the Reference 210—its dynamic wimpiness that made it sound a lot less powerful than its on-paper watts would suggest, its graininess, its washed-out tone colors (particularly in the crucial power range from about 100Hz to 400Hz), its slightly sluggish transient response, its lack of bottom-bass definition and slam, its ill-focused images (too big with too little edge definition), its inability to play really loud without bumping its head against an SPL ceiling—is gone. Everything I liked about the Reference 210 and other pentode ARC amplifiers—their neutrality, their bloom, their air, their light, their incredibly

Break-In

Because of the size and constitution of the huge Teflon capacitors in the Reference 5 SE, the Reference Phono 2 SE, and the Reference 250, these components take longer to break in than previous ARC gear (not counting the Reference 40). None of these items will sound “bad” from go, but they certainly won't sound their best until they've been run in at least two-hundred hours (and will continue to improve for several hundred hours after that). Overall tonal balance is the primary thing that changes with break-in, and the gear typically goes through various phases of darkness and brightness (and both together) before settling into a very slightly darkish (in comparison with previous ARC gear) neutrality. When you start to hear the bass and power range fill out as I've described it—and ambience being recovered in the magical way this ARC gear is capable of—you will know you're getting close to “just right.” **JV**

expansive soundstage, and, above all else, their realistic way of breathing life into instruments and vocals (now including bass-range instruments)—has been improved.

I could cite musical examples from record after record that demonstrate the newfound virtues of the Ref 250, but as I'm running short of space and have already provided examples in my previous discussion of the Ref 5 SE and Ref Phono 2 SE, why bother? None of those instances of superior resolution, timbre, bass, treble, dynamics, soundstaging, imaging, and transparency would've sounded the way I've described them sounding without the Reference 250—it's that simple. And so, BTW, is my opinion of this marvelous amp: The Reference 250 comes closer to sounding “realistic” on more instruments and on more kinds of music than any previous ARC amp I've heard (and I've heard them all, save one). Indeed, I would have to say that, ultimate power levels aside, it is a substantially better amp than the Reference 610T that was my tube reference for many years. (The

Ref 250 is my tube reference now.)

In sum, what we have here are an amp, preamp, and phonostage that you positively need to audition, whether you're in the tube camp or the solid-state one. All three compete fully with the best examples of either gain strategy, even in those areas (bass, low-level detail, speed of attack, noise) where solid-state has traditionally reigned supreme. This does not mean that the Reference 250, Reference 5 SE, and Reference Phono 2 SE are the only great electronics out there—we are, in case you missed it, living through a new Golden Age of High Fidelity that, particularly when it comes to low noise and high resolution, leaves most of the products from that first Golden Age in the dust. What it does mean is that when it comes to contemporary tube amplification and preamplification, ARC is the marque to beat. But then what's new about that? **tas**

Jeff Rowland Design Group Corus Linestage and 725 Monoblock Amplifier

From the Inside Out

Robert Harley

The Jeff Rowland Corus linestage and 725 power amplifiers are the most beautiful, and beautifully made, electronics I've had in my home. They are visually stunning, with a unique diamond-cut front-panel adorning a chassis hewn from solid aluminum blocks.

I've seen many lavishly made audio products but these Rowland electronics give off a different vibe. While many "luxury" audio components seem to have superficial "bling" added later to foster their appearance, the Corus' and 725's outward beauty appear to be a manifestation of their inner beauty. By inner beauty I don't just mean the fabulous build-quality visible under the top panel, but rather the obvious care and dedication that went into their design and construction. The quality flows from the inside out rather than being tacked on after the fact.

The Corus linestage is not only gorgeous to look at, it's also an ergonomic delight. Using it on a daily basis is simply a joy. Take the display, for instance. On many preamplifiers the display is either big and garish (but functional) or small and unreadable from across the room. The Corus features a vacuum fluorescent display that is at once subtle and useful. It can be easily read from the listening seat, yet never calls attention to itself. The soft blue color, the size and shape of the letters and numbers, and the brightness could not be improved upon. It's elegant in a way that most audio-component displays are not. This is no accident; the display's standard character-generator was abandoned in favor of Rowland-designed alphanumeric characters, symbols, and icons. Even the display's light-blue color was customized for the Corus. Moreover, the display can be



EQUIPMENT REVIEW - Jeff Rowland Design Group Corus Linestage and 725 Monoblock Amplifier

set to one of four brightness levels, and two timer-based modes automatically turn it off (it will still illuminate briefly when a command is received).

And then there's the volume control that changes its ballistics in response to hand movement. Turn the knob quickly to get up to a specific volume range and the volume changes quickly. As your hand naturally slows down as you approach the ideal level, the volume-change speed slows commensurately. This process is transparent to the user; you just do what comes naturally and the Corus adapts. The result is an ability to quickly and precisely set the perfect playback level for any recording or situation.

I've gone into this detail about the display and volume control because they exemplify the fact that every aspect of these products has been carefully considered and optimized. I don't know that I've reviewed a preamplifier that has had this much thought put into its visual appearance and the user experience. The designers obviously care deeply about their customers. The Corus reminded me of an observation in Robert Pirsig's *Zen and the Art of Motorcycle Maintenance*: "Care and Quality are internal and external aspects of the same thing."

The Corus is also highly capable, with four balanced inputs, two unbalanced inputs, four main outputs (two balanced, two unbalanced), and two record outputs. Any input can be set to "theater pass-through" mode for integrating the Corus into a multichannel system. A gain-offset feature memorizes different gain settings for each input, allowing you to switch among sources without large jumps in playback volume. In addition, the secondary main output has a programmable gain offset with 0.5dB resolution, a useful feature

when bi-amping with two amplifiers of different gains. One of the record outputs features an independent gain-adjustable signal path for driving a second zone in a multi-room installation. The inputs can be named, although I found that the pre-programmed input names (DAC, Phono, etc.) worked just fine. Another nice touch is the inclusion of a balance control, although you must enter the menu system to access it.

The small outboard power supply connects to the Corus via left and right-channel umbilicals. A third cord runs between the Corus and the remote IR sensor. This latter feature allows you to position the Corus without maintaining a line-of-sight to the listening position. Naturally, the power-supply chassis and remote sensor are machined from aluminum billet.

The 725 power amplifier is just as beautifully built as the Corus but, being an amplifier, isn't distinguished by the Corus' array of functional and ergonomic refinements. The chassis is quite compact for an amplifier of this power—330W into 8 ohms, 650 into 4 ohms. In fact, in density it is a solid monolithic block. That's not surprising given that each chassis and its integral heatsinks are machined from a solid block of non-resonant aircraft-grade aluminum. Removing the top cover and looking inside conjured up an image of a bank vault. In a further indication of the level of thought and detail that went into these products, the holes that form the heat sinks are not of uniform size or position so that the chassis is less supportive of resonances. The chassis dimensions are also based on the Golden Ratio, again for resonance

suppression.

This high output power from such a small chassis is made possible by the 725's switching power supply. All the audio circuitry, including the output stage, are linear (non-switching) circuits. But the power supply that converts AC from the wall into DC to supply the circuits is realized with switching technology. (Incidentally, Linn's spectacularly great CD12 CD player featured a switching supply, not for compactness or weight, but because Linn thought it sounded better than a linear supply.)

The 725's front panel features the distinctive vertical striations that have been characteristic of Rowland products for more than 20 years. A small round power button gently lights up when the amplifier is powered on. The metal-work



EQUIPMENT REVIEW - Jeff Rowland Design Group Corus Linestage and 725 Monoblock Amplifier

is as good as it gets. (See the sidebar for more technical details on both products.)

Listening

I auditioned the Corus and 725 with three different loudspeakers, the Venture Ultimate Reference, the Lansche No.7, and the Magico Q7. With each of these very different loudspeakers the electronics' essential qualities remained consistent. The first, and overriding, quality is the Corus' and 725's transparency to sources. They have very little in the way of a personality or distinctive character. They get out of the way, providing a clean window back to the original musical event. Their sound is not one that calls attention to itself as "spectacular" hi-fi, but rather one that subtly conveys musical expression. The result was a presentation that fosters an immediate and deep musical involvement.

A large part of the Corus' and 725's musicality can be credited to their smoothness and absence of grain. The treble had a refinement, resolution, and delicacy that lacked any hint of transistor hardness. I wouldn't characterize the treble as either forward or laid-back (which is easy to do with most amplifiers), but rather as an organic and wholly integrated aspect of the sound that defies conventional descriptors. Some electronics draw your attention to the treble as a detached component riding on top of the music—like a tweeter that sticks out. With the Rowland, the treble had a full measure of energy and life, yet at the same time was subtle and refined. In addition, the treble had a crystalline clarity coupled with a sense of top-end extension and openness. The delicate cymbal and brush work on Jimmy Cobb's *Jazz in the Key of Blue* [Chesky, hybrid SACD]

were reproduced with tremendous clarity and resolution without a trace of etch. In addition, the Rowland electronics resolved the cymbals' fine decays into the very lowest levels, adding to the sense of realism.

The exemplary treble performance extended down into the midrange, where the Rowland electronics exhibited a gorgeous rendering of instrumental timbre. The sound was simultaneously lush and highly resolved—an extremely compelling combination. By lush I don't mean overly romantic like many tubed amplifiers, but rather densely saturated in tone color and complete lacking grain and electronic artifacts. The wonderfully recorded brass and woodwinds on Count Basie's *88 Basie Street* [JVC XRCd] fairly jumped to life from the loudspeakers with a totally natural quality. String sound was also well served by the Rowland's clean, but never dry or sterile, midrange and treble. Again, the combination of lushness and resolution is a powerful one; the lushness invites physical involvement by allowing your ears to more fully "open up," and the resolution invites intellectual involvement. That is, the lack of hardness and grain put me in a more receptive state to the music's meaning and expression.

Rowland amplifiers are known for their solid bottom end, but this description doesn't do justice to the 725's bass reproduction. I heard not just tremendous weight and authority, but a natural warmth, richness, and fullness that made many other solid-state amplifiers sound a bit bleached and threadbare by comparison. The bass and midbass were densely textured and rich, but never thick, bloated, or lacking articulation. The richness of tone color through the bass and

SPECS & PRICING

CORUS LINESTAGE

Inputs: Four balanced, two unbalanced, programmable gain offset on all inputs

Outputs: Four main, two record (one of which has independent gain adjustment)

Gain: 7dB (+/-20dB gain programmable on each input)

Gain resolution: 0.5dB over entire 99.5dB range

Input impedance: 40k ohms (balanced or unbalanced)

Output impedance: 60 ohms (balanced or unbalanced)

Power consumption: 15W

Dimensions: 15.5" x 3.9" x 12.3" (linestage chassis); 4.7" x 2.9" x 11" (power supply)

Weight: 22 lbs. (linestage); 6 lbs. (power supply)

Price: \$13,600

725 MONOBLOCK POWER AMPLIFIER

Output power: 330W into 8 ohms, 650W into 4 ohms

Input impedance: 40k ohms

Damping factor: >200

Gain: 27dB

Inputs: Balanced XLR

Power consumption: 1W (standby); 85W idle

Dimensions: 15.5" x 5.75" x 16.25"

Weight: 54 lbs. each

Price: \$29,800 per pair

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ASSOCIATED COMPONENTS

Venture Ultimate Reference, Lansche No.7, and Magico Q7 loudspeakers; Jeff Rowland Design Group Aeris DAC; Berkeley Audio Design Alpha DAC Series 2; iMac server with Berkeley Alpha USB interface; Basis Inspiration turntable with Basis Vector 4 tonearm, Air Tight PC-1 Supreme cartridge; Aesthetix Rhea Signature phonostage; Simaudio Moon 810LP phonostage; Shunyata Triton and Talos AC conditioners, Audience aR6TS power conditioner; Shunyata CX-series and Zitron Anaconda AC cords; Audience Au24 and PowerChord AC cords; Shunyata Anaconda interconnects and loudspeaker cables; AudioQuest Diamond USB digital cable; AudioQuest WEL Signature interconnects, Transparent XL Reference interconnects; Transparent XL Reference loudspeaker cables; Stillpoints SS equipment racks, Stillpoints Ultra SS and Ultra 5 isolation, ASC 16" Full-Round Tube Traps. VPI 16.5 record-cleaning machine; Mobile Fidelity record brush, cleaning fluid, stylus cleaner



EQUIPMENT REVIEW - Jeff Rowland Design Group Corus Linestage and 725 Monoblock Amplifier

midbass contributed to the overall feeling of relaxing into the music rather than being held at arm's length as a detached observer. The Rowland's reproduction of acoustic bass was outstanding. Check out Edgar Meyer's virtuoso playing on *Hop, Skip & Wobble*; the Rowland conveyed every nuance of the instrument's color, dynamics, and size as well as Meyer's expression. The Rowland was completely unfazed by any pitch or playback level, including the subterranean Hammond B3 pedals on organist Joey DeFrancesco's *Part III*. The 725 had plenty of power in reserve judging from the way that kick drum cut through the mix dynamically rather than sounding soft and mushy at high playback levels. I got the impression that the 725 had an iron-fisted grip on the loudspeaker's woofers; such was the sense of control and precision. The sound was totally effortless and composed no matter how dense and complex the music, and at any playback level.

The Corus and 725 are also very fast and clean, reproducing transient detail with tremendous clarity. In addition to conveying a sense of "suddenness" on transient attacks, the decays between attacks are characterized by a deep silence, a combination that adds to the impression of hearing an instrument hanging in space between the loudspeakers. Paco De Lucia's rapid-fire flamenco guitar work and the multiple handclaps and foot stomps on his 1993 recording *Live in America* highlighted the Rowland's dynamic agility. What impressed me as much as the Rowland's transient fidelity was the lack of etch or "skeletal" sound that often accompanies such a highly detailed and resolved presentation. Despite the Rowland's speed and articulation, it never crossed the line into the clinical.

I evaluated the Corus independently by performing the bypass test by listening to a DAC's output driving the power amplifiers directly and then putting the Corus in the signal path. The Corus was surprisingly transparent, shaving off just a bit of air and vividness but otherwise introducing no thickness or opacity to the soundstage. The Corus was also extremely clean-sounding, adding very little sonic signature. No preamplifier is completely transparent in the bypass test (which also adds a pair of interconnects to the signal path), but the Corus is far better than most.

As much as I enjoyed and admired the Corus and 725 with the Venture and Lansche loudspeakers, it took the astonishing Magico

Q7 to reveal the extent of the Rowland's greatness. The Rowland electronics and Q7 share many fundamental goals, particularly in the area of resonance control, resolution of micro-dynamics, reduction of stored energy, and the general removal of sources of signal contamination. The Q7 is so transparent and resolving that it immediately exposes any amplifier or source shortcomings. But the Rowland was easily up for the task. With the Q7 I could hear way, way down into the finest details of music's microdynamic structure, the subtlest inner details of instrumental timbre, and what must be miniscule spatial cues that conjure up the impression of sitting in the original acoustic space. I was repeatedly floored by this combination's ability to paint a vast panorama of acoustic space populated by tangible instruments. One of the most vivid examples is the Analogue Productions' 45rpm reissue of Muddy Waters' *Folk Singer*. I have never felt a stronger impression of being transported across space and time to a musical performance. The Q7 also showed me the Corus' and 725's stunningly quiet background, superb ability to reach way down into the lowest levels of timbral and spatial information, amazing transient speed, and bass grip and extension.

Conclusion

The Jeff Rowland Corus linestage and 725 power amplifiers are world-class electronics in every sense of the phrase. They are stunningly gorgeous to look at, a delight to use on a daily basis courtesy of their exemplary user interface, and intensely musical. Moreover, they are backed by an American company with a 26-year track record. Frankly, considering the build-quality, the technology, and musical performance, they are a great value. Although \$13,600 for a linestage and \$29,800 for a pair of amplifiers is hardly inexpensive, many other companies routinely charge more for

less. These electronics were perfectly at home in the context of the \$165,000 Magico Q7 and \$54,000 Basis Inspiration turntable.

Beyond the specific sonic characteristics I've described, the Corus and 725 were unfailingly musical. They're the kind of electronics that seem to disappear from the signal path rather than make you constantly aware of their presence. At the end of the day a good yardstick for audio component quality is how quickly and how deeply they immerse you in the musical expression. By those fundamental criteria, the Corus and 725 are a home run.

The Corus and 725 are so visually appealing that you might be tempted to think of them as boutique products—all frills and little substance. But they are at their heart serious pieces of engineering that represent Jeff Rowland's more than 40 years of experience in amplifier design. The Corus and 725 are truly examples of beauty flowing from the inside out. **tas**





EQUIPMENT REVIEWS

Preamps, Phonostages, & Receivers

NuForce HAP-100 Headphone Amplifier/Preamplifier

Multi-tasker

Chris Martens



In the past, NuForce offered one line of audio equipment targeted toward audiophiles and another line geared toward personal-audio/desktop-audio enthusiasts. Now, NuForce is introducing a third range of components that are affordably priced (only a bit more expensive than its personal-audio components), but whose performance aspirations fall squarely in the high-end camp. A good example would be NuForce's new HAP-100 headphone amplifier/preamp (\$595), which despite its modest price promises low noise, extraordinarily low distortion, wide bandwidth, and linear frequency response, plus a design aimed toward listeners "for whom quality headphone listening is a top priority."

The HAP-100 is a half-rack-width-sized component that features single-ended, Class A, zero-negative-feedback preamplifier/headphone amplifier circuitry, a linear power supply, and a switched-resistor ladder-type volume control with 100 steps in 1dB increments. The NuForce also comes with a handy remote that provides on/off switching, muting, input selection, and volume up/down controls. Unlike some headphone amp/preamps on the market, the HAP-100 can drive both its headphone and preamp outputs simultaneously, though it gives users the option of

disengaging the preamp outputs if they wish. This capsule description of the HAP-100 sounds promising, but the key question is whether the NuForce sounds as good in real life as on paper. I will tackle that question by discussing the HAP-100 first as a headphone amplifier and then as a stereo preamplifier.

HAP-100 as a Headphone Amplifier

Ideally, headphone amps should be able to drive top-tier in-ear and full-size headphones equally well. Today's best in-ear transducers are very revealing, high-sensitivity

EQUIPMENT REVIEW - NuForce HAP-100 Headphone Amplifier/Preamplifier

devices; they are not particularly taxing to drive, but they do require amps that are very quiet and that provide a great deal of inner detail and sonic finesse. Top-tier full-size headphones, however, can be dauntingly difficult to drive, in part because they are often even more revealing of sonic nuances than their in-ear brethren, but also because their impedance and sensitivity ratings can potentially fall all over the map. Plainly, the challenge for designers is to build amps that deliver consistently excellent sound quality even when facing widely varying loads—something that is much easier said than done.

The HAP-100 offers three compelling benefits that can be appreciated no matter what type of headphones you use. First, the NuForce offers admirably low noise, which buys listeners freedom from unwanted grunge and helps unlock low-level details that could otherwise get lost in the noise floor. Second, in the best NuForce tradition, the amp emphasizes pristine cleanliness of reproduction with very good levels of detail and definition. Third, the amp's precise, 100-step volume control allows listeners to dial in just-right amounts of output for virtually any earphone/headphone application (whereas many headphone amps appear to be optimized for low- or high-sensitivity 'phones, but not for both).

In my listening tests, the HAP-100 was at its best when driving high-performance in-ear headphones and custom-fit in-ear monitors. It succeeded in this context partly because it was inherently quiet, partly because its volume control worked perfectly with high-sensitivity in-ear devices, but primarily because it offered detail and definition aplenty.

To hear these qualities in action, try the beautiful

title track of Gillian Welch's *Time (The Revelator)*, which centers on the voices and acoustic guitar of Welch and David Rawlings. The most evocative elements of the track (namely, Welch's deceptively complex and delicately expressive vocals and clear, articulate guitar work) fell smack dab in the middle of the HAP-100's sonic "wheelhouse," creating a sort of sonic synergy that helped my top-class in-ear monitors really sing. Welch's vocals were simply enchanting, made all the more lovely thanks to NuForce's ability to capture very low-level inflections and harmonic details, while the guitars sounded at once tonally pure and dynamically lifelike—as if heard from only a few feet away. Underpinning these sonic qualities were the NuForce's silent, jet-black backgrounds, which made subtle musical contrasts and shadings more apparent and enjoyable.

Still, the NuForce's presentation was not without drawbacks. First, the amp's tonal balance conveyed a touch of midrange/upper-midrange forwardness coupled with somewhat lean-sounding bass. Second, the amp sounded detailed and well-defined, but not entirely "continuous" or three-dimensional in its presentation. This tendency meant the HAP-100 gave good results in a "hi-fi checklist" sense, but was somewhat less musically engaging than it might have been.

Moving on, I tried the HAP-100 with many different top-tier full-size headphones (some with traditional dynamic drivers and others with planar-magnetic drivers), with mixed results. With certain 'phones, such as Sennheiser's flagship HD-800, the HAP-100 gave an excellent account of itself, exhibiting sonic strengths similar to those I observed when listening through in-ear monitors. But with other 'phones, such as the

Fischer Audio FA-002W High Edition or HiFiMAN HE-500, the HAP-100's tendencies toward midrange-forwardness and lean bass became more pronounced, yielding a somewhat brittle and strained-sounding presentation.

Why these variations in sound quality from headphone to headphone? I can't say for sure, but I suspect the HAP-100 is optimized for "Hi-Z" or

high-impedance loads (note that the Sennheiser HD-800 offers a relatively high 300-ohm load). The problem is that not all top-tier headphones offer high-impedance loads, and even those that do can be so power hungry that they are still quite challenging to drive. The bottom line is that the HAP-100 can sound terrific with loads it can handle well, but its sonic weaknesses may become

SPECS & PRICING

Inputs: Four stereo analog inputs (RCA)

Outputs: One variable-level stereo analog output (RCA), one 1/4-inch headphone jack

Accessories: Power cord, full-featured remote

Frequency response: 20Hz-20kHz, +0/-0.1dB

Distortion: <0.002% @ 20Hz-20kHz (3V RMS output at RCA jacks)

Signal-to-noise ratio: >100dB

Preamp output: 7.8V RMS, RCA, maximum

Headphone output: 5.2V RMS, Hi-Z, maximum 5.1V RMS @ 300 Ohms

1.81V RMS @ 32 Ohms

0.91V RMS @ 16 Ohms

Weight: Not specified

Dimensions: 8.5" x 1.875" x 10"

Price: \$595

NUFORCE, INC.

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Milpitas, CA 95035

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ASSOCIATED EQUIPMENT

Full-Size Headphones: Audeze LCD3; Fischer Audio FA-002W High Edition; HiFiMAN HE-400, HE-500, and HE-6; and Sennheiser HD-800

Custom-Fit In-Ear Monitors: JH Audio JH 16 PROs; Ultimate Ears In-Ear Reference Monitors and Personal Reference Monitors; and Westone Elite Series ES-5 Monitors

Headphone Amps, Amp/Preamps, and Amp/DACs: Audio Electronics by Cary Audio Nighthawk, Burson Audio Soloist, CEntrance DACmini, and HiFiMAN EF-5 and EF-6.

Sources: AudioQuest DragonFly DAC with Mac Mini, CEntrance DACmini with Mac Mini, NuForce-modified Oppo BDP-93SE universal/Blu-ray player, and Oppo Digital BDP-95 universal/Blu-ray player

Preamps: Burson Audio Soloist, NuForce Reference P9

Power Amps: NuForce Reference 9 V3 Special Edition monoblocks

Loudspeakers: PSB Imagine T2

Interconnects/Speaker Cables: Nordost Blue Heaven and Ultralink

Room treatments: RPB Binary Absorber/Diffusor panels

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EQUIPMENT REVIEW - NuForce HAP-100 Headphone Amplifier/Preamplifier

exaggerated when confronting less than optimal loads.

To better understand the foregoing comments, try listening to the HAP-100 with a variety of headphones on a bellwether track such as “Angel of Darkness” from Hot Tuna’s *Steady As She Goes* [Red House Records]. This enjoyable but non-audiophile-grade recording presents midrange content that is energetic and somewhat prominent to begin with, so that the need for midrange and upper midrange neutrality and for counterbalancing bass weight and body becomes critically important. The HAP-100 displayed its signature sonic virtues on “Angel of Darkness” when driving the Sennheiser HD-800s, but with harder-to-drive ‘phones the amp often pushed Jorma Kaukonen’s vocals and electric guitar too far forward in the mix, giving them a borderline shrill quality. Similarly, when driving difficult loads, the amp undercut Jack Cassady’s normally vigorous-sounding, syncopated bass guitar lines, making them sound thin and insubstantial, thus robbing the song of its low-frequency foundation.

For comparison purposes, I tried the same track with the same group of test headphones, but using competing amps from CEntrance (the DACmini, \$799) and Burson Audio (the Soloist, \$999). What I learned was that both of these admittedly more costly competitors could match or surpass the HAP-100’s sonic strengths, while consistently delivering more balanced tonal response across a broad range of headphones.

All things considered, the NuForce has much to offer when it is used with in-ear monitors or with the right full-size headphones. But the fact is that the amp does appear to be load-sensitive, meaning that it would be a good idea to try the



HAP-100 with your preferred headphones before making a purchase.

HAP-100 as a Preamplifier

I tested the HAP-100’s capabilities in a high-end system comprising an Oppo BDP-93 NE (NuForce Edition), a pair of NuForce Reference 9 V2 SE monoblock amps, and a pair of PSB Imagine T2 floorstanders. I also had on hand a sample of NuForce’s exotic, two-chassis Reference P-9 preamplifier (\$3150) to use for comparison.

Very early on, I came to think the HAP-100 was well suited to its role as a preamplifier. I say this because the HAP-100’s output capabilities seemed well matched to the task of driving power amplifiers, thus allowing the NuForce’s best sonic qualities to shine through while minimizing possible sonic weakness. The result, then, was a preamp that, while not perfect, offered really impressive performance in light of its price.

To observe some of the HAP-100’s strengths in action, check out the track “Satori in Chicago” from Noah Wooterspoon & The Stratocats’ *Buzz Me* [APO Records], which is a very well recorded,

jazz-inflected, electric-blues cut. Wooterspoon demonstrates a command of all of the usual Fender Stratocaster pyrotechnics plus a few of his own, so that the song offers a masterful display of soulful electric-blues guitar chops. But the song also offers something more—namely, the unmistakable sound of a highly skilled band that is absolutely locked into its collective groove. The NuForce does its part in several ways, first by revealing the leading edges of transients in a clear, powerful, and incisive way, and then by focusing on tonal purity and inner details. As a result, Wooterspoon’s guitar really does sound like a Stratocaster merrily howling away through a fine guitar amp, while the electric bass has the visceral, deeply grounded drive of the real thing. But perhaps one of the biggest treats of all is the HAP-100’s rendition of the drums, which have a just-right amount of snap and “pop,” and of the hi-hats and cymbals, which shimmer with rich layers of delicate, understated detail. This is awfully fine sound from a \$595 preamp.

How does the HAP-100 compare to the far more costly Reference P-9. In simple terms, I think many listeners would report the two preamps sound

more alike than not, though discerning listeners would find small but significant differences. First, the P-9 offers smoother and more grain-free mid and highs. Next, the P-9 offers better-weighted and more powerful bass, though in fairness the HAP-100 sometimes seems to offer a more taut low-end presentation. Finally, the P-9 offers a heightened degree of three-dimensionality—perhaps because it is even quieter than the HAP-100 and provides superior resolution of low-level details.

Collectively, these differences become apparent on a track such as the “Aphrodite” movement of Robert Paterson’s *The Book of Goddesses* [American Modern Recordings], which highlights flute, harp, and percussion as captured in a reverberant recording space. The HAP-100 gave a good, clear, detailed rendition of “Aphrodite,” but the P-9 makes the three-dimensional character of the recording space (and of the instruments’ interactions within the space) much more apparent. Still, the important point to bear in mind is that the HAP-100 captures a significant percentage of the P-9’s sonic goodness and overall character for less than one-fifth its price.

Summing up, I would say the HAP-100 offers terrific value as a preamplifier; it is in no way embarrassed in the company of more expensive units. It is quiet, detailed, and well defined, and come with a handy remote that’s a joy to use. Moreover, the HAP-100 is a thoroughly viable headphone amplifier, one that’s at its best with in-ear transducers, but can also give highly satisfying results with some (though not all) of today’s best full-size headphones. Viewed as a complete package, the HAP-100 offers an awful lot to like at a down-to-earth price. **tas**

Zesto Audio Leto Preamplifier

Sonic Magic

Paul Seydor

The Leto preamplifier, a linestage that is the second product of George and Carolyn Counnas' Zesto Audio, is cut so completely from the same sonic cloth as Zesto's Andros PS1 phonostage I reviewed last year that describing its sound would be to repeat more or less what I said then (Issue 222). Like the Andros, the Leto is an all-tube design that represents what I often call classic tube sound brought up to date. By this I mean that it boasts all the roundedness, dimensionality, and body that we love from classic tubes without their wayward tonal anomalies, their deficiencies at the bass end, and their relatively high noise levels. The overall tonal balance is neutral—it allowed, for example, all the differences among the pickups in my upcoming cartridge survey elsewhere to be revealed unambiguously—though my initial impression was that it might be fractionally on the warm side. With extended listening, however, I am much less certain of this because, as I observed of the Andros, the really distinguishing characteristic of the Leto is a wonderful freedom from the usual sorts of sonic hype and electromechanical artifacts. It's the absence of such artifacts that sometimes tricks the ear into hearing warmth simply because the presentation is so free from anything potentially irritating. (No wonder the Zesto rooms have turned up so often on the "best sound" lists of recent audio shows.) It is transparent enough that transparency needn't be a concern, detailed enough that resolution isn't a worry, and fast and incisive enough to do full justice to *The Rite of Spring*, *For Duke*, or *The Sheffield Drum Test Record*. But if you demand that every transient come off like a pistol shot, you might want to look elsewhere: a naturalness that soon becomes quite addictive is the order of the day with this preamplifier, though it is also lively in its dynamics and lifelike in its vividness and vitality.



The Leto's distinctive cosmetics constitute a visual correlative to its sound, especially as regards its very low background noise (this even without the usual "for a tube unit" qualification): all graceful silver curves and subtly rounded edges against black, matching those for the Andros (Carolyn Counnas the stylist for both). Although the exposed tubes render stacking impossible, they certainly make a striking duo placed side by side. This is one pair of components you don't want to hide. The front panel sports three identical knobs that control volume, source, and balance, and two LEDs labeled "mute" and "mono" (for mono). The diminutive handset—which does not require line of sight to do its job—controls volume, mute, and mono or stereo operation, with balance and source-selection available only at the chassis (my sole functional complaint that balance is inaccessible from the remote, but at least there *is* a balance control). Three inputs are

single-ended, two balanced; there are a total of four pairs of outputs, two single-ended and two balanced. (There's also a "cinema-bypass" circuit.) As on the Andros, two back-panel toggle switches, one for each channel, float the ground if necessary; another switch bypasses the handset, a thoughtful touch inasmuch as muted output is the default upon turn on, which would otherwise leave you no way to get it unmuted if you happen to misplace the handset.

Fit, finish, quality of parts, and build are identical to the Andros, which is to say of very high standard; the Leto is hand-assembled; and it comes already broken in for fifty hours. Operation could not be simpler or more straightforward: Hook everything up where things obviously should go and flip on the side-panel rockerswitch, being careful to heed the manual's warning of amp on last/off first, otherwise you'll get a

EQUIPMENT REVIEW - Zesto Audio Leto Preamplifier

thump through the speakers (it will likely damage nothing, but it is disconcerting). Although the four tubes look identical at a casual glance, they are not: If you need to replace or remove a tube, be sure to return it to the same socket from which it was taken.

Since I am using the Andros and Leto combination for much of my moving-coil pickup survey, where the sound of the combination is implicitly described, I am here going to concentrate on digital sources so as to give a better sense of the linestage's intrinsic characteristics apart from the phono preamp. (I assume it goes without saying but I'll say it anyway: Just because Zesto makes an outstanding phono preamp of its own doesn't bind you to use it with the Leto—you can use any high-quality stand-alone phonostage.) I started with the Dorati *Firebird* on SACD, still for all-around rhythmic impetus, punch, drive, and dynamism, not to forget lyric expressiveness, the finest performance and recording known to me (including the composer's own). After all these decades it remains a bonafide audiophile masterpiece and one of Mercury's signature achievements. Yet, like most Mercurys, it is also to my ears somewhat brightly lit, so I was eager to hear if the Leto might soften in it any way. Not at all: As with every other neutral component or setup through which I've heard this recording, strings are a little more brilliant than real but with a lots of sheen. Brass too have some bogus brilliance, which is also attributable to the recording, but also are reproduced with really lifelike timbre with no undue sharpness or edge, rather like the difference between a photograph that is naturally sharp and one that has been oversharpened in Photoshop.

The densely scored passages are thrillingly rendered: clarity and blend in equal and just

proportions and climaxes that land with tremendous force and crunch. I want to reinforce this last observation. Tube units, even modern ones, for all their warmth and romance, are generally thought to be a little on the soft and/or "slow" side compared to transistors and to lack an impression of real strength. But I am astonished at the sense of sheer *power* the Leto is able to convey. Offhand I can't think that I've heard the big moments of this recording reproduced with a greater impression of occasion in my system. And don't for a moment think, "tube bass," when it comes to the Leto. Bass drums, tympani, trombones, tubas, bassoons, doublebasses have truly prodigious weight and definition. As for the goings on way up high, well, the big passages open out as impressively as they land, with extraordinary air and bloom. The Leto handled the plangent closing pages of the piece magnificently, with massed brass soaring gloriously above strings, tympani, and bass drum: I've rarely heard it bettered, even when it comes to ultimate loudness—indeed, I wouldn't want it any louder in my room, and my Quads were capable of going a bit louder. While I'm doling out praise for power, let me not slight the Quad 909 amplifier and 2805 speaker, neither of which components is supposed to have particularly strong bass or wide dynamic range. Sure glad no one told my units!

Given what I heard from the bass on this recording and most others, I remain surprised there is so little impression of added warmth, particularly since the unit is specified flat to only 10Hz. Theoretically, this means there must almost certainly be some phase shifting going on higher in the bass range, but, as with Quad 909 amplifier, which rolls off near the same frequency, the effects seem entirely benign. They might also be more in evidence with a woofer that goes very deep in the

bass, as opposed to my Quad panels (though their 6dB point is actually in the mid-thirties). I point this out only by way of suggesting that if this is a concern of yours, you should audition accordingly (but then you know you should do that anyhow).

The entire midrange is beyond criticism, which I ascertained with the Anonymous Four's *Gloryland* SACD. As I've said in other reviews, this is a real acid test for midrange resolution of fine distinctions in vocal character. The Four aim for the greatest possible blend, yet their voices are still subtly different from one another, which a revealing system will let you hear. A good cut for assessing this is the gospel hymn "Where We'll Never Grow Old," where the girls (no disrespect here—this is how they refer to themselves) are spread across the middle two-thirds of the soundstage, set back slightly, so that you hear a fair amount of air, but are still very present and slightly staggered front to back, so you should hear some depth between them. "Palmetto" opens with a solo singer who is joined by the group for the second verse, but here they are clustered even closer together and in a line, so there shouldn't be a wide stereo spread and the soloist should sound clear of the others. Their blend is again little short of unbelievable, yet individual timbres are still perceivable with close listening. Another reason this recording is a reference of mine and why I was especially interested in hearing it through the Leto is that the sound is unusually pure and cold: There should be no "warmth" as such, but rather a cold, even chilly beauty. The Leto aced this SACD on every talking point without breaking a sweat.

The top end? Airy, extended, and natural. Listen to any recording that has really well-captured atmosphere or lots of high percussion and any

concerns about the darkness that you're supposed to find in tube units—and do in some—are immediately banished. Almost any jazz ensemble will do, or something like Christy Baron's cover of "Mercy Street" on *Steppin'* (Chesky SACD), which has, among other instruments, a rain stick on it. On *The Christmas Revels*, you can actually hear the sound ricochet off the walls so clearly that you can almost measure the size of the venue, while the collection of period and folk instruments will tell you volumes about a component's ability to differentiate timbre and tone color. Again, the Leto's handling of all this is second to none other's.

One question the Leto raises is why electronic

SPECS & PRICING

Frequency Response: 10 to 100kHz +/- 1dB

Inputs: Three single-ended, two balanced

Noise: -100dB

Dimensions: 17" x 5" x 12"

Weight: 2.3 lbs.

Price: \$7,500

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EQUIPMENT REVIEW - Zesto Audio Leto Preamplifier

components that measure essentially ruler-flat, as this one does, should still sound different from one another, and sometimes not all that subtly. The only thing that occurs to me, and this is especially to the point when comparing tubes and solid-state, is differing harmonic-distortion profiles. Still after all these years, tubes distort differently from transistors, generally more pleasantly—even-ordered harmonic distortion as opposed to odd. Sometimes audiophiles want still more of tubes' distinctive distortion because it's so pleasing (hence the cults that develop around single-ended-triode amplifiers). The Leto's specified distortion is so extremely low that experts I've consulted find it hard to believe it could contribute anything of consequence to the reproduction. But what little there is, perhaps because it remains tube in origin, may be responsible for a difficult-to-define impression of texture about the presentation that accounts for that organic quality I noticed in the Andros and hear in the Leto as well. I realize that this may contradict what I said earlier about freedom from sonic hype and electronic artifacts. So be it. Whatever the explanation, it results in a musicality and an impression of realism that are at once valid and authoritative yet without ever stepping outside the boundaries of sonic neutrality.

Subjective reviewing does not allow for components to be evaluated in isolation because the evaluations must be based on listening. Every now and then, however, components come along that serendipitously combine with other components so as to make for very special synergies that we clumsily call "magical." This is what happened when I put the Leto into my current system, the amplifier and speaker complement of



which consists in a Quad 909 amplifier and Quad ESL 2805 speakers (connected with AudioQuest interconnects and Kimber speaker cables, with a WyWires power cord). The Leto and 909 amplifier share similar characteristics of being unusually free from electromechanical artifacts and having vivid and engaging midranges, a full bottom end (the 909 very slightly on the warm side of neutral), and completely natural top ends. Their presentations also have an unusually high degree of body and dimensionality to them. The Quad 2805s are vanishingly low in coloration; state of the art for "speed," transparency, and clarity; standard-setting for neutrality, openness, and that elusive sense of lifelikeness. I freely admit that when it comes to ultimate loudness and very

deep bass-response, they are not only challenged but fall considerably short for some tastes or in rooms very much larger than mine. That granted, however, roll them all together and you have a system I could live with happily and never feel the need to make any changes for a very long time. I used other amplifiers throughout the listening sessions, and the fine qualities of the Leto were evident no matter what it was partnered with. But there was something that kept pulling me back to the Leto/909 combination, especially with the Quad ESLs: sonic magic indeed.

One of the last things I played before wrapping up the review is the DG "Originals" reissue of William Steinberg's sensational recording of *The Planets*, musically and sonically one of the most

dramatic performances of Holst's suite, with a ferociously menacing realization of "Mars, Bringer of War." When the cut ended, my six-year-old daughter, who had never heard it before, said, "Daddy, that music was scary. Please don't play it again." Samantha doubtless would have responded the same way if she had heard it on any good or better system. But I like to think her response had at least something to do with the sense of engagement, involvement, and sheer vitality the Leto brought to the system. I removed *The Planets* and put in Peter, Paul, and Mary's album of children's songs, which brought a smile to Sam's face, though not before she asked me to program out "Puff, the Magic Dragon," because, she said, "It makes me sad." **tss**

Peachtree Audio Grand Pre X-1 Hybrid Tube Preamp & DAC

Chameleon

Wayne Garcia



While typing my finishing thoughts to this article, my hometown team won its second World Series in three years. As it was in 2010, this year's edition of the San Francisco Giants seems a most unlikely champion of the big leagues. Their two-time Cy Young award-winning pitcher had a terrible year; their best closer was out early due to season-ending surgery; their best offensive weapon, a crowd-favorite and All-Star Game MVP, was suspended after the half-way mark for illegal drug use; and their starting first-baseman, a star of their previous championship team, was relegated to a pinch-hitter role due to anxiety attacks. But after a few key trades the Giants turned a roster of smart, scrappy players into a feisty, never-say-die team that nearly collapsed in two hard-fought playoff games, before sweeping Detroit in four. Versatility was a huge key to the team's success; witness that Cy Young Award winner being left out of the World Series rotation, only to shine from the bullpen.

My baseball musings are a way of saying that many of today's most exciting and interesting audio components offer their own brand of chameleonic versatility, appealing to traditional audiophiles while at the same time embracing the needs of those who prefer their music not from vinyl or compact discs but rather streamed via computer.

Elsewhere in this issue I reviewed Wyred 4 Sound's mINT, a tiny integrated-amp/DAC. Now we'll look at Peachtree Audio's Grand Pre X-1, a \$3299 hybrid-tube preamp and DAC.

Peachtree is best known for its line of affordable, wood-clad designs, but the Grand Series, which as of now also includes the \$4499 Grand Integrated, charts new, higher-end territory for this Bellevue, Washington-based firm. The hefty, round-cornered chassis sports a half-inch-thick aluminum faceplate, titanium buttons, and engraved rather than screened input names. Likewise, the design and internal component choices reflect the company's drive for excellence.

Given Peachtree's commitment to computer-driven audio, the Grand Pre X-1—which is slightly upgraded from the original Grand Pre (more on that later)—employs Reference ESS Sabre32 9018 DACs to significantly reduce jitter from highly jitter-prone computer and other sources. A newly designed asynchronous USB input is said to provide the best possible connection between computer and DAC by allowing “the Grand Pre's internal high-precision clock to control the flow of data coming from the computer. This method lowers incoming jitter so the Sabre DAC has less timing errors to re-clock.” Capable of 24/192 resolution, the Grand also accepts sampling rates of 44.1, 48, 88.2, 96, 176.4, and 192kHz.

Galvanic isolation, used to break ground loops when multiple circuits need to speak to each other, is said to eliminate the noise caused by the switching power supplies commonly used in computer and other devices. And to sweeten the harsh digital nasties from poor or compressed recordings, Peachtree commissioned the legendary Bascom King to design a tube buffer stage. Using a pair of 12AU7s running in mono, a front-panel tube-bypass switch allows listening in either a completely solid-state or hybrid-tube mode from both the preamp as well as from the built-in headphone amplifier. As with any good design, the preamp stage uses the shortest possible signal paths, while a VCA (voltage-controlled-amplifier) gain control changes current in the preamp without having the signal pass through a potentiometer. Hence, the motorized pot's role is to simply feed a reference voltage to the VCA unit. Peachtree feels strongly that the result is superior channel matching, excellent soundstaging, low coloration, and high dynamic range.

Because early editions of the Grand Pre reportedly had a few minor issues, Peachtree's David Solomon wrote me about the changes that went into the X-1 version, which also created a few-hundred-dollar price bump. Some listeners were said to get a slight popping noise while adjusting gain, so Peachtree added a few caps to the gain control to eliminate any noise. Secondly, Peachtree changed the USB receiving chip from a Tenor TE8802L chip to a more stable XMOS device.

This is my first review of a Peachtree Audio design and, though I'm aware that I'm starting at the top, the Grand Pre X-1 is a mighty impressive effort.

EQUIPMENT REVIEW - Peachtree Audio Grand Pre X-1 Hybrid Tube Preamp & DAC

Whether spinning vinyl, CD, or streaming from my MacBook Pro, which was a snap to set up for use with the Grand Pre X-1, the sound was open and airy, with a nice feeling of drive and pace, good re-creation of dynamic extremes, and fine microdynamic shading. The tube buffer is certainly that. Over time I would go back and forth with different sources, and Peachtree's stated design goals for the unit proved to be true—meaning that with LPs and all but the poorest-sounding CDs, I preferred the unit with the buffer off. For example, with something like HK Gruber's marvelous, funny, very well recorded, and always surprising *Frankenstein!!* [Chandos], the Grand Pre did a fine job of carving out a large stage with excellent depth and spot-on imaging. Gruber's *singspiel*, performed while standing in front of a horizontally arranged orchestra, was articulate, strings were lively, percussion was delivered full of verve and snap. But the tube buffer softened

things too much, and dulled air and edges. On the other hand, while casually streaming from lower-quality sources such as Pandora, or a poor-sounding older compact disc, the tube buffer did a fine job warming things up, adding a bit of golden tone, rich texture, and generally saving one's ears from that harsh, edgy, aural-icepick effect.

My advice is to experiment. If you're going to listen to a lot of digital sources of varying quality—and if you're reading this I'd say that's a safe assumption—then the tube buffer should prove a welcome feature.

But not surprisingly, the Peachtree Grand Pre X-1 shines with superior sources such as the Gruber mentioned above. Fine LP sources, too, are impressive, and of genuine high-end quality when played through this design. I highly enjoyed my record collection over this peachy unit, and compared to analog-only models never felt that

the Grand Pre was a compromise approach. For one example, Analogue Productions' superb 45rpm edition of Dave Brubeck's *Time Out* displayed a marvelous sense of the intricate timing changes that still make this music so inventive and satisfying so many decades after it was released. The interplay of Brubeck's piano with his terrific small ensemble was always revealing, drawing me into tune after tune. The Peachtree's tonal quality neatly splits things nearly down the middle, with perhaps a nod toward the lighter side of the spectrum, which I generally prefer to the darker side.

Streaming high-resolution files proved to be a rewarding experience over this Peachtree model. As I said in my review of Naim's outstanding SuperUniti (Issue 225), the world of computer-derived audio is still relatively fresh territory for me and one I'm not quite comfortable with, as the technical micro-details and very different musical/sonic experience, in many ways superior and in others not, are issues I'm still grappling with. Nevertheless, with something like the truly fine 192/24 rendering of Cat Stevens' *Tea for the Tillerman*, the Grand Pre X-1 was a model of resolution, tonal complexity, and "there-ness." Vocals were superb, the stage was big, wide, and open, dynamic range from whisper to thunderclap and back, and the experience was highly impressive as well as musically compelling. So I'll now confess that I found Analogue Productions' QRP vinyl pressing even more engaging.

Like I said, Peachtree Audio's Grand Pre X-1 sets a new standard for this company. It's a thoughtfully designed, well built, and truly versatile performer that should more than satisfy

a wide range of music lovers—from those who have enthusiastically embraced computer audio to geezers like me who are still straddling the proverbial fence. **tas**

SPECS & PRICING

Type: Hybrid Tube Preamp & DAC

Inputs: Aux/HT analog, Aux 2 analog, balanced (XLR) analog, USB digital, one BNC digital, two coax digital, two optical digital

Outputs: Coax: pre, line, high pass pre, balanced (XLR)

Tube complement: 12AU7 (2)

Dimensions: 17.5" x 4.8" x 16.5"

Weight: 24 lbs.

Price: \$3299

PEACHTREE AUDIO

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peachtreeaudio.com

ASSOCIATED EQUIPMENT

Acoustic Signature Challenger turntable, Funk FX-R Pickup Arm, and Transfiguration Phoenix moving-coil cartridge; Sutherland 20/20 and Simaudio Moon 310LP phonostages; Cary Audio Classic CD 303T SACD player; Apple MacBook Pro computer; Exposure 3010S2 mono amplifiers; Magnepan 1.7 loudspeakers, Tara Labs Zero interconnects, Omega speaker cables, The One power cords, and BP-10 Power Screen; Finite Elemente Spider equipment racks



Simaudio Moon 810LP Phono Preamplifier

A Statement Phonostage

Robert Harley



The 32-year-old Canadian firm Simaudio is one of those few companies with a decades-long track record of marketing nothing but great-sounding and beautifully made products at competitive prices. Although Simaudio isn't an entry-level brand by any stretch, I would call them a "high-value" brand, because many competitors routinely charge more for less.

The 810LP phonostage reviewed here is a case in point. The company's flagship is its all-out assault on the state of the art in phonostages. It is designed and built with meticulous attention to detail and features lavish chassis work, yet is priced at \$12,000. Yes, this is a lot of money for a phonostage, but not for a statement-level product with the sound quality I'm about to describe.

The 810LP is housed in a solid chassis that is built entirely in Simaudio's factory. Simaudio is

one of the few electronics companies with in-house CNC machining. It took this step to improve quality and reliability, provide customization options, and shorten lead times. Simaudio's Web site offers a photographic factory tour showing metal parts being fabricated. The 810LP's silver front panel (black is also available) is quite plain, with just a power button and a blue LED power indicator. Rounded aluminum "cheeks"—key elements in Simaudio's visual design—flank the front panel's left and right sides. The rear panel

houses one stereo pair each of balanced inputs (XLR) and unbalanced inputs (RCA), along with balanced and unbalanced outputs.

The 810LP offers extensive adjustments for gain and loading via bottom-panel DIP switches. This location isn't convenient for making changes on the fly, but was chosen to keep the signal path as short as possible (the switches are located in-line with the circuit). Gain is adjustable in 16 increments from 40dB to 70dB. A second bank of switches allows you to set the capacitive loading from no capacitance to 1120 picofarads (pf) in 16 steps. A third bank sets the resistance from 12.1 ohms to 47k ohms in 64 increments. Because the 810LP is a true dual-mono design, each bank of DIP switches (gain, resistance, capacitance) is duplicated for the left and right channels. Finally, another pair of switches selects between RIAA and IEC equalization. The bottom panel with its vast array of switches looks intimidating, but the outstanding owner's manual makes everything clear.

Simaudio has pulled out all the stops for the 810LP, incorporating the best design techniques developed over its 32-year history. The power supply, a particularly crucial part of a phonostage, is a good example. The 810LP's supply is housed in a sealed, 14-gauge-steel subchassis that consumes about 40% of the interior real estate. The DC voltages from this supply are then re-regulated on the audio board with multiple cascaded regulation stages of Simaudio's proprietary design. Each regulation stage, located near the audio circuit it supplies, is built from a combination of ICs and discrete components, along with a large inductor. The result is ultra-pure DC that is isolated from the AC supply as well as from noise or

contamination from the audio circuits. Simaudio calls this circuit i2DCf (Independent Inductive DC Filtering). The 801LP uses a whopping 24 of these sophisticated regulation stages. Simaudio claims that the 810LP's DC supplies are as quiet and well regulated as the DC from a battery. Indeed, the noise floor of the DC supply is -150dB below 1V from DC to 100kHz. This is an astounding specification—and unprecedented in my experience in any product.

The audio circuit is a dual-mono fully balanced differential design. The transistors in the differential pairs are hand-matched, and the layout features very short signal paths. The four-layer audio board is mounted on a five-point, floating gel-suspension to isolate the audio circuits from vibration. Simaudio calls this suspension M-Octave Damping. To avoid compromising the isolation by connecting the floating board to the rear-panel, a dual-layer rear-panel is employed in which the outer layer is mounted to the chassis and the inner layer is connected to the audio circuit board. The two layers don't come in physical contact with each other. To further isolate the circuits from structural vibration, the chassis sits on Simaudio's custom isolation cones at each corner of the chassis. This attention to vibration isolation is even more crucial in a phonostage because of the very low-level signals the circuit is amplifying. Even tiny vibrations can contaminate the audio signal through microphonic effect, primarily of capacitors and inductors. That is, vibration is turned by these devices into tiny electrical signals that pollute the miniscule audio signal from the phono cartridge. Keep in mind that, as a phonostage amplifies a signal by as much as 70dB, any introduced noise is also amplified by 70dB.

EQUIPMENT REVIEW - Simaudio Moon 810LP Phono Preamplifier

Listening

I've been listening to the 810LP for several months with associated components of reference quality. The 810LP is completely at home in the context of the Basis Inspiration turntable and Air Tight PC-1 Supreme at the front end, and Constellation Centaur monoblocks, Lamm ML2.2 SETs, and Rowland 725s driving Magico Q7 loudspeakers through top-of-the-line MIT interconnects and cables. That, alone, says much about this

phonostage's fundamental quality. Moreover, my listening impressions of the Magico Q7, described in the previous issue, were formed with the 810LP in the system.

The 810LP is astonishingly quiet, even at the upper end of its gain range (I used 68dB of gain). The lack of background noise was instrumental in the 810LP's ability to make instruments seem to hang in space completely independently of the loudspeakers and surrounded by the recorded

acoustic. This quality is related to the 810's outstanding resolution of low-level detail, such as spatial cues, that would be otherwise masked by a phonostage that didn't have as quiet a background. I could hear deep into an instrument's decay, giving the presentation a highly nuanced, filigreed quality. Joe Morello's ride cymbal, for example, on Analogue Productions' new 45rpm reissue of Dave Brubeck's classic *Time Out* was startling in its immediacy and delicacy, and in its

resolution down to the lowest levels of shimmer. Very fine details of timbre, space, and micro-transient information were vividly portrayed, but with a complete ease and naturalness. It's difficult to overstate the value of these qualities to the listening experience. When playing LPs with super-quiet surfaces (everything that has been coming out of Quality Record Pressings) at high levels, the 810LP's low noise floor produced near-digital quiet between tracks.



SPECS & PRICING

Type: Solid-state phonostage preamplifier

Gain: 40dB-70dB in 16 settings

Inputs: One pair single-ended (RCA), one pair balanced (XLR)

Outputs: One pair single-ended (RCA), one pair balanced (XLR)

Cartridge loading: 16 settings from 0pf to 1120pf (capacitance); 64 settings from 12.1 ohms to 47k ohms (impedance)

Signal-to-noise ratio: 115dB (full-scale at 40dB gain); 95dB (full-scale at 70dB gain)

RIAA accuracy: +/- 0.1dB, 20Hz-20kHz

Power consumption: 10W

Weight: 40 lbs.

Dimensions: 18.75" x 16.81" x 4"

Price: \$12,000

ASSOCIATED COMPONENTS

Digital Sources: dCS Vivaldi system (transport, upsampler, clock, DAC); Berkeley Audio Design Alpha DAC Series 2; iMac server with Berkeley Alpha USB interface

Analog Source: Basis Inspiration turntable with Basis Vector 4 tonearm, Air Tight PC-1 Supreme cartridge

Preamplifiers: Rowland Corus, Constellation Perseus

Power Amplifiers: Jeff Rowland Design Group 725, Lamm ML2.2, Constellation Centaur monoblocks

AC Conditioning and Cords: Shunyata Triton and Talos, Audience aR6TS conditioners; Shunyata Zitron Anaconda and Audience Au24 AC cords

Cables: Shunyata Anaconda interconnects and loudspeaker cables; MIT MA-X2 and MA-C interconnects, MIT MA-X SHD loudspeaker cables; AudioQuest WEL Signature interconnects, Transparent XL Reference interconnects; AudioQuest Diamond USB digital cable

Equipment Racks: Stillpoints

Isolation: Stillpoints Ultra SS and Ultra5

Acoustics: ASC 16" Full-Round Tube Traps, 10" Tower Traps

Accessories: VPI 16.5 record-cleaning machine; Mobile Fidelity record brush, cleaning fluid, stylus cleaner

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www.theabsolutesound.com

EQUIPMENT REVIEW - Simaudio Moon 810LP Phono Preamplifier

In addition, the completely silent background seemed to present a colorless canvas on which the music was portrayed. The lack of an omnipresent whitish “rush” set the stage for a stunning sense of transparency to the source. The 810LP simply disappeared from the signal path more than any other phonostage I’ve heard in my system—it imposes so little of itself tonally, spatially, and dynamically. If the recording is rich in tone color, warm, and full, the 810LP sounds rich, warm, and full. If the LP contains lots of fast transient detail, the 810LP conveys that quality with aplomb. The Simaudio has no discernable sonic signature that it imposes over all recordings.

When listening to a variety of power amplifiers and preamplifiers with the 810LP as the source, I heard significant differences between each amplifier’s tonal balance, dynamic speed, and spatial presentation. The 810LP allowed each amplifier’s unique signature to emerge without imposing a marked signature of its own.

The 810LP has an extremely extended, open, and detailed top end that contributes to a sense of spaciousness and air. The top end (and midrange, for that matter) is pristine, with a crystalline-like clarity. The lack of grain and glare produces absolutely gorgeous string sound—liquid, full-bodied, and rich, yet at the same time highly resolved.

As noted previously, I was particularly taken by the 810LP’s reproduction of cymbals. The resolution of fine detail against a silent backdrop, the openness and extension, the air surrounding images, and the lack of synthetic artifacts all combined to render cymbals with a stunning naturalness.

The midband was equally impressive. The impression of the phonostage getting out of the way was remarkable, allowing me to hear through the system back to the recording chain. The 810LP maintained super-delineation of separate instruments and voices, never congealing the soundstage even during the most complex passages. I heard nuances of orchestration in Holst’s *The Planets* (Mehta, Speakers Corner reissue) that completely captivated me. There’s a track on Jennifer Warne’s *The Hunter* (“Somewhere, Somebody”) in which she’s accompanied by a male voice almost in a dual-lead, with both voices positioned exactly in the center of the soundstage. The 810LP does an amazing job of creating the impression of two separate sound sources.

Put on a record like the 45rpm reissue of Muddy Waters *Folk Singer* to hear the 810’s phenomenal sense of space and depth. The snare drum lights up the acoustic and defines the space. Or listen to just how far back in the soundstage the tambourine is in “Jupiter” from *The Planets*. This LP has tremendous dimensionality that the 810LP reveals in all its glory.

The 810LP’s bass tends to be tight and defined rather than big and bloomy, a character that conveys the tonal and dynamic shadings of great acoustic bass playing. The bass has a dynamic agility and “speed” that reveals more of the attack and decay of plucked doublebass and, with that quality, greater swing and rhythmic expression.

It’s not my intention to fuel the tired analog-vs.-digital debate, but when it comes to pure naturalness of timbre, or the recreation of the acoustic in which the music was performed, or the ease with which detail is presented, LP

playback unquestionably trumps CD. I was late in discovering the fabulous 1983 recording *88 Basie Street* by Count Basie, recorded by the great engineer Alan Sides. I knew the album from the XRCD version, and I judged it easily one of the best-sounding CDs in my library without having heard the LP in my system. A friend knew someone with duplicate LP copies, and arranged for him to send me a used original 1983 Pablo pressing. Played on the Basis Inspiration ‘table, AirTight PC-1 Supreme cartridge, Stillpoints rack, and Simaudio 810LP phonostage, *88 Basie Street* came to life in a way that this premium CD never did. The timbres of the brass and woodwinds was more natural and organic, the sense of space around each instrument became tangible, Basie’s piano had more warmth, the soundstage became three-dimensional by contrast, and the impression of contemporaneous music-making suddenly became vivid. All from a 29-year-old, used, standard-pressing LP.

Conclusion

The Simaudio 810LP is technically impressive, particularly its heroic power-supply design and

vibration-isolation measures. It’s also solidly built, and offers such a wide array of gain and loading options that make optimizing its performance for any cartridge a snap. Purely on paper, this is a lot of phonostage.

The 810LP’s sound quality is world-class by any measure. It combines a dead-quiet background, a pristine clarity of timbre, outstanding dynamics, and an expansive and well-defined soundstage. Even under the microscope of the Magico Q7 loudspeaker, the Simaudio 810LP impressed not just with its audiophile attributes, but more importantly with how musically compelling it made LP listening. Since receiving the review sample an increasing amount of my listening time has been to analog, and I’ve been buying more LPs than ever before. Moreover, I have no itch to say “yes” to review offers of mega-priced phonostages. The 810LP is that good.

I know I’ll get letters objecting to my calling a \$12,000 phonostage a bargain, but how else can you describe a flexible, beautifully built, statement-grade product with this level of sound quality—and from a venerable company with a 32-year track record? **tas**





T+A Cala Receiver and CS Mini Loudspeaker

Multifaceted

Neil Gader

Ah, if only Don Draper had one of these—the stories it could tell. I'm referring to Cala, the svelte and seductive desktop receiver from T+A Elektroakustik of Germany. It may very well become the go-to den system in the hush-hush hideaways of budding latterday mad men. Equipped with T+A's optional CS Mini loudspeakers it's a magnet for fans of sophisticated design and packaging, clever enough to stir conversation—and maybe something more—over a pair of Grey Goose martinis.

First, its looks. A smooth operator, there are no controls to sully the shining black façade of its front panel—none, as in zero, zilch, *nada*, or more appropriately *nichts*. The chassis is suspended within an open, curved aluminum framework so there's plenty of airflow to whisk away the modest amount of heat venting from beneath the Cala's cabinet. Its modest size belies its 55Wpc amplifier section which uses T+A high-speed switching output stages, good enough to drive medium-sensitivity compact two-ways.

Behind the asceticism of the front panel lurks a sophisticated digital hub—proficient enough to access music sources from across the digital/analog spectrum. All audio processing—the twin analog inputs included—travels through the T+A 48-bit DSP engine. Cala is equipped with T+A's streaming client for local network connectivity (LAN and WLAN) and UPnP servers. Since my Mac is not a UPnP-ready device, the user manual advised me to download the Eye-Connect server software to make the media content accessible through my network via Ethernet. No problem, and the beauty of this setup is access—anyone in the house with a computer can join and playback content. The set-up and configuration process, however, was not always a walk in the park. So, if you've never set up a network before grab a computer literate buddy or any teenager to show you the ropes. Lastly there is a Bluetooth module, which supports the A2DP standard—an easy way of wirelessly pairing any mobile audio device to the receiver.

There are settings galore—stereo and “virtual” venue options plus tone adjustments with a bypass selector. The Cala's speaker-configuration settings will manage loudspeaker size and room placement and boundary-proximity options.

There are bass extension and linearization controls for specific T+A speakers, as well as bass management for the optional K Series KW650 subwoofer. The downside is that menu navigation sometimes requires a lot of sub-menu tap-dancing in order to return to the home menu. One particular oddity: Cala has alarm/timer settings, but has no clock display unless “comfort standby” (in the “System Configuration” menu) is switched on when the unit is in standby.

A fully featured remote control is included but these devices are quickly becoming dinosaurs in this day of eye-catching, comprehensive apps. The downloadable T+A app for smart phones and tablets is a good one, providing full playlist access, and should become the default command center for most users.

As I made my way around to the back panel I was ready with a handful of inputs. USB thumb drive stacked with WAV files, check. A 75-ohm cable leading to my rooftop Magnum Dynalab antenna, check. LAN cable for Internet radio, check. Plus inputs for the mbl C31 CD player and my TV satellite box, check. Oops, no optical input for my Apple TV, bummer.

Partnering with the Cala at the other end of the audio chain is the CS Mini loudspeakers—a sturdy two-way, bass-reflex design in an all-aluminum enclosure that sports the same radiussed curves that accent the Cala. It uses a 25mm soft-dome tweeter and a 4" cone mid/bass. The crossover point is 2.5kHz. At only 8.5" tall this is one teeny speaker, but T+A engineers make the valid point (as do the Magico folks, for that matter) that the aluminum cabinet has a distinct advantage over traditional MDF or wood-ply cabinets, in that a much thinner wall of aluminum offers greater rigidity than thicker wood panels. This, in turn,

EQUIPMENT REVIEW - T+A Cala Receiver and CS Mini Loudspeaker

permits greater interior volume for the same external dimension.

Sonically the Cala/CS Mini combo has a satisfying midrange-forward signature, both tonally and dynamically. There are good energy and snappy transient response on tap and better-than-decent power reserves. Musical scale is, as you'd expect, reduced, but not to the point of miniaturization. Nonetheless, the system is optimized for a more intimate listening experience and is best on human voice. It replicates symphonic music smoothly but only at moderate-to-lower levels, depending upon how loud you

play when you play loud and the volume of the room that the system is seeing. Taken as a system its character is lovely but light, in part because some treble lift creates a silvery quality on top, which depending on the quality of the source material can accent detail or impart a bit of an edge to strings and brass.

The CS Mini throws a pretty fair lateral soundstage and the enclosure doesn't single itself out in the listening room. Its sonic character is cooler and articulate so that a well-recorded female vocal like Jen Chapin's cover of "Renewable" [Chesky] nicely balances transient

speed, low-level intimacy, and many of the singer's interpretive flourishes. Piano tonality and soundboard harmonics are a bit less convincing but, to be fair, this is an instrument that doesn't scale down very convincingly. While the desktop environment lends the CS Mini some low-frequency potency that it would otherwise lack if it were configured as a stand-mount and placed out into the room, there's still a significant amount of attenuation below 120Hz. I didn't have the KW650 subwoofer on hand during my evaluations but if your musical tastes run toward orchestral material or organ toccatas you might strongly consider that option.

Removed from the desktop environment and powering the superb Revel Performa3 M106 monitors (one of this year's Golden Ear Award recipients) the Cala hews the line of tonal neutrality with ease. Its power resources provided good control over the Revels' midbass. There was some softening at the macro-dynamic level but it did an estimable job of allowing the Revels to reproduce the clean pitch and punch that I expect from these speakers. On some HRx high-resolution orchestral material from Reference Recordings, the finer dynamic gradients were reproduced well, and there was a realistic sense of venue space and dimension. On an absolute basis, the Cala loses some ground to separates and dedicated integrated amps because of its narrower soundstage and the soft veiling of orchestral images. However, as a digital butler seamlessly serving as many audio masters as it does, it does its job well.

Context is everything in audio. The T+A Cala wasn't designed to fill auditoriums. Tiny of footprint, it fills a cozy niche in our peripatetic, multi-tasking lifestyles. It's equal parts sonics,

satisfying user experience, and suave, coolness factor. Its ability to handle a multiplicity of sources, including computer media over a network, and command them from a sensational app makes it an ideal climbing partner for scaling the long ladder of success. Only one question remains—would you like that martini shaken or stirred, or shall we move straight to the nightcap? **tas**



SPECS & PRICING

CALA RECEIVER

Power output: 55Wpc into 4 ohms
Inputs: Two analog, Ethernet, USB-A
Outputs: RCA sub out
Dimensions: 3.7" x 11.8" x 8.3"
Weight: 8.8 lbs.
Price: \$2200

CS MINI

Type: Two-way, bass-reflex
Drivers: 1" tweeter, 4" mid/bass
Sensitivity: N/A
Nominal Impedance: 4 ohms
Dimensions: 8.5" x 4.9" x 5.9"
Weight: 6.6 lbs.
Price: \$900 per pair

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Guide to High-End Headphone Amplifiers

Chris Martens

As high performance earphones and headphones continue to emerge as important new elements within the high-end audio universe, we felt it would be appropriate to provide a brief guide to some of the more promising headphone amplifier (and amp/DAC) components we have evaluated thus far.

The reviews referenced below are drawn from *The Absolute Sound* and from two sibling publications: the online publication *Playback* and the European audio magazine *Hi-Fi+*.

Desktop Amps for Dynamic Headphones



Cavalli Audio Liquid Glass Headphone Amp (\$3,750)

www.cavalliaudio.com

The Liquid Glass is an exceptionally flexible hybrid tube/solid-state headphone amplifier that can be used with 8-pin or 9-pin tubes (conforming to 6SN7 or 12AU7 pin outs) and that provides user selectable settings for tube heater and plate voltages. The amplifier provides a tube-powered front-end section backed by a high-input-impedance (and thus easy-to-drive), ultra high-resolution, ultra-low-noise solid-state output buffer section. Rather than push one ostensibly optimal sound, the Liquid Glass instead invites users to sample and choose from a broad spectrum of tubes until they capture their own “ideal sound.” Some might find the Liquid Glass too flexible for its own good, but for listeners who value the musical quest as much as the ultimate destination, this amplifier stands as an open invitation to explore and to savor. One of the finest headphone amps yet made. Chris Martens, *Hi-Fi+* 99



April Music Eximus DP1 Headphone Amp/Preamp/DAC (\$3195)

www.aprilmusic.com

The versatile Eximus DP1 combines the functions of a multi-input, USB-compatible, upsampling, 192kHz/24-bit DAC; a digital/analog preamp with balanced and single-ended outputs; and a headphone amplifier. Note, though, that the DP1 does not provide a remote control. Reviewer Steven Stone noted that in all use contexts the Eximus DP1 “was always articulate, dynamic, and musical,” adding that the best one-word description of the DP1 would be to call it “revealing.” A major part of the DP1’s appeal is that it is equally refined and accomplished in each of its roles. As a headphone amp, Stone observed, the DP1 “had more than enough gain to and power to drive low efficiency headphones,” offering a sound that is “clean and very well controlled, especially in the bass.” Steven Stone, *TAS* 221

Desktop Amps for Dynamic Headphones



Woo Audio WA22 Headphone Amp (\$1900 and up)

www.woaudio.com

Woo's WA22 is an all-tube headphone amplifier that offers a fully balanced design (it accepts balanced inputs and can drive balanced headphones) with Class-A push-pull topology and that uses hand-wound output transformers that support two user-selectable output impedances. Reviewer Tom Martin says, "A description of the Woo sounds like an audiophile rave checklist, " noting that the amp is transparent and free from treble veiling or grit, offers solid and well-defined bass, and tonal balance that is, "very, very good." But if the WA22 has a signature characteristic, it would be a quality of midrange vividness, presence, and contrast that, Martin observes, makes headphones "sound more realistic and like live music." Tom Martin, *Playback* 43



AURALiC TAURUS Mk II Headphone Amp/Preamp (\$1899)

www.auralic.com/en

AURALiC's TAURUS Mk II is emblematic of a new breed of innovative and very high quality audio electronics from China—components whose designs reflect a keen awareness of high-level audiophile sound quality expectations. Accordingly, the TAURUS Mk II is a fully balanced, solid-state headphone amplifier/preamplifier that uses proprietary Auralic ORFEO Class-A output modules. Managing director/designer Xuanqian Wag says his ORFEO modules were inspired by the circuit design of the classic Neve 8078 analog recording console, whose warm, natural sound Wag admires. While our upcoming review of the TAURUS MkII is still in progress as this is written, our preliminary impression is that, as advertised, the amp that offers sonic purity, refinement, and natural warmth in equal measure, and at an attractive price for the quality on offer. CM, review pending.



Fostex HP-A8 Headphone Amp/Preamp/DAC (\$1999)

www.fostexinternational.com

Fostex's HP-A8C merges the functions of a multi-input, asynchronous USB-compatible, 192kHz/32-bit DAC with a high-performance headphone amplifier. High-res music lovers should note that the HP-A8C also provides an SD card slot that supports playback of DSD files. Hi-Fi+ Editor Alan Sircom says the DAC section of the Fostex "is extremely neutral and detailed" and capable of bringing out even very subtle soundstaging cues in the music. But if the Fostex DAC is good (and it is), the headphone amp section is even better. Sircom says the amp is, "an extremely refined performer; not in a soft or sappy way, but neutral without any top-end edginess or brightness. It has excellent bass, too, with enough control to give a fine sense of grip to even the most difficult headphones." Alan Sircom, *Hi-Fi+* 98



HiFiMAN EF-6 Headphone Amp (\$1595)

www.hifiman.com

HiFiMAN is a Chinese headphone specialist perhaps best known for its superb but notoriously difficult to drive HE-6 planar magnetic headphones. Recognizing that few amps then on the market could drive the HE-6's properly, company founder Dr. Fang Bian created the EF-6 to serve as the ideal companion power plant for use with his HE-6 'phones. The EF-6 features Class A, MOSFET-powered circuitry and offers a whopping 5 Wpc of output (indeed, the beefy EF-6 looks more like something you would use to drive loudspeakers—not headphones). Though reasonably fast sounding and well defined, the sound of the EF-6 is primarily characterized by a rich, muscular, hearty-sounding presentation that makes the amp sound relaxed no matter how hard it may be pushed. While some competing amps might offer somewhat greater resolution and refinement, the EF-6's potent yet easygoing demeanor is hard to resist. CM, *Playback* 61

Desktop Amps for Dynamic Headphones



Burson Audio Soloist Headphone Amp/Preamp (\$999)

www.bursonaudio.com

The Australian made Burson Audio Soloist is essentially a handmade audio component selling for under \$1000. External fit and finish are exemplary, while inside users will find an FET-based “symmetrical transistor” input stage, a Class A output stage based on “op amps” composed solely on discrete devices (not IC-type op amps), plus a precision stepped-resistor volume control. The sound is detailed, transparent, and uncommonly good at capturing three-dimensional aspects of recordings. Moreover, the amp is powerful (4 Wpc) and offers a lively and energetic sound with excellent control of micro- and macro-dynamics. The Soloist is ideal for those craving the sound of \$2000+ headphone amps, but with less than half that sum to spend; it is a fine preamp, too, but offers no remote control. CM, *Playback* 60



CEntrance DACmini CX Headphone Amp/DAC (\$795)

www.centrance.com

CEntrance’s DACmini CX provides a multi-input, USB-compatible 192kHz/24-bit DAC plus a Class A headphone amplifier—all in a compact package that mimics the size, shape, look, and feel of Apple’s Mac Mini computer. Reviewer Tom Martin said of the DACmini, “the standout sonic quality is a basic sweetness, coupled with a superb rendition of instrumental layers within recordings.” He also praised the DACmini for its fine-grained sound, observing that, “this ability to be clear and detailed, without being etched or bright is the hallmark of low distortion and is a signature aspect of the DACmini.” Several versions of the DACmini are offered, including one with a built-in integrated amplifier. Owners of low-efficiency ‘phones should note that CEntrance can build higher gain versions of the amp upon request. TM, *Playback* 52



NuForce HAP-100 (\$595)

www.nuforce.com

NuForce’s HAP-100 preamplifier/headphone amplifier offers serious high-end performance at a modest price. The HAP-100 is a Class A solid-state design that delivers unusually wide bandwidth with low levels of distortion and noise. Together, these characteristics make for a sound that is well detailed and that offers pristine purity and clarity quite unexpected at this price. The HAP-100 is a fine little preamp that sports four inputs, a remote control, and a cool volume control offering 100 settings in 1dB increments. The HAP-100 makes a good headphone amp, too, but with one caveat: namely, the NuForce is audibly load-sensitive and thus not an ideal match for some of today’s more difficult-to-drive top-end headphones. With the right ‘phones, however, the NuForce sings. CM, *TAS* 230



iFi Micro iCAN (\$249)

www.ifi-audio.com

The iFi Micro iCAN was created by the designers at AMR (Abingdon Music Research) and it is one of the finest affordable headphone amplifiers we have yet heard—one that puts any number of higher-priced competitors to shame in terms of sheer sonic performance. The iCAN offers wide bandwidth and extension at the frequency extremes, yet its sound is tempered by an emphasis on such musical priorities as natural warmth, smoothness, midrange subtlety and finesse, and overarching three-dimensionality. While a few like-priced competitors might give you slightly more detail or more crisply delineated transient sounds, you will be hard-pressed to find a comparably-priced competitor that can even approach the iCAN in terms of real-world power, versatility, or overall musicality. SS, *TAS* 233; CM, *Hi-Fi+* 97

Desktop Amps for Electrostatic Headphones



Cavalli Audio Liquid Lightning MkII Electrostatic Headphone Amp (\$4850)

www.cavalliaudio.com

Cavalli Audio's Liquid Lightning II electrostatic headphone amp uses the same circuit as the original Liquid Lightning, but with a revised layout that provides a worthwhile reduction in noise and distortion. TAS Senior Writer Chris Martens notes that, "The Cavalli has positive qualities in abundance: dead neutral frequency response, ultra low levels of background noise, terrific transient speed, stunning resolution of low level details, and powerful and expressive dynamics. But the amp is more than the sum of these qualities, because what it really brings to the party is an effortless and unforced quality of sonic honesty..." When coupled with top-flite electrostatic 'phones such as the Stax SR-009, says Martens, "the Liquid Lightning offers listeners an extraordinarily precise and detailed view of the inner workings of recordings." CM, review of the similar Cavalli Audio Liquid Lighting, *Playback* 60



HeadAmp Blue Hawaii SE Electrostatic Headphone Amp (\$4999 - \$5999)

www.headamp.com

The Blue Hawaii SE (for "Special Edition") is a hand made, two-chassis, tube-powered electrostatic headphone amp that is the brainchild of designer and acknowledged headphone amplifier guru Kevin Gilmore and of HeadAmp president Justin Wilson. Sporting sumptuous build quality with terrific attention to fit and finish, the BHSE is driven by matched quad Mullard EL34 tubes; the only available option is an upgrade from the standard DACT stepped attenuator to an Alps RK50 volume control. In simple terms, the amp produces an unfailingly natural, musical sound. Where some amplifiers focus on achieving detail and resolution to the point that they almost seem to deconstruct the music, the BHSE instead, says reviewer Tom Martin "reveals the parts but deftly reconstructs them to present a musical whole that makes sense." TM, *Playback* 56

Desktop Amps for Electrostatic Headphones



Woo Audio WES Electrostatic Headphone Amp (\$4990 - \$8030)

www.wooaudio.com

The WES is a visually impressive, two-chassis, tube-powered, fully balanced electrostatic headphone amplifier. The amp uses four 6SL7 driver tubes, four EL34 power tubes, two 12AU7 tubes used as phase splitters, and two 5AR4 rectifiers tubes. Reviewer Tom Martin regards the WES as a benchmark design, praising it for its dynamic and detailed mid- and low bass, terrific tonal purity, expressive dynamics, and low noise. But perhaps the WES' signature characteristic is a vivid, overarching quality of transparency that, as Martin puts it, "reduces distortions and colorations that we are used to hearing." The only catch is that the WES can, at times, sound subtly stressed or shouty on certain midrange details. WES sound quality can vary significantly with the upgrade options selected, so choose wisely. TM, *Playback* 54



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Portable Headphone Amps



ALO Audio Rx MK3-B Fully Balanced Portable Headphone Amp (\$649)

www.aloaudio.com

ALO's Rx MK3-B is representative of a new breed of very high-performance fully balanced portable headphone amplifiers that can be used with balanced-output source components and can drive virtually any dynamic headphones on the planet. The Rx MK3B provides balanced and single-ended inputs and outputs, three user-selectable master gain settings, and a useful bass trim control. Reviewer Chris Martens says the Rx MK3-B "delivers overall sound quality that is fully comparable to that of an accomplished, full-size desktop amp... it shows all the hallmarks of larger amps: robust and well-controlled bass, authoritative and well-defined sound, and plenty of dynamic clout." Moreover, the amp offers a thoroughly refined quality of smoothness, conveying fine details without any of the piercing sharp edges that mar the presentation of some competing amps. CM, *Playback* 61



Apex Hi-Fi Glacier Portable Headphone Amp/USB DAC (\$495)

www.apexhifi.com

Created by Apex designer/engineer Pete Millett (a well-respected headphone amplifier specialist) and marketed by Todd Green of Todd the Vinyl Junkie fame, the Apex Glacier is a stylish and almost impossibly slim portable amp/DAC whose good looks might at first distract you from the sonic sophistication emanating from within. The DC-coupled, wide bandwidth amplifier is as neutral as they come, with low noise and plenty of resolution and detail, but absolutely no euphonic colorations (hence, no added warmth or bass lift). The amp provides single-ended analog and USB digital inputs, three user-selectable master gain settings, and a stepped attenuator volume control with color-coded volume indicators. Add in a very good-sounding (albeit isochronous) 96/24-capable USB DAC and you've got one fine pocket-sized amp. CM, *Hi-Fi+* 103



Ray Samuels Audio Intruder Balanced Portable Headphone Amp/DAC (\$649)

www.raysamuelsaudio.com

Ray Samuels is a prolific designer of serious, high-end headphone amps and amp/DAC combos. One of RSA's most appealing creations is the Intruder fully balanced portable amplifier with onboard USB DAC. The Intruder is based directly on RSA's earlier SR-71B The Blackbird amp, but with two significant changes. Like the SR-71B, the Intruder provides three user-selectable master gain settings, but it offers higher gain options than the SR-71B did. This change makes it easier to tap the amp's full output potential when using low-output source components. Second, unlike the SR-71B, the Intruder incorporates a basic USB DAC, in addition to single-ended and balanced analog inputs. The Intruder offers a lively, articulate, and exuberantly punchy sound and can drive even very low-efficiency dynamic headphones with real authority. Paul Seydor, review of the similar RSA SR-71B The Blackbird, TAS 219; CM, review of SR-71B, *Playback* 60

2013 the absolute sound Editors' Choice Awards

High-End Audio Electronics

Welcome to the 2013 edition of *The Absolute Sound's* Editors' Choice Awards, our annual Recommended Products list. On the following pages we present the gear that our editors and writers have selected as most worthy of your consideration. These are the components we ourselves would buy—or recommend to friends and family. Each product category is divided into price ranges, with components listed in order of ascending cost (though a few items, like cables and accessories, are listed alphabetically). Each recommendation is also accompanied by a capsule review, the original reviewer's name or initials, and the issue the review appeared in. Note that in a few cases a product may have been reviewed in one of our sister publications, Playback or AVguide.com, or the review may be pending publication, or the product may not have been formally reviewed but earns a recommendation based on one or more writer's extensive experience with it. Given that this is the high end, where components generally have long lifespans, some of our recommendations look back several years. At the same time, in an effort to be as selective and up-to-date as possible, we have dropped some components that appeared on last year's list, usually because they have been discontinued but sometimes because fresh competition has caused us to reconsider the choice.

POWER AMPLIFIERS Under \$1000

Odyssey Audio Khartago
\$895

www.odysseyaudio.com
Shockingly similar in tonal balance to certain high-priced solid-state amps, this 130Wpc stereo amp has no discernible grain, high resolution, and a deep, wide soundstage. Positively, the best budget amp JV has heard. JV, 195

Parasound Halo A23
\$950

www.parasound.com
Parasound's A23 isn't the last word in low-end authority, and it's a bit cool in the midrange, but what it lacks in oomph it makes up for in finesse and pitch definition. Moreover, this reasonably priced amp is musically quite involving. SB, 138

Belles Soloist 5
\$995

www.belles.com
A paradigm of minimalism and musicality, this small, cool-running sixty-five-watter is stuffed with sonic virtues: a forgiving tonal balance, good soundstage dimensionality, and naturalistic depth. Paired with its companion preamp, the Soloist 5 is a great way to get into separates at an integrated-amp price. NG, 174

\$1000–\$3000

PrimaLuna ProLogue 5
\$1259

www.primaluna-usa.com
The 36Wpc vacuum-tube-powered ProLogue 5 is more authoritative than its rating would lead you to expect, and offers a warm, rich presentation, yet really does not sound “tubey” in any traditional sense, producing clean, deep, tight bass and grand soundstaging. A synergistic match with the companion ProLogue 3 preamp. SR, 156

Odyssey Khartago Monoblocks
\$1800/pr.

www.odysseyaudio.com
These monoblocks may not be fully twice as good as the Khartago stereo amp (see above), but they're mighty good, improving on the Khartagos in every area (particularly in stereo separation and lower noise). Once again, champagne sound on a beer pocketbook. Forthcoming

PrimaLuna ProLogue Six
\$1959/pr.

www.primaluna-usa.com
These beautifully built, affordable, and “hassle-free” 70Wpc monoblocks will alter your preconceptions about tube gear. Indeed, their transient quickness and ability to drive difficult loads may fool you into thinking you're

listening to a very good hybrid. Yet they still have that wonderful tube magic. JH, 169

Audio by Van Alstine Ultravalve
\$1999

www.avahifi.com
Sounding more powerful than its 35Wpc would indicate, the Ultravalve is a thoroughly modern and rationally priced vacuum-tube amplifier. While its perspective is not as romantic as that of its “godmother,” the Dynaco Stereo 70, it is far better focused, clearly more dynamic, and in general a higher-resolution device. DO, 204

Parasound Halo A21
\$2300

www.parasound.com
An excellent Class AB stereo transistor amp, designed by the redoubtable John Curl, capable of 250Wpc into 8 ohms (400 into 4 ohms). Though not the last word in solid-state amplification, the A21 offers a lot of power at an affordable price. JV, 168

Wyred4Sound SX-1000
\$2398

www.wyred4sound.com
While many amplifiers use Bang & Olufsen's ICE output device, the SX-1000 combines it with its own direct-coupled, balanced, dual-FET input stage designed by Bascom King. A powerful amplifier capable

of effortlessly delivering copious amounts of power and detail. SS, 193

Vincent Audio SP-331 MK
\$2500

wsdistributing.com

The hybrid SP-331MK delivers 150Wpc into 8 ohms and 300Wpc into 4 ohms, and operates in Class A for its first 10 watts. This makes the amplifier somewhat dual-natured. At moderate levels it sounds spacious and naturally balanced (if a tad dark), with good dynamic scaling and fine rhythm and pace. Pushed harder, it sounds more ragged. Overall, it is happiest when not played at its power limit. WG, 208

Rogue Audio Stereo 90
\$2595

rogueaudio.com

This tube monoblock combines a rich treble and midrange with a gutsy bass and a clarity unusual in its class. Its one shortcoming is a tendency to push the midrange a bit forward. Even with this, it makes all types of music sound right. SR, 171

\$3000-\$6000

Exposure 3010S2

\$3195/pr.

www.bluebirdmusic.com

Based on the company's top-end MCX Series monoblock, the 100-watt 3010S2 nicely balances brains

with brawn, bringing a sense of “rightness” to music. Tonal balance is a tad toward the warm side, and don't expect the finest detail or “bloom,” but Exposure puts its money into performance, not cosmetics, thus providing some of the best values in audio. WG, 228



AVA FET Valve 600R
\$3499

www.avahifi.com

What sets Frank Van Alstine's 300Wpc tube/transistor hybrid amp apart from a host of other hybrid designs is its soulful midrange and ability to retrieve music's drama and tension. Tack on decent spatial delineation, low distortion, superior speed, killer bass, and superb dynamics, and you have world-class power amplification at an affordable price. DO, 225

Balanced Audio Technology
VK-55
\$4495

www.balanced.com

BAT's 55-watt tube model may not be as revealing as some, but it offers a high degree of harmonic, textural, rhythmic, and ambient information. Tonally, it is a bit warm, with a gorgeous, well-balanced midrange,

an easy, natural top end, and quite respectable weight in the bass. A 3-D soundstage and tight focus round out the virtues of this highly musical design. SK with WG comment, 153

Krell S-150m
\$5000/pr.

www.krellonline.com

Krell's compact, narrow-profile, cool-running 150W monoblock's tight, musically convincing bass and superb treble openness place it on a par with Krell's best. Further, it displays a dynamic liveliness and dexterity that verge on the uncanny. In the midrange, it is as grainless as any amp in SS's experience, perhaps faltering just a bit in the way of three-dimensionality and harmonic juiciness. SS, 205

NuForce Reference 9 Special Edition (SE) V3
\$5000/pr.

www.nuforce.com

NuForce's best Class D amp yet, the Ref 9 SE V.2 monoblock delivers the expected virtues (articulate, well-defined mids and deep tightly controlled bass), plus noticeably sweeter, more grain-free highs than previous NuForce designs. The SE V.2's clarity, definition, and control can bring certain speaker systems alive, but can also make some speakers sound slightly “clinical.” Forthcoming

Vincent Audio SP-T800
\$5200/pr.

www.wsdistributing.com

This 200W hybrid monoblock is a remarkable performer. Its tube signature shines through clearly in the midrange, albeit slightly diluted by the solid-state output stage. Soundstage dimensionality is superior to that of conventional solid-state designs. It closely fulfils the promise of a hybrid design: Tube magic with plenty of bass crunch and drive. DO, 188

PrimaLuna Dialogue Seven
\$5500/pr.

www.primaluna-usa.com

The 70W (40W in triode mode) PrimaLuna Dialogue Seven monoblock employs a unique output stage—two discrete amplifier channels are paralleled at the loudspeaker terminals. This technique preserves the purity of a low-powered design while imbuing the amplifier with higher current capability. “No tube amplifier I've auditioned comes close to its performance for anywhere near its modest price,” said Jim Hannon. JH, 199

Sanders Magtech
\$5500

www.sanderssoundsystems.com

The Magtech “sounds as if it has infinite power into anything with total stability,” says REG. The fully

regulated power supply is unusual. The rated power output of 500Wpc into 8 ohms and 900Wpc into 4, coupled with its stability driving capacitive loads, makes it the perfect choice for electrostatics. REG, 211

Cary Audio CAD 120 S II
\$5795

www.caryaudio.com

This 120Wpc Class AB tube amp offers a sound that emphasizes the natural warmth of the midrange and upper bass, and produces musically natural upper-octave energy without losing the highs you hear in live music. Detail is natural, centerfill is excellent, and imaging is realistic in size. AHC, 208

Bel Canto REF1000M
\$5990/pr.

www.belcantodesign.com

If you're looking for a component that is compact, efficient, powerful, transparent, musical, and extremely reliable, the Bel Canto REF1000M monoblock could be the last amplifier you'll ever need. While it may not warm up an overly sterile-sounding system like a classic tube amplifier, it certainly won't subtract any harmonic warmth. SS, 193

Coincident Speaker Technology
Frankenstein II
\$5995

www.coincidentspeaker.com

One of the best-sounding 300B SET amps DO has auditioned, Israel Blume's Frankenstein IIs deliver on the promise of SETs: a midrange to die for, wonderful tonal color saturation, and spectacular imaging. In short, a sensational first watt! Its combination of affordability and performance makes for a screaming buy recommendation with the right speakers. DO, 228

\$6000-\$10,000

T+A A 1560 R
\$6000

www.dynaudio.com

T+A's A 1560 R power amp is a model of low noise, elegance, and refinement, with the added ability to cut free and soar with the music. A broad-bandwidth circuit delivers both high speed and high power. Rated at 170Wpc into 8 ohms, and 280Wpc into 4 ohms, a pair of 1560s can also be operated as bridged mono amplifiers delivering a walloping 500W into 8 ohms. WG, 223

Z-Infinity Z120F
\$6598/pr.

www.zinfinityaudio.com

The Z120 is available either as a Class AB 60Wpc stereo amp or as a 120W bridged monoblock. The overall presentation is suave and refined due in part to a deep Class A operating point. Midrange

textures are pure and sweet, though tonally the Z120F sounds darker than the real thing. Sonically competitive with any push-pull tube amp DO has auditioned in the sub-\$10k price range. DO, 230

Modwright KWA150 **\$6995**

www.modwright.com

“To my ears,” said reviewer Dick Olsher, “the KWA 150 represents a smashing success, combining the musicality of tubes with the punch, power delivery, and bass reach of transistors. Factor in the performance and looks of this amp relative to its asking price and the result is a fantastic value.” DO, 199

Atma-Sphere M-60 MK3.2 OTL **\$7100**

www.atma-sphere.com

Atma-Sphere’s uniquely simple, 60Wpc, Class A, all-tube OTL (output transformer-less) design offers a rare and exhilarating glimpse into the music few others can duplicate. This triode-based classic also possesses outstanding neutrality, clarity, definition, soundstaging, and dynamics. Relatively high-impedance, high-sensitivity speakers are recommended for best bass performance. SK, 184

NuForce Reference 18 **\$7600/pr.**

www.nuforce.com

Though still a class D design, the Reference 18 is twice the size of any previous NuForce amp, thus making room for the elaborate “Cross-Matix Array” of capacitors contained within. The array makes the amp sound dramatically more detailed, dynamically expressive, three-dimensional, and revealing. This amp is for those who prize unvarnished sonic honesty over a more forgiving but less truthful presentation. CM, 218

Chord SPM 1050 **\$8000**

www.bluebirdmusic.com

The compact SPM 1050 delivers 200Wpc and is all but unflappable when pushed hard. Indeed, it likes it that way. It has terrific control and grip over speakers, delivers explosive dynamics as well as nuance, and is coherent across the band. Cool under fire, the 1050 never sounds forced or exaggerated. WG, 196

Berning ZH-230 ZOTL **\$8360**

www.davidberning.com

David Berning’s latest refinement of the ZOTL technology offers 30Wpc of pure tube delight. It is intended to work with nominal loads in the range of 4 to 16 ohms,

and ideally a speaker sensitivity of at least 90dB. Superlative transient speed at the point of attack leaves conventional transformer-coupled tube amps in the dust. Control of transient decay is also exemplary. DO, 210

Spread Spectrum Technologies **Ampzilla 2000** **\$8500/pr.**

www.ampzilla2000.com

Authored by James Bongiorno, this latest incarnation of the 300W monoblock Ampzilla 2000 boasts surpassing neutrality, vitality, and naturalness, with tube-like body and dimensionality. Rock-solid in stability and effortless in dynamics, it also evinces rare finesse, nuance, and delicacy. Mated with Bongiorno’s Ambrosia preamplifier, it forms the nucleus of a system hard to better at anywhere near the price. PS, 219

Parasound Halo JC 1 **\$9000/pr.**

www.parasound.com

The latest collaboration between legendary designer John Curl and Parasound has resulted in the Halo JC 1 monoblock, which SK called “silky-smooth, crystal clear, and abundantly detailed. An amp to listen to all day.” SK, 141

mbi C21 **\$9200**

www.mbl-northamerica.com

Sounding more like a fine analog amp than the hybrid-switching amp it is, the 180Wpc C21 offers much of the sweetness, air, and texture (if not the full measure of swat) of MBL’s own Reference line 9011 amps. Its top end, the region where Class D once struggled, is smooth and extended. Its lows are elegantly controlled but not over-torqued; instead there’s a bit of velvety bloom. An amp that can proudly stand next to the best in its class. NG, 228

Plinius SB-301 MK2 **\$10,350**

www.eliteavdist.com

Big and heat-sinked to beat the band, the Plinius outputs 310Wpc of the sweetest Class AB NG has heard. A model of silken control and neutrality, it doesn’t sound like tubes, transistors, or any combination of either. Rich in tone color, with wide-open dynamics and sweet embraceable highs, it never failed to improve any set of speakers that it hooked up with. NG, 169

\$10,000–\$20,000 **Air Tight ATM 300** **\$10,500**

www.axissaudio.com

The Air Tight ATM 300 is one of

the handful of 300B SET amplifiers that lays claim to magical sound extending beyond the midrange. This amp’s airy highs, natural tonality, and low-bass extension defy common perceptions of 300B SETs. Scot Markwell, 128

Electrocompaniet AW180 **\$10,850/pr.**

www.electrocompaniet.com/usa

The AW180 is a “tube-like” solid-state monoblock amp offering 180W into 8 ohms (considerably more into lower impedances). It provides very natural timbre and exceptionally realistic upper bass and lower midrange. Both low- and high-level dynamic contrasts are excellent. AHC, 198

GamuT Audio D200i **\$11,500**

www.gamutaudio.com

This 200W solid-state amplifier has much of the liquidity, three-dimensionality, and image density of tubes as well as the expected virtues of solid-state: tonal consistency, frequency extension, and bass control. It runs relatively cool, is tonally neutral, and should be very reliable, producing a deep soundstage and enough power to drive most speakers well. Its only weakness is a tiny wisp of “fuzz” in the upper frequencies, noticeable only in a high-resolution system. KM, 229

Pass Labs X350.5 **\$11,550**

www.passlabs.com

A 350Wpc solid-state stereo amp that has what Pass amps always seem to have in abundance: remarkable midrange presence and immediacy. A shade darker-sounding and less bloomy than something like an Edge 10.2, it is exceptionally lively from top to bottom, with remarkable deep bass and fast sweet treble. JV

Conrad-Johnson LP125M SE **\$12,500**

www.conradjohnson.com

The Signature Edition is not a particularly tubey-sounding KT120 amp, being neither warm nor romantic in character. Harmonic textures, while comfortably tube-like, avoid taking a hot bath. As a consequence, the presentation is transparent and detailed to a degree that has traditionally been difficult to access with push-pull amplification. The overall sound is regal and suave, coupled with solid image outlines and excellent soundstaging. DO, 223

Carver Black Beauty 305 **\$12,900**

www.bobcarver.com

Although the Black Beauties probably won’t wow “transparency to sources” listeners, they will bowl over anyone who puts sheer

sonic loveliness first. Dark and beautiful the Black Beauties most certainly are, with big bass and surprisingly fine midband detail. While adjustable enough to broaden their appeal a bit, with higher bias and lower feedback producing a more “modern” sound, these babies aren’t intended for the analytical listener; they are meant for the music lover. JV, 228



Jeff Rowland Stereo 625 \$13,000

www.jeffrowlandgroup.com
Jeff Rowland is back at the top of his form with this solid-state beauty, which is, as near as HP can tell, devoid of a solid-state signature. Not a Class D circuit, as are the less expensive electronics in Rowland’s line, this gorgeous 300Wpc (into 8 ohms, 550Wpc into 4 ohms) Class AB stereo amp has wideband response with very low distortion, and a purity and sweetness rare in electronics of any kind. HP, 215

Classé Audio CA-M600 \$14,000/pr.

www.classeaudio.com
Thanks to a highly sophisticated passive cooling system, the Classé monoblocks don’t run hot; nevertheless, their sheer dynamism and alacrity are stunning. Blinding speed is coupled to a spookily low noise floor. So linear and revealing are these amplifiers that in some systems they may best be coupled with tubes elsewhere in the audio chain. You can search far and wide for a better amplifier at double the price. JHb, 210

Hegel H30 Reference \$15,000

www.hegel.com
This Norwegian powerhouse (375Wpc into 8 ohms) combines the bass control and dynamic impact of a dreadnought design with a midrange and treble refinement, delicacy, and sweetness reminiscent of a single-ended triode amplifier. The midrange, in particular, is highly vivid and present, with a palpability and directness of expression RH has not heard in an amplifier near the H30’s price. RH 223

Aesthetix Atlas \$16,000/pr.

www.musicalsurroundings.com
Aesthetix’s first foray into power amps is an unqualified success.

Aesthetically, the Atlas is handsome in a brawny but tasteful way. Sonically, the amp has great resolution and reflexes, making it a snap to follow interleaved melodic and rhythmic lines. The Atlas creates a cloud of air around each instrument, and a deep convincing sense of space. Indeed, its resolution, timing, and imaging are beyond reproach. AT, 196

Simaudio Moon W-8 \$16,000

www.simaudio.com
This 80-pound, dual-mono, bridgeable amplifier is Simaudio’s premier stereo unit, boasting 250Wpc into 8 ohms (an even thousand when bridged). Like its companion preamplifier the P-8, the W-8 is tonally neutral, has iron control yet exquisite finesse, and appears to do nothing but amplify the signal fed to it. PS, 185

Pass Labs XA100.5 \$16,500/pr.

www.passlabs.com
These masterpieces from Nelson Pass bring the virtues of Class A to a more efficient package. The XA100.5 monoblocks have a purity and transparency that are jaw-dropping. Timbres are also well served, with a warmth and ease reminiscent of tubes but without “tubey” colorations. RH, 186

Cary Audio 211 FE \$19,995/pr.

www.caryaudio.com
A zero-feedback design, the all-triode 211 FE monoblock updates the classic 211 that Cary has produced for 17 years. Though it may lack the ultimate wallop of a powerful transistor unit, and may—if you’re into large-scale classical or hard rock—run out of juice before you want it to, this is one gorgeous-sounding amplifier—pure, exciting, and expressive. WG, 205

\$20,000 and above

Spectral DMA-360 MKII \$20,000/pr.

www.spectralaudio.com
The DMA-360 monoblock combines high output current with lightning-fast audio circuits, producing an unparalleled portrayal of music’s dynamic expression. It also delivers what is, in RH’s experience, the largest, best-defined, and most accurate spatial presentation of any amplifier. Timbral realism is also a DMA-360s’ strong suit, as is amazing resolution of fine inner detail. Reference-grade amplifiers at a rational price. RH, 190

Air Tight ATM-3 \$21,000/pr.

www.axissaudio.com
This beautifully made, metered, push-pull, 100Wpc, 6CA7-based

monoblock combines the rich textures and timbres of an SET amplifier (though it is not an SET) with the fine resolution, more extended bandwidth, more neutral balance, and superior transient speed of Class A solid-state (though it is not solid-state). A little marvel of fidelity, it mates wonderfully well with fast loudspeakers like Quad 2905s. JV, 188

Pass Labs XA160.5 \$22,000/pr.

www.passlabs.com
“An amplifier with soul,” the XA160.5 monoblock is the most “tube-like” transistor amp AHC has heard. Its sound is warmer than most, and the music emerges from a deep black silence. Moreover, its soundstage depth matches its width, dynamics are musically natural and slightly “soft,” and the amp has terrific harmonic integrity. AHC, 192

Lamm M1.2 Reference \$23,990/pr.

www.lammindustries.com
Another winner from the fertile mind of Vladimir Lamm. Combining brawn and finesse, the M1.2 drives even challenging loads with ease. Its siren song of suave harmonic textures, tight bass control, articulate transients, kinetic drive, and essential tonal neutrality is musically most persuasive. DO, 188

TAD M2500 \$24,000

www.tad-labs.com
This 250Wpc hybrid Class D design (power doubles at 4 ohms) is nothing short of vault-like in design and execution. The chassis alone is machined from a 47 pound block of solid aluminum. Partnered with the C2000 preamp the M2500 offers a level of low distortion, transient speed, resolution, and control that verges on the current state of the art. Its grip and pitch articulation in the sub-40Hz range must be heard to be believed. NG, 229

ARC Reference 250 \$25,995/pr.

www.audioresearch.com
Where ARC’s previous 6550-tubed 200-watters always seemed to run out of steam long before they’d used up their on-paper watts, the KT120-equipped 250 moonoblocks just keep going and going, and they do so with much better timbre, bass and treble extension, low-level resolution, transient response, imaging, and staging than their wimpy forbear. In the midrange, ARC amplifiers have always been able to “breathe” life into instruments and voices almost like an acoustic bellows; the Ref 250 does this trick from bottom to top. JV, 229

Constellation Centaur

\$26,000

www.constellationaudio.com

Very high resolution and voluptuous tone color generally don't go together in hi-fi gear, and when they do—as in Class A triode tube circuits—they do so at a price in neutrality. Not so the Class AB 250Wpc Constellation Performance Series Centaur stereo amp, which has gorgeous color and texture on top, coupled with an uncanny ability to resolve very fine details without etching or “spotlighting” them. Among the loveliest, highest-resolution solid-state amps JV has yet heard. JV, 223

Jeff Rowland Design Group 725

\$29,800/pr.

www.jeffrowlandgroup.com

The Jeff Rowland 725 monoblocks (and the matching Corus preamplifier) are beautifully made electronics. But their beauty isn't merely skin-deep; the 725 monoblock amplifiers are extraordinarily expressive and involving. While other first-rate electronics reveal additional sonic details that may or may not translate to greater musical communication, these Rowland amplifiers have unfailingly shown RH nuances of expression and shadings of meaning in familiar music that go far beyond mere hi-fi “resolution.” RH, 228

Burmester 911 Mk III

\$29,995

www.burmester.de

Burmester components are unquestionably expensive, but also uncommonly versatile and aesthetically exquisite. The sound of this stereo amplifier is on the same plane, with hold-your-breath dynamics, uncanny timbral realism, and a remarkable sense of “inevitable” pace. AT, 212



Classé Audio Omega

\$35,000/pr.

www.classeaudio.com

Classé's statement monoblocks possess Stygian bass slam, whiplash speed, and power galore. The abundant power on tap means that the soundstage is utterly holographic, allowing the listener to pinpoint each instrument. A superbly liquid midrange and refulgent sound make it one of the most commanding monoblocks around. JHb, 203

Conrad-Johnson ART

\$37,000/pr.

www.conradjohnson.com

The 275W ART monoblocks are far and away the lowest noise, highest resolution, highest

transparency c-j amplifiers JV has heard, with wonderfully expansive soundstaging, robust midbass and lower mids, slightly sweet upper mids and treble, and excellent grip and extension in the bass. JV, 218

Lamm ML2.2

\$37,290/pr.

www.lammindustries.com

This 18W single-ended triode amplifier from Vladimir Lamm defies all the stereotypes about SET amplifiers. The ML2.2 doesn't offer a glorious midrange at the expense of the frequency extremes; it offers a glorious midrange in addition to glorious performance over the entire spectrum, save for the lowest bass. Simply put, the ML2.2 sounds more realistic—more like live instruments—than any amplifier RH has heard. The caveat is that you must mate the ML2.2 with a loudspeaker of high sensitivity and a benign load. RH, 230

Ayon Vulcan II

\$40,000/pr.

ayonaudio.com

If you value huge panoramic soundstaging with velvety black backgrounds and eye-popping detail, the Ayon Vulcan II monoblock is for you. A rare do-it-all design, it marries the drive of solid-state with the magic of SET. One of the most holographic amplifiers ever, it is

not as tonally pure as the Lamm ML3; nonetheless, it is reference-quality due to its outstanding spatial presentation. PB, 211

Boulder 1050

\$44,000/pr.

www.boulderamp.com

A truly superb monoblock that offers the very best in bass, power, transients, and low-level detail. It's slightly warmer and more tube-like than many competing solid-state designs, but this adds—rather than subtracts—from musical realism. If you want the real-world sound of acoustic instruments, this may be the amplifier for you. AHC, 188

Soulution 710

\$50,000

www.axissaudio.com

Jaw-dropping resolution and transparency-to-sources sets this 120Wpc into 8 ohms (240Wpc into 4) solid-state stereo amp apart. It is preternaturally “not there,” making inherently neutral speakers, in turn, sound more “not there,” and music (and the engineering and mastering that went into putting that music on LP or disc) “more there.” If you truly want to know what's on your records, this supremely honest amplifier must be heard. JV, 199

Constellation Centaur monoblock

\$52,000/pr.

These 500W monoblocks feature

the same circuitry as the mighty \$150,000-a-pair Constellation Hercules monos but with half the output stage for “only” 500W of output power. The beautifully built Centaurs have ravishing tone color, are exceptionally detailed, and most significantly, are extremely transparent to sources. They are also lightning fast but without a sense of etch. Outstanding dynamics and seemingly unlimited power delivery round out this highly appealing amplifier. RH, forthcoming

Krell Evolution One

\$65,000/pr.

www.krellonline.com

While the Evolution One mono amp is not a radical sonic breakthrough—the best aspects of Krell “voicing” have been preserved—the Krell virtues of deep-bass power and rich natural timbre have been enhanced, while air, life, microdynamics, depth, detail, and the upper octaves have improved to contenders for the state-of-the-art. A true sonic benchmark. AHC, 158

Octave Jubilee

\$67,500/pr.

www.octave.de

An assault on the state of the art by the German firm Octave and its lead designer, Andreas Hoffman, the Jubilee monoblock is a tall,

superbly styled tube amplifier that can easily put out some 280W. Our reviewer AHC “struggled to find something to criticize.” Oh, he said that the Jubilee could use just a touch more warmth, but freely admitted that this was a matter of taste and that other listeners didn't feel this way. One of the two or three best amps AHC has auditioned. AHC, 212

BALabo BP-1 MK-II

\$88,500

www.balabo.com

This exquisitely made, extremely powerful (500Wpc) solid-state stereo power amp from Japanese master-designer Fumio Ohashi is as lovely to listen to as it is to behold. If ravishing gorgeousness of tone color, outstanding resolution of detail, quick natural transient response, huge reserves of power, and superb bass grip are your cup of Saki, you will have to look long and hard to find an amp that sounds this lovely and this lifelike. JV, 201

Technical Brain TBP-Zero EX (Japanese version)

\$90,000/pr.

www.ratocsystems.com

Fool or prophet, JV is sticking his neck on the chopping block (again) on behalf of the Japanese version (not the short-lived American version) of this award-winning

350W monoblock amplifier. Part of what's great about the TBP-Zero EX hasn't changed: It's still a genuine paragon of transparency and resolution, matching or exceeding even the best competition. What is different is its tone color (now richer and more beautiful, as source/speaker permits), its bass (ditto), and its reliability (no longer "iffy"). Forthcoming

Soulution 700

\$130,000/pr.

www.axissaudio.com

Capable of 860W (into 4 ohms) these huge, Bauhaus-handsome, solid-state monoblock amplifiers are, like their littler brother the 710, paragons of neutrality and transparency. Just a touch warmer and more gemütlich in tonal balance than the utterly colorless 710, the 700s bring nearly the same astonishing resolution to the table, reproducing sources with standard-setting high fidelity. JV, 199

Lamm ML3 Signature

\$139,490/pr.

www.lammindustries.com

This two-chassis, 32Wpc SET monoblock sets new standards in sound reproduction. The ML3 delivers amazing speed plus captures the full harmonic envelope of each instrument. The result

is unparalleled tonal neutrality. Surprising, for an SET design, the Lamm can be used with a wide range of loudspeakers, though care must be exercised in impedance and sensitivity matching. PB, 208

Constellation Audio Hercules

\$150,000/pr.

www.constellationaudio.com

A monumental product in every sense of the word, from the audacious design effort, to the sheer size and weight (270 pounds, 12" x 29" x 20" chassis), to the stellar sound quality. With a whopping 64 output transistors per monoblock, the Hercules lives up to its name by delivering 1000W into 8 ohms. Many mega-powered amplifiers lack the delicacy, refinement, and ease of lower-wattage designs, but not the Hercules. Its sound is reminiscent of an SET amplifier in its palpability. Throw in a complete absence of grain, colorless rendering of timbre, a super-black background, phenomenal resolution, and seemingly limitless dynamic reserves, and you have a stunning amp. RH, 215

INTEGRATED AMPLIFIERS & RECEIVERS

Under \$1000

NAD C 316/C 326 BEE

\$380/\$550

www.nadelectronics.com

The entry-level C 316 is still the

go-to amp for audiophile newbies who crave sonic neutrality, good power output, nice tactile feel, and NAD's characteristic quality-control. Looking for a little more oomph? The 50Wpc C 326 will make BEElievers of even the most jaded audiophiles. WG, 140

NuForce DDA-100

\$549

www.nuforce.com

The DDA-100 was made for audiophiles who need a moderately priced one-box solution to go from any conventional digital source directly to a pair of loudspeakers. If your speakers are at least 88dB sensitive and you can work around the DDA-100's ergonomic limitations, you may find that the NuForce is simply the best-integrated amplifier you've heard. And for those readers who still firmly believe that all digital amplifiers are for someone else's system, listening to the DDA-100 will be, as it was for SS, a revelation. SS, 229

Jolida Glass FX-10

\$599

www.jolida.com

This beautiful display-box of an amp is a great music-maker, capable of wonderfully rich yet nuanced playback of all genres. Its soundstage is deep and wide; its build-quality and ergonomics are

terrific; and it sounds even better if you upgrade the tubes and wires. Although the FX-10 outputs only ten watts, those watts are mighty mighty! GH, 222

NAD C 356 BEE

\$800

www.nadelectronics.com

The 80Wpc C 356 BEE borrows technologies from NAD's Master Series M3 dual-mono integrated. Its tonal balance leans slightly to the darker side, bringing a bit of extra wood to strings and burnish to brass. The soundstage is large, with a good sense of air around instruments, and a nice sense of depth. WG, 210

Rega Brio-R

\$895

www.soundorg.com

There's a lot to be said for an amplifier that doesn't sound conspicuously solid-state or tube but suggests the strengths of both. The Brio-R impressed with a forthright balance of weight, tonal density, and authority. Particularly well suited for smaller floorstanders and compact speakers of medium-high sensitivity. NG, 223

Marantz PM8004

\$999

www.us.marantz.com

With 70Wpc, the PM8004 is tonally neutral, clean, clear, transparent,

and dynamic into low-efficiency speakers. The preamp section features an excellent moving-magnet phonostage and headphone amplifier, and the circuit has an unusually high number of discrete parts (rather than ICs). High value. PS, 220



\$1000-\$2000

PrimaLuna ProLogue One

\$1375

www.primaluna-usa.com

The sweet and affordable ProLogue One features a 12AX7, 12AU7, and a pair of EL-34s per channel in a very simple circuit. In classic EL-34 style, the ProLogue throws a very wide and deep soundstage, and has a wonderful midrange. Jeff Dorgay, 151

Wyred 4 Sound mINT

\$1499

www.wyred4sound.com

Rated at 100Wpc, Wyred 4 Sound's mINT (Mini-Integrated Amplifier) isn't simply a Class D integrated; it also sports a built-in DAC with three digital inputs (USB, TosLink, and coax), a pair

of analog inputs, and a dedicated headphone amp. The mINT has an easy, natural musicality, along with good pace and drive. Dynamic range is somewhat limited, as is ultimate volume, but the mINT is consistently able to draw you into the music, no matter the type. WG, 229

Naim Nait 5i-2

\$1695

www.soundorg.com

One of the great bargains in high-end audio, this latest version of the Nait 5i brings more than a taste of expensive separates to a mid-priced integrated amplifier. The Nait is sweet without sounding rolled-off, presents a huge sense of space, tremendous separation of images, and, most importantly, sounds like music. RH, 183

Simaudio Moon 250i

\$1800

www.simaudio.com

The entry-level Moon 250i (formerly the iL) is a fine example of why integrated amplifiers offer such superb value. Rated at a moderate 50Wpc, the 250i nevertheless delivers impressive large-scale dynamics, rhythmic liveliness, transient speed, and top-to-bottom balance. One of the purest-sounding integrated amps in its class. WG, 185

\$2000-\$3000

Rogue Audio Cronus Magnum

\$2195

www.rogueaudio.com

Rogue's 90Wpc Cronus Magnum features a new Electro Harmonix KT90 tube. Striking a balance between elegance and power, its dynamic scaling is very fine—lilting with chamber music, muscular with rock and orchestral. The Magnum is also remarkably transparent to sources in a way that is highly unusual in its price class. WG, 209

Prima Luna ProLogue Premium

\$2299

www.primaluna-usa.com

Sonically, the 35Wpc ProLogue Premium does not have the rosy colorations of traditional triode or SET tube varieties. True, there is a glimmer of romance and softness, but tonally it's a thoroughly contemporary tube amp that walks a mostly neutral line yet still seasons the lowest level details of music with delicacy and resolution. NG, 212

Exposure 3010S2

\$2595

www.bluebirdmusic.com

Exposure's electronics deliver the goods by balancing detail with warmth, rhythmic precision with lyricism, and delicacy with power. With an optional phono card, the 3010S morphs with the music as

each recording demands; it can be either sweet and mellow, lean and mean, or a combination of the above depending on the disc. WG, 181

NAD C 390DD

\$2600

www.nadelectronics.com

Rather than convert digital signals to analog and then amplify those analog signals with multiple conventional gain stages, the NAD C 390 DD integrated takes in digital data at any resolution up to 192kHz/24-bit and converts the PCM data directly to the pulse code signal that turns the output transistors on and off. Sonic strengths include extremely wide dynamics with a sense of ease on even the most demanding peaks, tight and powerful bass, and a treble that errs on the side of smoothness rather than resolution. RH, 224

Rega Elicit

\$2995 (add \$145 for mm and \$175 for mc phono boards)

www.soundorg.com

Rated at 80Wpc, Rega's Elicit is a cleverly named integrated amplifier. The sound is dynamically fleet of foot, and conveys both the heart of the music and the details in the recording. Although it does have a few minor operating quirks, and does not have sledgehammer-like power or weight, the Elicit

nevertheless delivers high levels of musical satisfaction. WG, 198

PrimaLuna DiaLogue 2

\$2999

www.primaluna-usa.com

The first product in PrimaLuna's higher-performance line of tube units is a real honey, surpassing the ProLogue Two across the board. Rated at only 38 watts in Ultralinear mode, it sounds much more powerful due to its outstanding transformers, but requires speakers that are at least moderately efficient. JH, 195

\$3000 and above

Hegel H100

\$3000

www.hegel.com

Hegel (made in Norway) uses unique engineering solutions to offer high performance at relatively modest prices. The H100's understatedly elegant looks are in keeping with its sophisticated, musically rewarding sound, drawing you in through its non-fatiguing portrayal of musical performances. The soundstage is a tad narrower and images are somewhat smaller than some amplifiers can produce. On the whole, a good value that includes an on-board USB DAC. KM, 206

THE PHI 200

"... 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 ..."



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

—Rafael Todes, Violinist, Allegri Quartet
(quoted in HiFi World, September 2013)



Valve Amplification Company

Telephone (941) 952 9695
Fax (941) 952 9691
vac-amps.com

Perreux Audiant 80i

\$3295

www.fidelisav.com

A new breed of “hub” integrated amplifier with inputs to support several generations of formats—specifically a phonostage and an upsampling USB DAC. With 80Wpc the Audiant 80i reproduces music with ease, honesty, and impressive midrange timbre.

Transients aren’t filed to a hard gleaming edge and distinct from the overall presentation. A refreshing mix of Old School cred and contemporary cool. NG, 213

Electrocompaniet ECI 3

\$3590

www.electrocompaniet.com

One of the Electrocompaniet’s elite Classic line, the 70Wpc ECI 3 is DC-coupled, fully balanced, and stable with loads down to 0.5 ohms. This amp may be as familiar as a pair of old slippers, but sonically it’s no relic. It’s neutral, with a sturdy, quick, dynamic midrange, and easily performs up to and often beyond expectations. Its character is not exactly tube-like, but its rosy midrange is reminiscent of the best valves. NG, 221

April Music Stello Ai500

\$3695

www.aprilmusic.com

The April Music Stello Ai500 can deliver a completely satisfying one-box solution for a high-end system.

The Ai500’s analog preamp stage’s transparency is near reference-quality. For audiophiles who require the ultimate in resolution from their digital music files, the Ai500 needs to be mated with a top-echelon USB signal-converter or DAC. SS, 202

Micromega AS-400

\$4000

www.audioplusservices.com

What do you get when you fuse Micromega’s IA-400 200Wpc Class D integrated with AirStream, its discrete wireless network technology? The AS-400. Sonically it’s nearly neutral with only a slight darkening on top and small losses of air at the frequency extremes. Yet it has a sweetness in the treble rarely experienced with earlier switching amplification. With Old School compact-disc material, the AS-400 creates a powerful sense of midrange presence and stability, lively dynamics, and a pleasingly forward energy. NG, 222

Audion Sterling EL34

Anniversary Integrated

\$4098

www.audion.co.uk

This version of the Audion Sterling EL34 Anniversary is hard-wired and can switch up to five line-level inputs. All versions are single-ended designs using one EL34 per channel in Class A. What is unusual though

is the ultra-linear connection, which is typically seen in a push-pull topology. This is a warm and dimensional amp. The subjective impression is of slightly recessed highs, which shift the tonal balance towards the lower midrange. Expect a full-bodied, authoritative presentation and long-term listening enjoyment. DO, 221

AVM Inspiration C8 CD-Receiver

\$4100

www.avmaudiousa.com

AVM’s Inspiration C8 is a beautifully designed, intuitive to operate, sleekly compact all-in-one preamp, 150Wpc Class D amp, CD player, FM tuner, and neatly tricked-out audio control unit. It also comes equipped with a USB-input as well as a phonostage that accepts moving-magnet and higher-output moving-coil cartridges. The C8 has the ability to largely get out of the way and let the music shine through. Its sound is quite uniform across the spectrum—neither warm nor cool but precise, smooth, balanced, and pure. It’s capable of fine dynamic nuance and will play quite loudly, though it doesn’t have the “slam” one normally gets from conventional Class AB designs of a similar power rating. WG, 224

Hegel H200

\$4400

www.hegel.com

The more powerful and more accomplished big brother to the H100, the H200 is a beautiful-sounding integrated amplifier whose emphasis is on optimal sonic performance and power reserves rather than on a variety of inputs and features. It lacks the on-board DAC of the H100 but more than makes up for that by offering a larger soundstage, clearer details, and greater listener involvement. A great value. KM, 211

Simaudio Moon 340i

\$4500 fully equipped

www.simaudio.com

Simaudio sees the future with this elegant 100Wpc cross-generational design. Formerly known as the i3.3, the 340i linestage integrated epitomizes Simaudio sonics—a sensation of pomp and pace to the reproduced signal. The 340i launches rhythmic volleys, percussive accents, and transient cues with the speed and smoothness of Usain Bolt bursting from the starting blocks. You can add an optional DAC package, or internal phono preamplifier or balanced set of inputs at any point. NG, 198

Music Culture MC701

\$4595

www.music-culture.us

This 120W integrated amp from Germany oozes elegance in its

appearance and sound. Edging to the warm and inviting side of neutral, it also conveys ample rhythmic snap and detail and has enough power to drive a relatively wide range of speakers. Not the last word in a spacious, airy soundstage, the MC701 makes up for this by blending visual, tactile, and sonic appeal in a compelling package. KM, 215

Bryston B-135 SST²

\$4695

www.bryston.com

Bryston has replaced its well regarded B-100 with the more powerful B-135, which uses preamp elements from Bryston’s SP-3 as well as significant technology from its SST² power amps. With ample analog inputs, an optional mm phono section, and an on-board DAC, it is a versatile unit with enough power (135W) to drive even somewhat tricky speakers. High build-quality, versatility, and overall sonic immediacy and clarity are its strong points. KM, this issue

Esoteric RZ-1

\$4950

www.esoteric.teac.com

Discriminating listeners with square-footage issues will be very much at home with this combo of 100Wpc Class D integrated amp and slot-loading SACD/CD player for one big reason—it sounds terrific

and operates with the luxury and precision of a fine Swiss timepiece. With smaller speakers of suitable sensitivity the RZ-1 is sweet, open, and revealing. NG, 209

Plinius Hautonga

\$5750

www.pliniusaudio.nzld.com

Boasting 200Wpc, the Hautonga is a fully contemporary solid-state design. Definitely on the Yang (as opposed to Yin) side of the tonal spectrum, it generates no bogus warmth, though it will reproduce warmth if it’s in the recording. While it is not edgy, there’s something ever so slightly cool and forward in a presentation notable for crispness, clarity, and brilliance, not to mention control and power. In addition to the usual inputs, the Hautonga features an excellent mm/mc phonostage. Its strong Yang character suggests some care in component matching. PS 229

Naim Super-Uniti

\$6000

www.soundorg.com

The latest in Naim’s now-three-year-old Uniti Series, the “all-in-one, just-add-speakers” SuperUniti contains no disc drive. You can of course hook up a CD player or turntable via analog inputs, but many people will opt to maximize the Super-Uniti’s streaming

audio and digital capabilities via one of Naim's UnitiServe Hard Disc/Servers. The heart of the SuperUniti is the 5 Series amplifier found in the 80Wpc SuperNait integrated. The Super-Uniti has the same exceptional dynamics, rhythm, and pace one expects from Naim gear, along with a low noise floor and a fine sense of transparency to the recorded event. WG, 225

Pass Labs INT-150

\$7150

www.passlabs.com

Powerful, subtle, effortless, Pass Labs' first foray into the ultra-competitive integrated amplifier market is a complete success. This control amplifier doubles its prodigious 150Wpc output into 4 ohms making it a good candidate for less-sensitive loudspeakers. Its sound is tempered with pleasing warmth—an ease and fluidity characteristic of solid-state with a strong Class A bias. NG, 184

Simaudio Moon 600i

\$8500

www.simaudio.com

Building on a long tradition of great-sounding integrated amplifiers, Simaudio has hit one out of the park with the 600i. This dual-mono, fully differential integrated delivers the sound quality of expensive separates with the

convenience of a single chassis. The 600i's presentation is rock-solid in the bass, unbelievably dynamic, with a slight forwardness in the midrange that increases lifelike presence. RH, 210

Rega Osiris

\$9995

www.soundorg.com

Rega's brilliant Osiris is a deceptively compact, 162Wpc beast of an integrated amplifier. Rega describes the amplifier's topology as a "minimalist high-gain power amplifier and passive preamplifier circuit." The less-is-more approach yields an integrated amp that delivers almost mind-bending levels of dynamic agility, subtlety, and clout. The Osiris is an eerily effective and three-dimensional soundstager, too. CM, 213

Plinius Hiato

\$10,450 (\$12,350 w/phono)

www.eliteavdist.com

This 300Wpc solid-state amp is a bull—a big gun reserved for the large-caliber jobs of bringing unwieldy speakers into line. It virtually redefines low-frequency control and extension, as well as overall dynamics, in this segment. When mated to a full-range speaker it will elicit inner detail that very few integrated amps can touch. Available with an excellent full-

featured phonostage. NG, 201

Vitus Audio RI-100

\$13,000

www.vitusaudio.com

Nobody does "entry-level" like Vitus Audio. Capable of lucid highs and sensationally dynamic lows (and everything else in between), the 300Wpc Reference Series RI-100 gives little away to its Class A Signature Series siblings. Though it doesn't quite achieve the fluidity and harmonic ripeness of the superb Vitus SIA-025, it's virtually unrivaled in its tight-fisted grip on the lower octaves. Look for the big RI-100 to fulfill its destiny in 2013 when the optional DAC and phono module become available. NG, forthcoming

Vitus Audio SIA-025

\$25,000

www.vitusaudio.com

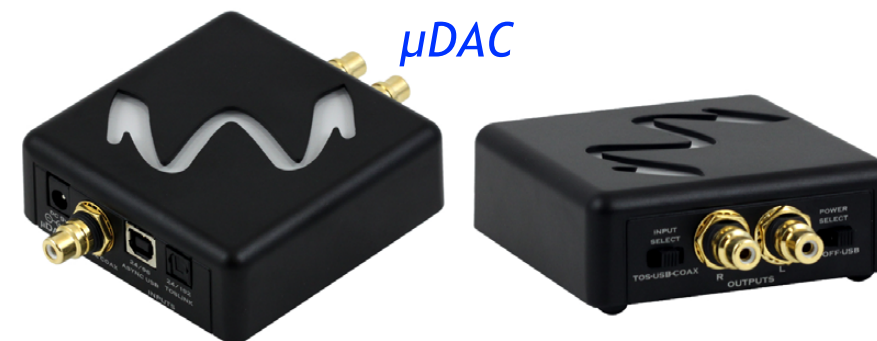
Conventional wisdom states that integrated amps are hopelessly compromised at birth. Vitus Audio obviously didn't get the memo when it created the SIA-25. Built to the same Olympian standards as its preamps and amps, this 25Wpc Class A (on-the-fly switching to 100Wpc Class AB) integrated gives you the best of separates in a single chassis—liquidity, presence, a 3-D soundstage, and the finest gradations of timbre and dynamics.



μDAC-HD



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It may not fill a cathedral (unless horns are your thing), but the SIA-25 is the pinnacle of a breed never again to be underestimated. NG, 218

PREAMPLIFIERS **Under \$1000**

NuForce HAP-100 **\$595**

www.nuforce.com

NuForce's HAP-100 preamplifier/headphone amplifier offers serious high-end performance at a modest price. A Class A solid-state design, it delivers unusually wide bandwidth with low levels of distortion and noise. Together these characteristics make for a sound that has a purity and clarity quite unexpected at this price. The HAP-100 makes a good headphone amp, too, with one caveat: The NuForce is load-sensitive and thus not an ideal match for some of today's more difficult-to-drive top-end headphones. CM, 230

Vincent Audio SA-31 **\$700**

www.wsdistributing.com

The SA-31 is a well-made entry-level vacuum-tube preamp that provides tone controls and a loudness contour switch. The preamp's sound is characterized by a rich, seductive midrange and solid bass. Though not quite the

equal of today's best \$1k preamps in resolution, definition, or high-frequency "air," the SA-31 offers terrific bang for buck. CM, 208

\$1000-\$2000 **Rogue Audio Metis**

\$1095

www.rogueaudio.com

Rogue Audio's Metis is a USA-made, vacuum-tube-powered (6SN7-based) preamplifier. The dynamic liveliness and harmonic richness we expect in any good tube design are present here, at levels that remind us of the sound of \$2500 tube preamps. But unlike tube designs that sound focused in the midrange and soft at the frequency extremes, the Metis remains evenly balanced and finely resolved from top to bottom. CM, 160

Van Alstine **Transcendence 8+** **\$1299**

www.avahifi.com

Configured as a linestage (the optional phonostage (\$199) fared less well), the T8 is one of those rare products that genuinely transcends its price. Its sound is not particularly smooth or euphonic. But it won praise based on its stable imaging and killer dynamics. It benefits from being mated with a romantic tube amp. DO, 173

PrimaLuna ProLogue 3 **\$1329**

www.primaluna-usa.com

The vacuum-tube-powered ProLogue 3 preamp makes an ideal companion to PrimaLuna's ProLogue 5 tube power amp. Like the power amp, the preamp combines tube warmth and richness with a clear, crisp, precise presentation reminiscent of the best solid-state designs. Bass, too, is taut and clear. SR, 156

Vincent SA-31MK **\$1600**

www.wsdistributing.com

An upgrade to its SA-31 linestage, Vincent's SA-31MK features a new output circuit with shorter signal paths and improved component parts, including a second set of 6N16 vacuum tubes. A little dark and finely grained, it brings an extra bit of texture to a violin, cello, or bluesy vocal. Staging and focus are strengths, though it could benefit from a bit more air and bloom. WG, 208

Cary Audio SLP-03 **\$1995**

www.caryaudio.com

Like the Cary 120 S II, with which it is intended to mate, this tube linestage produces a sound that emphasizes the natural warmth of the midrange and upper bass.

It sets a soundstage that slightly emphasizes depth over width. Detail is natural. Flute, clarinet, and piano have transients and peaks that sound musically realistic; brass has bite without being hard, and female voice does not lose its warmth or emphasize sibilants and breathing sounds. AHC, 208

\$2000-\$5000 **Mystère CA21**

\$2295

www.mystere-usa.com

Built like a tank, the CA21 is a fine example of the minimalist approach: a line preamp with an input selector and a volume control, but no balance control. A giant killer in clarity, soundstage transparency, and detail resolution, its slightly closed-in treble highlights the midrange. Tonally, the center of gravity is the lower midrange, enabling a big-tone portrayal of cello and upright bass. DO, 208

Vincent Audio SA-T8 **\$2500**

www.wsdistributing.com

This tube line preamplifier is about bass precision, spacious soundstaging, speedy transients, pure midrange textures, and rhythmic drive. The lower treble is a bit coarser than the midrange. Microdynamic nuances are reproduced with commendable

conviction. A rare musical blossom at this price point, and an absolute steal considering its twin virtues of crystalline clarity and ample boogie factor. DO, 188

PrimaLuna DiaLogue 3 **\$2699**

www.primaluna-usa.com

With its massive toroidal power transformers, this true dual-mono, point-to-point-wired preamplifier is unflappable, reproducing music effortlessly and with wonderful dimensionality even through complex, dynamically challenging musical passages. While it may make many recordings sound better than they should, you can listen to it for hours without any aural fatigue. JH, 219

Triode Corporation TRX-1 **\$3000**

www.twinaudiovideo.com

This all-tube linestage boogies along with plenty of dynamic conviction, generating an infectious enthusiasm for the music. It may not excel in audiophile terms, but is a standout in its faithfulness to musical values. In particular, it captures the interplay between musicians to an extent that is rare or even exceeds that of preamps costing much more. The caveat is that you'll have to invest in replacement tubes, preferably 5751s. Consider it a

must-audition if your priority is to simply enjoy the music. DO, 219

Peachtree Grand Pre X-1 **\$3299**

www.peachtreeaudio.com

The Grand Pre X-1 is a hybrid unit with a tube buffer that's designed to sweeten the sound of less-than-lovely digital sources, such as older CDs. With quality sources, streamed or from spinning discs, the Grand Pre is a mighty impressive performer. It offers a large stage with terrific depth and fine focus, does a wonderful job of conveying inner detail, and leans toward the light and elegant side in tonality. In an era where versatility is a welcome trait, Peachtree's Grand Pre deserves special attention. WG, 229

Electrocompaniet EC 4.7 **\$3495**

www.electrocompaniet.com/usa

The Electrocompaniet EC 4.7 solid-state preamp from the Land of the Vikings produces a natural mix of lifelike imaging and soundstaging that gives large complex orchestral music about as much realism as you can achieve in a home stereo. Clean, transparent, and exceptionally quiet, it also has significantly more extended bass and high-frequency response than many competing units. A very good preamp by any standard. AHC, 198

conrad-johnson ET3SE
\$4000 (\$1500 for phono option)

www.conradjohnson.com

Despite its entry-level status, the ET3SE is a low-distortion, high-resolution line preamplifier that delivers timbral accuracy and phenomenal bass control. The overall presentation is clean, smooth, slightly laid-back, yet highly detailed, with an emphasis on harmonic accuracy. It can certainly hold its own in elitist company. DO, 193

Parasound Halo JC 2
\$4000

www.parasound.com

The JC 2 is that extreme rarity—a near-reference-quality product that many of us can actually afford. Neutral and natural, transparent-to-sources, quick and delicately detailed (though not as hard-hitting and detailed as the higher-priced spreads), here is one solid-state preamp that doesn't trade away key parts of the baby (air, bloom, color, three-dimensionality) for the bathwater of razor-cut imaging and iron-fisted control. JV, 182

T+A P 1260 R
\$4000

www.dynaudio.com

T+A's design is deliberately simple, functional, and notably compact compared to that of most high-

end gear. The sound is precise but not cool—remarkably elegant and refined, as well as notably low in noise and pure of tone, with fine detail and outstanding balance across the frequency spectrum. WG, 223

Atma-Sphere MP-3
\$4900-\$5560 w/phono

www.atma-sphere.com

This no-frills tubed preamp from Atma-Sphere is a must-hear for the purist music lover. Offering a crystal-clear, smooth, and concise window on the music, the MP-3's expansiveness is a perfect match for both tube and solid-state amplification. Balanced-only operation; phono optional. SK, 184

\$5000-\$10,000
Aesthetix Calypso/Calypso Signature
\$5000/\$7000

www.musicalsurroundings.com

The all-tube Calypso delivers most of the performance of Aesthetix' two-box \$13,000 Callisto linestage for about a third the price. Sonically, the Calypso is characterized by extremely good dynamics and dynamic nuance. Although the treble is smooth and somewhat laid-back, transparency and resolution are first-rate. Noise floor is highly dependent on tube quality, which has been variable. Competes with

the megabuck preamps. RH, 151. The Signature version improves on the Calypso's already terrific performance with an expanded soundstage, richer portfolio of instrumental textures, more air, longer decays, and better-defined bass. AT found that the Signature version imparted a warmer cast to timbres. AT, 196

Classé CP-800
\$5000

www.classeaudio.com

Classé has pulled quite a rabbit from its hat with the CP-800, a solid-state preamplifier that corrects the power coming in from the wall and can be used with almost any voltage. It boasts an exceptionally low noise floor and a supremely high-resolution treble. Its tonal character is always firmly neutral. A spectacular performer that comes loaded with options, including the ability to run external subwoofers. JHb, 230

Lamm LL2.1
\$5990

www.lammindustries.com

This all-tube linestage preamp (with tube rectification) captures 80% of price-no-object preamps for a fraction of their cost, said our reviewer DO. Never in-your-face analytical, the LL2.1 frames details organically within the fabric of the

music. Treble, bass, and transparency can be improved by using the right after-market tubes. DO, 198

Aesthetix Janus/Janus Signature
\$7000/\$10,000

www.musicalsurroundings.com

The Janus combines Aesthetix' Calypso linestage with a scaled-down Rhea phonostage in a single chassis. The Signature version features upgraded parts in the identical circuit. The units share numerous qualities: speed and detail; a low noise floor; precise rhythms; dynamics that are almost reference-caliber; and a laid-back perspective. The quiet background and smooth highs add up to long hours of glorious, fatigue-free listening. AT, 196

Balanced Audio Technology VK-42SE
\$7495-\$8995 (depending on options)

www.balanced.com

BAT designer Victor Khomenko is rightly proud of the numerous programming features on the 42SE preamplifier. But that's only the start of the story. A great value, this exemplary solid-state design is most notable for its smooth, silky sound and superbly low noise floor. Where it falls short of more elaborate designs is in resolution and dynamics. JHb, 179

Zesto Audio Leto
\$7500

www.zestoaudio.com

The Leto linestage preamplifier is cut completely from the same sonic cloth as the Andros PS1 phonostage PS reviewed last year. Like the Andros, the Leto is a contemporary all-tube design, boasting the roundedness, dimensionality, and body of classic tubes without their tonal anomalies, bass-end deficiencies, and relatively high noise levels. Also like the Andros, the really distinguishing characteristic here is a wonderful freedom from the usual sorts of sonic hype and electromechanical artifacts. PS, 230

Cary Audio SLP-05
\$8495

www.caryaudio.com

Sporting eight 6SN7 vacuum tubes in its main chassis and a 5AR4 rectifier tube in its outboard power supply, this zero-feedback, balanced linestage ranks among the best. Highly transparent, it transports you to the recorded event, combining tonal naturalness, a lifelike sense of instrumental body and weight, air, and dimensionality in a way that brings recordings to startling life. WG, 205

Spread Spectrum Technologies Ambrosia
\$8500

www.ampzilla2000.com

James Bongiorno's new preamplifier is a gauntlet flung at an increasingly minimalist world: a two-channel preamplifier complete with two phonostages (mm and mc), unusually effective tone controls and filtering, headphone amplifier, and as much flexibility as anyone is likely to need. Sonics match those of the Ampzilla 2000: vitality, life, and lifelikeness with no sacrifice of neutrality. PS, 219

Pass Labs Model XP20
\$8600

www.passlabs.com

Very quiet, with no trace of solid-state hardness, excellent musical life, and the best low-level detail AHC has encountered. Soundstaging is as real in imaging, width, and depth as the recording permits. Excellent deep bass, and clean, detailed upper midrange and treble that get the most out of flute, clarinet, strings, piano, and the full range of male and female voice. AHC's new reference preamp. AHC, 192

MBI C11
\$8800

www.mbi-northamerica.com

With civilized sonics, both airy and

open, dynamics that are lively, and dimensionality and imaging that are exceptional, the C 11 is a joy to use in concert with other Corona gear, where control and communication via Ethernet link is glitch-free. It is also equipped with one of the most sonically transparent analog volume control (via a motorized potentiometer) that we've come across. NG, 228

\$10,000 and above

Apex High Fi Audio Pinnacle

\$10,000

www.ttvjaudio.com

Functionally, the Pinnacle performs double-duty as both a headphone amp and a linestage preamp. A convincing design on a technical level that happens to deliver plenty of tube magic. Harmonic textures are sweet, velvety, and pure. Its overall soundstage exhibits considerable grandeur, though it slightly congests space between instruments. There is a romantic blush about the lower midrange. Low-level detail is plentiful and the treble range is gorgeously nuanced with firm transient control. DO, 214

Conrad-johnson ET5 Preamplifier

\$10,000

www.conradjohnson.com

The latest addition to conrad-johnson's enhanced triode

preamplifier lineup offers world-class soundstaging replete with 3-D image outlines. Bass lines are tightly defined, while the upper registers are open and free of gratuitous brightness. Tonal colors approach the vividness of the real thing without euphonic adulteration. Expect no sonic editorializing from this preamp! It refuses to stray from neutrality and maintains an even-handed perspective top to bottom. Forthcoming

Mark Levinson No. 326S

\$10,000 (optional phonoboard, \$1200)

www.marklevinson.com

The No. 326 possesses greater transparency and fidelity to the source than previous ML preamps, with less of the characteristic ML house sound. Astonishingly focused and detailed, yet smooth, suave, and sophisticated. Superb features and ergonomics make the No. 326S a pleasure to use on a daily basis. RH, 161

Spectral DMC-30SS II

\$12,000

www.spectraudio.com

Spectral's DMC-30SS is a tour de force of preamplifier design, with its ultra-fast circuits, heroic volume control, and meticulous attention to detail. Its sound is hard to describe because it imposes

so little signature. Putting the DMC-30SS into the system is like washing months of winter off a picture window. Timbres are richly saturated, soundstages huge and defined, and resolution of transient detail is unmatched, provided that these qualities exist in the recording. RH, 190

Jeff Rowland Design Group Corus

\$13,600

This linestage is, perhaps, the most beautifully made piece of audio electronics RH has seen. It also offers an extraordinary user interface and outstanding feature-set. The sound is simultaneously resolved and relaxed, drawing the listener into the presentation. The bass performance is exemplary, with excellent pitch definition and bottom-end dynamics. The Corus is very quiet, allowing low-level details to come to life. A joy to look at and use on a daily basis. RH, 228

Boulder 1010

\$14,000

www.boulderamp.com

A preamp that complements all of the sonic virtues of the Boulder 1050 power amp, and does so with exceptional resolving power and detail. An excellent phonostage. The ability to adjust the level of each input to match. Excellent remote control features. Superb

Boulder construction. AHC, 188 and 208

VAC Signature IIa

\$15,500/\$19,500 with phono option

www.vac-amps.com

Kevin Hayes has outdone himself with the new Signature IIa preamp. Transformer-coupled, completely balanced, hand-wired with no coupling capacitors or negative feedback, the full-function model has four line inputs and a tubed phonostage with mm/mc inputs, a completely separate power transformer, dedicated filter circuitry, and variable impedance loading. And the sound is gorgeous. GH, 225

Simaudio Moon P-8

\$16,000

www.simaudio.com

If it weren't for the absence of a stereo/mono switch, PS would find this two-channel, dual-chassis, dual-mono preamplifier literally perfect in function. Like any superior modern solid-state unit, it's tonally neutral and pretty much characterless. Additionally, its dynamic response is hair-trigger and detail amazing, with that paradoxical combination of iron grip and utter ease. Drawbacks? Well, it does cost \$15,000. PS, 165

Pass Labs XP-30

\$16,500

www.passlabs.com

Here you have two monaural line preamps sharing a single power-supply chassis that crushes the competition when it comes to traditional solid-state virtues such as transient attack, bass control, and detail resolution. But the real magic is in bridging the great divide between the sound of tubes and transistors. Image focus and soundstage dimensionality are tube-like, as is its ability to lay down an orchestral foundation with tonal and dynamic integrity. A supremely musical line preamp. DO, 223

TAD C2000

\$17,000

www.tad-labs.com

Simultaneously austere and posh, the C2000 is a linestage preamp/DAC that includes USB input, asynchronous data transfer, and sampling rates up to 24-bit/192kHz. Its USB DAC is among the best we've heard in this rapidly evolving segment. As with its companion amplifier the M2500, construction quality is superb. The C2000 is quiet and refined, presenting a focused sonic picture, with none of the slightly phasy imaging artifacts or soundstaging limits that earlier USB efforts were pinged for. NG, 229

conrad-johnson GAT

\$20,000

www.conradjohnson.com

Building upon its superb ART design of about a decade past, c-j's newest statement preamp takes the ART's virtues several large steps forward. Gone is any vestige of the ART's overly warm, slightly opaque sound, replaced by a brook-clear neutrality and transparency and a transient speed and low-level resolution that are new to JV's experience of c-j electronics. JV, 218

VTL 7.5 Series III

\$20,000

www.vtl.com

VTL's new linestage is the best one it has produced. Its transient fidelity, dynamic power, enormous soundstage, and sheer grip are mesmerizing. Like its predecessors, the 7.5 features an ingenious "clean" and "dirty" box to prevent the signal from becoming contaminated by noisy parts. But there the similarities end. The Series III version of the 7.5, which features a host of upgraded parts and improved circuit design, has conquered the slight bit of electronic grain that the Series II version displayed. JH, 222

Constellation Virgo II

\$24,000

www.constellationaudio.com

Save for the Technical Brain TBC-Zero, JV has never heard a faster, more detailed preamp than this high-tech gem (which uses exactly the same circuit as the \$60k Altair, albeit with slightly less pricey parts). But where most solid-state preamps tend to trade off tone color for resolution and speed (or vice versa), this one doesn't. Given the right source and the right speaker, the Virgo sounds ravishingly beautiful *and* astonishingly realistic. JV, 223

mbl 6010 D

\$26,500

www.mbl-northamerica.com

This superb solid-state preamp has a noise floor is so incredibly low that it consistently resolves fine harmonic and dynamic details that simply aren't audible through other great preamps. At the same time its transient speed and authority are superbly realistic. To ice the cake, it is absolutely neutral in tonal balance, with excellent imaging and soundstaging, and superb ambience retrieval. JV, 164

Ayon Polaris III

\$28,629

www.ayonaudio.com

This full-function preamplifier's highlights include outstanding

three-dimensional imaging and endless layering coupled with non-fatiguing, reference-quality transient delivery. Instruments seem to “pop up” from nowhere. The phonostage dazzles with liquidity and detail, plus it offers the ability to play low-output moving coils with absolutely no noise. PB, 211

Burmester 088

\$28,995

www.burmester.de

This preamp delivers musical details and lines that are easily delineated and never trip over each other. Overall, it fully lives up to its builder's claim of achieving the ability to capture the power, variety, and surprise of music. AT, 212

Purity Audio Silver Statement

\$31,995

www.purityaudiodesign.com

In an audio world circumscribed by copper, the Silver Statement makes a massive investment in silver technology. The result is cost-no-object performance but at a price point kilobucks removed from the hyper end of high-end audio. Tonal colors are vivid, pure, accurate, and without euphonic emphasis. The preamp is without peer in fleshing out individual image outlines with realistic space between them. DO, 215

Octave Jubilee

\$35,000

www.octave.de

The Octave Jubilee preamplifier has all of the excellent build-quality, detail, and life, and unique design features of the Octave Jubilee power amplifier. Although it is a bit on the lean side (and lacks a remote and balance control), AHC found it was sonically well suited for use in any high-end system, if its leaner balance agrees with your taste. AHC, 212

Soulution 720

\$45,000

www.axissaudio.com

Dead neutral in balance (though sweet enough in the mids and treble not to sound clinical), the 720, like Soulution's amplifiers, is killer-transparent to sources. It's not more detailed than the ultra-high-resolution mbl 6010 D, but it's not significantly less. Like the 700 and 710 amps, this is a component that just “disappears” as a sound source, allowing other components ahead of and behind it to more completely show their true colors (or lack of same). JV, 194

Krell Evolution Two

\$55,000

www.krellonline.com

The Krell Evolution series puts the third dimension back in music by

providing exceptional depth. It also provides exceptional reproduction of hall sounds and musical mechanics—bowing sounds, score rustling, etc. This effect is enhanced by the imaging qualities of the Evolution Two. When the imaging on a recording is natural and detailed, the Evolution preserves the size, the place, the stability, and the layers of imaging. The result is a more open soundstage, better reproduction of life and air, and a greater ability to lose yourself in the music. AHC, 158

Technical Brain TBC-Zero EX (Japanese version)

\$58,000

www.ratocsystems.com

Though never unreliable (like non-EX versions of TBP-Zero power amps), the TBC preamp was always on the lean side in tonal balance. Of course, this leanness went hand-in-hand with the TBC's unparalleled transparency, speed, and resolution. In its day, there was nothing like it for detail. Today, preamps from Constellation, Soulution, and ARC give the TBC a run for the high-res roses. But JV isn't sure that those roses don't still belong to the Zero EX, which, like Technical Brain's EX amp, now has a density of tone color that changes it from an “analytical” into a true high-fidelity component. Review forthcoming

Constellation Audio Altair II

\$65,000

www.constellationaudio.com

Created by a consortium of the world's best electronics designers, the Constellation Altair explores uncharted territory in circuit design and construction methods to deliver nothing less than state-of-the-art performance and state-of-the-art functionality and user interface. In the listening room the Altair delivers the blackest background, the lowest noise, and the finest resolution of detail RH has heard. The Altair's singular achievement is sounding massively high in resolution while simultaneously delivering a tremendous sense of ease, warmth, and listener involvement. RH, 215

BAlabo BC-1 MK-II

\$67,500

www.balabo.com

Like its companion power amp, the BP-1, the BC-1 “control amp” (linestage preamplifier) is among the most beautiful pieces of electronics JV has seen or heard. A little dark in overall balance, the BAlabo is simply exquisite on tone colors, turning everything into a shade of gorgeous without sacrificing any of the speed or low-level detail of the real thing. Wonderful grip and definition in the low bass, too. JV, 201

PHONOSTAGES

Under \$2000

Musical Fidelity V-LPS MkII

\$199

www.musicalfidelity.com

At \$189, the V-LPS is a phonostage for all of us. Equipped with dedicated inputs for mc and mm cartridges, it's quiet, clean and ultimately irresistible—more so with the optional power supply (\$149). Even if the last word in resolution and extension proves elusive, no regrets here. NG, 206

Vincent Audio PHO-8

\$400

www.wsdistibuting.com

Vincent's phono preamp features moving-magnet/moving-coil flexibility, a massive outboard power supply, plus a level of build-quality unusual in this price range. Its sound is liquid, the soundstage vivid and dimensional with just a hint of warmth and transient softness compared to reference efforts. You'll need a much bigger wallet to beat it. NG, 211

Musical Surroundings

Phonomena II

\$600

www.musicalsurrroundings.com

The sequel to the original Michael Yee design, the Phonomena II is based on the latest discrete circuitry

of the top-flight Nova Phenomena, minus the battery pack. Like the original it's easily adjustable and quite extended, with a kind of heavy gravity in the bass octaves. A bit cooler and brasher on brass fortissimos, the sound is alive and electrifying. For balance and value the Phenomena II is a stunner. NG, 191

Clearaudio Basic Plus **\$1000**

www.musicalsurroundings.com
The Basic Plus is everything a modestly priced phonostage should be. It's compact yet elegantly finished. It's switchable between mm and mc cartridges. A robust outboard power supply is included and yields superb isolation from hum and RFI. Most significantly, the unit delivers a spacious and delightfully resolved soundstage with heart-stopping bass resolution. If you want the last word in isolation, consider adding the Clearaudio Accu+, an outboard NiMH battery supply (\$900). NG, 206

Musical Surroundings Nova Phenomena **\$1000**

www.musicalsurroundings.com
Grace, poise, low noise, and neutrality characterize this excellent unit, which includes options for

fine-tuning the loading and gain of both moving coils and moving magnets. Add the \$600 external power supply for lower noise and distortion, and greater transparency. Some listeners may want more dynamic "punch" and personality, but the Nova is hard to beat for low coloration. PS, 172

Simaudio Moon 310LP/320S **\$1400/\$1900**

www.simaudio.com
Whether you purchase the stand-alone 310LP, or add the 320S power supply, Simaudio's latest Moon Series phonostage offers the analog hound both versatility and excellent performance in an elegant package. WG, 225

JR Transrotor Phono II **\$1800**

www.axissaudio.com
Splendidly machined from a chunk of aluminum with enough heat-sinking for a reactor, the Phono II has yet to meet a cartridge it can't convincingly drive. Fully adjustable for mm and mc, it may well be the last phonostage you'll ever want. Sonically on the cooler and clinical side—but only slightly so. NG, 172

\$2000-\$3000

Nagra BPS **\$2175**

www.nagraaudio.com
Nagra's miniscule BPS is a relatively affordable, battery-powered phonostage. Powered by a single 9-volt, the BPS is unusually quiet and refined, especially good at translating low-level dynamics and quick rhythmic shifts. What that 9V power source won't give you is the explosive dynamic peaks and deep-bass power of larger units. Recommended for those who listen to jazz, vocals, and moderately-scaled rock and classical. WG, 198

Sutherland 20/20 **\$2200**

www.sutherlandengineering.com
The 20/20 shares designer Ron Sutherland's "twin mono" (identical circuit) approach to circuit design, but unlike other recent Sutherland models, the 20/20 is not powered by rows of D-cell batteries but instead by an unusual (for high-end audio) pair of "regulated desktop power supplies." The sound is classic Sutherland: very low-noise, beautiful throughout the midrange, with a big, transparent stage, excellent detail and focus, and a bit of politeness in the deep bass. Some won't like the tradeoffs; musical purists will embrace them. WG, 215

Parasound Halo JC 3 **\$2350**

www.parasound.com
The collaboration between Parasound and John Curl has been a gift to audiophiles, producing components of remarkable sonic worthiness that sport real-world price tags. Designed in a fully isolated dual-mono layout, each channel of the JC 3 is housed in its own extruded aluminum enclosure. Sonically there's a riveting balance of extremes at play here: a kiss of romance through the mids and an ability to extract and define low-level information in acoustic space. Through the JC 3 there's a warm breath of life to every musical image. NG, 215

Fosgate Signature **\$2500**

www.musicalsurroundings.com
Designed by the legendary Jim Fosgate, the all-tube Fosgate Signature is a versatile phonostage that offers high- and low-gain settings, six switch-selectable loading options, plus the option of tube rolling. The Signature is remarkably quiet and thus does a great job of retrieving low-level details. It also handles textural complexity and dynamics in music gracefully. Finally, the Fosgate offers terrific purity of timbre, effortless 3-D soundstaging, and

neutral tonal balance. One of the best in its class. CM, 206

\$3000-\$6000

Musical Surroundings SuperNova 2 **\$3200**

www.musicalsurroundings.com
The SuperNova 2 offers unprecedented cartridge-loading options that allow users to precisely dial in the optimum settings for a particular pickup. Not just a phonostage, it also has a line-level input, giving it the ability to replace a preamplifier in some simple systems. Sonically, the SuperNova 2 is also transparent, dynamic, and high in resolution. Can be run off AC or batteries. "An indispensable reviewing tool and my longstanding reference," said PS. PS, 200

Naim SuperLine **\$3495**

www.soundorg.com
With no built-in power supply, the SuperLine is designed to mate with either another Naim component or one of three stand-alone Naim power supplies: the FlatCap2x (\$1100), the HiCap2 (\$1900), or the SuperCap2 (\$5950). With any of the three it's a terrific phonostage, but when mated with the SuperCap it blossoms into one of the finest tools available for LP playback. WG, 194

Sutherland Hubble **\$3800**

www.sutherlandengineering.com
This D-cell battery-powered phonostage from Ron Sutherland replaces the highly regarded PH-3D at the top of the Sutherland Engineering line. Like the PH-3D it is low in noise, neutral in balance, high in resolution, natural in imaging, and exceptionally wide, tall, and deep in soundstaging. It is also highly adaptable, offering users a plethora of easily implemented gain and loading options. JV, 203

Zesto Audio Andros PS1 **\$4300**

www.zestoaudio.com
Zesto Audio's new phonostage embodies all the virtues of latter-day tube design with none of the drawbacks. It has solidity, dimensionality, vitality, transparency, excellent transient response, well-defined and extended bass, a superbly rich midrange, and very low noise. A sensibly wide range of loading options is available for mc's, which are stepped up by transformers, which must be in part responsible for deliciously smooth, unfatiguing highs. An outstanding new product. PS, 222

Aesthetix Rhea
\$4500

www.musicalsurroundings.com

With three inputs, variable cartridge loading—adjustable at the listening chair via remote control—and a front-panel display of gain and loading, the Rhea is the Swiss Army Knife of phonostages. Although it has lots of gain, the noise level is extremely low, making it compatible with a wide range of cartridges. The Rhea's family resemblance to the Calypso lineage is unmistakable: transient quickness and speed without etch, a feeling of effortlessness on crescendos, and a deep, layered soundstage. RH, 151

Octave Phono Module
\$5400–\$7200

www.octave.de

This exceptionally refined phonostage hails from Karlsbad, Germany, is a fine testament to the virtues of punctilious German engineering. It looks and sounds as though it's built for the ages. It offers a hint of tube bliss, but really gives you stern Teutonic performance. The Octave reproduces instruments such as congas and snare drums with preternatural accuracy. Anyone searching for a top-flight phonostage that offers real value would do well to consider it. JHB, 208

\$6000 and above
Aesthetix Rhea Signature
\$7000

www.musicalsurroundings.com

The Signature version of Aesthetix' Rhea vividly demonstrates the value of component quality. Although the circuit is identical to that of the Rhea, the Signature uses cost-no-object parts throughout. The sonic result is a much better defined bottom end, even smoother timbres, and (surprisingly) greater dimensionality. An expensive upgrade over the \$4.5k Rhea, but worth it. RH, 196

Lamm LP2 Deluxe
\$7690

www.lammindustries.com

With a superb built-in coupling transformer to handle lower-output moving coils, the all-tube Lamm LP2 phonostage has the inestimable advantage of being dead quiet, which makes it ideal for folks, like JV, who live in RF Valley. Though not as “alive” or bloomy as the Aesthetix Io or ARC Reference Phono 2 on large-scale dynamics, the Lamm is rich, beautiful, and extraordinarily delicate-sounding on all music, with superior detail and transient response. JV, 157

Manley Steelhead RC
\$8000

www.manleylabs.com

The Steelhead should be counted as one of the great phonostages, and its extraordinary set of features makes it a vinyl-tweaker's fantasy rig. Driven by an outboard solid-state power supply, the main chassis houses six tubes, two moving-coil and moving-magnet inputs, and a bevy of front-panel controls. The sound is superb—rich but not fat, detailed yet natural, extended, controlled, and highly involving. Plus, it has the *buenos* to drive an amp directly and now has a remote control. WG, 152

Pass Labs XP-25
\$10,600

www.passlabs.com

In reviewing this gem from Wayne Colburn of Pass Labs, AHC said: “Every time I feel that analog electronics have reached the point of diminishing returns, and I should invest only in speakers or my front-end equipment, some one goes out and proves me embarrassingly wrong. There always is another advance out there that brings you closer to the music, and that almost compels you to listen.” The Pass XP-25 is just such a breakthrough. AHC, 208

www.theabsolutesound.com

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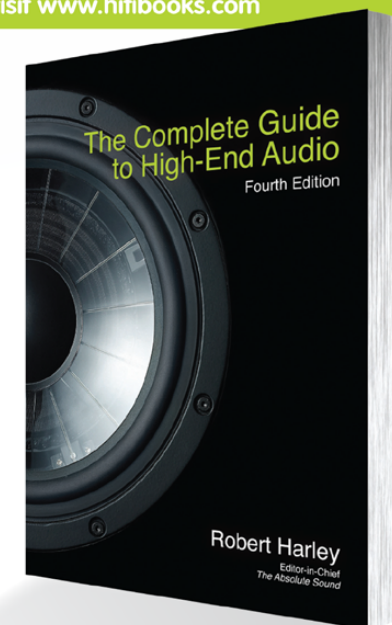
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Simaudio Moon 810LP

\$12,000

www.simaudio.com

Beautifully built, highly versatile in loading and gain, and bargain-priced in today's phonostage market, the Moon 810LP offers dead-quiet backgrounds that allow recorded details to be reproduced in their full glory, with a transparency that fosters the impression of hearing back to the original musical performance and a complete lack of a common sonic signature on different-sounding discs. It's also extremely dynamic and open, and its treble is highly detailed and lively without ever sounding bright. RH's current reference. RH, forthcoming

Audio Research Reference Phono 2 SE

\$12,995

www.audioresearch.com

When it comes to phonostage preamplifiers, ARC has perhaps the most distinguished pedigree of all high-end companies. With the Ref Phono 2, it outdid itself, producing the single most natural-sounding phonostage in company history. The new SE version, with doubled power-supply capacitance, is even better, with higher resolution of inner detail (both musical and spatial), superior imaging, greater dynamic range, and denser tone color top to bottom. ARC has

replaced a classic with another classic. JV, 229

Constellation Perseus

\$24,000

www.constellationaudio.com

Designed by John Curl, the Perseus is one of the most lifelike transistor phono preamps JV has auditioned. Capable of feats of resolution undreamt of by analog hounds, the Perseus not only resolves more information than any other phonostage JV has tested, it resolves it without spotlighting those details by leaching away their tone color. Like all of Constellation's Performance Series products, the Perseus does a standard-setting job of balancing extraordinarily high resolution and transient speed with extraordinarily beautiful (when the record is beautiful) timbre. JV, 223

Soulution 750

\$25,000 (\$32,500 with 750PSU power supply)

www.axissaudio.com

If JV were in the market for an ultra-high-end solid-state phonostage, this gem from Switzerland would be one of the first he'd consider. Like all of Soulution's gear, it is a paragon of resolution and transparency, boasting the same ultra-high-bandwidth, vanishingly low

distortion, extremely neutral balance, and ultra-fast transient response as Soulution's 720/721 linestages and 700/710 amplifiers. If you already own a Soulution preamp, you can power the 750 via a supplied umbilical rather than the optional \$7250 outboard supply. JV, 204

Technical Brain TEQ-Zero EX

\$58,000 (\$10,500 for TMC-Zero step-up transformer)

www.ratocsystems.com

With gain fixed at 40dB the TEQ-Zero EX is essentially a moving-magnet phonostage. Technical Brain makes an excellent step-up transformer, the TMC-Zero, for low-output moving coils. But the TMC-Zero costs a lot—\$10,500—loads cartridges down, requires balanced input and output cables, and will only accommodate one cartridge at a time. So why is JV recommending the TEQ-Zero EX/TMC-Zero? Because with an appropriate transducer, this phonostage/step-up combo (like all Technical Brain products) is extremely transparent to sources, extremely high in resolution top to bottom, and extremely beautiful sounding (source permitting). Review forthcoming

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