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GUIDE TO
INTEGRATED AMPLIFIERS

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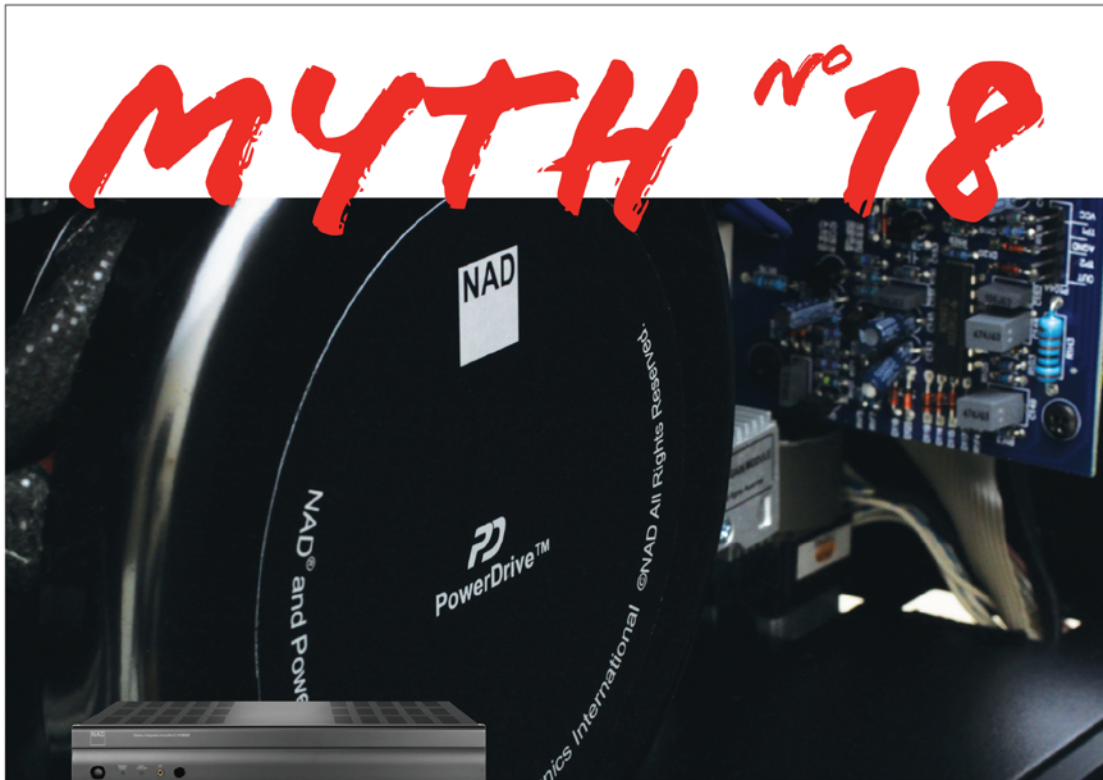


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DIRECT DIGITAL

The End of Analog?



Great Myth N°18

All amplifiers are made the same

At NAD, we don't design amps from the same template. But we do take the best of our knowledge and apply it in new ways. A closer look at our C 375BEE Integrated Amplifier proves this is no run-of-the-mill amp—it's a powerhouse design utilising technology from our premium Masters Series. We've taken our innovations and proprietary components, including PowerDrive, Distortion Cancelling Circuit, BEE Clamp, Modular Design Construction (MDC), and shrewdly built them into one weighty amp.

No wonder we don't think all things are created equal.

For more information on the C 375BEE, visit www.NADelectronics.com



Class D amplification has existed for decades, yet music lovers still preferred the performance of linear Class A and Class AB amplifiers. Class D amplifiers lacked the inner detail and dynamic ease of the best linear amplifiers, and the high efficiency benefits, were not enough to overcome the performance deficit. That is, until the NAD M2 Direct Digital Amplifier turned the audio world on its ear. A brand known among audiophiles for being contrary to the norms, NAD approached its M2 design with the outrageous idea of building The Perfect Amplifier, digital or otherwise.

The M2's technology is a departure from previous Class D designs, most of which are actually analog switching amplifiers. The M2's Direct Digital architecture is a breakthrough in digital audio, directly converting the digital bitstream into signals driving loudspeakers, bypassing the non-linearity of analog circuits. One of the strongest attributes of a true digital amplifier is the ability to take a digital PCM signal directly, thus avoiding multiple conversions and amplifying stages present in all analog designs. With fewer internal amplification stages to degrade the sound, the M2 maintains the purest signal path ever possible. The M2 is capable of delivering enormous power—over 250 watts continuous power to each of two channels, and over 500 watts of dynamic power. NAD's engineers also focused on the fine details of music, revealing startling detail in even the quietest of passages.



The M2 also breaks ground by being the first to implement high-speed error correction. The M2's architecture reads any deviation from its 'reference PWM' signal as an error. It then processes the error information, compensating at an imperceptible 9 trillionths of a second, delivering as true a signal as possible to the loudspeaker.

The M2 ingeniously replaces the need for additional components, serving as three high performance components in one—a power amp, distortion-free preamp, and a cutting-edge digital-to-analog converter (DAC). The M2 will still accept an analog signal via its on-board ADC, but it is with the digital signal that it really flexes its muscles. While vinyl is seeing its own renaissance as of late, digital recordings have matured to a level that only the M2 is capable of fully capturing. Ushering in a new age of high definition digital music, such as 24bit/96kHz FLAC downloads, the M2 when paired with a media server and loudspeakers, brings us one step closer to absolute sound.

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GUIDE TO

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FROM THE Editor

Welcome to our latest Buyer's Guide, this one covering the red-hot field of integrated amplifiers. We bring you full reviews of 28 integrated amplifiers priced from \$399 to more than \$20,000, a feature article ("The Integrated Amplifier Comes of Age") packed with the information you need before you go shopping, and On The Horizon, a sneak-preview of soon-to-be-released integrated amps.

So why is the once-prosaic integrated amplifier suddenly such a hot category? There are several reasons. First, manufacturers have realized that a high-quality integrated amplifier, with one chassis, makes sense for many music lovers. Consequently, they have packed integrated amplifiers with their best parts and with circuitry that was once reserved for their expensive separates. Today's best integrated amplifiers offer sound quality comparable to many separate preamplifier and power amplifier combinations. Second, an integrated amp gives you more bang for your buck. With one chassis, one power supply, and one shipping carton, the integrated amplifiers delivers more performance on a dollar-for-dollar basis than similarly priced separates.

Another reason is that today's integrated amplifiers offer a host of features unimaginable just a few years ago. Some integrated amps have built-in USB DACs, allowing you to simply connect a computer and have a ready-made music-server-based playback system. Others have front-panel jacks for connecting personal portable music players and even iPod docking ports that tap into the iPod's digital bitstream. This last feature replaces the iPod's compromised digital-to-analog converter and analog-output stage with higher-quality circuitry.

Whatever features you opt for, you're sure to find just the integrated amplifier you're looking for in our Integrated Amplifier Buyer's Guide.

Robert Harley

Click here to turn the page.

The Integrated Amplifier Comes of Age

Robert Harley

The integrated amplifier, a component that combines in the same chassis a preamplifier and power amplifier, has undergone a remarkable transformation in the past decade. 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 \$1000–\$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 integrated 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 integrateds also boast technologies found in upper-end preamplifiers, such as discrete-resistor stepped attenuators, a discrete Class A input stage, and fully balanced operation.

In short, the integrated amplifier is no longer a compromise for music lovers on a budget. Instead, today's integrated amplifiers can be the heart of a high-quality music system.

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 integrateds 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 integrated amplifier's digital-to-analog converter. The latter approach replaces the iPod's compromised DAC and analog output stage with the integrated amplifier's superior circuitry.

Other useful features on integrated amplifiers 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 integrated amplifier as part of a home-theater system. This switch, or sometimes a dedicated input, sets the integrated amplifier at a fixed gain (the volume control is disabled) so that you calibrate the channel levels with an AV controller and maintain that calibration.

With that introduction, let's take a look at some terminology you'll find in the integrated amplifier reviews in this special Buyer's Guide.

Watt: A unit of electrical power. Power is the ability to do work; in this case, the ability of the amplifier to make a loudspeaker's diaphragm move.

Power Output: The maximum amount of power the amplifier can deliver to the loudspeaker, measured in watts.

Load: In power-amplifier terminology, a load is the loudspeaker(s) the power amplifier must drive.

Tubed: A tubed power amplifier uses vacuum tubes to amplify the audio signal.

Solid-State: A solid-state power amplifier uses transistors to amplify the audio signal.

Linear Amplifier: A traditional amplifier in which the output transistors (or tubes) amplify a continuous analog waveform. (Compare with a switching amplifier.)



Switching Amplifier (Class D): A power amplifier in which the output transistors turn fully on or fully off. (Compare with a linear amplifier.)

Single-Ended Amplifier: A power amplifier in which the output device (a tube or transistor) always amplifies the entire musical waveform. (Compare with "push-pull.")

Push-Pull: A power amplifier in which pairs of output devices (tubes or transistors) alternately "push" and "pull" current through the loudspeaker, with one output device amplifying the positive half of the waveform, another output device amplifying the negative half of the waveform. (Compare with "single-ended.")

Class A: A mode of amplifier operation in which the amplifying device (tube or transistor) amplifies the entire musical waveform.

Class A/B: A power amplifier that operates in Class A up to a small fraction of its output power, and then switches to Class B operation.

Hybrid: A power amplifier combining vacuum tubes and solid-state devices. The input and driver stages are usually tubed, the output stage is usually solid-state.

Bi-amping: Driving a loudspeaker's midrange and treble units with one amplifier, the woofer with a second amplifier.

Digital Integrated Amplifier: An amplifier that takes in a digital, rather than an analog, audio signal. The digital signal is converted to a stream of pulses that turn on and off the output transistors. Not to be confused with a switching amplifier, the true digital amplifier operates entirely in the digital domain, converting PCM-encoded digital audio from a CD transport or music server to the stream of pulses that turn on and off the output transistors.

Excerpted and adapted from *The Complete Guide to High-End Audio* (Fourth Edition). ©2010 by Robert Harley. hifibooks.com

ON THE HORIZON

Upcoming Products

Neil Gader



Aaron No. 1.a

The Aaron No. 1.a is the successor to Aaron's popular, long-running No. 1 integrated amplifier. A solid-state design from Germany, the No. 1.a delivers 95Wpc into 8 ohms and 160Wpc into 4 ohms. The front panel includes an input selector, a 64-step volume control with a standby function, and a blue two-line LCD display. The rear panel offers six sets of gold-plated RCA inputs, a tape output, a processor loop, and a preamp output for bi-amping with a second amplifier. An infrared remote control milled from a single block of aluminum is also supplied. Available in brushed aluminum in Aaron silver or in a handsome night-black shade, the No.1.a can also be had in other colors upon request at an additional charge. For the eco-conscious, Aaron Series components are manufactured to conform to emerging new Green Market standards and comply with the Restriction on Hazardous Substances (RoHS) directive for electronics.

Price: \$5500.

audioimports.com



NAD C 356BEE

The NAD C 356BEE is the latest integrated amplifier in the Classics Series to benefit from NAD's flagship M Series innovative Modular Design Construction (MDC). MDC offers significant advantages, but primary among them is the ability to future-proof the unit as more advanced features are made available via plug-in modules—like the currently available PP 375 phono stage module. The fully remote-controlled C 356BEE outputs a hefty 80Wpc and is equipped with NAD's well-known Soft Clipping feature and PowerDrive circuit, renowned for its extended dynamic capability and control. Standby usage is a meager 0.5W. The back panel houses five analog inputs, a pair of pre-outs, RS232 and IR ports, and a front-panel mini-jack for portable music players.

Price: \$900.

nadelectronics.com

ON THE HORIZON - Upcoming Products

Micromega IA100 and IA180

The simplicity of slim-line elegance is a hallmark of Micromega's powerful IA100 and IA180 integrated amps. Outputting 100Wpc and 180Wpc (into 4 ohms) respectively, both components have Class D power modules (a pair of UcD180HG for the IA180) and dual-mono power supplies. Rather than using off-the-shelf components, Micromega's development team designs its own custom transformers—an R-Core for the preamp section and a toroidal for the amp stage. Both IA models share the same input card and a back panel with four analog inputs, a processor input, and a subwoofer I/O for 2.1-channel control. A phono stage is standard equipment for vinyl aficionados. There's also a front-panel headphone jack supported by its own small stereo amp, an advantage that permits even low-impedance headphones to perform their best.

Price: \$1795 and \$2495.

audioplusservices.com



Vitus Audio SIA-025

Danish-based Vitus Audio's SIA-025 is the rare switch-hitter in this segment: a no-holds-barred integrated designed to output 25Wpc of pure Class A power or 100Wpc in Class AB mode. But prosaic power output numbers don't begin to tell the story of the SIA-025. Vitus Audio's massive, custom-designed power transformers provide hitherto unachievable voltage stability, which makes for the highest levels of sonic transparency and resolution for music reproduction. As per Vitus Audio practice, unique chassis colors are available as an option to compliment any décor.

Price: \$18,000.

vitusaudio.com

Lindemann Audio 882

The 882 represents a radically new approach in circuit design, layout, and component selection. At 160Wpc into 8 ohms and 320 into 4 ohms, the 882 features dual-mono power supplies, a push-pull output stage, intelligent bias adjustment, and direct current drive. The 882's output stage uses eight output transistors per channel in a push-pull arrangement. The amplifier's true, fully balanced signal-processing circuit employs two complete amplifier sections per channel—one for the positive and another for the negative signal. Each channel is equipped with its own 400W transformer with a 76,000-microfarad (μ F) reservoir capacity—an ideal formula for great channel separation and a spacious 3-D listening experience. Connectivity is comprehensive and includes two pairs of XLR line inputs, three pairs of RCA inputs, two RJ45 SYSCOM inputs, and a remote control.

Price: \$15,000.

lindemann-audio.de



ON THE HORIZON - Upcoming Products

Simaudio Moon 600i

The stunning new Moon 600i is the long-awaited replacement for the vaunted Moon i-7. A fully balanced differential dual-mono design, with no overall feedback, it delivers 125Wpc into 8 ohms, doubling that figure into 4 ohms. Like Simaudio's latest Moon 700i flagship it offers the user the formidable M-eVol2—a 530-step volume control adjustable in fine 0.1dB increments. Other innovations include Simaudio's Lynx amplification circuitry, and the Simlink controller port for two-way communication with other Simaudio gear. There's also M-Lock for user-selectable gain settings for each input, and both RS232 and IR ports for external control. A vivid-red character display and full remote control are standard.

Prices: \$8000.

simaudio.com



Resolution Audio Cantata 50

Gorgeous is the only way to describe the organic, low-profile design of Resolution Audio's Cantata 50 integrated amplifier (the Music Center is its companion CD/USB-DAC player). Derived from the well-regarded Opus 21 s30, its 50Wpc amplifier section is a discrete design using an FET output stage and aimed at efficient, highly resolved systems. Key design elements include four-terminal T-network capacitors, eddy-current reduction techniques, and feedback compensation optimized through network analysis and listening tests. It features a precise 0.5dB-step analog attenuator, two RCA inputs, and two balanced XLR inputs. The Cantata 50 includes a remote control for volume, input select, and display intensity, and Resolution Audio's unique "Cantata Link" to Music Centre for system integration.

Price: \$4000.

resolutionaudio.com

ON THE HORIZON - Upcoming Products



Chord Cyan Click

The Chord Cyan Click represents one of the most elegant, innovative, and compact packages in the integrated amp segment. It offers 80Wpc (into 8 ohms) Class D amplification with RCA and XLR inputs, plus an array of digital inputs including USB as well as Bluetooth wireless connectivity for A2DP-enabled phones, digital assistants, and personal computers. With Chord's own custom-designed digital Bluetooth receiver, sound quality is on another level compared with typical A2DP Bluetooth. The integral DAC manages the datastream from the three digital inputs, all of which can be used at the same time. The USB port can be hooked up to a PC and will be integrated seamlessly as an audio device by the operating system.

Price: \$7995.

chordelectronics.co.uk bluebirdmusic.com



Perreux éloquence 150i & 250i

Perreux has long been known for excellence, innovation, and power in the electronics field. And true to form its latest integrated offerings, known as eloquence, are consistent with that tradition. At 250Wpc, the 250i is one of the more powerful integrated amps available and the eloquence 150i is no slouch with 150Wpc. (Both units double these figures into 4 ohms.) Much of the credit goes to the Perreux's MOSFET output devices, low impedance power supplies, and custom-designed, high-current toroidal power transformers. Options available with each include 24-bit/192kHz DAC modules (specifically designed for use with the CDt compact disc transport) and mm/mc phono modules. The massive, high-grade construction and quality of controls are entirely consistent with amps competing in this premium segment. A highly intuitive user interface controls an extensive list of features and affords seamless integration.

Price: 150i, \$5495; 250i, \$8995.

perreux.com fidelisav.com



April Music Aura Groove

The whimsical retro-modern styling of the Aura Groove is by renowned British industrial designer Kenneth Grange. However, don't let the Aura Groove's mirror-polished, low-slung appearance fool you. While it conjures up classic analog traditions, it also taps today's digital advances with iPod docking at the rear panel plus a handy mini-USB input to accept a USB-DAC for hard disc playback via PC or Mac. The Aura Groove outputs a hefty 75Wpc of Class AB MOSFET power and uses a Cirrus Logic digital volume control. Back-panel connectivity is formidable for such a small chassis with four analog inputs, including a balanced XLR. A soft-touch remote control is included.

Price: \$2375.

aprilmusic.com mayaudio.com

PSB IMAGINE

psb
SPEAKERS

TWO BRAINS ARE BETTER THAN ONE.

PSB joins forces with NAD for new subwoofer design.



PSB Speakers recently partnered with its sister company, NAD Electronics, to usher in a new era of subwoofer design for the company.

NAD has long been well regarded for its high performance amplifiers, while PSB has built a solid reputation among reviewers and consumers for subwoofers with deep bass and musicality. PSB's partnership with NAD is a natural fit, as both companies share the same philosophy of developing high performance products with unmistakable value.

PSB's new SubSeries 300 is the first in a line of subwoofers to be powered by a highly efficient, customized NAD amplifier. PSB engineers also incorporated trickle-down technology from the company's top-of-the-line SubSeries 500, including proprietary "smart bass" limiting circuitry to avoid audible overload. The SubSeries 500 recently received the EISA Award for best European HT Subwoofer 2010-2011.

The latest line of PSB subwoofers represents the company's commitment to energy saving designs with NAD's highly efficient Class D discrete MOSFET amplifiers, as well as a redesigned power supply that dramatically reduces standby power consumption to less than 0.5 watts. For the SubSeries 300, the NAD amplifier is capable of producing 850 watts of peak dynamic power, 425 watts of dynamic power, and 300 watts of continuous power (at <math><0.08\%</math> THD). In addition, PSB

engineers made great strides in the woofer design by utilizing FEA (finite element analysis) software and Klippel's sophisticated Distortion Analyzer System to minimize distortion. The SubSeries 300 features a 12-inch woofer that easily produces low frequencies thanks to its polypropylene cone, butyl rubber surround, high-power 50mm voice coil, and huge 50oz magnet for greater woofer sensitivity and damping.

Relatively small, streamlined cabinet designs with internally and externally radiused down firing ports will also be features of PSB's new subwoofers. Port noise is almost non-existent in the SubSeries 300 with its large 75mm diameter down firing port. The SubSeries 300 is matched to PSB's recently revamped Image Series speakers, but will also perform well with other high performance speakers, including the company's own Synchrony, Imagine, or Alpha Series speakers.

PSB engineers have drawn on many years of experience and analysis in subwoofer design to create this next generation of NAD-powered subwoofers. With their combined 80 years of experience in developing award-winning, well-reviewed products for music lovers, PSB and NAD's new partnership is a sign of great things to come.

“More importantly for the Imagine T is that PSB has surpassed its traditional high sonic standards at a price that bests even PSB's reputation for affordability. No wonder it was just named a TAS Product of the Year. Imagine that.”

— Neil Gader, *The Absolute Sound*

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Paul Barton

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www.PSBSpeakers.com

EQUIPMENT REVIEWS

Integrated Amplifiers Under \$800



Cambridge Audio Topaz AM10 Integrated Amplifier and CD10 CD Player

Semi-Precious

Neil Gader

Cambridge Audio has engineered some of the most consistently well-reviewed electronics this magazine has covered. Very recently I fell *hard* for the elite Cambridge Azur separates, the 840E preamp and 840W amplifier [Issue 186]. Editor-in-Chief Robert Harley was over the moon for the Azur 840C CD player [Issue 174], and *Playback* Editor Chris Martens was smitten by the Azur 840A integrated amp [Issue 167]. Surely something had to give. Every team has an under-performer, right? The .200 hitting percentage benchwarmer? At least this is what I was thinking as I unpacked the \$399 AM10 integrated amplifier and the identically priced CD10 compact disc player, key components in Cambridge Audio's new entry-level Topaz line. Would these be worthy of making the starting lineup or simply end up being the proverbial swing and a miss?

Cambridge Audio considers its Topaz components its “basics” range. Beyond the 35Wpc AM10 integrated amplifier and the CD10 CD player reviewed here, there is the SR10, a stereo receiver with 85Wpc priced at \$549. With Topaz, clearly Cambridge is targeting the prime sub-\$700 territory—NAD country. In fact you might say Cambridge is making a BEE-line in that direction.

TOPAZ AM10

Generally speaking the high end is not a very inviting place for gear of modest means. I can't tell you how many times I've brought friends around and invariably they'll look right past a humble little amplifier like the AM10. But there's a long history of little amps that have been hugely underestimated.

The AM10 might be a “just the facts, ma'am”

integrated but it's hardly undernourished. Its brushed aluminum exterior and thick front panel are inviting and stylish. Judging by its surprising heft there's a pretty good size toroidal transformer inside too. The back panel houses five pairs of RCA inputs, and there's even a built-in phonostage for moving magnet or high-output moving coils. A nice touch given the selection of budget turntables and superb LP reissues currently available. Tone and balance controls are software-driven via the setup menu—sadly, no tone bypass though. And there is a front-panel headphone jack and mini-jack for a personal audio player. The AM10's display is easily readable and gives full source and volume feedback. Finally, a nicely featured remote is supplied and able to control both amp and CD player.

Okay, 35Wpc doesn't sound like a lot of power. But let's put this in context. Amps only know they're small in a big room or with the wrong speaker. Shackled to a low-sensitivity

loudspeaker in a palatial listening room and urged to perform routinely in the 95dB+ range, we would indeed have a Houston-level problem. But that's not the AM10's job description. The AM10 exists for the smaller application—to provide high-level musicality in tighter confines.

In that context, the AM10 does a great many things right. It throws a spacious soundstage with solid depth retrieval and a locked down central image on vocals. It's strongly midrange weighted with a gradual softening of response as it inches toward the frequency extremes. I very much liked what I heard with Kissin's piano during *Pictures at an Exhibition*, quick but not strident on top with realistic resonant cues. And Arturo Delmoni's violin possessed an even balance that to my ears touched all the right harmonic and timbral bases. Both the AM10 and the CD10 comported themselves with a blend of presence and tonal honesty that is more consonant with high-end ideals than blue-plate values.



EQUIPMENT REVIEW - Cambridge Audio Topaz AM10 Integrated Amplifier and CD10 CD Player

Obviously there are limitations. In dynamics and low-frequency extension the AM10 is no piledriver. Headbanger rock—like the reissue of Pantera’s *Vulgar Display of Power* [Atco], to be reviewed in our next issue—makes clear that guitar and percussion transients are a bit suppressed. The AM10 shows a little too much character in its drier upper register. I found the harmonized vocals during Linda Ronstadt’s performance of “Blue Bayou” (from the recent Mobile Fidelity reissue of *Simple Dreams*) to be a touch brittle without the elbow room the collective voices typically have. Likewise, Clark Terry’s trumpet on *One on One* [Chesky] has a whiter signature in its upper octaves. You can hear a little bit of the AM10’s electronic fingerprint in the acoustic space around the musicians and, at times, the imaging among players seems a little more vague and the orchestral layering less than distinct. Mostly I missed what you shell out the big bucks for—that ethereal cushion of air that underlies, embraces, and immerses the listener in a well-recorded acoustic performance. Listen to the Ray Brown Trio’s take on “Cry Me a River” from *Soular Energy* [Groove Note], and you’ll know I’m not jiving.

To get the most out of the AM10, the amp/speaker match-up is everything. It’s a truism that if you don’t have a lot of power on tap, head for a speaker that thrives on the output you have. A compact like the PSB Alpha B1 is a winner, and some offerings from B&W, Paradigm, Focal, Rega, or Triangle would be great choices as well. The AM10 will thrive with a warmer speaker—one with controlled midbass support and a relaxed top-end. It’s a blue-plate value that won’t leave you asking for seconds.

TOPAZ CD10

Source components will perform pretty much up to spec in any setting. This is in contrast to amplifiers, which mandate a synergistic relationship with a loudspeaker to perform at a peak level. The CD10 compact disc player did not disappoint. It made an instant connection with me and quickly left its entry-level origins in the dust. Like the AM10 it’s a back-to-basics machine. It may not upsample to 384kHz/24-bit or possess the dual-differential DACs of the Azur 840C, but the CD10 still has its share of “go-fast” gear. It packs the formidable Wolfson 8761 DAC and a convenient S/PDIF output for driving an outboard DAC, and uses double-sided surface-mount boards to shorten signal paths. Nice. Operation is smooth, although the drawer of this front-loader is a little sluggish. No biggie.

From the first disc to the last the CD10 went about its business without a hitch. Tonally neutral but with a slightly forward middle range, it has enough smoothness and detail to make you think you might have stolen something. Some players convey a flatness, perhaps best described as a lack of color or rhythmic energy. But this player just had an engaging liveliness that kept me focused on the music rather than the clock. On Diana Krall’s cover of “A Case of You” from her *Live in Paris* disc [ORG], I could immediately settle in and enjoy the quickness and transient speed that underscores the electric moments unique to well-engineered, live recordings—right down to the occasional microphone clipping when she nails a piano key a little harder than anticipated.

Even in the face of a daunting reference player like the Audio Research CD-5 the CD10 hardly capitulated. True, the CD10 reveals a character

that’s a little lightweight in bass presentation with a slight veiling overall. A signature that creates a gentled-down presence and one that tends to overly smooth the sonic tableau—and, as in the example of Krall’s piano, to slightly reduce the expressiveness of keyboard transients and cap the largest dynamic swings. But even tasked with feeding source material to a speaker like the \$37k TAD CR-1, its subtractions are essentially benign. On the Norah Jones cover of Hank Williams’ “Cold Cold Heart,” those subtractions mostly involve a hint of treble dryness on the vocal and a less expansive, layered, and reverberant acoustic. The CD10 won’t plumb the complex harmonic waters of the stand-up bass on this track as deeply nor will it reveal the full extent of the transient attack off the string—that distinctive flutter and ripple. And, on “The Nearness of You” from the same Jones’ album *Come Away With Me* [Blue Note], the solo piano’s resonances seem to bump up against the virtual walls of a narrowed soundstage. However, this is what it frequently comes down to with digital—a constriction of openness, a reduction of that almost subconscious sense of dimension and bloom that analog seems to effortlessly provide. That the CD10 allowed me to bridge the digital/analog divide to the extent that it did, and do so for the price Cambridge is asking, is tribute in and of itself. Truly Topaz’s little gemstone.

Both Topaz rookies are rock-solid units that provide a rewarding array of the musical thrills and finesse you’d expect when getting started in the high end. No little leaguers here. And the Topaz CD10 is a real standout—a potential MVP. But the season is young and competition is keen in this segment. However, with Topaz dialed in, Cambridge’s latest hitting streak remains unbroken. **tas**

SPECS & PRICING

Topaz AM10 integrated amp

Power output: 35 watts (into 8 ohms)
Frequency response: (-1dB) 5Hz-50kHz
Inputs: Five plus phono, one 1/8" mini-jack
Dimensions: 3" x 17" x 13.4"
Weight: 12.3 lbs.

Topaz CD10 CD Player

Inputs: One pair RCA
Outputs: One digital coaxial
Disc formats: CD-DA/CD-R/CD-RW/CD-ROM
 MP3/MP3 Pro/WMA
Dimensions: 3.35" x 17" x 12.2"
Weight: 9.5 lbs.

U.S.

Topaz AM10 integrated amp
Price: \$399
Topaz CD10 CD Player
Price: \$399

AUDIO PLUS SERVICES

156 Lawrence Paquette
 Industrial Drive
 Champlain, NY 12919
 (800) 663-9352
 audioplusservices.com
 cambridgeaudio.com

U.K.

Topaz AM10 integrated amp
Price: £169
Topaz CD10 CD Player
Price: £169

CAMBRIDGE AUDIO

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NAD C326BEE Integrated Amplifier

NAD C545BEE Compact Disc Player

The Best-Selling Amp in High-End History Just Got Better

Paul Seydor

The BEE of NAD's BEE series of components pays homage to its designer Bjorn Erik Edvardsen, who also designed the storied 3020 integrated amplifier that put the company on the map three decades ago. Introduced only a few years after Crown and Bob Carver at Phase Linear had begun to pioneer really high-powered amplifiers, the 3020 was rated at a mere 20 watts per channel. By no means wholly accurate or neutral in tonal balance and far from the last word in transparency or transient attack, it nevertheless had an engaging personality: sweet on top, warm in the midrange, plummy on the bottom, easy on the ear because always musical and surprisingly dynamic owing to some ingenious electronic circuitry that continues in the new model (see sidebar).

As solid a performer as the 3020 was, I've always felt its popularity—with some 1.4 million units in the field world-wide, NAD claims it's the highest selling amplifier in audio history—owed to a combination of low price (introduced at less than \$200, it topped out, I believe, at \$219 in the early eighties), a brilliant marketing strategy, and a key—at the time unique—design feature that had nothing to do with sonics as such. The 3020 was initially sold almost exclusively through genuine high-end or otherwise “quality” dealers, so it quickly acquired an audiophile reputation as *the* integrated amp of choice for those strapped for cash and wanting to put their money where

it counted most, in record-playing setups and speaker systems. What cinched the deal was that Edvardsen had the uncommon good sense to make the preamp-out/power-amp- in jacks accessible on the back panel, connected by removable jumper jacks.¹ It thus became possible to use an integrated amp to bootstrap your way toward later electronics purchases, which is exactly what I did when, as an impecunious professor of literature just starting out in Los Angeles in the late seventies, I traded my DCM Time Windows for the murderously inefficient Acoustat 2 electrostatics. The preamp section of my 3020 was fed into a kit-built Hafler DH200.



When I eventually acquired a better preamp, the 3020 was pressed into integrated use again as the nucleus of my office system.

NAD has come a long way since then, branching out into separates, a prestige line of components, compact disc and DVD players, and home theater. Yet it has never abandoned its core commitment to value-driven products that

offer a combination of excellent performance and sensible pricing. Under review here are the C326 integrated amplifier and C545 CD player, priced at \$499 each. It took only a few moments of listening to be reminded that a lot has changed in the past thirty years when it comes to amplification, all of it for the better. Banished is the 3020's warm, somewhat veiled personality, mandated back

EQUIPMENT REVIEW - NAD C326BEE Integrated Amplifier NAD C545BEE Compact Disc Player

TECHNICAL STUFF

The C326BEE is a full-featured unit with four line-level inputs, monitor facilities, switchable tone controls (that work really well, by the way), front-panel MP access, separate amp/preamp operation, and remote handset (that will also operate the C545), which means it can serve as the brains of a complex two-channel system. Greg Stidsen, NAD's Director of Product Development, told me that three Edvardsen-designed circuits contribute to the amp section's remarkable dynamic performance. The "soft-clipping" circuit monitors the output so that as clipping approaches, the power-supply rail limits output while allowing a moderate amount of benign overdrive. The "power-drive" circuit, based on Peter Mitchell's studies of how much power is actually needed to replay music at natural levels, optimizes the output devices for high-current delivery; a second winding on the power transformer monitors output current, output voltage, and temperature to provide enough current on a short-term basis (e.g., 40

to 50 milliseconds) to handle large transients. Finally, "while most class A/B amplifiers use the output stage as a current dumper, in the 'distortion-cancelling' circuit Edvardsen configures the output transistors to provide a small voltage-gain to which is added a local feedback-loop that reduces distortion even lower, to around 0.005 percent." Stidsen told me he doubts that any amplifier, regardless of design type, size, or expense, of fifteen to twenty years ago could match the noise and distortion specs of this one. I'm inclined to agree. Make no mistake: These circuits do not work miracles. If loud sustained levels over inefficient speakers are demanded, then a far more powerful amplifier will be required. But I doubt that any serious music lover who plays back at natural levels will need louder, cleaner levels than the C326 can deliver in normal-sized rooms, which means you'll have a lot of money left over for better speakers, better source components, or more music. That's smart economy. **PS**

then by the limitations of solid-state technology at low price-points, in its place a thoroughly neutral tonal balance, a considerably more transparent window onto the presentation, and far more control and authority.

Richard Goode's Beethoven sonatas left me in stunned disbelief by how much 50 really intelligently designed watts per channel could bring my low-sensitivity Quad 2805s to life. Goode's

Waldstein, without in any way sacrificing nuance and delicacy, is a powerhouse performance, nowhere more so than in the thundering coda to the last movement, which filled the room to a nearly lifelike level. Extraordinary dynamic range from seemingly limited power has always been a specialty *chez* NAD, and the C326 continues to uphold a proud tradition.

During the review period my wife and I attended

Siegfried at the LA Opera. The next day I couldn't resist comparing the disappointing forging song we heard there with the Solti recording. Even after forty years John Culshaw's production remains a sonic milestone. He went through the trouble of procuring the tuned anvils that Wagner specified, Horst Berger, the Vienna Philharmonic's chief percussionist, doing the pounding so that Wolfgang Windgassen could give all his energy to the singing. Consider everything that's going on here: a full Wagnerian—that is, augmented—orchestra, a percussionist hitting anvils with a sledgehammer, a heldentenor singing at the top of his lungs as he forges a weapon from the shattered remnants of his grandfather's spear, a hysterical scheming dwarf running about, the whole thing staged for the gramophone, which, this being a Culshaw production, means filling up every corner of the soundstage (*Siegfried* is placed back and center). No matter what was asked of it, this little amplifier delivered the goods at levels as loud as I could stand. I won't claim it was the last word in ultimate control and composure, but nothing ever fell apart, my attention was never diverted from the drama, and the soundstaging was superb. Most of the time, even over very good equipment, the sound of the anvil will momentarily overwhelm the orchestral chords, but the NAD held fast, the low brass that provide the foundation clearly audible.

Confronted with a relatively low-powered amplifier, one's first inclination is always to test its mettle with the big stuff. But in fact I began by hooking it up to my original Quad ESL-57s (Wayne Piquet restored) and playing some early Peter, Paul, and Mary, Mary Travers having just passed away. There was a time in my youth when I thought

hers the most beautiful voice I had ever heard: The C326/57 combination recalled that sentiment and took me back to that time. As for resolution and

SPECS & PRICING

C326BEE integrated amplifier

Output power: >50Wpc into 8 ohms, 20-20kHz, 0.009%THD

IHF power: 100Wpc into 8 ohms, 150Wpc into 4 ohms, 200Wpc into 2 ohms

Inputs: Four single-ended, two tape

Dimensions: 17 1/8" x 4" x 14 1/4"

Weight: 15.2 lbs.

C545BEE compact disc player

Frequency response: 5Hz-20kHz +/-0.5dB

Dimensions: 17-1/8" x 2-3/4" x 11-1/4"

Weight: 10 lbs.

U.S.

C326BEE integrated amplifier

Price: \$499

C545BEE compact disc player

Price: \$499

NAD ELECTRONICS INTERNATIONAL

Pickering, Ontario, Canada
nadelectronics.com
(905) 831-6555

U.K.

C326BEE integrated amplifier

Price: £329

C545BEE compact disc player

Price: £329

ARMOUR HE

Units 7 & 8, Stortford Hall Industrial Park, CM23 5GZ, England
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EQUIPMENT REVIEW - NAD C326BEE Integrated Amplifier NAD C545BEE Compact Disc Player

detail, I don't know of many more demanding tests than the whispered directions Bernstein gives to the orchestra in his magnificent recording of the Op. 131 with the Vienna Philharmonic. Whether on old or new Quads, the NAD revealed them all.

Is it a perfect amplifier? Of course not. In ultimate terms, depth seems to me a little foreshortened; and though it is in the main very neutral—much more so than any of several far more expensive units I can think of—there is a *slight* dark cast overall, a tilting toward the Yin. This doesn't concern me much—truth to tell, it's even rather attractive (and some would argue more accurate to reality)—but if your system leans in that direction, an audition might be prudent. Otherwise, no reservations whatsoever.

If I seem to be slighting the CD player, I guess I am because...well, let me put it this way: If the C326 cost four times its \$500 retail, my assessment of its value would remain pretty much the same. By contrast, the C545 is “merely” a very good \$500 CD player—solid, pleasing, nonfatiguing, its personality on the polite, even cautious side, never dreaming of making an unpleasant sound. The flip side of this is that it doesn't quite fully excite, engage, or enliven either. The *Waldstein* and Siegfried's forging song again. When I ran the output through the Benchmark DAC1, the dynamic envelope of the sonata's coda seemed to explode with a sheerly physical power that is simply lacking with the C545 alone. In the forging song, the bass foundation, so vital to the texture and sound picture of the *Ring* at this point, was deeper, weightier, and more involving, the whole soundstage of greater apparent volume, dimensionality, and especially bottom-end air.

Nor do the big anvil strikes momentarily cover the deep brass instruments.

The C545 is certainly good enough to warrant consideration, and the price calls for no complaints. But know that the C326 will readily reveal the improvement of something more expensive or, better still, the Benchmark either on an initial purchase or down the road.² With this new integrated amplifier, NAD proves again that lighting can indeed strike twice: In view of the superb performance, its low price feels like a gift. **tas**

¹ I can't say for certain that NAD was the first company to do this, but it was the first I am aware of.

² Perhaps needless to say, in the recent flurry of disagreement over the Benchmark between Robert Greene and Alan Taffel, I am firmly in Dr. Greene's camp: I'll put my DAC1 up against any DAC on the planet.

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Cambridge Audio Azur 550A Integrated Amplifier and Azur 550C CD Player

Azur Thing

Neil Gader

Cambridge Audio must employ mind readers. I know it's got my number. I feel as if Cambridge made the new Azur 550A integrated amplifier and the 550C CD player especially for me—took into account my listening expectations and connectivity considerations as well as my budget. I'm not paranoid, but someone was watching. But if you must know I don't mind that my privacy has been violated. My music and I are having too good a time.

Outwardly the Cambridge Audio Azur 550A and 550C—each priced at \$599—are the same handsome components they were in an earlier incarnation as 540v.2 models. But they've been revitalized with thicker brushed-aluminum front panels, a contoured wrap-around top plate, and no visible screws. Sweet. There are nifty new dual-layer damped feet that improve performance via resonance control. The front panel is coherently laid out around the central Bunyanesque volume control—actually an improved high-specification Alps volume pot designed for better tonal stability and channel balance at lower levels. A smaller balance wheel resides to its immediate right,

accompanied by a mini-jack for portable music players and a row of input pushbuttons, and to its left by bass and treble knobs, a tone control bypass, and headphone jack. Per Cambridge practice, the back panel features “downside up” input labeling for the majority of us who attach wires and interconnects by squinting over the back edge of the amp. As with its predecessor there's no option for an internal phonostage, but CA continues to offer the 540P and higher-gain 640P phonostages at \$109 and \$199 respectively.

The real story lies on the inside. There's a robust 60Wpc on tap thanks to the oversized



toroidal transformer and a redesigned output stage bristling with new high-current Sanken output transistors. There's also extensive use of WIMA polyester caps and metal-film resistors. The double-sided surface-mount technology reduces the signal path to a minimum. Additionally, Cambridge Audio's CAP5 protection technology has been fully updated and retuned.

The Azur 550C compact disc player retains the Wolfson WM8740 DAC, a select audiophile grade 24-bit/192kHz-capable converter. It also features a Cambridge in-house-developed audio-only transport (with a new bracing mechanism for rigidity) rather than the computer-

derived CD-ROM drives that are designed for data-streaming—a difference of significance for Cambridge engineers. This is accompanied by a new servo chipset and processor. There are an improved high-contrast display, dual user-selectable filters, and a digital output, too. Finally each unit is supplied with a newly designed Navigator remote control with a center thumbwheel, which unifies the amp and player and iPods docked with the optional Cambridge iD50 docking station. Furthering a commitment to greener power, Cambridge developed both units to be Energy Star certified by designing an ultra-low-power standby circuit that uses less

EQUIPMENT REVIEW - Cambridge Audio Azur 550A Integrated Amplifier and Azur 550C CD Player

than 1W.

As I cued up familiar reference music I was immediately entranced by the rich spectrum of audio criteria the amp was expressing. The midrange was richly detailed, with natural acoustic timbres and lower-midrange heft and transparency. But what really raised my eyebrows, conveying the weird sense that the amp was personalized for me, was its uncanny ability to grab a recording, lock in images, and mount a soundstage with unerring tonal balance and harmonic energy. Dynamically, this amp had legs. I revved up some of Metallica's "Nothing Else Matters" and even side-stepped the clutch for another chorus of Tom Waits' "Come On Up to the House." But, no dice. The amp lends a weight to recordings that belies its modest sixty watts. There's a sense of grandeur and scale and sophistication that is generally the hallmark of much larger uptown efforts.

It's worth noting that with 60 watts per channel speaker-matching is always a bit more perilous for an integrated like the 550A than for a fully-rigged flagship amp like CA's own 200Wpc Azur 840W. However even pressing up against an immovable object, which low-sensitivity loudspeakers tend to be, the Azur 550A never lost its composure or behaved out of character. Asking it to drive a Magico V2 might seem as insane as urging a team of chihuahuas to pull a sled in the Iditarod, but amazingly the 550A was more than game, exhibiting only minor sonic subtractions. Its character remained sweet and stable even though complex layers of images were a little less focused, dynamics softened, and the soundstage shorn of a portion of its manicured perimeters. My point here is not that the 550A is likely to be

matched with a Magico; rather it's a performer that still retains its musicality in the face of a very demanding high-resolution loudspeaker.

And there are a plentiful number of applicants who would easily perform their best driven by the Azur. Try the B&W 685, Focal 705V, or the one of PSB's new Image Series, particularly the shorter T5 tower for the full-range effect. But I also got terrific results with the new Verity Audio Finn, a three-way bass-reflex design that I'll be reviewing in a forthcoming issue. Although its sensitivity is listed at 91dB, the Finn is demanding of the quality of power it receives. It clearly relished what the 550A was serving up and I found myself losing myself in the humid, bayou-backbeat of Alannah Myles' classic rock ballad "Black Velvet" as soon as the needle hit the groove. That is what the high end is about for me.

My initial impressions of the Azur 550C CD player left me scratching my head. The player was dynamic, fast, smooth on top, and extended on the bottom. A bit forward and cooler in the mids—a characteristic fairly common to all but the most upscale digital. And fast-loading to boot! Also having selectable filters is a cool feature, although there wasn't necessarily a clear "winner" as I shifted from one to the other. I typically found the "slow" or shallower filter more to my liking, with a relaxed laid-back sound and greater perspective. The steep filter, on the other hand tended to sound harder and more in-your-face, more "hi-fi-like," but, again it often depended on the material and mood. Even Cambridge notes that there is no right or wrong choice.

Even more than the Azur 550A integrated, the Azur 550C was quite comfortable in the company of more expensive components. Everything I'd

desire in a sub-\$2k machine—oops, that's sub-\$1k machine. Truth is, the Azur 550C will take you pretty far down the road sonically. Naturally there are increasingly intricate levels of sophistication that pricier digital components use to stock the sonic larder. So, in that spirit, I decided to put the digital output of the 550C to use and further investigate what else I could sonically achieve running the player into a pricier DAC—in this instance the converter of the Simaudio Moon CD3.3, which uses the Burr-Brown PCM1798 ultra-high-resolution 24-bit/192kHz, and internal upsampling with 24-bit/1.41MHz processing. For this "compare and contrast" I noted differences that were at best subtle but consistent. The Cambridge came impressively close to matching the softer, more settled, and graceful perspective of the Simaudio. There was a similar amount of speed and attack but with the 550C slightly rougher edges, too. Its sound remained just a row or so forward for my tastes, while the Simaudio and even the Esoteric X-05 retained a more velvety presence and air and dimensionality. Overall it's just a bit more general in terms of dimensionality and depth of images, and it doesn't suggest the kind of vast space of the top-flight warriors. Am I being too hard on these components? Nope. It's a tribute to their over-arching strengths that their modest limitations are only revealed in the company of much pricier gear. And in this aspect the Azur 550C, like its sibling the 550A, can proudly hold its head up. Way up.

In this competitive climate it's not enough to market consistently great-sounding, well built gear to match a given price segment. Many companies do it and do it well. The hat-trick is to execute the preceding and offer class-

shattering performance—gear that competes outside of its league. The Cambridge Audio Azur 550A and 550C fulfill this role brilliantly and most importantly, musically. I know they've got my number. You could be next. [tas](#)

SPECS & PRICING

Azur 550A

Power Output: 60Wpc (into 8 Ohms)

Inputs: Five RCA single-ended, two tape loops

Outputs: Preamp

Dimensions: 16.9" x 4.7" x 13.8"

Weight: 17.6 lbs.

Azur 550C

Outputs: Line-level RCA, S/PDIF, TosLink

Dimensions: 16.9" x 3.4" x 12.2"

Weight: 10.6 lbs.

U.S.

Azur 550A

Price: \$599

Azur 550C

Price: \$599

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U.K.

Azur 550A

Price: £299

Azur 550C

Price: £279

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More Good Stuff From—Where Else?—China

Vincent SV-129 Integrated Amplifier

Wayne Garcia

Germany's Vincent Audio has created a consistently positive buzz since its founding 12 years ago. In Issue 173, Chris Martens was more than a little impressed by the firm's SA-31 tube preamp and SP-331 hybrid tube/transistor power amp. The fact that Chris found these items so musically compelling wasn't that surprising. What was, however, were the prices—just \$499 and \$999, respectively. Now, fifteen-hundred bucks for quality separates seems more like something I recall from 1987, not 2007. Even then, that was entry-level pricing. And isn't the dollar getting a royal butt-whopping by the Euro? So what gives?

At the risk of sounding like the proverbial broken record, the answer is China. American firms aren't the only ones designing at home and building in this flourishing economic powerhouse. Some companies, like Britain's B&W, have even constructed their own state-of-the-art factories there (see my review of the 685 loudspeaker in Issue 176). Given that Vincent's goal is to produce musically excellent gear at affordable prices, it really couldn't be any other way.

In some respects, the SV-129 integrated amplifier (\$799) reminds me of a unit from NAD. Its cosmetics are barebones (though it comes in both black and silver finishes) and its build-

quality impressive at the price. The unit has five line-level inputs (but no phono), and a preamp output should you opt for more power down the road. In addition to volume and balance, it sports a set of tone controls that can also be bypassed. Finally, the SV-129 includes what to me is the coolest of remote controls—one that has but three functions: volume up, volume down, and mute. Finally, someone gets what we use these things for most of the time.

Most essentially, the VS-129 goes right to the heart of the music.

Revisiting Dylan's "Blind Willie McTell," the Vincent displayed a direct, immediate connection

with the tune's brooding piano, bluesy guitar, and that famously gruff, marvelously phrased vocal performance. The song's soundstage was quite large with good ambient depth, especially so for a pop recording. The Vincent also has good dynamic shading, and a fine sense of momentum that keeps listeners involved with the music.

Speaking of brooding, Prokofiev's Sonata for Violin and Piano No. 1, as played by Isaac Stern and Alexander Zakin [Sony], showed off the Vincent's slightly dark side. Zakin's piano was rich, and even more smokily hued than I'm used to, while Stern's violin had a similar patina and sounded a bit grainier than it probably should.

Switching to a different set of strings, I played Classic Records' excellent-sounding reissue of Hendrix's *Band of Gypsies*. The guitar intro displayed rich, almost creamy layers of gorgeous distortion (Hendrix was heavily into effects-pedals at this stage), while Billy Cox's bass and Buddy Miles' drums had great drive, weight, and visceral punch. The Vincent also revealed the acoustics of the Fillmore East. It also proved that its 50-watt rating was pretty accurate, as I was able to push it to its (still considerable, i.e. loud) limit with this music.

Jazz aficionados will appreciate the Vincent's directness and musical grip when listening to



EQUIPMENT REVIEW - Vincent SV-129 Integrated Amplifier



The one word that kept coming to mind was “fun,” and since we’re all members of a hobby that takes itself way too seriously, fun is mighty refreshing

SPECS & PRICING

Vincent SV-129

Type: Stereo integrated amplifier

Power output: 50Wpc into 8 ohms

Number and types of inputs: Five line-level

Dimensions: 17" x 3.75" x 15"

Weight: 22.5 lbs.

U.S.

Vincent SV-129

Price: \$799

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3427 Kraft Street South
East
Grand Rapids, MI 49512
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U.K.

Vincent SV-129

Price: £699

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Ind Est, Bleanavon,
Torfean, NP4 9RL
+44 (0)1495 791220
mvaudio.co.uk

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David Murray's *Sacred Ground* (Justin Time). This recording is up-close and “there.” And on the opening track, singer Cassandra Wilson’s husky-sweet voice comes across with so little electronic interference that it sounds, at moments, eerily lifelike. Now that is pretty amazing for any component, let alone one that sells for just under eight hundred bucks.

Finally, the opening fanfare to Mahler’s Symphony No. 3 (Abbado/Berlin Philharmonic [DG]) brought everything together: rich brass choirs, impressively explosive dynamics, a taut, forceful bottom end, fine ambient retrieval and depth, and sufficiently wide dynamics.

Okay, so the VS-129 is a little dark and grainy, and lacks the refinement one hears with the expensive stuff. Big deal. What it delivers it delivers well—and that is the essence of the music. **tas**

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EQUIPMENT REVIEWS

Integrated Amplifiers \$800–\$1500



Peachtree Audio iDecco Integrated Amplifier

Jack Of All Trades (And Master Of Several)

Chris Martens

When I reviewed the Peachtree Audio Nova integrated amplifier/USB DAC (\$1199) in our digital magazine *Playback*, I was very favorably impressed and called it “a versatile, well-conceived and well-executed product that fulfills a number of roles with astonishing refinement, polish, and panache.” Let me begin this review of Peachtree’s new iDecco integrated amp/USB DAC/iPod Dock by telling you that the iDecco offers much of the flexibility and essentially all of the sonic excellence of its big brother, while adding a *digital* (not analog) iPod dock and selling for an even lower price (\$999).

To really get what the iDecco is about, though, it is important to understand that it is really five different products in one:

- A hybrid solid-state/vacuum tube (6N1P) preamplifier with a Class A output buffer stage.
- A Class A headphone amplifier (when the tube circuit is enabled).
- A multi-input (USB, S/PDIF, TosLink, iPod) 96kHz/24-bit upsampling DAC with a solid-state output stage.
- A digital iPod dock with, of course, a built-in integrated amplifier.
- A 40Wpc MOSFET-powered, solid-state integrated amplifier.

Now all of the features and functions in the world aren’t worth much unless they are well executed, but happily solid execution is one area where the iDecco really shines. As you’ll see in a moment, the iDecco is so good at each of its several roles that you might

willingly pay its asking price to enjoy any one or two of them. But bundle all five functions together and the iDecco’s value-proposition skyrockets.

Before talking about the iDecco’s sound it makes sense to take a look at some technical highlights that make this versatile component so special. Let’s begin by considering the iDecco as a preamplifier. Significantly, the iDecco preamp provides user-selectable solid-state or Class A 6N1P vacuum-tube-powered outputs, which can be turned on or off via a “Tube” switch on the iDecco’s remote control. I found it very instructive to switch back and forth between both output stages in real time, just to hear and understand what each circuit could do. As a worthwhile detail touch, the iDecco preamp offers both variable and fixed-level analog outputs, though the fixed outputs are driven by solid-state circuitry only.

The iDecco also can be used as a headphone amp, where the

headphone jack shares the same output circuitry as the preamp. As a thoughtful feature, the iDecco is set up so that when a headphone plug is inserted into its headphone jack, the iDecco’s power amplifier section automatically disengages, effectively muting the speakers.

The iDecco, which incorporates a built-in DAC, provides four digital inputs (USB, coax, TosLink, and an iPod dock), plus a single stereo analog input. The iDecco’s top-mounted iPod dock provides a true digital interface similar in concept to the one provided in Wadia Digital’s Model 170 iTransport. Note, though, that there is no digital-audio-signal pass-through since Peachtree’s working assumption is that you will want to use the very high quality DAC built into the iDecco, rather than an outboard DAC. A set of component-video outputs is provided on the rear panel of the iDecco, should you wish to play video content through your iPod.

The iDecco’s 24-bit/96kHz upsampling DAC is based on the ESS



EQUIPMENT REVIEW - Peachtree Audio iDecco Integrated Amplifier

9006 Sabre DAC, which incorporates a patented jitter-reduction circuit said to greatly improve sound quality when it is playing digital audio data via the iDecco's USB inputs. Peachtree provides eleven regulated power supplies for the DAC section, transformer-coupling for all digital inputs for ground isolation, and a "galvanically isolated" USB input stage. To give users some ability to fine-tune the sound of the iDecco DAC, Peachtree provides switches for "Fast" or "Slow" DAC filter-slopes (where the "Fast" setting generates better lab measurements, while the "Slow" setting is often preferred by critical listeners). For even greater flexibility, iDecco also sports switches for "Narrow" or "Wide" jitter adjustments for its coaxial and TosLink digital inputs. According to Peachtree, the "Narrow" setting sounds better with low-jitter sources, while the "Wide" setting makes the DAC more forgiving of high-jitter sources. Jitter is rated at less than 1 picosecond as measured at the Master Clock (Super Clock).

Finally, we come to the iDecco power amplifier, which is based on stereo MOSFET devices and puts out 40Wpc. The amp's design is essentially a scaled-back version of the circuit used in the 90Wpc Nova.

All of this is well and good, but how does the iDecco sound?

I compared the solid-state versus tube sounds of the iDecco and found that, as was the case with the Nova, the solid-state output section sounded very clean, but also somewhat less rich, three-dimensional, and involving than the tube circuit. For this reason, I did most of my listening with the tube circuit engaged, and if I owned the iDecco I would leave the circuit turned on probably 95 percent of the time. The remarks that follow, then,

reflect my reactions to the iDecco's tube sound.

The core sound of the preamp has three defining characteristics. First, it offers excellent natural clarity, with plenty of focus and definition. More so than many products at its price point, the iDecco offers *lots* of resolving power, meaning that it handles low-level textural, transient, and especially spatial or soundstaging cues in the music with remarkable acuity. Second, the preamp delivers bass that is very tight and well controlled, exhibiting none of the looseness or sloppy romanticism you might hear in other affordable tube preamps. Finally, the iDecco preamp does a great job of capturing the sheer richness of both tonal colors and (especially) of harmonics in the music—in this respect sounding much more like an expensive stand-alone vacuum tube preamp, rather than an inexpensive integrated amp/DAC. One minor drawback I observed, at least when using the Peachtree to drive wide-bandwidth power amps, is that a small amount of noise is produced when switching between the iDecco's various inputs (or when turning the tube output stage on or off). Even so, I would be very hard pressed to name a preamp at the iDecco's price that I would rather use in a high-end system. It's that good.

For the most part, the strengths of the iDecco DAC parallel those of its preamp. The DAC resolves low-level sonic details beautifully—a quality that helps the DAC create highly lifelike, three-dimensional soundstages. Through the Peachtree, for example, you'll hear long reverberation tails on individual sounds and can easily pick up on how those sounds interact with the acoustics of recording spaces. The DAC also captures both large- and small-scale dynamic contrasts very

effectively, letting listeners not only hear but also feel the living, breathing pulse and flow of the music.

If your reactions are anything like mine, you may be struck by the fact that the iDecco DAC doesn't conform to your mental image of a budget DAC. In fact, it doesn't really sound like a "budget" anything, because it produces the sort of big, richly textured, wide and deep soundstages that are traditionally the hallmarks of higher-end DACs—the kind that typically cost more than the entire iDecco does.

Among DACs that provide both USB and S/PDIF inputs, the common wisdom is that S/PDIF inputs will always sound better than USB inputs, and in most cases the common wisdom holds true. But the iDecco DAC really took me by surprise, in that its USB and S/PDIF inputs sounded essentially identical. I did numerous back-to-back comparisons, first feeding full-resolution WAV files via USB to the iDecco, and then playing the same musical content via CDs in my reference disc player and sending the resulting digital audio streams to the iDecco's S/PDIF inputs. The sonic results were so similar that I couldn't reliably characterize substantive differences between them, which is simply remarkable.

During my listening tests, I compared the iDecco DAC both to a PS Audio Digital Link III DAC (\$995) and to the output section of my reference Musical Fidelity kW SACD player (no longer in production, but a very costly player in its day). I found that the PS Audio DAC produced a sweeter, darker, and subtly more "romantic" sound than the iDecco DAC, while the iDecco offered a more resolved, open, and transparent sound with—by comparison—an ever-so-slightly more lightly

balanced presentation overall. I also found that the PS Audio DAC's S/PDIF input sounded different from and better than its USB input, whereas, as noted above, the iDecco's USB and S/PDIF inputs sounded equally good.

In comparison to the DAC/output stage of my Musical Fidelity kW SACD player the iDecco offered many similarities, though I thought the Musical Fidelity offered slightly better resolution of low-level details and low-level dynamic contrasts,

SPECS & PRICING

Peachtree Audio iDecco Integrated Amplifier

Power: 40Wpc @ 6 ohms

Inputs: Four digital audio (USB, S/PDIF-coax, TosLink-optical, iPod), one stereo analog

DAC upsampling: 24-bit/96kHz

DAC signal-to-noise: 122dB A-weighted

Outputs: Two pre-amp outputs (one variable level, one fixed level), one headphone output (1/4-inch jack), main speaker taps

Dimensions: 5" x 14.75" x 14"

Weight: 25 lbs.

U.S.

Price: \$999

PEACHTREE AUDIO

(704) 391-9337
signalpathint.com

U.K.

Price: £800

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EQUIPMENT REVIEW - Peachtree Audio iDecco Integrated Amplifier

and a bit more defined and nuanced bass. On the other hand, you could argue that the iDecco offered a more relaxed presentation. In any event, the sonic differences between the iDecco DAC and the DAC/output section of the Musical Fidelity player were relatively small—especially in light of the enormous price differential between the products. Given these results, I think the iDecco's DAC section alone could justify the product's asking price, which is impressive to say the least.

Having listened to the iDecco DAC/preamp sections driving a powerful and accomplished pair of outboard monoblock power amps (the NuForce Reference 9 v.3 SE), I felt I was in a pretty good position to assess what the iDecco's own amplifier section could do by comparison. My conclusion, not too surprisingly, is that the iDecco's amplifier section is very good for what it is: namely, a high quality, mid-priced, moderately powered amplifier offered as part of an affordable, multifunction integrated amp. But that said, I would also observe that the iDecco amp is not quite the equal of a high-end stand-alone power amp (or even the amp sections of higher-end integrated amps), nor should we expect it to be.

On the plus side of the ledger, the iDecco amp delivers a rich, clear, and evocative sound with excellent soundstaging characteristics. But when compared side by side with higher-end powerplants (such as the NuForce monoblocks I used in my tests), the iDecco exhibited slightly reduced levels of resolution and detail from top to bottom and somewhat less tightly controlled and less deeply extended bass response. There is, too, a difference in sheer power output to be reckoned with, which means you'll want to keep the iDecco's 40Wpc power output limitations in

mind when planning your speaker acquisitions.

When coupled with speakers that can be driven well by 40Wpc, the iDecco amp can produce huge, three-dimensional soundstages that leave the sound of many modestly priced integrated amps in the dust. During my tests, I used the iDecco in conjunction with a pair of Monitor Audio's superb (and quite easy to drive) Silver RX8 floorstanders (\$2000/pair) and found the combination to be one of those rare instances of "sonic serendipity" where the whole was much greater than the sum of the parts. Picture this: You could buy an iDecco and the Monitor Audio speakers I mentioned above for about \$3000, then add either a PC-based music server and/or an iPod as source components, acquire an obligatory set of high-performance cables, and wind up with a music system that could do battle with many of the five-figure systems I've heard at trade shows.

But even though the iDecco's amp section cannot claim the quasi-giant-killer status that its DAC and preamp sections can and do, it nevertheless offers very solid performance and—more importantly—unfailing musicality for the money. Putting all these sonic characteristics together, let's look at how the iDecco performed with real-world musical material.

I enjoy well-made recordings that show unexpected combinations of instruments at play, partly because they draw my attention to the musical ideas being expressed, but also because they seem like celebrations of the sheer beauty of sound itself. One such recording is Marilyn Mazur and Jan Garbarek's *Elixir* [ECM], where one of my favorite tracks is "Bell-Painting." The track employs distinctive high percussion instruments of various kinds, highlighting differences in the

attack, voicing, and decay of each instrument within a reverberant recording space. On good equipment, the sonic effect of hearing these tracks is not unlike running your fingers through a treasure chest full of variegated jewels—so many different shapes, textures, and colors to take in at once. On "Bell Painting" the iDecco not only did not disappoint, it positively excelled.

"Bell-Painting" opens with a round of differently pitched small bells and chimes being struck, followed by a similar round of slightly deeper-pitched bells and gongs being sounded. The iDecco deftly captured the variations in attack between the bells, appropriately giving each its signature voice, and showing how decay characteristics help define the bells' timbre—with some fading quickly to silence as others continue to shimmer and ring for several seconds after being struck, their voices lingering and floating on the air. Most importantly, the iDecco captured—but did not overdo—the fundamentally metallic character of the bells, something that in practice is easier to say than to do on this revealing track (some amps, for example, make the instruments sound much too "dry," almost like bursts of white noise, which isn't right). The iDecco served up levels of realism and nuance that not many amp/DACs in its price range could muster.

If you play music that demands very high levels of bass power and finesse at the same time, such as the bass guitar solos found on "Lil' Victa" from Stanley Clarke, Marcus Miller, and Victor Wooten's *Thunder* [Heads Up], you might observe one of the few limitations of the iDecco amp: namely, a tendency to run out of steam down low and to deliver bass that, while rich and nicely weighted, is not the last word in definition. Through the iDecco

amp you can hear differences between the voices of Clarke's, Miller's, and Wooten's basses (Clarke plays an Alembic bass, Miller plays a highly modified Fender Jazz bass, and Wooten plays a Fodera bass), but the lines of distinction aren't quite as crisply drawn as they can be in higher-end amps. Similarly, there's a sense that the iDecco almost but not quite captures some of the finer textural and dynamic nuances of the three bass virtuosos' playing styles. But on the whole, the iDecco's sound is incredibly accomplished and refined—especially when you take its price and amazing versatility into account.

Summing up: The Peachtree Audio iDecco is a worthy little brother to the firm's excellent Nova, as it combines remarkable flexibility (highlighted by the iDecco's signature digital iPod dock) with levels of sonic finesse and refinement so high that they really belie the product's modest asking price. As I observed at the outset, the iDecco can play many different roles, each at a very high level of performance. But whether you buy one to use as a DAC, a preamp, a headphone amp, or as one of the coolest DAC/integrated amps around, the iDecco will more than give you your money's worth. **tas**

Rotel RA-1520 Integrated Amp and RCD-1520 CD Player

Performance, Features, Value—And, Now, Great Looks

Neil Gader

At this year's Consumer Electronics Show Rotel debuted the 15 Series, an impressive range of components encompassing most segments of the audio, A/V, and custom-installation markets. Beyond its eye-catching appearance and upgraded internals the 15 Series features enhanced software and connectivity and spiffy new remote controls. Intriguing for me was the pair of 15 Series "classic" models—the RCD-1520 CD player and RA-1520 integrated amplifier. They are gorgeous to behold, with a sumptuous combination of brushed and polished metal surfaces, smoothly radiussed front panel end-caps, handsomely engraved faceplates, and a wonderful tactile feel to the gently rounded buttons and knobs.

Even though the glam facelift looks like a million bucks, the electronics beneath the hood hold true to Rotel's traditional values. To improve the breed means holding fast to a philosophy of simplicity and minimalization. For Rotel this translates to rigorous parts selection, refinements of circuit layouts, shorter signal paths, and importantly, critical listening. Rotel insists on winding its own transformers for its power supplies. It uses more expensive metal-film resistors because they sound better. Both the amplifier and CD player have power supply circuits that use a brand of "slit foil" capacitors designed and manufactured in the U.K.—No less than Linn and Meridian use

the same brand in many of their much more expensive units.

AMPING IT UP

The spec sheet on the RA-1520 integrated amplifier says the amp produces a modest sixty watts per channel, but that's a little like describing a jaguar as only a large cat. This may be one of the more conservatively rated solid-state "sixties" I've encountered. Matched with a speaker of reasonable sensitivity (the PSB Imagine B or the more upscale Proac Response D2 come to mind), it's got headroom that just won't quit and low-frequency extension geared



to pace and slam. Connectivity is excellent with a set of preamp outputs, a tape loop, and binding posts for two pairs of speakers. And old school vinyl-addicts like myself haven't been forgotten, as Rotel provides a very capable moving-magnet phono input. It's a good one with plenty of gain, and low noise. The front panel includes a 1/8" mini-jack suitable for any pocket MP3-style player (there's a separate headphone mini-jack as well).

Sonically the Rotel RA-1520 hews to familiar Rotel territory beginning with a neutral to warmish tonal balance and an almost lush midrange and upper bass. Its character skews slightly to the

darker end of the spectrum due to a softer top and a general relaxation of transient attack. As I listened to Norah Jones' quirky "Sinking Soon" on *Not Too Late* [Blue Note] I was rewarded with a smooth upper vocal range, natural unforced harmonics, and a continuity and integration that were consistent with a live performance rather than something manufactured and stitched together. This same track incorporates very-low-level instrumental textures and soundstage positions that are a chore for many amps to retrieve, but the low noise floor of the Rotel made these tough-to-reproduce subtleties a walk in the park. On a challenging orchestral workout like the

EQUIPMENT REVIEW - Rotel RA-1520 Integrated Amp

TRANSPARENT AUDIO: THE LINK INTERCONNECT AND THE WAVE LOUDSPEAKER CABLE

Transparent Audio, a gold standard in the high-end cable biz, has a reputation for designing wire on the cutting edge, like Opus MM2—an extreme cable and interconnect at out-of-this-world prices. But Transparent hasn't forgotten the rest of us Earth-bound audiophiles. I was urged to have a listen to one of Transparent's other extreme cables. Its extremely *inexpensive* ones—the \$85 The Link interconnect and the \$200 The Wave speaker cable.

Transparent's point-man, Brad O'Toole, described The Link/Wave as products that derive much of their design from elite cables farther up the food chain. All point-to-point soldering is lead-free and still done by hand in Maine. The cables use five-nines (99.999% pure) copper conductors in a twisted-pair configuration. Cable networks are less a

source of controversy than they were a few years ago, and O'Toole pointed out their advantages. The first goal was to eliminate the antennae effect by shelving frequencies above 1MHz. This reduces noise and hash and removes "hardness" from the sound. Additionally, the cable can be calibrated to match electrical values regardless of length—for example, a long cable will have identical filter characteristics to a shorter one, so they sound essentially the same. Networks also help maintain a common family-voicing. Finally, the network will add some inductance which benefit the frequencies below 2kHz. Practically speaking, The Link/Wave cable is also physically consistent with the smaller-scale systems it's likely to be paired with. They're flexible enough to be easily routed through tight spaces and around tricky corners.

short but sweet *Fanfare For the Common Man* [Reference Recordings], the Rotel, paired with the tiny but tenacious PMC DB1i compact two-ways, was thrilling, forceful, and solid. Imaging was unwavering, although the Rotel didn't quite allow the volume of air to fill the areas between instrumentalists like some pricier amps. Perhaps it also ultimately lacked a bit of brassy golden bloom in the top end and didn't quite capture the

full aggressive rip of the trumpet ensemble, but the sense of a spacious acoustic window and of the rock-solid placement of the players on stage was quite remarkable.

I even put the screws to it with my own reference ATC compact monitors—83dB-sensitive speakers that demand a lot from amplifiers. In dynamics and extension I would've guessed this amp was cranking out more like a hundred watts. Even

under these extreme circumstances the Rotel never lost its composure, only putting a small squeeze on dynamics and lightening the impact a bit in the bass. All in all, the RA-1520 is everything I've come to expect from Rotel—performance, features, value, and now a facelift that perhaps some of the aging stars of the high-end would envy.

ROTEL RCD-1520 CD PLAYER

If the Rotel integrated hews faithfully to tradition, the RCD-1520 may just be a break-out source component in this price range. It disposes of the motorized CD tray and features a new slot-loading mechanism, which in Rotel's view has not only proven very reliable but has also minimized the need for error correction. The Rotel offers a high-performance Wolfson DAC to handle the conversion duties, digital output for an outboard DAC, an intelligible and comprehensive display, and excellent disc handling. In a curious twist, HDCD-encoded discs are indicated on the display but not actually decoded. The RCD-1520 will, however, handle MP3 or WMA-encoded discs.

Of all the recent recordings I've heard that really show off this player's capabilities the new disc by Jen Chaplin, *Revisions: The Songs of Stevie Wonder* [Chesky SACD 347], is nothing short of a treasure. In fact the entire disc is simply a terrific artistic and sonic effort from brilliant musicians. (Backing the talented Chaplin are Stephan Crump on bass and Chris Cheek on tenor, baritone, and soprano saxes. Don't be fooled by the lack of a piano or drum

SPECS & PRICING

RA-1520

Power output: 60Wpc continuous, both channels driven
Inputs: Three line-level, one phono (mm), two tape loops
Outputs: One preamp output, 12V trigger, IR
Dimensions: 17" x 4" x 14.3"
Weight: 17.2 lbs.

RCD-1520

Inputs: One 12V trigger, RJ-45 computer I/O
Outputs: One pair RCA analog; one coax digital
Dimensions: 17" x 4" x 12.6"
Weight: 14.3 lbs.

U.S.

RA-1520

Price: \$999

RCD-1520

Price: \$999

ROTEL OF AMERICA

54 Concord Street
North Reading, MA 01864
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U.K.

RA-1520

Price: £695

RCD-1520

Price: £695

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EQUIPMENT REVIEW - Rotel RA-1520 Integrated Amp

The temperament of The Link/Wave is easygoing, unobtrusive, and elegantly balanced to the midrange—not going for too much extension on top or overly boosting the bottom. In my view, this is a good route to take. Less expensive systems often give up a bit of resolution and transparency at the frequency extremes, so a cable that slightly softens or rounds these rougher edges is merely being responsive to market realities. The Link/Wave throws a wide soundstage, if not an especially deep one. Imaging is very good and there's very little veiling of details. Low-frequency pitch and timbre were nothing short of remarkable. The only area where the cable exposes its modest origins is in its reproduction of the micro-dynamics of a recording. These tiny gradations are somewhat truncated creating a sensation of diminished pace and liveliness and a shallower sense of dimensionality—issues that arose during Mary Stallings' live version of "Sunday Kind Of Love"

from *Live At The Village Vanguard* [MaxJazz]. If you're familiar with Transparent Audio's more elite offerings you'd have to conclude that in comparison The Link/The Wave are a little slow off the mark—lively but not instantaneously so.

From the start, my cruel plan to embarrass The Link and The Wave with top-flight cabling from the likes of Wireworld and Tara Labs and Synergistic Research was thwarted by sonic realities. The Link/Wave combo may not be a competitive match for these fine brands but at a tenth the price, it's shocking just how good they really are.

Believe it or not, nothing gives even a jaded old audio reviewer more pleasure than discovering a product that's not only really good but almost embarrassingly *inexpensive*. In the bang-for-your-buck segment The Link and The Wave are triple-threat wires—they're neutral, they're natural, and they're a no-brainer. **NG**

kit—this trio is as swinging as it gets.) The opening track, "You Haven't Done Nothin'," was spacious and clean through the RCD-1520, with excellent imaging. The Rotel's sonics exemplify definition but without the analytic coolness that often afflicts lower cost digital. While the RCD-1520 doesn't have the bloom or air of, say an Esoteric X-05, it's relatively free from high-frequency hash, and its treble easily walks the line between silky smooth and aggressive whenever necessary. The crunchy bass groove that anchors Michael Jackson's "Billie Jean" [Epic] was stunning, detailed, and

gut-pounding. This player reproduces bass that is tight, deep and, most importantly, rhythmic. Low-level resolving power was also rewarding. For example, during Cat Stevens' "Sad Lisa" from *Tea For The Tillerman* [Island] the Rotel shed light on a greater and more complex set of tonal colors issuing from the grand piano (which has been processed through a Leslie). This instrument has always been a bit indistinct but not with the RCD-1520—a player capable of sorting out low-level minutiae like few disc players I've reviewed in this range.



Years ago, when Rolls Royce motorcars *never* published horsepower figures, its spokesmen would respond to press inquiries with a knowing smile and the simple statement that the power was deemed "adequate." Rotel is similarly an exemplar of this sort of understatement. Rotel may not have reinvented this segment of the high end, but with the RA-1520 and most notably the RCD-1520 it continues to find more transparency, more performance, more music with each succeeding model line. Could there be anything more "adequate" than that? **tas**



PrimaLuna ProLogue One

Integrated Amplifier

Jeff Dorgay

If they ever offer a Nobel prize for bringing affordable audio to the masses, I would be the first to nominate Upscale Audio's Kevin Deal. If you've been following the audio press at all, you know how well received the Kevin-Deal-distributed Ah! Tjoeb CD player has been. Like the Ah! Tjoeb, the \$1095 ProLogue One integrated amp—a tubed design, no less—was co-designed by Marcel Croese (the former chief engineer at Goldmund), and is rated at 35 watts per channel. (There's also a 40Wpc KT-88 version for \$1345.)

The ProLogue One features a 12AX7, 12AU7, and a pair of EL-34s per channel for a very simple circuit. The front panel has a volume control, green power LED, and an input selector switch with four inputs, all electrically the same. The rear panel features one set of speaker outputs with beefy WBT style terminals (4 and 8 ohm taps) and four sets of high-quality gold-plated RCA jacks. An IEC socket is provided so you can upgrade the power cord at your leisure. Internally, the ProLogue One features point-to-point wiring for everything but the company's proprietary Adaptive Auto Bias board. A tube cage is supplied in case you have inquisitive pets or

children, but the ProLogue looks much better without it.

Automobiles are my other passion, and I must admit while I am a big style junkie the nerd portion of my personality really appreciates build-quality. The ProLogue One is built like a \$3000 piece of gear; the dark metallic blue finish on this thing is just gorgeous. Getting it out of the box was like one of those toys that you keep opening only to find another layer inside. By the third layer I found the amp, complete with a set of cotton gloves to handle it without leaving fingerprints. I guarantee that you will freak out at how great this little amplifier looks—it has a finish like a new Aston Martin.

EQUIPMENT REVIEW - PrimaLuna ProLogue One

And I don't say that loosely; I just photographed a new Aston for a book project last week.

Upscale's clearly-written manual mentions that the ProLogue doesn't need an extended time to break in. It also describes the Adaptive Auto Bias that makes biasing output tubes a thing of the past. This circuit monitors and adjusts bias instantly, and PrimaLuna claims it also eliminates the need for matched output tubes and also extends the life of the tubes. Curiosity got the better of me, so I installed a set of EL-34s that I know have different sonic characteristics. The difference in sound between the misfits and the factory tubes was almost nonexistent, but I did notice that the amplifier would play a bit cleaner at maximum volume with matched tubes.

Enough about how it looks and operates; how does it sound? Bitchin', that's how it sounds. Over the years I have owned, built, and tweaked quite a few amplifiers featuring EL-34 topology, all the way from the legendary Dynaco Stereo 70 to my last amplifier, a much-loved Conrad-Johnson MV-55. The ProLogue One is right up there with the best of this genre. Straight from the box it sounded great, but a little stiff. True to the manual, it did not take very long to break in and after about a week of casual listening at my desk, 95 percent of the magic began. It took about a month to get the last little bit of sound out of the amp, but I'm splitting hairs here.

I spend most of my time in front of five computer monitors writing about digital imaging for a number of other publications, so I get a lot of time to listen to music. The small system at my desk consists of a pair of original ProAc Tablettes, an old Proceed PDT 2 transport, a really old PS Audio Digital Link that I have modded a bit, and my old

Dynaco SCA-35 integrated amp that is pretty much stock. Very warm tube sound indeed but comfy during 14-hour stints at the keyboard. For this review, I swapped the Proceed/PS Audio for my Ah! Tjoeb CD player (with all the Upscale Audio upgrades) and swapped the Radio Shack speaker cables for a pair of WireWorld Equinox 5 cables (that cost almost as much as the amplifier). Later on in the listening session, I also hooked up my Rega P25/RB 700/Shure V15xMR along with my Bottlehead Seduction phono preamp to explore analog playback.

In a small-to-medium room at reasonable levels this amplifier will reveal a lot of music. In classic EL-34 style the ProLogue throws a very wide and deep soundstage, and has a wonderful midrange without sounding gooey like a Stereo 70 or other vintage design. The ProLogue One is very neutral with little of its own "signature." With the ProAcs, imaging was very defined and close-up, yet when I took it out to the big room and hooked up my Vandersteen 2Ces the sound became more laid-back—unfortunately this amp doesn't have quite enough juice to crank the Vandersteens. To achieve higher volume levels, a speaker with 90db or better sensitivity would be your best bet. What I did notice on both sets of speakers is a distinct level at which the music stops cold. Back it off a notch and everything is fine. Go up and the music collapses, the magic is gone, compression sets in. Observe this one rule with the ProLogue One and all is well. But sheer volume is not what this amplifier is about. It's about groovy, dimensional EL-34 sound. My daughter's drum instructor always says, "It's the sound in between the notes," and that's what the ProLogue One is about. Everything has a great sense of airiness

about it, and is more faithful to the original than a thousand-dollar amplifier has a right to be.

While the ProLogue One does a very respectable job of reproducing bass (remember, moderation) having good extension as well as detail, don't expect to rock the house with it. One of my favorite jazz recordings is The Three [East Wind], featuring Joe Sample, Shelly Manne, and Ray Brown performing some traditional jazz standards, recorded direct-to-disc. Their version of "Satin Doll" has some great acoustic bass riffs that the ProLogue navigated with no problem. Highs are very smooth without being rolled off and the presentation is very relaxed, but the mids are where this amplifier really shines. Listening to "My God Called Me This Morning" on the Fairfield Four's Standing in the Safety Zone [Warner] was like having a gospel group right there in front of my desk, with all five singers having their own distinct voice and placement. Everything I listened to that was complex texturally was very absorbing and spatially well defined.

Whenever I audition a new component I have my twenty or thirty favorite tracks that really define how something sounds to me. With the ProLogue One I found myself just letting the whole record play and enjoying the sound, and I guess that is the highest compliment I can pay to this amplifier.

I wanted to make sure I wasn't missing out on anything so I did a little tube swapping. For what it's worth, you can change the character slightly by switching the stock Electro Harmonix tubes, but doing so doesn't make all that much difference. I also swapped the WireWorld speaker cables for my new favorite Home Depot 10-gauge cable. Here there was a bit more difference, with the HD wire a bit more grainy than the Equinox,

but again, we are talking about using a \$950 dollar set of speaker cables with an amplifier that only costs \$1095.

In the end, you can substitute some spendy NOS tubes and ultra zooty cables to get more sound out of the ProLogue One, but for \$1095 I would just make it the cornerstone of a really musical three-to-four-thousand-dollar music system. Go to www.nobel.no right now and nominate Kevin for that prize! *tas*

SPECS & PRICING

PrimaLuna ProLogue One

Power output: 35Wpc (4 or 8 ohms)

Inputs: Four RCA

Dimensions: 15" x 11.5" x 7.68"

Weight: 36 lbs.

U.S.

Price: \$1095

UPSCALE AUDIO

2504 Spring Terrace
Upland, California 91784
(909) 931-9686
upscaleaudio.com

U.K.

Price: £1390

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A Classic Updated

Naim Nait 5i Integrated Amplifier

Robert Harley



My first review project upon joining *Stereophile* in May, 1989 as Technical Editor was a survey of three British integrated amplifiers. One of the amplifiers was just plain weird. It was housed in a half-width “shoebox” chassis, had the lowest output power of the group at just 13Wpc, was the most expensive at \$795, came supplied with odd interconnects and speaker cables along with a dire warning not to use other cables, and was fitted with DIN jacks rather than conventional RCAs. To top it off, the “balance” control was nothing more than a left-channel attenuator. To call this amplifier “idiosyncratic” would be a euphemism.

I listened first to the other two amplifiers, carefully cataloging each product’s sonic strengths and weaknesses. I went back and forth between the amps for several weeks, determined to nail each product’s sonic signature for the first official review of my audio-journalism career. And then I put the shoebox amplifier into the system, and in less than a minute, my world changed. This odd little curiosity was so startlingly different from the other contenders that my weeks of careful note-taking were instantly rendered irrelevant. Simply put, the other two integrated amplifiers reproduced hi-fi; the 13Wpc shoebox made glorious music.

That amplifier was the Naim Nait 2.

Naim Audio has continually refined and updated the Nait series of integrated amplifiers since the product’s introduction in 1983. The culmination of this effort is the new Nait 5i, an update on the Nait 5i that has garnered more TAS

Editors’ Choice, Product of the Year, and Golden Ear Awards than any other single product in this magazine’s history. This integrated has become one of the high-end’s most enduring and iconic products, exemplifying the concept of high value. (Naim originally labeled the new product the 5i-2, but since dropped the “-2”.)

The original Nait was introduced in 1983 at a price of £253. It was in Naim’s line until 1988 when it was replaced by the Nait 2. The Nait 3, launched in 1993, featured increased output power of 30Wpc. The Nait 3 was replaced by the Nait 5 in 2000, which was followed by the 5i in 2003.¹ The 5i represented a ground-up redesign, including a motorized Alps volume control and surface-mount parts. The new 5i uses a different feedback structure, a revised ground-plane, and high-temperature ceramic insulators between the chassis and output transistors. Like the previous Nait, the 5i features a passive

preamplifier section coupled to a higher-than-normal gain power amplifier stage. Finally, the new product adds a front-panel mini-jack input with a dedicated switching relay.

DESCRIPTION

The Nait 5i is minimalist in the extreme. The front panel features only a volume control and four push buttons to select sources. Of the three line inputs, two are duplicated on RCA jacks and DIN connectors. Naim recommends DIN connection over RCA-terminated interconnects, and fits its source components with DIN jacks for this purpose. A tape loop rounds out the Nait’s connectivity. One of the inputs (labeled AV) can be set to unity gain for use with an outboard AV controller. A fifth input on a front-panel mini-jack is for connecting a portable music player.

A well-designed remote control selects the input and adjusts the volume. The remote will

also control other Naim components, including the company’s CD players. An illuminated Naim logo and illuminated input-selector buttons can be turned off from the remote (but not from the front panel).

Speaker outputs are on recessed banana jacks. Naim recommends its own cable, which I used throughout the auditioning (\$350 for an 11’ pair). The unit has a hefty feel, owing to the large toroidal transformer and solid metal casework. Power output is rated at 50Wpc into 8 ohms, and will reportedly deliver 110Wpc into 4 ohms on a short-term basis.

LISTENING

The Nait 5i doesn’t sound anything like a sub-\$2k integrated amplifier. Even when part of a system comprising world-class reference components such as the Magico V3 and Wilson X-2 Alexandria Series 2 loudspeakers and a Spectral SDR-4000

EQUIPMENT REVIEW - Naim Nait 5i Integrated Amplifier

Pro CD player, the 5i showed why this amplifier has developed a quarter-century-old cult following.

Most moderately priced integrated amplifiers come with certain sonic compromises in relation to expensive separates. We have come to expect that an integrated amp of this price will sound either a little hard and bright in the upper midrange and treble, or that these characteristics will be glossed over with an excessively smooth, but low-resolution sound that is ultimately unrewarding. Further, we expect to give up a sense of refinement, resolution, and inner detailing that is assumed to be the exclusive province of costly separates. Finally, low-powered integrated amps aren't supposed to deliver a transparent sense of space, three-dimensional imaging in which instruments sound as though they are surrounded by air and bloom, and a distinct separation of individual musical lines.

The Nait 5i throws all these assumptions out the window. Just as the Nait 2 bowled me over 19 years ago with its sheer ability to connect the listener with the music, the new Nait extends this prowess by combining the amplifier's traditional musicality with some real output power that breathed dynamic life and bass impact into the presentation.

The 5i's sound is extremely smooth, suave, and refined, with a richly detailed and nuanced presentation that I found extremely engaging. There was no trace of etch, hardness, or brightness that one associates with electronics of this price. In fact, I thought the presentation was a little on the recessed side, with a slightly subdued midrange and treble. The overall perspective was a bit more distant than I remember from the

Nait 5i I last auditioned (I happily lived with the 5i driving Wilson Sophias for about six weeks—a wonderful combination). This character will be best suited to loudspeakers that are a bit forward and bright, which describes many speakers likely to be matched with the Nait. In this regard, the Nait 5i represents a return to the sound of the earlier Nait series. The later models (Nait 3, Nait 5, Nait 5i) became increasingly incisive, forward, and detailed, favoring resolution, dynamics, and presence over a relaxed sound. The new version of the 5i sounds more like how I remember the Nait 2 sounding, but with greater resolution, much tighter bass, and considerably wider dynamics.

The 5i's 50Wpc makes this new amplifier much more relevant for driving real-world loudspeakers than the 13Wpc of the first Nait. I thought the 5i's output power was just adequate to drive the moderately difficult load of the Magico V3 (4 ohms impedance, somewhat reactive load, and 89dB specified sensitivity). The Nait sounded like a powerhouse with the 95dB-sensitive Wilson X-2, although the bass lacked the last measure of tautness, extension, and authority of which these loudspeakers are capable. The 5i should have enough oomph to drive loudspeakers that have a sensitivity of 87dB or higher to satisfying listening levels.

What sets the Nait apart from similarly priced rivals, however, isn't power output or dynamics, but musicality. That's a convenient catchword, but one that can convey much meaning. For me, musicality is the quality of being instantly drawn into the performance at a deep level, forgetting about the playback system. The Nait's musicality stems, on the one hand, from a lack of electronic artifacts such as steely sounding timbres, a gray

pall overlaying the presentation, and an opaque sense of space. On the other hand, the Nait goes beyond avoiding the worst sins of entry-level amplification to resolve musical detail with a richness that makes timbres real and palpable. The Nait also does something no other piece of electronics at this price has accomplished in my experience: portray individual instruments as separate entities surrounded by a sense of bloom. This quality made it easy to "unravel" the individual musical lines and comprehend the musical meaning. Amplifiers that sound flat spatially, and overlay all timbres with a common electronic grayness, tend to blur the distinctions between instruments. This type of sound fuses individual musical lines into one big sound that dilutes musical expression. The 5i's performance in this regard puts it in a class by itself in sub-\$5k electronics.

CONCLUSION

The new Nait 5i extends and expands upon the 25-year-old tradition begun with the original Nait. This latest version is the best-sounding Nait yet, combining the modern virtues of dynamics and transparency with the classic qualities of ease and musicality that characterized the first Nait.

It seems churlish to point out the 5i's shortcomings in relation to much more expensive preamplifiers and power amplifiers. This is, after all, a \$1550 integrated amplifier. But you should know that the 5i isn't the last word in bass extension and authority, resolution, and soundstage transparency. I would put the Nait 5i up against separates in the \$5k range, but above that price you'll often hear greater refinement, more inner detail, and a larger and better defined

spatial presentation.

Not all separates, however, will possess the Nait 5i's uncannily seductive ability to make the playback system disappear, replaced by musicians speaking across time and space to you. For \$1550, that's quite a bargain. **tas**

¹ Ever wonder why hi-fi manufacturers avoid a "4" in product model numbers and skip the 4 in a series of products? Or why the Vandersteen speaker that falls between the Model 3 and Model 5 is called the Quattro rather than the Model 4? It's because in the Far East, the number 4 is associated with death.

SPECS & PRICING

Naim Nait 5i-2 Integrated Amplifier

Power output: 50Wpc @ 8 ohms

Number of inputs: 4 line level, plus tape loop

Dimensions: 17" x 2.75" x 11.85"

Weight: 15 lbs.

U.S.

Price: \$1550

NAIM INC.

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(317) 842-7224

U.K.

Price: £795

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Musical Fidelity M3i Integrated Amp

Well Done!

Neil Gader

Boxing fans may remember that when former heavyweight champion Mike Tyson entered the ring, there was no satin robe. He wore only black trunks, and black high-tops, no socks. No frills. He was just sending the message: I'm here to take care of business. This pugilistic metaphor is a roundabout way of explaining what went through my mind as I pondered the Musical Fidelity M3i integrated amplifier. Uncluttered and clean, its fit and finish are uncommonly good for this price range. And it's ready for action.

It's proudly back-to-basics in functions and connectivity. True to the audiophile ethic, there are no tone or balance controls to tarnish the signal. It even shrugs off the near-commonplace front-panel iPod mini-jack. But with a handful of RCA inputs and pre-outs, a tape loop, and a home-theater bypass, the M3i is, like I said, all about business.¹ It packs a solid 76Wpc, with proven Musical Fidelity topology including two output transistors per channel, and separate transformer windings for the Class A preamp

stage. The flat-black front panel is accented by a large aluminum rotary volume control and tiny pushbuttons with virtually unreadable micro-labeling and pin-lighting. A sign of the times, yes, but with the emphasis having shifted to remote controls, front-panel legibility is rapidly becoming an afterthought. Unless you have the eyesight of a barn owl or wear night-vision glasses, leave the switching to the full-featured remote.

Sonically the M3i is dead quiet, with no perceivable hum or grounding issues. Its

EQUIPMENT REVIEW - Musical Fidelity M3i Integrated Amp

character is securely midrange-weighted but instantly conveys an easy-going yet grounded foundation when an orchestra kicks in. It's a warm, slightly thicker signature that bolsters the chest resonances and body of both males and female vocalists. It represents honest audio values that don't reach for the kind of headline-grabbing extremes that might move components off the showroom floor but often lead to buyer remorse later on. Rather the M3i plies its trade by emphasizing the totality of the music, with down-to-earth neutrality and a gentle roll-off in the very top and bottom of the frequency band. Bass response is uniformly very, very good—extended and dynamic on the bass drum and percussion that lead off Copland's "Fanfare" [Reference Recordings]. There are enough bloom, sustain, and decay to rival or surpass any amp in this segment. I found that during Rosanne Cash's *Black Cadillac* [Capitol] the crunch and weight of the low-end piano chords were leavened somewhat, but those chords were very well defined nonetheless. The amp can be forgiven if it doesn't possess the last iota of iron-fisted control or the sheer explosiveness of an ARC DSi200 or Simaudio Moon 600i (\$6k and \$8k respectively). Within its targeted sector it has enough poise and musicality to turn more than a few heads.

Yes, there is a bit of darkness on top, heard as a little less height and air and expansiveness. I listen to a lot of brass and winds during the evaluation process (cue Copland's "Fanfare" again), and this subtraction was plain to hear as a little less treble energy and air rising into the acoustic space. The steady crash of cymbals during *Carmen* [Bernstein, DG] was just a little drier and more constrained as well. In complex

orchestral settings the most delicate facets of timbre and pitch are at times a bit less articulated; on the other hand, the M3i offers a strong display of orchestral front-to-back dimensionality with a nicely delineated layering of strings sections.

Finally, when it comes to low-level details and nuances of timbre and dynamic the M3i does not disappoint. I recently compared two versions of a favorite solo violin recording, Arturo Delmoni playing *Ysaÿe, Kreisler, and Bach Solo Violin Works*. The first was the stock aluminum CD from Water Lily Acoustics [WLA-WS-07]; the second was the John Marks Records version [JMR 14] remastered by Bob Ludwig but now available for the first time as a gold CD with JMR's own unique labeling method. During Kreisler's "Recitativo" the differences were clear and distinct. The new version is sweeter on top, richer down the middle, with transients that spring catapult-like off Delmoni's bow. The original CD, while still an excellent disc, suddenly sounded a trifle lean, with less of a sense of immersion. The violin sounded drier and more encapsulated and so did the soundstage. It was a fascinating display of how seemingly tiny innovations conspire to make a strikingly musical difference. Germane to this review was how easily these differences were revealed by the M3i, particularly the micro-dynamic shifts of the bow upon the strings and the resonant power of the violin's voice. Compared to the best, the M3i might be a little veiled in low-level resolving power on complex orchestral passages; transient details are a little softer and the collective ring of massed harmonics a bit less compelling.

Matching the M3i to speakers of appropriate value and power requirements is not as difficult

as you might think. The M3i is generous with its output and sounds stable and unstrained even with some hard-to-please speakers. In my experience some especially good match-ups would include offerings like the PSB Image or Imagine B, Focal's 706V, or the Paradigm Studio 10 among others². For a lark, I also hooked up the TAD CR-1, a three-way bass-reflex design and a Golden Ear Award winner (reviewed in this issue). At \$37,000 a pair, the CR-1 is a speaker that illuminates the smallest differences when any link in the system chain is exchanged for another. With the Audio Research CD-5 at the source end and the plucky M3i filling the control and power gap, the sound was not merely satisfying—the amp had legs. For example, during the Ray Brown Trio's rendition of "Cry Me a River" from *Soular Energy* [Groove Note] the M3i captured the punch and resonance radiating from Brown's acoustic bass. And Gene Harris' piano playing was not only conveyed with much of Harris' natural touch and sensitivity but also with the encapsulating space and depth of the venue he was playing in. In fact, in soundstaging the M3i reproduces lateral spread quite impressively. Many amps begin herding images closer and closer like a flock of sheep until each instrument seems to be rubbing up against the other. Not here. The M3i always seemed to permit a nice cushion of air between performers regardless of the number of instruments.

In my experience, every component Musical Fidelity brings to market meets or exceeds my own lofty expectations. The M3i is no exception. Its performance is rock-solid, it's sonically well-rounded, and it's comfortable with a wide array of speakers. And it's all served up in an elegant

no-nonsense package—exactly the way I like my audio prepared. Well done. **tas**

¹ Looking for more punch and features? Musical Fidelity offers the M6i integrated, which outputs 200Wpc in a dual mono design and includes a USB input and a set of balanced inputs. Price: \$3000.

² Paradigm Studio 10, Issue 204. See Editor's Choice, Issue 201 for a variety of loudspeaker options.

SPECS & PRICING

Musical Fidelity M3i Integrated Amp

Power output: 76Wpc into 8 ohms

Inputs: Six pair RCA

Outputs: One pair RCA preamp, one tape loop

Dimensions: 17.35" x 4" x 15.75"

Weight: 20.25 lbs.

U.S.

Price: \$1500

U.K.

Price: £1000

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EQUIPMENT REVIEWS

Integrated Amplifiers

\$1500—\$3000

Cambridge Audio Azur 840A Class XD Integrated Amplifier

Playing Above The Grade

Chris Martens

The Azur 840A is the most flexible, most powerful, and best-sounding integrated amplifier that the British firm Cambridge Audio has ever built, and it even introduces a new “Class XD” mode of amplifier operation that I discuss in the sidebar, below. Briefly, Cambridge’s Class XD circuit leverages the strengths of Class A and B amplification in an innovative way, yielding lower distortion than is typically produced by traditional Class AB amplifiers. Interestingly, the 840A is also a “multizone” integrated amplifier, in that it provides dual A-BUS interfaces that can send audio signals via CAT5 wiring to two remote listening zones. The 840A puts out a feisty 120Wpc, and sells for \$1499.

The Azur 840A incorporates numerous touches that purist audiophiles will appreciate. For example, the amplifier provides separate power supplies for its preamplifier and power amplifier sections, and offers eight user-nameable analog inputs—including one that supports both single-ended and balanced input jacks. Any of the amplifier’s inputs can be locked to fixed gain levels, making the Cambridge ideal for home-theater pass-through applications. Switch-selectable balance and tone controls are provided,

as is a front-panel “Direct” control that ensures the cleanest signal path possible. Finally, to complement its low-distortion circuitry, the 840A controls output levels via a relay-controlled precision-matched resistor ladder.

Over time, I’ve heard a number of small British integrated amplifiers that to some degree fit the stereotype of sounding warm, softly focused, and polite. The 840A is not among them. Right out of the box, the 840A exhibited a big bold sound characterized by terrific midrange



EQUIPMENT REVIEW - Cambridge Audio Azur 840A Class XD Integrated Amplifier

ABOUT CLASS XD AMPLIFICATION

Traditional Class AB amplifiers are thought to offer a good compromise between the sonic purity of Class A amplifiers, which eliminate so-called “crossover notch” distortion, and the efficiency of Class B amplifiers. But according to Cambridge, at mid-to-high output levels amplifiers operating in Class AB mode typically produce *higher levels of distortion* than pure Class B amplifiers would.

In theory, then, an ideal solution would be an amplifier that could make a clear-cut transition from pure Class A operation at low power levels to pure Class B operation at higher power levels—with no intermediate Class

AB operation in between. This, in a nutshell, is exactly what Cambridge Audio’s Class XD amplifier circuit allows. The result is an efficient, cool-running amplifier that exhibits very low distortion at both low and high output levels.

Cambridge Audio Web site offers an in-depth white paper that discusses the concepts underlying Class XD amplification, and that traces the evolution of the circuit used in the 840A amplifier. The paper also gives fascinating insights into the design process, and is highly recommended for technically minded TAS readers. **CM**

definition and detail, and by clean powerful bass. By comparison, the mid-priced YBA Designs YA201 amplifier I reviewed in Issue 165 was more of a contemplative sonic introvert, where the ebullient Cambridge puts its lively and engaging sound right out in the open for all to hear. In short, the moderately priced 840A signals from the outset that it wants to play with the big boys. And in many ways it can.

One important way in which the 840A seems to play above its pay grade is in carving the leading edges of transients with the sort of energy and definition I normally associate with more expensive amplifiers. A multi-faceted musical example will help to illustrate this point. I put on Long John Hunter’s “Let’s Set The Time” from the *Untapped Blues Festival 2004 Live* album [Bluestopia], and I came away marveling at

how vividly alive the 840A made Hunter and his band sound. If you enjoy listening to (or playing) electric guitar at moderate volume levels, then you already know how sound seems to erupt from the guitar amplifier a split second after the pick sweeps past the guitar strings. In fact, some notes can launch so hard that you might initially expect the sound to become unpleasantly loud. But when recording and playback levels are set just so, what actually happens is that individual notes cry out with gripping visceral authority, yet without ever reaching painful levels. This punchy evocative sound is exactly what the 840A achieved in reproducing Hunter’s guitar solos on “Let’s Set The Time.”

Similarly, the 840A did a spectacular job with the sound of keyboardist Tommy Washington’s electric organ. If you listen closely, you’ll observe

that some electric organs (typically older Hammonds) produce a soft slightly scratchy-sounding “click” just as their keys are depressed. These clicks might actually be indicative of wear in the instrument, but many experienced blues keyboardists—Washington among them—use those key clicks to give the notes in fast-paced runs a bit more kick and definition. The Cambridge amp nailed the powerful sound of the organ, clicks and all, and it perfectly caught the eerie shimmer of the Leslie rotary speaker used to give the organ its voice (Leslie speakers feature a rotating horn tweeter whose sweep speed can be controlled by a foot pedal).

Finally, the Cambridge did a gutsy job with the sound of bassist Tracy Mortimer’s electric bass, which sounds clean, clear, and absolutely thunderous on the *Untapped Blues Festival* disc. Even though four-string basses don’t reach down into true low-bass territory they are still difficult to reproduce, partly because they have deceptively complex timbres, and partly because they impose abrupt large-scale power demands on amplifiers. The trick is that amplifiers must answer those demands without losing composure or detail in the midrange and treble regions. Even when I cranked up “Let’s Set The Time” to quite invigorating volume levels, the Cambridge took Mortimer’s propulsive bass lines in stride while keeping the rest of the band in sharp focus.

Thus far, we’ve focused on the 840A’s strengths, which are wonderful and exciting, but we should also discuss two areas where the amplifier’s performance is good, but not great. First, the amplifier’s treble response, though clear and well-detailed, is shelved downward a bit, at least relative to the treble regions of some of the

more transparent-sounding power amplifiers I’ve heard of late (e.g., the Spectron Musician III or the NuForce Reference 9 Special Edition—both of which cost far more than the Cambridge does). This doesn’t mean the 840A’s highs ever sound “soft” or diffuse, but rather that they are just slightly recessed in the mix.

SPECS & PRICING

Cambridge Audio Azur 840A Class XD Integrated Amplifier

Power output: 120 Wpc into 8 ohms, 200 Wpc into 4 ohms

Inputs: Eight single-ended stereo analog (RCA, one as Tape Monitor), one balanced stereo analog (XLR)

Outputs: Two single-ended stereo analog (RCA, one as Tape Out), two A-BUS/Cambridge Incognito multi-zone audio (CAT5)

Dimensions: 16.9” x 4.5” x 15.2”

Weight: 33 lbs.

U.S.

Price: \$1499

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EQUIPMENT REVIEW - Cambridge Audio Azur 840A Class XD Integrated Amplifier

Second, the 840A fails to achieve the sculptural three-dimensionality that competing integrated amplifiers such as the YBA Designs YA201 provide. Though I would normally call the Cambridge a very detailed amplifier, it tends—for whatever reason—to downplay small sonic cues that can reveal the acoustics of recording venues, and the size, depth and body of instruments. You can maximize the 840A's performance potential by equipping the amplifier with a good aftermarket power cord (e.g., the Furutech Alpha Reference) and by pairing it with speakers that are inherently strong soundstagers (e.g., the Mirage OMD-28s). Even so, the French-designed YA201 does a better job of conveying depth and dimensionality. Listening to the 840A is like gazing at a high-resolution photograph, while hearing the YA201 is more like viewing a sculptural object. Good though the photograph may be it never conveys the substance and smooth, continuous shadow

detail that the sculpture possesses.

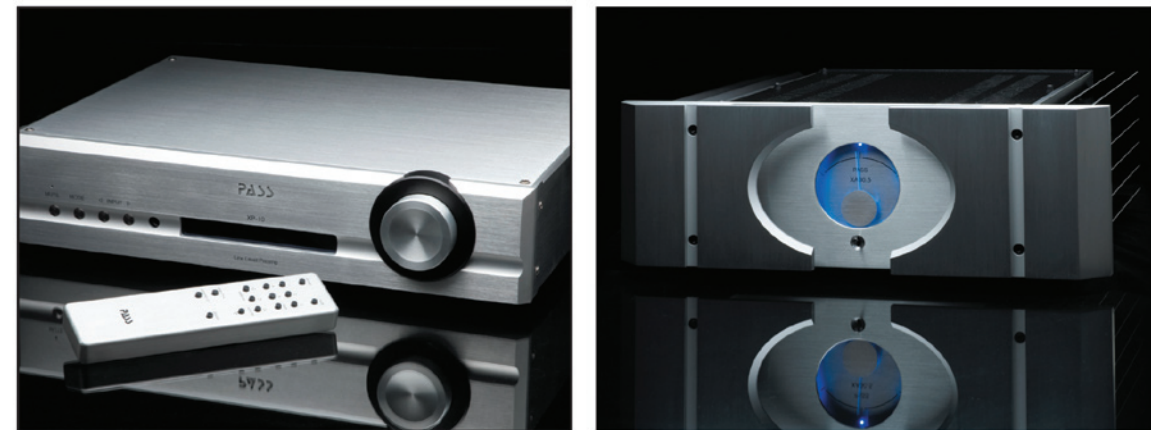
The Azur 840A is beautifully made, and its power, clarity, detail, and life-like dynamics make it a blast to hear. For those ready to embrace the world of multi-zone audio the Cambridge's flexibility may also prove irresistible. In the

The Cambridge took propulsive bass lines in stride

areas of dead-neutral treble response and of holographic three-dimensionality, the 840A can be outperformed, but only—in my experience—by amplifiers that cost more. Even taking minor shortcomings into account, I regard the 840A as one of the finest mid-priced integrated amplifiers I've heard; it consistently conveys the vitality and dynamism of live music. *tas*



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Bel Canto Design S300iU Integrated Amplifier/USB DAC

Energy and Life

Chris Martens

Not long ago, Minnesota-based Bel Canto Design seemed like a technically innovative but otherwise traditional high-end audio company, complete with top-tier products that sold at decidedly upper-crust prices. With the advent of the firm's e.One-series components a few years ago, however, Bel Canto reached a turning point of sorts, where it was able to offer very high performance products at much more manageable, real-world prices—a welcome turn of events for budget-minded music lovers. For the past few months I've been getting to know one of Bel Canto's most versatile e.One models: the S300iU integrated amplifier/USB DAC, which sells for \$1995.

Like other e.One models, the S300iU is housed in a compact enclosure that is deeper than it is wide, sized so that pairs of e.One components can fit side by side on typical equipment racks. Pictures, I discovered, don't do justice to the S300iU, which is solidly built and blessed with the exquisite fit and finish reminiscent of old school, metal-bodied cameras. So, while small in stature, the S300iU nevertheless pushes all the right high-end pride-of-ownership buttons.

The S300iU is simple in appearance and in use—

its only visible user controls are an illuminated display window (which shows amplifier status, input channel selections, and volume settings) plus a single, ingeniously designed, multifunction control knob. By pressing or rotating the knob, users can select inputs, invoke mute or home-theater bypass settings, or adjust volume levels. A full-function remote is also included.

The S300iU's integrated amplifier consists of a low distortion, wide-bandwidth preamplifier coupled with a potent, 150Wpc, dual-mono Class



D power amplifier based on modified ICEpower modules. The amp provides four line-level analog audio inputs plus a fifth modular input bay that—in the case of the S300iU—provides a digital audio input in the form of a 24-bit/96kHz USB DAC (Bel Canto offers other input modules, too, such as a phono stage).

The input side of the DAC incorporates a built-in version of the circuitry from Bel Canto's well-regarded 24/96 USB Link, which is said to reduce jitter and noise for improved sound

quality. Interestingly, though, the USB Link circuitry probably performs better in the S300iU than it does as a stand-alone product because it is positioned on the same circuit board as the DAC—eliminating the Link's traditional outboard housing, digital audio cable, and connectors as possible sources of noise and jitter.

Judged solely as an integrated amp, the S300iU was simply excellent, producing a tight, punchy, well-defined sound that was unfailingly well controlled—a “take charge” sound, if

EQUIPMENT REVIEW - Bel Canto Design S300iU Integrated Amplifier/USB DAC

you will. When I first installed the Bel Canto in my system, I was surprised by the powerful, expressive way in which it handled dynamic swells, vividly conveying the sense of energy and life in the music. It also did a great job of resolving subtle, low-level sonic details and of navigating tricky passages featuring densely layered transient information. Compared to many ICEpower-based amplifiers I've heard in the past, the Bel Canto offers a noticeably more lively, open, and transparent sound, conveying qualities of immediacy and focus that make it a blast to hear in action.

During my listening tests, I used the Bel Canto both to drive two excellent but challenging speaker systems: the superb Usher Mini Dancer Two and the classic Magnepan MG 1.6. The highly revealing Ushers reward amplifiers rich in subtlety and finesse, but tend to expose amplifiers that have even faint problems with edginess or glare. The planar magnetic Maggies, in turn, also reward sonic refinement while demanding serious muscle—wimpy amps need not apply. To its great credit, the S300iU did a fine job with both speakers, offering up power and refinement in equal measures.

The only minor limitation I noted was that the S300iU didn't reproduce very-high-frequency harmonics or the elusive sense of "air" surrounding instruments quite as effectively as my reference hybrid tube/solid-state integrated amp (which costs nearly four times what the Bel Canto does). Given this huge price differential, I thought Bel Canto's performance was thoroughly admirable—good enough that, if my reference amp ever failed, I could see using the Bel Canto as a long-term substitute. One thing is certain:

The S300iU is thoroughly competitive with—and in some respects superior to—other fine integrated amps I've heard in this price class. This is really significant when you consider that the Bel Canto also has a "secret weapon" most other integrated amps do not provide: a built-in, high-quality USB DAC.

The Bel Canto's USB DAC offers taut, rock-solid bass and smooth, articulate mids, and it produces—when fed lossless digital audio files—remarkably stable and sharply focused

stereo images (each performer simply takes his or her place on stage, and stays put—no matter how complicated the music becomes). Some of my colleagues at *The Absolute Sound* have questioned whether USB DACs are capable of capturing the rhythmic and timing-oriented aspects of music, but I found no such problems with the S300iU. On the contrary, I thought it had terrific rhythmic drive and that it did a fine job of conveying the sense of "pulse" and "flow" within the music.

The Bel Canto offers higher levels of resolution than some, but not all, competing USB DACs I've heard, and it does a fine job of teasing out complicated musical lines, and of rendering subtle textural details that define instrumental voices. One drawback I noted, however, is that the Bel Canto DAC occasionally exhibits a somewhat hard-edged, spitty, or splashy sound on abrupt, vigorous upper midrange or treble transients—a problem I've encountered with other USB DACs as well. But don't misunderstand me: The



S300iU certainly does not sound bright, harsh, or edgy. It is just that sounds such as sibilant "S's" in vocals, vigorous cymbal strikes, sharp reed noises from wind instruments, or abrupt violin bowing changes can occasionally disrupt the DAC's otherwise smooth, articulate sound. I found transient problems of this sort could be minimized, though not completely eliminated, by using a high-quality USB cable such as the Furutech GT2 cable I used during my listening tests

I've spoken about the Bel Canto's ability to capture the "energy and life" in well-made recordings and to experience those qualities firsthand, try putting on the track "Tommy" from bassist Dean Peer's stunning *Ucross* [XLO Recordings]. Peer puts on a dazzling display of bass guitar techniques, including conventional finger-style playing, slapping, lift-offs, hammer-ons, overhand tapping, and perhaps most amazing of all, very-high-frequency harmonics that give the bass an otherworldly, chime-like sound. If you've ever had the pleasure of hearing such a performance live, you know it can be characterized both by sheer dynamic punch and—paradoxically—by great delicacy (Peer's harmonic techniques give the bass an almost gamelan-like quality where harmonics and fundamentals merge in exquisitely complex ways).

The Bel Canto just waded right in and *owned* this track, providing sufficient power and control to enable my speakers to create a good facsimile of a live bass guitar performance (something that—trust me on this—most amps have a very hard time doing). But it was in Peer's upper register playing that the S300iU really came into its own, keeping up with Peer's blazingly fast, rapid-fire techniques without skipping a beat, and beautifully displaying his high harmonics in their full glory.

Another track that shows the Bel Canto's strengths to good advantage is "Talking Wind" from Marilyn Mazur and Jan Garbarek's *Elixir* [ECM]. The song is a percussion *tour de force*, displaying an astonishingly diverse array of high- and low-frequency instruments performing within a pleasantly reverberant space. On this

EQUIPMENT REVIEW - Bel Canto Design S300iU Integrated Amplifier/USB DAC

complicated track, the S300iU captured the distinctive transient signatures and voices of the instruments with surprising realism. As instruments were struck, their sounds and positions on stage seemed so lifelike and vivid that I felt the almost child-like urge to point toward empty spaces between or beyond my speakers and to say, "That gong/drum/chime sounds like it's *right there*." Better still, the Bel Canto beautifully reproduced the slowly decaying reverberant "tails" of individual notes gradually fading to silence within the recording space.

During my listening test, I compared the DAC section of the S300iU to both the Chordette Gem USB DAC (\$799) and to the USB DAC section of the Peachtree Nova amp/DAC (\$1195). I found the S300iU offered considerably better resolution and delineation of small sonic details than the Chordette Gem, but that the Gem consistently sounded smoother on upper midrange/treble transients and offered more convincing, holographic 3-D imaging. The Bel Canto and Peachtree DAC sections were much closer in character, though a careful comparison revealed that the Peachtree offered even higher levels of resolution, slightly tighter and better-defined bass, and somewhat smoother upper mids and highs.

Because the two products are conceptually similar, I also compared the amplifier sections of the S300iU and the Peachtree Nova and found the Bel Canto was hands down the superior performer. Good though the Nova is, the S300iU's amp section was audibly cleaner, quieter, more powerful, and capable of resolving

finer levels of sonic details.

First, the Bel Canto S300iU is a compact lion-hearted integrated amplifier that can stand tall beside just about anything I've heard in its price class. The Bel Canto's built-in USB DAC is also very good, though perhaps not quite as good as its terrific amplifier section. Nevertheless, the USB DAC gives the S300iU an extra dimension, making it a very serious, plug-and-play front end for use with computer- or server-based audio systems. **tbs**

SPECS & PRICING

Bel Canto Design S300iU Integrated Amplifier/USB DAC

Power output: 150Wpc @ 8 ohms

Inputs: Four stereo analog (one with "home-theater" bypass), one digital audio (USB)

DAC upsampling: 24-bit/96kHz

Outputs: Preamp out, record out

Dimensions: 3" x 8.5" x 13.5"

Weight: 12 lbs.

U.S.

Price: \$1995

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U.K.

Price: £1799

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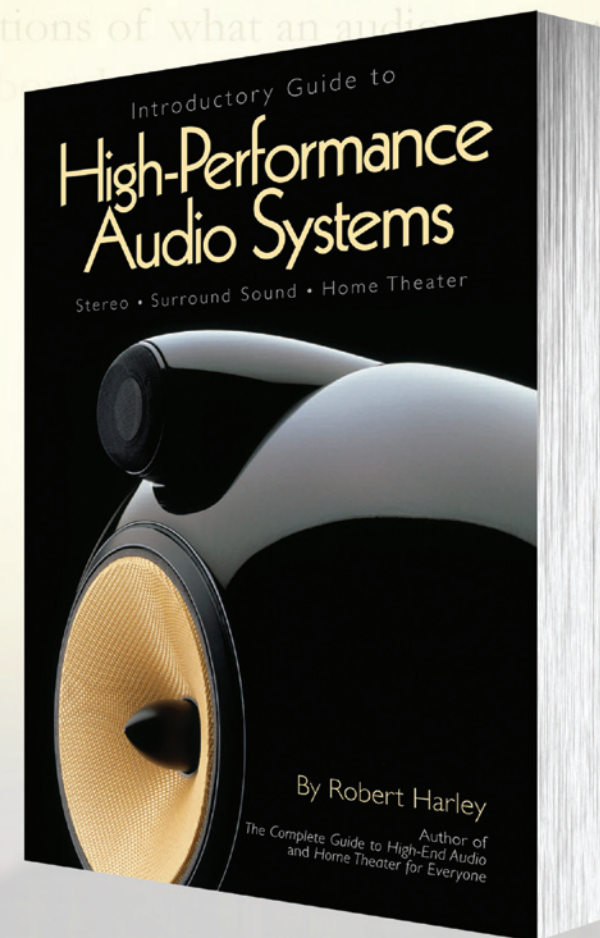
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Heaven or Krell?

Krell S300i Integrated Amplifier

Alan Sircom

A new amp by Krell always piques the interest of audiophiles. But this one is perhaps the most significant Krell in a very long time. You see, the S300i integrated amplifier is the first Krell product to be made in China.

There's nothing intrinsically wrong with building in the Far East, but the high-end community has been a notable hold-out on Chinese manufacture. However, a few that are doing what Krell is intent on doing; making the entry level products in the Far East and the more up-market equipment in its original factory.

This is a bold move on Krell's part. We audio types fear change. Chinese Krell cannot be as good as Connecticut Krell... Can it? In fact, the odds look good. The words on the back of the S300i mention ISO 9001 – a very clear message to the nay-sayers. ISO 9001 is a formal statement of quality control that is common to all good engineering practice. It means constant monitoring, measurement, analysis and a heck of a lot of paperwork accompanying each product. ISO 9001 is one of the mislaid and hard to achieve standards that everyone was struggling to achieve in the 1990s and swiftly forgotten when it came down to building cheap abroad. It

means the place of manufacture is completely immaterial, because the standards set by ISO 9001 remain a benchmark wherever that product is built. It means Krell is Krell, no matter where it comes from.

If the S300i could be made anywhere under ISO 9001 conditions, why move production of any product to China. Why not keep it made in America? Put simply, it would be hard to produce a product of the S300i's calibre in the US without either compromising on performance or raising its price to thoroughly unrealistic levels. The S300i is a bit of a technological *tour de force* under the skin and Krell would either have to sacrifice some of its advanced features, or bring the sound quality down a few notches. Or, it would sell for about £5,000. None of these concepts sit comfortably, so the company decided that for this level of component, Chinese manufacturer was the only possible option. This is not the thin end of the wedge though; Krell is keen to limit the number



of products made in China, as the economies of scale that apply to the S300i (or some AV equipment) don't apply to Evo-type products and these are best hand-built by American expertise.

So, what do you get for your £2,640? Basically it's a pre/power in a single box; there's a stripped-down version of an Evolution preamp, and a Current Mode technology power amplifier stage that's like a Evo 302 writ small. Not that small, as the thing packs a whopping great 750VA transformer and 38,000µF's worth of reservoir capacitance into that 20kg chassis. There's a single balanced (XLR) input – highly recommended – three single-ended line inputs and a power amp direct input. This can also be routed to act as a front channel power amp for a home cinema system. Next to these are a set of CI-chummy connectors (for AMX and Crestron remote handsets and multiroom triggers) and in between is a thin little connector designed to accommodate an Apple iPod.

The amp delivers a claimed 150 watts per channel into eight ohms and doubles that into four. This is the sign of a very 'stiff' power supply, so a relatively low impedance loudspeaker will prove no trouble at all. Such a power supply is common in Krell designs, but comparatively rare at the cheaper end of the market (Harman/Kardon being the notable exception). In musical terms, this means sustained deep bass is not a problem, even on 'difficult' loudspeaker loads. In fairness, if you were to engage in some cruel and unusual loudspeaker punishment – like partnering this amp with something like an old Apogee Scintilla from 20-plus years ago – the S300i might struggle. But, with any of the loudspeakers you would normally expect to partner with a sub-£3,000 amp, the Krell will breeze through the test.

One of the more smart features (part of that 'technological *tour de force*' mentioned above) is its ability to delve into menu systems and adjust

EQUIPMENT REVIEW - The Krell S300i integrated amplifier

a series of parameters to best suit the system context it ends up living in. Not only can you name individual inputs (let's face it S-1, S-2 and S-3 are not exactly roll-off-the-tongue describers of inputs), but you can adjust the input trim (making sure the different sources are close to level match), balance adjustment (independent of main balance – good for those rare sources that might be slightly 'out' in one channel) and muting level. Such adjustment is becoming commonplace at the lower-middle end of the market – and at the very top – but is surprisingly rare among the up-scale integrations this amp goes up against.

The front panel has a big blue LCD readout that treads that fine line between the tiny-wee

like this one. In the hands of one who's trained in such things, this could kill a man with a single blow. It's a solid chunk of remote, all black and capable of controlling other Krell products and even a passing iPod hooked to the S300i. You need a Torx driver to gain access to the batteries, but this is a lot better than a sliver of plastic falling apart in a year or two. However, the beefy remote means Apple's remarkable user-interface gets replaced with Krell's own interpretation. This takes some getting used to and is nowhere near as intuitive as the iPod it handshakes with. Nevertheless, it does offer control of your iPod from an armchair, which is a not inconsiderable bonus.

"This Krell neither foreshortens the soundstage nor exaggerates that wispyess at the edges; it makes the sound seem more rock solid"

letters of some amps and the unnecessarily huge graphics of Audio Research and Classé products. And then comes what I think is the one weak spot; the big knob in the middle. I know this is machined out of aluminium, and sits in front of a digital rotary control instead of a potentiometer or a stepped resistor ladder for good reason (it's more accurate). However, it just feels light to the touch, with no weight or resistance to it.

No such comment could be made about the remote, though. If the Army decided it would be a good idea to equip the Parachute Regiment with remote handsets, they would look and feel

Turn the S300i on and the first thing you get is ordered control. Seconds later, you reach for your killer bass track, because you can bet it sounds great. It will live up to expectations, too; my Spacemonkeyz remix of the first Gorillaz album has enough bottom end to give a trawlerman seasickness, but this often comes across as (*double entendre* fans please look away now) 'all flap and no muscle'. The Krell reverses this beautifully – all muscle and no flap.

There's also a sense of grip and authority to the sound that becomes immediately apparent when listening to something with an expansive

soundstage. Often, large stereo presentations become 'blowsy' and incorporeal at the extremes, as if the phase effects used to widen that soundstage began to encroach on the music itself. This Krell neither foreshortens the soundstage nor exaggerates that wispyess at the edges; it makes the sound seem more rock solid. This makes the crowd noise at the start of 'Numbers' from Kraftwerk's *Minimum-Maximum* album appear less like slightly phasey white noise and more like an audience of middle-aged blokes wanting to recapture their youth.

'Numbers' also demonstrates just how taut the overall performance of the Krell really is. The precise, insistent sequenced rhythms and complex layering of sounds and altered voices within that rhythmic structure are a perfect test of an amplifier's control over an instrument's 'envelope'; how individual sounds attack, decay, sustain and release. These are the sort of tone shaping descriptors used in synth programming, too.

The S300i controls the envelope in a manner that would make Postman Pat hang his plastic little head in shame. Much of 'Numbers' is all about attack and release; half the sounds in the mix are transients of some kind or another. It handles this with ease. Other sounds are more legato – like the vocoder-coated voice intoning Russian numbers or the deliberately slowed German voice. This too it handles with ease. Then, there are the two side by side in the same mix; the regular rhythmic transients and the legato elements, arriving simultaneously; with such hard transients and blunted beats in the same mix, something usually gives. Again... 'handle', 'ease' come to mind.

So far, so potentially clinical; if all the S300i had in its arsenal was authority and a lot of control, it could easily be bested by any number of equally good integrated amps. Yes, so it can start and stop impressively despite having plenty of power behind it, but that's not putting it in the exceptional stakes. What sets it apart from the most integrated amplifiers is that it seems to pull in all the properties of all good integrated

SPECS & PRICING

Krell S300i integrated amplifier

Type: Stereo integrated amplifier, Balanced Class A input stage, Current Mode power stage, 750 VA toroidal transformer, 38,000µF reservoir capacitance
Inputs: single ended line (X3), XLR balanced line (x1), Direct iPod connection (x1), Home theatre preamp input (x1), RS-232, RC-5, 12 VDC Triggers
Outputs: WBT loudspeaker binding posts
Power output: 150W into eight ohms, 300W into four ohms
Dimensions (WxHxD): 43.82x10.16x44.45cm
Weight: 20kg

U.S.

Price: \$2500

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Price: £2695

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EQUIPMENT REVIEW - The Krell S300i integrated amplifier

amplifiers, and then do a Spinal Tap, by going up to 11. No, the analogy doesn't extend to going louder than its rivals (although it can go very loud, very clean). Instead, it has a lot of the 'bounce' of a good UK design, a lot of the detail and large-scale soundstaging of its American counterparts, some of the warmth of a valve amp at the bottom end but with the cool neutrality of a well-engineered solid-state design at the top.

The amp is hugely powerful, but graceful and composed at quiet levels. There's a paradox about amps that have huge power reserves, in that they often show their best side at incredibly low levels. Sometimes, at low, late night listening SPLs, the interaction between tweeter and woofer can appear less coherent. It's as if the crossover stopped behaving itself and let the two drivers play their own games. Here, the Krell S300i's power reserves keep woofer and tweeter on track, even when the volume level is at '001'. That kind of control doesn't come cheap, and is normally the reason why people buy Krell pre/powers.

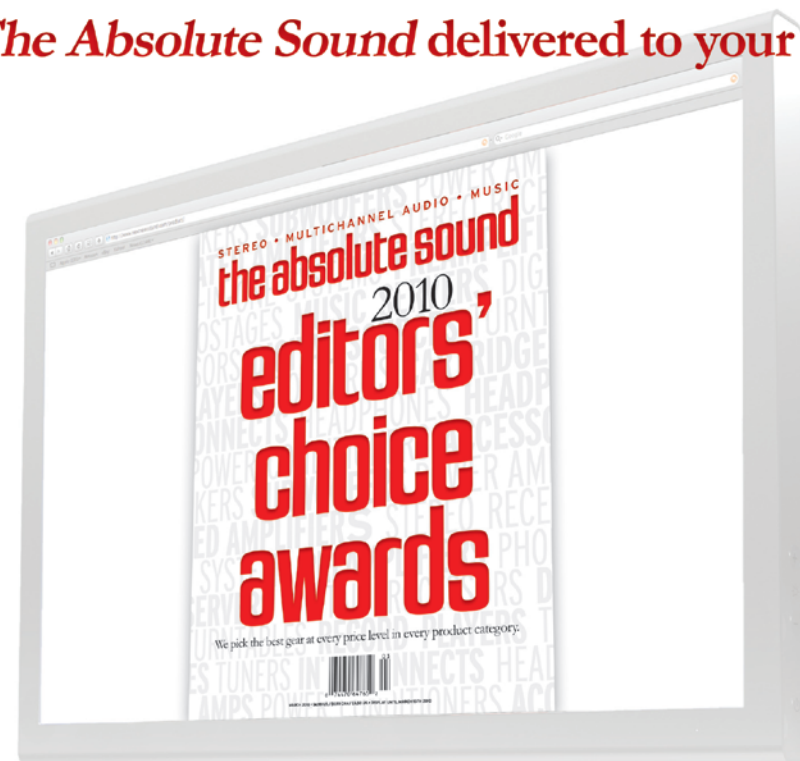
At this point though, the mild 'shhhh' of the background noise begins to be apparent. This is very mild (think 'well designed valve amp', rather than 'someone making a cappuccino in the corner of the room') and is quickly forgotten about when raising the volume even slightly, because this background noise is quieter than most CDs spinning up. So in many settings, you might not even hear it. It's there, though and some will never be able to settle down with a solid-state amplifier that isn't free from background noise. More fool them, the lose out on a remarkable sounding amplifier because of something they will struggle to hear under normal conditions. While we are on

the subject of stray noises, the amp does make a whisper-quiet 'phut-phut' sound as the volume control goes through its steps. Consider it the computer-age version of relays switching in and out. Pay it no heed, though.

The S300i is a really good amplifier. It's almost good enough to soak up sales of the Evolution 222 preamp and 302 power amplifier, unless you happen to try to partner it with really daft, punishing loads. With its combination of 'next gen' inputs (like that iPod connector) and the sort of build quality that could make 'Black Box' flight recorders look shoddy. Whether this is My First Krell, or the Krell you never thought you could afford, the S300i must rank as one of the best integrated amps in the business. +

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Tube Nirvana

PrimaLuna DiaLogue Two Integrated Amplifier

Jim Hannon

With its ProLogue series of tube electronics, PrimaLuna burst onto the audio scene a few years ago and established itself as a serious contender in the value-priced sweepstakes. Designed in the Netherlands, built to high production standards in China, and distributed in the U.S. by tube-maven Kevin Deal, PrimaLuna's first offerings, the ProLogue One and Two integrated amplifiers, were followed by a separate preamplifier, stereo amplifiers, and monoblocks. I lived happily with ProLogue Six amplifiers during an extended review period and was impressed by their natural and engaging sound, and the quality of their point-to-point wiring and parts. PrimaLuna's adaptive auto-biasing and soft-start features combine to help make owning an audio component with glowing devices musically satisfying and "easy as pie" to operate and maintain.

At the 2006 Winter CES, Kevin proudly pointed to a prototype of an integrated amplifier from PrimaLuna's new, upscale DiaLogue series that was on silent display. The first thing he said to me was, "Lift it up!" I did, but I should have put more of my legs into it. This baby was almost double the weight of one of the ProLogue integrated units. Given my very positive experience living with the PrimaLuna monoblocks, I was anxious to audition this new integrated amplifier and see how it compared with its ProLogue Series counterpart. My accommodating local dealer, Brian Hartsell at The Analog Room, kindly loaned me a DiaLogue Two and a ProLogue Two integrated amplifier so

I could do the comparison.

The KT88-equipped DiaLogue and ProLogue Two units sport many of the same premium parts, have similar power ratings (when the DiaLogue is in ultralinear mode), and include those wonderful auto-biasing and soft-start features. Consequently, it's not surprising that they also share several sonic qualities, too, when driving speakers with relatively benign loads. Both have an engaging and highly musical midrange, and their sonic differences in the midband are subtle. As was the case with the ProLogue Six monoblocks, both of these PrimaLuna integrations get the sound of massed strings and voices right, a failing of far

EQUIPMENT REVIEW - PrimaLuna DiaLogue Two Integrated Amplifier

DESIGN ELEMENTS

Several well-executed design elements combine to significantly improve the performance of the DiaLogue Two over its ProLogue Two counterpart. The most obvious are the unit's significantly increased chassis weight and improved cosmetics. However, the most important of these are the DiaLogue's "beefy" wide-bandwidth output transformers. Just because an amplifier's transformers are more massive doesn't mean it will actually sound better overall. This is a tricky business, and there are too many cases where a company's amplifiers with smaller output transformers sound better in the midrange and highs than those with larger ones. Typically, a larger transformer will yield better bass drive and control, but can actually degrade the quality of the midrange and highs. To reap the sonic benefits of these hefty

transformers across the entire frequency spectrum, PrimaLuna used a labor-intensive "half-speed-winding" technique. According to PrimaLuna's Herman van den Dungen, during the DiaLogue's design phase the resistance of the transformers was measured after each coil winding. Many versions, with different coil windings, were evaluated sonically until the one with the best combination of low distortion and the right balance was identified. Ranges of different isolation materials and types and thicknesses of iron were also evaluated—to reduce distortion. Tighter-tolerance parts were used in the DiaLogue, as well as PrimaLuna's proprietary Adaptive AutoBias circuit, reported to reduce tube distortion by 40% to 50%. The result is an integrated amplifier with incredible bass slam for its output rating, a seductive midrange, and extended "fatigue-free" highs.

too many high-definition components. They add no additional edge or stridency yet still maintain very good clarity and detail on recordings like Beethoven's Sixth Symphony (Kubelick on EMI), and Liszt's *Dante* Symphony [Telarc]. Strings on the DiaLogue had a bit more realistic bite and presence, but not brightness, resulting in a more exciting performance. Sarah Vaughn's voice on *Ballades* [Roulette Jazz] was a tad purer with the DiaLogue, and her voice had more intensity.

Outside the midrange, the gap between these two units widened, with the DiaLogue offering superior transparency, midbass weight and

articulation, extension at the frequency extremes, and micro- and macro-dynamic swings. For example, the tympani rolls on the Liszt were more explosive with the DiaLogue, and the ensemble on *Electric* [Chesky] seemed to play with more rhythmic drive, aided by the enhanced solidity and articulation of Victor Bailey's electric bass and high-frequency shimmer and decay of Lenny White's cymbals. With the DiaLogue, performances were more thrilling and 3-D, with clearer ambient cues; instruments like the cello on Haydn's Cello Concertos [Pierre Verany] had better timbre, with more body and fleshed out overtones.

If you own a speaker that's more difficult to drive, the DiaLogue is the clear choice. Whereas the ProLogue Two struggled mightily to drive the Quad ESL-2805 loudspeakers, distorting dynamic peaks with either the 4- or 8-ohm taps, the DiaLogue drove the new Quads "effortlessly" and was able to extract more bass extension and weight than I could have imagined, without any bloat or muddiness. I also preferred it sonically to the more powerful ProLogue Six monoblocks, which had just departed from my listening room prior to the DiaLogue's arrival. Besides its superior bass performance, the DiaLogue out-pointed the Sixes in terms of fine-detail retrieval, upper-midrange purity, and high-frequency openness and extension.

Don't be surprised if the DiaLogue's output is all you need

The DiaLogue Two's ability to faithfully reproduce the realism of the piano was shocking. One literally hears the fundamentals and overtones resonating from the piano's soundboard. I was amazed at its bass punch and foundation on Alain Planès' recording of the Debussy *Préludes* [Harmonia Mundi], its explosive dynamics on Vladimir Ashkenazy's recordings of Beethoven's last piano sonatas Nos. 28–32 [London], and the subtle details and nuances that emerged from *Ignace Paderewski Plays Beethoven, Liszt, Schubert, Debussy* [Klavier]. While Paderewski reportedly hypnotized audiences in live performances, I sat there transfixed listening to his admittedly

romantic, but oh-so-wonderful interpretations through the spectacular DiaLogue/ESL-2805 combo.

At the push of a button on the remote, I switched the DiaLogue Two from ultralinear to triode operation instantaneously. Adjusting for level (the output is halved in triode), the sound became a bit

SPECS & PRICING

PrimaLuna DiaLogue Two Integrated Amplifier

Power output: 38Wpc (ultralinear); 21 Wpc (triode)

Frequency Response: 10Hz-30kHz (+1dB)

Inputs: Five pairs stereo RCA, one pair home theater

Outputs: One pair stereo RCA

Tube Complement: Two 12AX7s, two 12AU7s, four KT88

Input Impedance: 100kOhm

Dimensions: 15.9" x 15.2" x 8.3"

Weight: 63.8 lbs. (70.5 lbs. shipping weight)

Warranty: Two year limited (six-months on stock vacuum tubes)

U.S.

Price: \$2625 (\$2804 as tested, with installed

PhonoLogue mm phonostage)

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EQUIPMENT REVIEW - PrimaLuna DiaLogue Two Integrated Amplifier

It appears that a lot of thinking went into the design of the remote control, too. The unit fits easily and firmly into your hand and the volume can be controlled by your thumb. The button to switch from ultralinear to triode mode is at the top of the remote, so it takes a deliberate action to change modes. A red light, easily seen on the top of the DiaLogue, indicates ultralinear mode and a green light indicates triode. Switching is instantaneous, but beware. When listening in triode mode, you can easily increase the gain only to be jolted by an increase in volume when you switch back to ultralinear. As a precaution, I found myself reducing gain a bit in triode prior to moving to ultralinear.

The DiaLogue Two has a true home-theater “bypass” feature, enabling its amplifier section to be controlled by an AVR, preamplifier, or linestage. It removes the DiaLogue’s linestage and its volume control completely from the signal path, so don’t try plugging your CD player directly into these inputs unless you want to fry your speakers. What’s great about the bypass feature is that if you’ve already invested in a high-performance preamplifier or linestage, you can still use it with the DiaLogue. Moreover, the DiaLogue can easily integrate into a home-theater system merely by connecting the left and right preamp outputs on the AVR to the HT inputs on the DiaLogue. **JH**

warmer with more image depth, at the expense of a slight increase in noise level and some softening of the bass and highs. Massed strings were slightly lush, with a lighter, “feathery” quality. However, one’s preference for either triode or ultralinear mode will likely depend on the speakers used, the type and brand of output tubes, and even one’s mood. For example, if I wanted more impact, I switched to ultralinear, but for more aggressive recordings, I moved back to triode. On my original Quads, I preferred the more relaxed triode mode, but on the new Quad ESL-2805s and Hyperions, I found myself typically listening in ultralinear mode, with its more extended, dynamic, balanced, and thrilling presentation.

Since the linestage of the DiaLogue can be completely bypassed, I also used my reference preamplifier with the DiaLogue Two, and the

soundstage was literally wall-to-wall on great analog recordings. String tone was gorgeous, and trumpets had the requisite “ping” on Holst’s *A Fugal Overture* [Lyrita], suggesting that the performance of the amplifier section of the DiaLogue is very fine, indeed. Using only the MFA’s phonostage with the DiaLogue, string tone remained beautiful and the soundstage was still surprisingly expansive, but the image did not extend outside the boundaries of the speakers. Nevertheless, this level of performance through a modestly priced integrated amplifier is quite stunning.

Despite its outstanding performance, the DiaLogue Two has some limitations. While it has more dynamic explosiveness and midbass weight than any 38-watt integrated amplifier I have ever heard, you might need to look elsewhere if

you have power-hungry speakers. But don’t be surprised if the DiaLogue’s output is all you need. Some may prefer the immediacy and purity of the best SET amplifiers using 300B or 845 output tubes, but the DiaLogue comes close to that sound, particularly in its triode mode, and offers many other compensating virtues. If you need more lushness, try a set of EL34 output tubes, but the stock Genelex KT88 knockoffs sounded lush enough to me and have a tad more power, bass authority, detail, and high-frequency extension. Lastly, a PhonoLogue moving-magnet phonostage can be added internally to the DiaLogue, but it is limited to moving-magnet or high-output moving-coil cartridges. While its performance rivals separate phonostages around \$500, and is definitely a good value, I’m hoping that PrimaLuna will introduce a companion DiaLogue phono card,

or external module, that’s even better.

Great wide-bandwidth transformers, a hefty damped chassis, an intuitive remote control with triode switching, and an effective direct-bypass capability combine to raise this PrimaLuna’s performance at least another level (or “Two”) above the fine ProLogue Series. If the DiaLogue Two is representative of forthcoming units in PrimaLuna’s new, higher-performance line, audiophiles and music lovers who are value- and performance-conscious and want tube electronics that anyone can operate and maintain are in for a treat. The DiaLogue Two is a keeper. **tas**



Rega Elicit Integrated Amplifier

Satisfying on Many Levels

Wayne Garcia

When you think about it, “elicit” is a pretty nifty name for an audio component. After all, the verb not only rolls nicely off the tongue, it describes what we’d like our playback systems to do with music—draw out, extract, evoke, prompt, and so on. In turn, our systems should also elicit from us certain—we hope, high—degrees of emotional and intellectual response.

When considered in both of these contexts, Rega’s new Elicit integrated amplifier (\$2995) is very cleverly named indeed. But then, unlike many specialty audio manufacturers, Rega never turned its attention away from traditional two-channel music systems, not even when tempted by those who claimed two-channel was dead—viva five-point-one!

Another thing I admire about Rega is that, again, bucking trends, all of the company’s gear—from turntables and arms to speakers and electronics—is built in the U.K. Moreover, borrowing from the food world’s “locavore” movement, Rega also aims to support local parts-suppliers by sourcing as much as possible from nearby makers. This is not only good for Rega’s local economy, but it also earns the company carbon credits (at least in spirit) for saving on all that transcontinental to-

ing and fro-ing.

While Rega has been making speakers and amplifiers for the past decade or so, the company remains best known for its line of consistently musical and affordable turntables, which, unsurprisingly, has rather overshadowed the brand’s other good products, such as the the RS5 speaker I wrote about in Issue 196.

According to Steve Daniels, head of Rega’s U.S. importer The Sound Organisation, the Elicit represents a new generation of Rega electronics, a “radical departure” from the past.

Just how radical any design can be is best left to engineering types—a group I most certainly don’t belong to—but to cite Rega’s product sheet the Elicit employs “the Rega Alpha-Encoder control system, comprising a digitally controlled analog switched-resistor-network volume control, with

a Class A discrete low-noise FET line amplifier.” Techno-babble aside, the Wolfson-sourced volume control is a bit unusual in operation in that it functions as both a volume control and a source selector. You can select an input directly from the remote control or, with a front-panel button push, convert the volume control to a source selector. After a few seconds, the Elicit automatically returns to the more commonly used volume-control mode.

The amplifier is rated at 80Wpc. Not exactly macho, but not particularly wimpy either—call it someplace balanced between Robert Downey’s roles in *Chaplin* and *Iron Man*. Rega also uses Evox and ICEL film capacitors “in sonically critical signal path processors throughout,” while the bi-polar output devices are supplied by Sanken. Otherwise, the Rega engineers have

done their work keeping signal paths short and using discrete circuitry. (For those who actually enjoy reading about this stuff, all this and more can be found at the Rega Web address listed in the accompanying spec box.)

The chassis is handsome in a clean modern way, with a gentle scoop at the top that mimics the line of the heat sinks at the bottom, and can be ordered in either black or silver satin. In a nod to multichannel users, a “direct” input allows easy integration in a 5.1-channel system; for LP playback the Elicit can be had with optional moving-magnet or moving-coil phono cards (\$145 and \$175).

A minor oddity is that the five-way speaker posts are laid out so the right channel terminals are on the left as you’re looking down on them from the front of the unit. Meaning that the right and left



EQUIPMENT REVIEW - Rega Elicit Integrated Amplifier



outputs are physically nearest to the opposite speaker channels, and you have to cross speaker wires for hook-up (or, as I did, simply reverse the vertical orientation of the L/R RCA inputs). Not a big deal, but initially confusing when I played an orchestral piece and wondered why the tympani player had moved his kettle drums and taken the cello section with him. But this is no deliberate perversion; the left and right binding posts are reversed from the usual orientation because that allowed them the shorter signal path. Once you've connected your system, you can forget about it.

The Elicit is a very nimble performer. You'll first hear this dynamic fleet-footedness, an overall quickness of response, in something like Jeff Buckley's *Live at Sin-é* [Columbia CD], in which the late singer's warm, funny vulnerability is easily conveyed within the club's highly ambient atmosphere. The Elicit did a fine job of conjuring an image of a small, appreciative audience listening to one man making music with his electric guitar, which has that rich, ringing twang

one gets with a Fender Telecaster/Twin Reverb setup. Tonally, the amplifier was quite neutral, but showed a slight lightness of being in the Fender's lower octaves and in Buckley's wide-ranging vocals, which weren't quite as rich as what I'm used to hearing.

My review sample was delivered with the mc card installed, and I found it to be an impressively natural-sounding circuit. Vocals, from Town Van Zandt's sweet Texas tenor on "Pancho & Lefty" (*Live at the Old Quarter, Houston, Texas* [Fat Possum]) to the duet of M. Ward and Lucinda Williams—he, high and croaking, she, deep and rasping—on Don Gibson's "Oh Lonesome Me," from Ward's *Hold Time* [Merge], were notably easy, airy, and communicative. Small-scale dynamics were likewise impressive on these LPs, and especially so on the Philips recording of Lutoslawski's Cello Concerto, which begins with Heinrich Schiff's scampering unaccompanied instrument before a dialog between horns pipes up. Again, the sweet yet raspy warmth of Schiff's

cello, and the naturally bright bite of the horns struck me as very unprocessed sounding. And on the new Esoteric release of Dvorák's *New World* Symphony (the first Kertesz reading on Decca, reviewed in Issue 195) the Elicit was again impressive—of course, this is also a famously impressive recording. While it might not deliver the ultimate in large-scale dynamics as heard through a high quality dedicated phonostage, the Elicit conveyed an excellent sense of a full orchestra occupying a large space, with the attendant air, depth, and width, as well as this recording's warm string and brass textures, forceful tympani accents, and Kertesz's dynamic and compelling conducting. The amplifier's 80 watts won't last forever, though, and at one point my volume level pushed it over the edge, so do choose medium-to-higher sensitivity speakers to get the best results (by the way, Rega's own RS5 makes a dandy mate).

But just because it has power limitations doesn't mean the Elicit can't rock. Turning to Bettye Lavette's *I've Got My Own Hell To Raise* [Anti-], her R&B throwdown of Lucinda Williams' "Joy" flooded the room with crunching electric guitars, a chest-thumping rhythm section, and Lavette's intense, gravelly voice.

And finally, one of the hardest challenges of them all—the piano. On another Esoteric disc, the Curzon/Britten recording of Mozart Piano Concertos Nos. 20 and 27, the Rega's quick response paid off handsomely, with a beautifully lifelike recreation of the instrument with none of the overblown quality recorded pianos often have. This, along with the bonus of a well balanced and convincing recreation of the accompanying chamber orchestra, led to a thoroughly satisfying

musical experience.

So there it is, the Rega Elicit, an integrated amp that, despite a few operational quirks and a touch of lightness (which also adds to its terrifically quick response), nicely lives up to its name. It does draw out the musical essence of a recording, and elicits deep satisfaction from those who are listening. **tas**

SPECS & PRICING

Rega Elicit Integrated Amplifier

Power output: 80Wpc into 8 ohms

Inputs: Five line-level (optional mm or mc phonocard), one "direct," one "record"

Outputs: Preamp, record, record link, 5-way speaker

Dimensions: 17" x 3.25" x 12"

Weight: 17.5 lbs.

U.S.

Price: \$2995, add \$145

for mm and \$175 for mc phono boards

U.K.

Price: £1498, add £62

for mm and £92 for mc phono boards

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Less Is More

Hegel H100 Integrated Amplifier

Kirk Midtskog

Understated elegance. Quality over quantity. Substance over style. If the underlying sentiments expressed in those phrases appeals to you, consider the Hegel H100 integrated amplifier. Its pure sound and its subtle form embodies the less is more ethos beautifully. In this case, the less is cost and the more is performance.

Hegel has been manufacturing specialty audio products in Norway since the late 1980s. By 2000, it was exporting CD players, DACs, integrations, and separates to Europe and Asia. Hegel is entering the U.S. market at a challenging time. Discretionary spending is down for most of us, but Hegel has an approach that I think serves it well under the circumstances: Use unique engineering solutions executed with cost-effective parts and pass on the resulting savings on to the consumer. The \$3000 asking price is not cheap, but the H100 delivers sonics above its price.

The H100's appearance is not completely utilitarian. It is actually quite nice looking in an

understated, self-assured way. It has a subtly curved faceplate and two matching knobs that are made of glass-blasted and then anodized aluminum. The input and volume knobs flank a blue LED display (which cannot be dimmed) and an on/off button. The top and sides are made of an anodized aluminum sheet that has ample ventilation slots through which several small LEDs inside the amplifier can be seen when the unit is on.

For \$3000 you get an easy-to-use, fairly powerful 120-watt integrated amplifier with a fully balanced XLR input and sufficient additional analog connections to make it useful but not complicated (all RCA): four more inputs, two preamp output

pairs, a home-theater bypass input. It also has an on-board USB DAC that will process 16-bit audio files at 32-, 44.1-, and 48kHz sampling rates. The metal handset, also made of glass-blasted aluminum, controls all functions of the H100 (plus any Hegel CD player). The finish gives the H100 and its remote a silky feel, and since it isn't shiny, finger smudges are not a problem. Nice touch. You are paying for sound quality that is above its price point, not necessarily stunning casework or a feature-laden interface. That is just the kind of priority set that appeals to me.

Using the H100 is straightforward. When the unit powers up, it defaults to the balanced input and a volume setting of 30 (out of 99). This allows you

to select your desired input and confirm that there is some signal without assaulting your speakers and ears. If the mute function is activated, upon resumption it will ramp up the volume from 30 to the previous volume setting, thus similarly avoiding a sudden blast if you happen to be playing a loud passage. The display shows two-characters (upper and lower case) to indicate the active input. The characters representing DVD and Tuner are, however, somewhat cryptic.

Hegel uses a patented circuit called the SoundEngine that represents its primary claim to improved performance through engineering. The SoundEngine is said to reduce the crossover distortion that occurs in typical Class AB designs



EQUIPMENT REVIEW - Hegel H100 Integrated Amplifier

as the positive- and negative-phase output transistors turn off and on when the signal is handed from one to the other. By using a “feed-forward” technique, the SoundEngine yields both Class A-like fluidity and a reduction in higher-order distortion effects without the necessity of having to bias the output devices at anywhere near Class A levels. This also avoids the resulting heat dissipation and power consumption of typical Class A designs. The H100 is barely tepid to the touch after several hours of play. Hegel also separates the low-voltage portion of the power amplifier’s input section from the high-current portion of the output section with different power supplies. According to Bent Holter, Hegel’s chief designer, this reduces distortion brought about by large, simultaneous voltage and current swings in the two respective gain stages.

We all have read about various companies’ “special” circuits and the marketing names associated with them, and we all can be forgiven for regarding such talk with healthy skepticism. I adopt a polite, but pragmatic attitude: “Very interesting, but how does it sound?” In the case of the Hegel H100, it sounds very good. That it is made in Norway (where labor is expensive) and is reasonably priced does seem to verify Hegel’s claims of providing effective engineering solutions at reasonable cost.

Hearing the H100 at its fullest takes some patience. It needs at least 200 hours of break-in time, after which it opens up and quickens, revealing levels of detail and sonic refinement that I haven’t come across at this price point before. The H100 has a liquid, sophisticated sound that adds up to musically rewarding, fatigue-free listening over the long term. It invites you into the

music through its unforced, natural portrayal of details, rather than commanding your attention through audio fireworks. The lip sounds of the chorus on Morten Lauridsen’s “O nata lux” [*Lux aeterna*, Layton/Hyperion], for example, were closely connected to the sound of the singers’ throats and chests through the H100 rather than being pushed out in front and seemingly disembodied in a larger-than-life way, as was the case with the April Music Stello Ai500 integrated amplifier (150W, \$3500). Live music sounds both light airy as well as rich and weighty. The H100 pleasantly tilts just a bit to the lighter side. There is no brightness or harshness, just less emphasis on the rich and weighty.

I was initially concerned that the H100 would not be powerful enough to convincingly drive my Dynaudio Confidence C1 loudspeaker, which can present difficulties to some amplifiers. My concerns were unfounded. While the C1 benefits from even more power feeding it, the H100 had good bass extension and speed, and could handle sudden dynamic bursts with an ease that came as a pleasant surprise. In general, the H100 sounded more powerful and dug deeper in the bass than the 150Wpc Stello Ai500. True “power music” like various passages from *Pomp and Pipes* [Fennell/Dallas Wind Symphony, RR] caused the H100 to clip, but this aspect of performance was only marginally bettered by the H100’s bigger brother, the H200 (200W, \$4400), and improved upon a just bit further by my Gamut M200 mono amplifier (200W, \$12,000). Of course, more power behind a speaker generally brings a lot more to the equation than merely the higher onset of clipping.

Recording permitting, the H100 places individual performers in a spatial context that includes the

sound of the hall. This sounds more reminiscent of live performances to me than a strong focus on images at the expense of the larger context. The H100 tends to throw a slightly narrower soundstage than that of the Stello Ai500 or my pre-power combo, but the H100’s soundstage is quite deep and continuously layered from front to back. Images are fairly solid with good physical presence, but they’re not as weighty as some amps can muster. The H100 gives a commendable feeling of continuousness that is not unlike that of good tube amplifiers.

Some listeners may hear the H100’s image outlines as soft. I hear them as more natural, and consider the H100’s presentation to be much closer to that of far more expensive electronics than to the exaggerated razor-cut image outlines of some gear. The H100 certainly does not sound restricted in the frequency extremes or lacking in resolution. In fact, notes seem to start a little sooner and trail off a little longer than they did with the Stello Ai500. I did an informal test of subtle information retrieval by level, setting the volume of the H100 and Stello Ai500 with a 1kHz test tone and a voltmeter, and then played the “The Song of the Nightingale” [Oue/Minnesota, RR] movement from the musical work of the same name on both amplifiers in succession. Just after 27 seconds into the cut (Track 10), there is a quick, faint, rising *bloop* sound just as the opening flute solo finishes. The H100 rendered this sound a little more clearly than the Ai500.

The H100 sounded wonderfully clean and musically organized on several studio pop recordings. The usual clanging, ragged qualities we just accept as normal when electric guitars and cymbals combine at high volume levels do

not necessarily have to be irritating to an extent that causes us to turn down the volume. The H100 proves that we can listen into the mix of very aggressive music comfortably.

Nevertheless, I could never quite shake the feeling that the H100 lacked the last bit of immediacy compared to live music or my reference rig—admittedly a ridiculously tall order. As much as I love the H100’s clean, fatigue-free sound, I have to mention its ever-so-slight lack of presence—a quality not unlike a few full Class A solid-stage amplifiers, such as the Esoteric A-03 (50W, \$12,000). Luckily, turning up the volume

SPECS & PRICING

Hegel H100 Integrated Amplifier

Power output: 120Wpc

Inputs: Four unbalanced (RCA), one balanced (XLR), one HT/power-amp (RCA), and one USB

Outputs: Two preamp (RCA), one record (RCA), speaker terminals

Dimensions: 17" x 4" x 14.5"

Weight: 35.2 lbs.

Warranty: Two years parts and labor

U.S.

Price: \$3000

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EQUIPMENT REVIEW - Hegel H100 Integrated Amplifier

does not drastically increase the electronic haze and attendant fatigue that come with most amps anywhere near the H100's price induce.

Please keep in mind that I use speaker cables that cost more than the H100 itself (\$5000 per 2.5m pair). I use amplification gear that retails for over \$21,000 as my reference—hardly likely to be equipment associated with the H100 or to make for fair comparisons. In the context of other systems in which I inserted the H100, I heard no such reticence. In fact, when it replaced a Marantz PM 11S1 integrated (\$4000) in a system also comprising a Marantz SA 11S1 SACD player and Silverline Panatella III (\$2500) speakers, it shone like a beautiful, low-noise amp that could easily be mistaken for \$6000 separates. The H100 also charged up a NAD-Axiom-based system and brought out details very well, accompanied by a sense of forward momentum that had my friend and me bobbing our heads to the beat.

I can verify that the on-board USB DAC sounds quite good, comparable to that of the Stello Ai500 on 16-bit files. I suspect that most users will probably use an external DAC that will leverage server technology more fully than the H100 can—processing 24-bit files at 96kHz and 192kHz. The separate preamp and power amp sections perform quite well on their own. Together, the two sections are well balanced. Hegel has done a good job of making the H100 flexible by adding pre-out and amp-in connections, but the real lure to consumers here is using it as an integrated amplifier.

I believe the qualities that make the H100 such a pleasure to listen to all fundamentally point to its relatively low levels of noise. If you value sonic purity, natural imaging, and low listener-

fatigue, and do not necessarily insist on wall-to-wall soundstaging or a commanding sonic personality, the H100 could very well be the integrated amplifier for you. At its price point it allows you to put some of the funds you saved by forgoing more expensive separates into the highest quality cabling and surrounding gear you can put together. The H100 deserves to be paired with much higher-quality gear than one would normally consider for a \$3000 integrated amplifier. Beautiful. Simply beautiful. **tas**

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EQUIPMENT REVIEWS

Integrated Amplifiers \$3000—\$6000



Simaudio Moon i3.3 Integrated Amplifier and CD3.3 CD Player

Sim-ply Superb

Neil Gader

“Wow, this baby’s loaded,” I muttered to myself as I scanned the back panel of the Simaudio Moon i3.3 and its sister, the CD3.3, which was idling nearby. I do my own fair share of high-end tire-kicking, but the Canadian firm’s latest mid-priced integrated amplifier and CD player caught me off guard. Particularly the amp, with its four digital inputs plus an on-board DAC to service them. It turns out this DAC is only one of three options that Simaudio offers to prospective i3.3 buyers—packages that when fully installed transform a handsome 100Wpc integrated amplifier into a system hub for sources that might include a satellite TV, a computer, a turntable, and more. (For technical particulars see the accompanying sidebar.) However, there are two items that seem to be standard equipment on every Simaudio I’ve reviewed—rewarding sonics and surefire performance. The i3.3 and CD3.3 certainly follow suit here.

THE I HAS IT

Simaudio and I have a history. Beginning with the Celeste PW-5000 integrated amp, and later the Moon Equinox CD player and Moon Evolution SuperNova, I’ve listened to and written in admiration about the consistent musicality and fidelity of Simaudio gear. Sonically the new i3.3 and CD3.3 remain faithful to Simaudio virtues. What’s even more interesting is that you can hear what is basically the same sonic signature in both the amp and the player, which is why, unless otherwise noted, my impressions are mostly an aggregate of listening to both.

Like a lit fuse the Moon 3.3 Series embodies a familiar sensation of eagerness relative to the reproduced signal. Call it Jonathan Valin’s jump factor, or a freedom from lag time, or a lack of leading-edge distortions, or all three, but the Moon 3.3 launches rhythmic volleys, percussive accents, and transient cues with the speed and smoothness of Usain Bolt bursting

from the starting blocks. And it’s not adding a scalpel-edge analytical signature to produce this impression. It’s not grafting etch or grain onto leading-edge transients. Rather, it reproduces them as a continuous and organic part of the entire instrument or voice.

Whether driving a full-range loudspeaker like the new Sonus Faber Liuto (review to come) or my own ATC compacts the i3.3 had terrific bass control, good extension, and a smooth, refined top-end. Instruments seem to pop out of the blackness and silence of the soundstage with a purity and lack of noise that foster an almost addictive involvement in every performance. Although I’ve usually felt that Simaudio amps had the “speed thing” down, my experience suggested that the earlier amps tended to lean a bit toward the cooler side of the harmonic spectrum. I believe this has changed with the i3.3. On Clark Terry’s “Just For A Thrill” from *One on One* [Chesky], Geri Allen’s



EQUIPMENT REVIEW - Simaudio Moon i3.3 Integrated Amplifier and CD3.3 CD Player

THE GOODIES AND EXTRAS

Options for the i3.3 fall into three categories—a digital package which includes inputs for USB-2, two for S/PDIF, a TosLink, plus a built-in DAC, in this case a Burr-Brown PCM 1793 24-bit/192kHz convertor. The Old School package is an internal RIAA phono preamplifier with circuitry and layout derived from the Simaudio LP3. It's selectable for impedance, capacitance-loading, and gain adjustment for either moving magnet or moving coil. Finally, a set of balanced line-level jacks is offered as an option on both the i3.3 and CD3.3. Available singly or in any combination, these options can be acquired either at the time of purchase or as future upgrades.

However you fill out the order form—fully loaded or box stock—the Moon i3.3 and CD3.3 player are beefier versions of the Moon 1 series that Wayne Garcia reviewed last year. Gone

are the softer rolled chassis and cylindrical side panels of the past—replaced by the more masculine square shoulders of the current Moon Series. For the i3.3 the key visual differences are the deeper heat sinking along its flanks and the large display on the front panel. Under the hood, the i3.3 does business with a 100Wpc into 8 ohms, a figure that doubles to 200Wpc into 4 ohms—a robustness contributed by the four bipolar output devices in each channel of the amp section and the oversized power supply featuring a custom toroidal transformer of Simaudio design. There are five line-level inputs including a front-mounted 1/8" mini-jack for personal media players. There is also a 1/4" headphone jack.

The Moon CD3.3 uses a proprietary CD drive system with in-house developed hardware and software. Its drive system is mounted on

piano has all the drive and energy that I recall from the 3.3's predecessors but also a warmer expression of tonality and dynamics, as if the player had found a greater range of tonal colors that revealed more of Allen's inspired touch.

On orchestral works the Simaudio tandem are nothing less than spirited, high-output performers. Even at sometimes extreme levels during the Korngold Concerto for Violin and Orchestra [DG], the duo maintained an iron-fisted command and control that culminated in a final deep crescendo that seemed to settle in the hall's foundations, gradually vaporizing into the earth

below. Did the i3.3 have quite the terrifying impact of the 300Wpc Plinius Hiato integrated that I'll be reviewing soon? Well, maybe not, but believe me, it was a horse race.

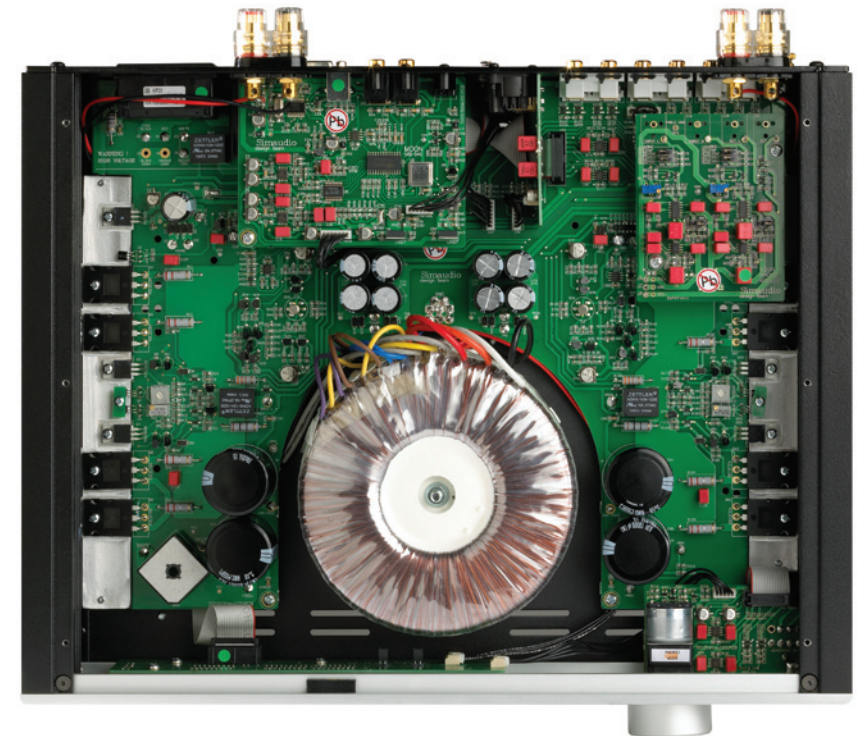
For those with analog playback systems the optional phonostage proved itself a very capable unit. On Ricki Lee Jones' scrumptious cover of "The Second Time Around" from *Pop Pop* [Geffen], the Simaudio duo exhibited a full and slightly forward midrange. Its extension, though solid, softens slightly at the frequency extremes so that the cumulative sonic picture has just a slight midband emphasis. Although not up to the ultra-

quiet, lush, layered standards of my reference JR Transrotor, it's a surefire mid-level option that will please most vinyl fans. Uncompromising analog die-hards, on the other hand, should keep the Simaudio LP5.3 in mind—a 2009 Editor's Choice Award and 2008 Product of the Year winner.

Sonically the i3.3 doesn't make a conspicuously wrong move, and where it misses the mark it does so without undermining the essence of the music. At times I could perceive a slight foreshortening of soundstage depth—a minor quibble—which created an audience perspective a row or two back from the "seat" I'm accustomed to. The amp's a little casual in delineating complex groupings of images and a little lightweight on certain demanding high-output deep bass cues, or when an orchestra throws its full energy behind a finale. However the i3.3 never loses its composure. Rather, when pushed really hard on a track like Steve Winwood's "The Finer Things" from *Back In The High Life* [Island], it slightly softens the aggressive energy of the snare and crash cymbal and loses a bit of subterranean punch and timbral information on the massive downbeats. Or on an acoustic track like Tierney Sutton's

"Alone Together" from *Something Cool* [Telarc], the string pop from the stand-up bass loses a certain resonant sustain while the harmonic details tighten up ever so slightly, like the winding up of a mainspring.

As rock solid as the i3.3 is, it's even harder to imagine wanting much more in a Red Book CD player than the CD3.3. It's that good. While the i3.3 and the CD3.3 share a house sound, there is even more potential to be mined from the CD3.3 in the company of a no-holds-barred amp. (Simaudio offers a broad lineup of high-powered models.) In such company, it can dig a little deeper, reach a little higher, and sound more open in ultimate extension. "The Finer Things" regains



EQUIPMENT REVIEW - Simaudio Moon i3.3 Integrated Amplifier and CD3.3 CD Player

Simaudio's M-Quattro gel-based 4-point floating suspension for vibration damping. In fact, Simaudio has always paid significant attention to resonance control, and both units utilize rigid chassis construction that minimizes the effects of external vibrations. The CD3.3 includes a digital input for use with a PC, music server, or standalone transport, a digital output, and optional balanced analog outputs (also available for the i3.3). Other specs include internal upsampling with 24-bit/1.411MHz processing, a Burr-Brown PCM1798 ultra-high-resolution 24-bit/192kHz DAC (used in Simaudio's premium Moon Evolution SuperNova player), an 8x oversampling digital filter, and a precise 25ppm digital clocking system

For both components, Simaudio's customary attention to detail, fit, and finish abounds. For example, the PCBs feature copper tracings and gold plating, which yields low impedance characteristics. Buttons and dials and rear-panel connectors have a quality feel. Only the generic plastic remote control puts a momentary damper on the fun. However, adding to the units' already superior connectivity, both the amp and CD player have a SimLink controller port, which allows for two-way communications between them and other compatible Moon components. For example, I could hit play on the CD player and the integrated would instantly switch inputs to CD. Nice touch. **NG**



much of its stomach-churning punch on the drummer's downbeat. And during the Korngold the sound of the CD3.3 loosens up just a hair and finds inner dynamics hitherto hidden—like the gathering strength of the harp beneath the orchestra as the concerto nears its end. Anna-Sophia Mutter's violin is all the more effortless as it glides and soars above the orchestra. Sure, at twice the money, players like the Esoteric X-05 and Simaudio's own Moon SuperNova slip past the CD3.3 with a bit more top-end air and transparency, but it doesn't take a genius to figure out where the bargain is amongst this trio.

By way of another comparison I listened to the same material through the onboard DAC of the i3.3 via the CD3.3 transport and S/PDIF, as well via a USB input from my Mac. It's close, but the CD3.3 with the higher-spec Burr-Brown DAC is the hands-down winner. On a track

like Jen Chapin's "Renewable" from *ReVisions* [Chesky] the sound via the i3.3 DAC is a little glassier and loses some of the organic warmth and dimensionality of the standalone CD3.3. The space and the air flowing over the reed of the baritone sax is not quite as silken, its texture a bit coarser. USB was a similar story—highly listenable but spatially there was just a bit less elbowroom.

When a company is on a roll as Simaudio has been, it might seem that nothing can slow it down. Like the line goes, nothing succeeds like success. But that's not entirely true—complacency kills. And failure to read the market is equally deadly. So kudos to the smart cookies at Simaudio for listening at every level. For listening to the iTunes junkie, listening to the server-surfer, or just the pure-analog Old Guard like me. The Moon i3.3 and CD3.3 have what it takes to make audiophiles of us all. **tas**

SPECS & PRICING

Moon i3.3

Power Output: 100Wpc @ 8 ohms

Analog inputs: four single-ended RCA, one balanced XLR

Digital inputs: Two S/PDIF, USB, TosLink

Outputs: Two single-ended, fixed and variable

Dimensions: 16.9" x 3" x 12.75"

Weight: 22 lbs.

Moon CD3.3

Input: One S/PDIF

Output: One pair single-ended RCA, one pair balanced XLR (opt); one S/PDIF

Dimensions: 16.9" x 3" x 12.75"

Weight: 18 lbs.

U.S.

Moon i3.3

Price: \$3300 (\$4000 with all three options: \$400, DAC; \$300, phono; \$200, balanced inputs)

Moon CD3.3

Price: \$3000 (\$200 option with balanced outputs)

SIMAUDIO LTD.

295 Chemin du Tremblay,
Unit #3
Boucherville, Quebec
CANADA J4B 7K4
(877) 980-2400

U.K.

Moon i3.3

Price: £2299

Moon CD3.3

Price: £2199

RENAISSANCE

SCOTLAND LTD

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Edinburgh EH6 5QG,
Scotland
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April in Stoneville

April Music Stello Ai500 Integrated Amplifier

Steven Stone

In the past I've rarely used integrated amplifiers because they create a location conundrum I haven't been able to solve. In an average-sized room you have to choose whether to have a long run of speaker cable from your integrated amplifier to your speakers or place all your gear close to (or behind) your speakers so you can use shorter speaker cables. The first option can be inconvenient and expensive (to the point of negating any savings over separates). The second option puts your front-end gear in a less than acoustically benign environment, next to the very objects that cause physical and acoustic resonances. In most rooms integrated amplifiers don't float my boat.

It wasn't until I set up my first desktop system that I had a listening environment that fully exploited an integrated amplifier's virtues. In a nearfield system all the components are within three feet of each other so short cable runs are a given. Combining two boxes (preamplifier and power amplifier) or even three boxes (digital-to-analog converter, preamplifier, and power amplifier) in one box makes perfect ergonomic sense. How did I come to this startling realization? The April Music Stello Ai500 helped me see the light.

WHY APRIL MUSIC?

Korean audio distributor Simon Lee created April Music in 1998 after he decided that the brands

he imported had become too expensive for his customers to afford. His goal was and is simple —make components that preserve what he calls “the nature of music.” To achieve this end Lee uses Korean manufacturing facilities and top-echelon international product designers such as Britain's Kenneth Grange. As a founding partner in the interdisciplinary design firm Pentagram, Grange has worked for B&W, Kodak, and the Parker Pen Company. Grange's design philosophy can be summed up by the simple phrase “a well designed object should be a pleasure to use.”

Although some of April Music's original products were rather prosaic black boxes, such as the Stello DA 100, the current Aura line and the



Ai500 have a visual flair and elegance not often found in audio devices, regardless of price. The Ai500 sports elegantly curved sides and a bold yet simple front faceplate. There's a single large circular volume knob on the right side of the front, a compact oval LED display in the center above a row of source-selector buttons, and a small on/off button on the left with a small white LED. The overall look is clean, modern, and unimposing, even to a neophyte.

The Ai500's remote control continues this clean modern aesthetic. Its solid-feeling aluminum casing features the same satin finish, oval shape, and symmetrical button layout as the Ai500 itself. This remote was designed to also control the

companion model Stello CDA500 CD player, so only the bottom twelve of its thirty-two buttons are functional with the Ai500. Its weight and size make it hard to misplace and also make it an excellent defensive weapon for close hand-to-hand fighting.

While the front panel of the Ai500 may be Spartan, the well-populated rear panel includes a complete and well-thought-out set of inputs and outputs. One balanced XLR input joins five unbalanced RCA analog inputs along with S/PDIF, TosLink, and USB digital inputs. The Ai500 has separately marked iPod analog and USB inputs. This USB “input” did not do anything on my review unit, not even supply power to the iPod,

EQUIPMENT REVIEW - April Music Stello Ai500 Integrated Amplifier

so I can only surmise it was broken or not yet fully implemented, but the analog input worked fine. The Ai500 has only one pair of speaker outputs. If you require sound in a second zone or room, the Ai500 does have a pair of single-ended variable RCA line-level outputs as well as a pair of single-ended RCA fixed-level outputs. I used the variable-level outputs for a subwoofer, but a second power amp could just as easily be attached to them.

Unlike many contemporary power amplifier designs, which have migrated to ICE or other Class D switching amplifiers, the Ai500 is a more traditional Class AB circuit based around Hitachi MOSFET output devices, coupled to a large 800VA toroidal transformer and 90,000uF capacitor banks. The Ai500 delivers 150Wpc into eight ohms and doubles its output to 300Wpc at four ohms. Even at idle the Ai500 generates a certain amount of heat and needs some space around it for proper ventilation. It gets warm enough to make me suspect that it actually runs in Class A mode for the first five or ten watts of its output. Under my desktop the Ai500 was a welcome heat-augmentation device during cold winter months, but, come June, the Ai500's thermal contribution to my desktop environment will be less well received.

The Ai500's dual-differential Class A preamp has 35dB of gain. It utilizes a Cirrus Logic CS3310 volume-controller chip coupled to a precision stepped-resistor array for level attenuation. If you have a source with its own built-in preamp, you can easily convert the Ai500 into a basic power amplifier by attaching a pair of single-ended RCA connections from your variable output source to the "Bypass" inputs on the back of the amplifier

and then choosing "Bypass" as your input on the remote. This bypass input can also be used in conjunction with an AV pre/pro to rout its signals through the Ai500.

WHY STELLO AI500?

Setting up the Stello Ai500 in my desktop system was easy. In addition to one pair of speakers, I attached inputs from the USB output from my computer, the S/PDIF connection from the Empirical Audio Off-Ramp 3, and a balanced analog signal from a Weiss Minerva D/A. I wished the Ai500 had an AES/EBU digital input, but since it doesn't, occasionally during the review I had to remove the Empirical Audio's digital connection so I could attach my CEC TL-2 CD transport via its S/PDIF outputs.

Once it was installed, I let the Ai500 burn in for a couple of days before I began serious listening. My initial impressions of the Stello's sound were all positive. This is one very quiet piece of electronics. It generates no physical or electronic hum and very low levels of hiss from the tweeter. In this respect the Ai500 was superior to the Adam A5 active speakers I reviewed recently. The Adams had noticeably higher levels of hiss from their tweeters.

Probably 99% of Ai500 users will use the Ai500 as an integrated amplifier, not as a basic power amplifier. But since it has provisions to be used as a power amplifier, I used it this way for some of my listening, connected directly to the unbalanced RCA outputs of the Weiss Minerva FireWire DAC. Using the Weiss also made it possible to listen to 192/24 digital files in their native mode.

As a power amplifier the Ai500 was impressive, easily matching the overall performance

of both my Accuphase P-300 and Edge Electronics AV-6 power amplifiers. In some sonic parameters I preferred the Ai500 to both of these other amplifiers. The Ai500's rendition of spatial information and focus bordered on the supernatural. The Ai500's ability to control speakers with complex crossovers, such as the new Joseph Audio Pulsars, was exemplary. Also the Ai500 ranks among the least grainy solid-state amplifiers I've heard. Grain? It's not even talcum-powder-sized. In this respect the Ai500 power amp section even matched my reference Pass X150. Complex musical textures, such as the accordion, fiddles, electric guitars, and percussion parts on the Woody Guthrie song "Pastures of Plenty" from the live *Solas Reunion* CD retained all their textural individuality. Many systems, including the recently reviewed Adam A5 system, homogenized many of these subtle details.

A couple of years ago Sean Watkins, one of the founding members of the acoustic super-group Nickel Creek, released the solo album *26 Miles*. It includes the instrumental "Chutes and Ladders," a fast, harmonically rich, and dynamically complex piece that requires a system that can stop and start on a dime. The electric bass can't be sludgy or heavy, or many of the music's micro- and macro-dynamic subtleties are lost. The Ai500's power amplifier section mated with the Joseph Audio Pulsars revealed all of "Chutes and Ladders" musical micro-details with ease. [*I heard the Ai500 at the most recent CES driving, of all things, a pair of Magneplanar 20.1s. I was shocked by the Ai500's authority and dynamics with this notoriously difficult load, along with the Ai500's overall musicality. —RH*]

WHY NOT STELLO AI500?

Obviously, most people who buy an Ai500 will use it as an integrated amplifier and probably want to use its USB and S/PDIF digital inputs, so I spent a good deal of my reviewing time evaluating these inputs. Sonically the Ai500's USB input ranks somewhere between the High Resolution Technologies MusicStreamer+ and the Empirical Audio Overdrive DAC. The Ai500's USB circuits have slightly better depth

SPECS & PRICING

April Music Stello Ai500 Integrated Amplifier

Output power: 150Wpc @ 8 ohms, 300Wpc @ 4 ohms

Analog inputs: Three unbalanced analog line inputs, one balanced analog line input, one Bypass input

Analog outputs: Two (pre-out, record)

Digital inputs: One each coax, optical, USB Link, iPod

Dimension: 460mm x 86mm x 400mm

Weight: 35.2 lbs. (net)

U.S.

Price: \$3495

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Price: £2500

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EQUIPMENT REVIEW - April Music Stello Ai500 Integrated Amplifier

recreation than the MusicStreamer+, as well as superior dimensionality and lateral focus. But the Empirical Audio Overdrive DAC surpassed the Ai500 in every meaningful sonic parameter. Given the Overdrive's price and highly focused feature set, this isn't surprising.

Since I've been using the Amarra software package on my computer, I've spent a good bit of time conducting what I've come to refer to as "The Amarra Test." This consists of turning the Amarra software program on and off while music is playing to see if I can detect a difference. With some DACs, such as the older Stello DA-100 or High Resolution technologies MusicStreamer, I can't detect any changes between "Amarra on" and "Amarra off." With others, such as the Weiss Minerva or the Empirical Audio Overdrive DAC, the differences are quite noticeable. The Ai500's USB input is sufficiently revealing that I could hear some changes between "Amarra on" and "Amarra off." With Amarra turned on, the overall image had greater three-dimensionality and lateral focus as well as a more cohesive dynamic character.

The coaxial S/PDIF input on the Ai500 can deliver especially good sonics; it all depends on what it's hooked up to. The combination of the Empirical Audio Off-Ramp 3, which converted USB to S/PDIF, and the Ai500 coaxial input was on a par with the Weiss Minerva on Red Book digital files. The Off-Ramp 3/Ai500 combo reminded me of the Off-Ramp 3/Overdrive in dynamics, dimensionality, and musicality. Compared with the Weiss, the Off-Ramp/Ai500 combo is a hair more musical, but also ever so slightly less detailed.

On analog sources, such as the Weiss Minerva's

analog outputs, the Ai500 can deliver highly musical and detailed sound. The Ai500's analog preamp's transparency is almost as good as my Reference Line passive preamp. On my own 192/24 recordings of the Boulder Philharmonic, the Reference Line seemed to create a slightly more spacious soundstage, especially when it came to delineating the rear-wall reflections behind the orchestra, but the Ai500 generated a bit more dynamic contrast. The horn sections in my recent recording of Berlioz's *Symphonie Fantastique* had more dynamic energy through the Ai500.

Just prior to installing the Stello Ai500 in my system I'd been using Peachtree Audio's Nova integrated DAC/preamp/amplifier. This \$1295 tube-output integrated amplifier has similar input capabilities (actually the Nova has two coaxial digital S/PDIF and TosLink inputs to the Ai500's one), and also works beautifully in a desktop system. While the Nova is highly musical, its power amplifier section lacks the Ai500's ability to control a speaker's drivers as precisely. The Joseph Audio Pulsar's bass and dynamics were substantially better when driven by the Ai500 than by the Nova. In comparison the Nova had a tendency to homogenize micro-dynamics, compress macro-dynamics, and slightly smear textural details, while the Ai500 delivered everything with uncanny ease.

I'm sure many audiophiles looking for an integrated amplifier would like to know how the Ai500 stacks up against the current offerings from Krell and Simaudio, but since I haven't heard these units I can't give you the scoop. However, what I have heard from the Ai500 leads me to surmise that any other integrated amplifier would

be hard-pressed to surpass its sonic capabilities. For \$3495 the April Music Stello Ai500 is a killer product at an attractive price.

I'M NOW AN INTEGRATED CONVERT

At the beginning of this review I revealed my biases against integrated amplifiers in room-based systems. Those concerns haven't changed. But after living with the Stello Ai500 for several months in my desktop system, I have been thoroughly converted—integrated amps rule for desktop use, and the Ai500 is one heck of a good integrated amplifier.

For most music lovers the April Music Stello Ai500 can deliver a completely satisfying one-box solution for a high-end nearfield desktop system. But 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, or a Firewire DAC, such as the Empirical Audio Off-Ramp 3, Empirical Overdrive DAC, or Weiss Minerva DAC.

Finally I would be remiss if I did not direct your attention once more to the Stello Ai500's overall fit, finish, and visual style. Unlike most mid-priced audiophile gear, which tends to be either stylish-looking or stylish-sounding, the Stello Ai500 succeeds at being both. **tas**

Naim NAIT XS Integrated Amp and FlatCap XS Power Supply

Ed Selley

From the launch of the original NAIT (NAim InTegrated) in 1983, Naim has done things a little differently to their competitors. Small in size and never overtly powerful on paper (the original had a marvelously Rolls Royce-esque 'sufficient' given as its output), they nonetheless sold like hotcakes thanks to an engrossing sound that, quite separate from the rated output, was powerful and engaging. NAIT's have come and gone in the ensuing three decades, changing in appearance and more recently migrating to the full width casework. The premise has stayed the same, however – as much of the Naim essence that can be forced into a single box with a reasonable spread of connections. The NAIT XS is the latest in the NAIT family and part of an entire new XS family of products. It borrows heavily from the amplifier section of the larger and more sophisticated SUPERNAIT while shedding the digital inputs and larger casework of its big brother.

One definably new area for the XS and its forthcoming siblings in the XS range is a new board fixing intended to reduce the amount of external vibration meeting these sensitive circuits. Larger Naim components use a bespoke series of floating brass chassis that are extremely effective, but not entirely practical at this less rarefied end of the market and this 'bayonet' type mount is intended to give the XS some of the same attributes at a more realistic material price point. As ever, Naim has expended considerable effort in making the

chassis as inert as possible while other features such as the 'wobbly' sockets on the rear panel continue as before to reduce the effects of the outside world on the inside of the unit as much as possible.

Power-wise the XS produces a claimed 60 watts into eight ohms, rising to 90 into four ohms with the almost obligatory sense that the reality of those numbers is rather higher. There are six inputs which offer the option of connection via either DIN or RCA phono. While the latter is a useful nod to compatibility, experience suggests



that the DIN inputs are still Naim's preferred connection and sound the better of the pair. One of the inputs carries power for the Stageline phono stage and another is shared with a 3.5mm input on the front panel for quick MP3 duties. There is also an AV bypass for placing the XS in a multichannel system. A system driving remote control is also supplied.

The accompanying FlatCap XS is simple by contrast. A refinement of the earlier FlatCap, it offers two 24v outputs that have benefitted from Naim's studious attention to power regulation.

Usefully, these outputs are multi functional – they can be used to provide power to exclusively to a Naim preamp or one apiece to other equipment. As tested here, the FlatCap had one output powering the preamp section of the NAIT XS while the other was diverted to my own Stageline S phono stage which is normally powered by the smaller off board iSupply in a non-Naim system.

EQUIPMENT REVIEW - Naim NAIT XS integrated amp and FlatCap XS Power Supply

Both units are in the same slim chassis and in keeping with the XS range sport the new anodized finish. This, coupled with the standard Naim build quality gives the pairing a very solid feeling indeed. There are no front panel power controls on either of the units so they were plugged in and left on.

The NAIT XS arrived some time before the FlatCap XS, so I had a useful period of time to listen to the amp on its own. This sample unit had seemingly led an active life up to this point and seemed to be well run in. The legendary Naim warm up period seemed truncated as well, the XS sounded pretty good within an hour and did not really change behavior after the first day — in the case of

the XS at least, your introduction to Naim ownership need not require the patience of a BBC wildlife cameraman. Operation of the XS is simplicity itself as controls extend to the input buttons and a volume knob, all of which have a reassuringly solid feel.

First impressions were of an amplifier that has great civility in its presentation. This should not be confused with a dullness or lack of sparkle however. The Nait XS is instead able to reproduce detail and attack extremely well but without tipping over into harshness or stridency even under provocation and considering that my time with the XS coincided with my purchase of *Invaders Must Die* by the Prodigy, there was

ample scope for it. The classic Naim virtues of timing and low end grip are still present and correct and few amps anywhere near the price of the XS will give anything like the sense of intensity and drive that any up tempo recording has. The bigger Naim amps drive lower and harder still as will some other more costly amplifiers but the XS is certainly no slouch in this regard. There is a sense that music starts and stops instantly with no bloat or overhang impeding the silences that make musical peaks so much more profound.

This is matched to a natural and very engaging tonality that gives instruments such as the piano and guitar a tangible level of realism. Vocals too have an unforced quality that avoids the sensation that the amp is ever working hard or being pushed too far — indeed it is possible to push the NAIT XS very hard without any sense of compression or discomfort. There is a slight sense that the very top end of the Naim's frequency response is very slightly rolled off

The Nait XS is able to reproduce detail and attack extremely well, but without tipping over into harshness or stridency even under provocation.



SPECS & PRICING

Naim NAIT XS integrated amplifier

Audio Outputs: speakers, preamp, and variable sub
Power Output: 60Wpc into 8 ohms, 90Wpc into 4 ohms
Analogue inputs: 6 DIN and RCA on rear plus 3.5mm jack on front
Input overload: 34dB
Input sensitivity: 130mV at 47k ohms
Remote input: 3.5mm rear panel jack (modulated/demodulated RC5 system)
RS232: Optional Naim RS232 board
IR remote (handheld): NARCOM 4
Supply Voltage: 100V to 120V or 220V to 240V, 50/60 Hz
Power Consumption: Quiescent 20VA Max 290VA
Dimensions (WxHxD): 43.2x7x30.1cm
Weight: 8.6kg

Naim FlatCap XS power supply

Power Output: 2x24V dual-rail feeds (to power two components)
Mains Supply: 100V to 120V or 220V to 240V, 50/60 Hz
Dimensions (WxHxD): 43.2x7x30.1cm
Weight: 5.5kg

U.S.

Naim NAIT XS-2 integrated amplifier

Price: \$2550

Naim FlatCap XS power supply

Price: \$1275

NAIM INC

(317) 842-7224

naiminc.com

U.K.

Naim NAIT XS-2 integrated amplifier

Price: £1350

Naim FlatCap XS power supply

Price: £675

NAIM AUDIO

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EQUIPMENT REVIEW - Naim NAIT XS integrated amp and FlatCap XS Power Supply

in comparison to more expensive offerings but the rest of the spectrum is so well reproduced for it to escape attention most of the time. An interesting departure from older Naim designs is the sense of soundstage that the XS produces. Any group of musicians from a vocalist and backing piano through to full orchestra are given more opportunity to escape the confines of the loudspeakers and assemble themselves in a believable manner between them. This is especially true with the Stageline phono stage in attendance where the results are truly panoramic in scope.

Adding the FlatCap XS does not bring instant sonic fireworks to the party, because the overall balance of the XS is too well sorted for that. What it does do is augment the positive qualities of the amp and push the performance still further. The richness of vocals improves and with it

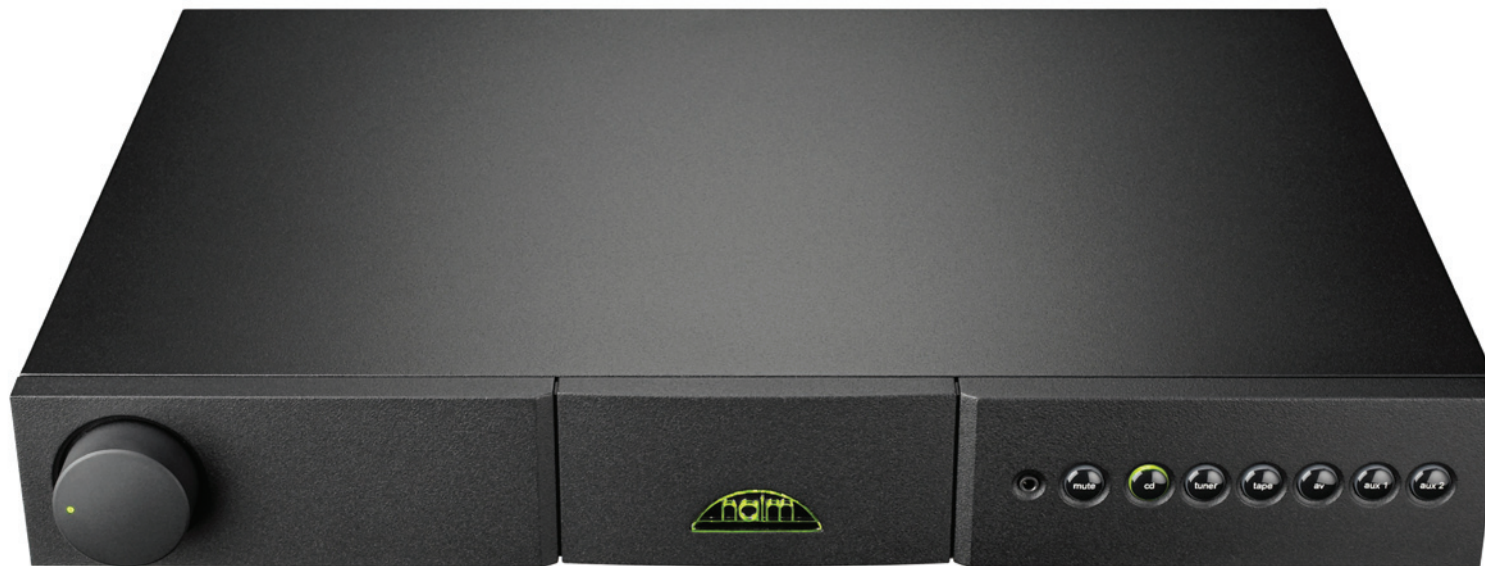
the sense of space around performers. The already unflappable presentation takes another step forwards becoming almost impossible to upset or wrong foot. Although the power amp section of the NAIT XS is not directly affected by the addition of the FlatCap, it is as if taking the preamp section off it removes a distraction and enables it to drive a little harder with even less of distortion or grain. The effects of using the second output on the Stageline were even more profound. While the logic of adding £675 of power supply to a £250 phono stage might be questionable on paper, the actual results of doing so were convincing enough to quell any doubts I might have had. Given that if you were to buy the FlatCap to augment the NAIT XS, the second output to a Stageline would essentially be 'free', it makes a great deal of sense. For those of a digital persuasion, this second output

would be equally applicable to the forthcoming CD player in the XS range.

The Nait XS is an immensely likable product. It builds on the classic Naim virtues we have come to expect and adds a civility and balance that in partnership with that row of RCA connections on the rear panel should win it friends outside of the traditional Naim clientele. It is a great product for £1,350 and the addition of the FlatCap XS turns it into an exceptional £2,000 one. The fact that it will function extremely well without the FlatCap if you wanted to stagger your purchases

is an appealing proposition as well. The NAIT XS is an altogether larger and more complex device than the original NAIT, but the lineage is clear. Beyond the numbers is a satisfying and genuinely musical amplifier. +

Any group of musicians from a vocalist and backing piano through to full orchestra are given more opportunity to escape the confines of the loudspeakers.



Vincent Audio V-60 Integrated Amplifier

Real-World Sonics

Neil Gader

I'm not an ideologue on the issue of solid-state versus vacuum tubes. No allegiances whatsoever. But I recognize that tube components possess a special appeal—particularly to audiophiles who crave greater involvement in the sport. Charting tube life, rebiasing, swapping output tubes from one former Eastern Bloc country or another are big parts of the color and enthusiasm users bring to high-end audio. The truth is, the Vincent V-60 is not that kind of tubed amp. Even Vincent admits that it's been designed for reliability and longevity. It doesn't ask to be coddled and it ain't finicky. You simply turn it on and it goes. In a word, my kind of integrated amplifier.

Visually the V-60 is unique in the Vincent lineup. Rather than being housed in the familiar enclosed box that defines most high-end electronics, the V-60 looks almost soaring and architectural with polished vertical columns rising from its steel-and-aluminum-clad chassis, a transparent and illuminated acrylic front panel, and a pagoda-inspired top plate—a virtual shrine to the golden age of tube power. In order to replace or check tubes, you have to remove four burly aluminum knobs at each corner of the heavily vented top panel (each knob has an ultra-thin nylon washer to protect the brushed-metal surface). The V-60 outputs 60Wpc thanks to eight Russian-made 6CA7 power tubes. These are versions

of the classic EL-34 pentode but with greater power reserves, according to Vincent Audio. The 6CA7s are augmented by a pair of 6CG7 while the preamp stage uses a pair of 6922s—again all Russian-made. The output transformers and the toroidal power transformer are robust—isolated within a lined and shielded casing. A unique, hands-free, fully automated biasing system maintains optimal operating voltages and current control, and is constantly compensating for the age of each tube. There are four selectable inputs along with four- and eight-ohm speaker taps. The binding posts and tube sockets are plated in gold. A small aluminum-clad remote control handles volume and mute functions.

For many, tubes and transistors still represent competing versions of reality—the former lush and romantic, the latter cold and analytical. Although these views have been largely discredited by current designs, a shred of truth remains. The V-60, however, presents no such quandary in this regard. Except for the heat factor which is, oy, very real, the V-60 is not, in the textbook sense, immediately recognizable as a vacuum tube integrated amp. I found no exaggerated frequency humps, dips, or imbalances that could redefine a familiar piece of music. Its tonal balance does lean toward a darker richer character in the midrange, but this counts as a plus for me. The amp has the requisite bloom in the lower mids



EQUIPMENT REVIEW - Vincent Audio V-60 Integrated Amplifier

but it's not an unreserved romantic. The treble is extended and unstressed. Its resolution of the decay of bass information is superior, as is its individuation of notes. In order to glean the most from the music's wide dynamic envelope in the lower octaves the user will need to show some sensitivity to speaker-matching, but that's to be expected. There's a sense of harmonic information being lightly rolled off in comparison to a high-caliber solid-state amp, but this is mostly in head-to-head comparisons and is quickly factored in and forgotten. In transient behavior, the amp is a bit laid-back—Bill Cunliffe's grand piano on *Live at Bernie's* [Groove Note] was neither as tight nor as aggressive on attacks, as if the felt hammers of his instrument were a bit thicker.

Sonically a couple of key things resonated with me immediately. The first is the V-60's midrange musicality. Its timbre and inner detail held me transfixed in my seat. I can't count the number of times I've heard Elton John's "Indian Sunset" (SACD and LP), but the distinctions between the loose acoustic bass and tight electric bass were never as well-defined as they were through the Vincent. And on *Madman Across The Water*, the amp showed a willowy delicacy retrieving the gentle splash of a ride cymbal on the iconic title track. Similarly during Jennifer Warnes' duet with Max Carl on "Somewhere, Somebody" from the new Cisco remastering of Warnes' *The Hunter*, Carl's vocal—set back and slightly in the shadow of Warnes' lead—had more convincing presence; even at its lower volume level, it became a virtual physical object, replete with weight and dimension.

The midrange, from the tiniest interior detail to the most extroverted dynamics, is authoritative,

substantial, and almost Technicolored in its saturation. It captures acoustic timbres, harmonics, and textures in a way that is nothing less than breathtaking. Anne-Sophie Mutter's violin on the Tchaikovsky Violin Concerto [DG SACD] was sweetly aggressive with high resolution of Mutter's well-rosined bow—aspects necessary to the accurate experience of this instrument. The low-level *legato* lines were so fluidly laced together they became exemplars of the concept of continuousness.

The second key aspect of the V-60's sound was the quality of the soundstage it created. It was not just a broadly dimensional stage, it was also virtually unbroken—there were no hotspots or dead zones. Rather, the stage was one continuous platform. But it went beyond that. The Vincent transformed the soundstage into a more immersive, semi-wrap-around arena. Instrumentalists and singers didn't stand so much in isolation from the venue; they inhabited it. It created a more organic, integrated relationship between musicians and the acoustic of the venue—a quality that distinguished it from my solid-state rig's propensity to separate images in a more clinical and, frankly, graceless manner.

Yet for the V-60, there was an occasional eccentricity. On soprano Anna Netrebko's most extended high notes throughout *Sempre Libera* [DG], the V-60 seemed to thrust even more air and harmonic energy into the hall. This was an occasion where the hall did not seem as specifically connected to the voice, an overlaid coloration that made me long for the more rigid precision of a solid-state amp, even if the trade-off was a bit more hard-hearted. So, while I'm convinced of the V-60 treble competence, it's still

not quite the *ne plus ultra* in this region.

Generally however, pitting the V-60 against solid-state revealed more similarities than differences. During "Alone Together" from *Something Cool* [Telarc], a ruthlessly revealing track with just acoustic bass and Tierney Sutton's playful vocal, there's no protective blanket of complex instrumentation and sophisticated mixing to cover up flaws. While my solid-state reference possessed the edge in sheer, off-the-line transient speed—that spring-loaded *right now* quality—from both bass and vocalist, the Vincent V-60 defined the air of the recording venue differently. That air was thicker, as if more humid and slightly more enveloping. With solid-state, Sutton's vocal was presented with more heavily drawn image boundaries. The V-60 softens these edges. Both permit great extension on the standup bass, but the V-60 has a real ripeness that to me speaks more authentically—and this in spite of the additional dynamic slam and control of the solid-state gear, where every bass note is almost too perfectly defined. The less rigid interpretation of the V-60 somehow seems more akin to the real world in comparison.

In the final analysis, performance trumps topology and types of output devices. The Vincent is the rare kind of integrated amp—a tube amp, no less—that even the most unshakable solid-state fan will recognize as something musically very special. I did. Whichever side of the argument you stand on, once you experience the Vincent, the most strongly held convictions begin to waver. The V-60 is a tube amp that even a solid-state fan could love. **tas**

SPECS & PRICING

Vincent Audio V-60 Integrated Amplifier

Power Output: 60Wpc

Inputs: Four RCA

Outputs: One RCA (rec out)

Dimensions: 17.7" x 8.4" x 16.5"

Weight: 75 lbs.

U.S.

Price: \$4995

WS DISTRIBUTING

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Grand Rapids, Michigan
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(866) 984-0677
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vincent-tac.de

U.K.

Price: £3998

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NAD M2 Direct Digital Amplifier

Inventing the Future of Audio

Robert Harley

The term “digital” is often erroneously applied to amplifiers with Class D (switching) output stages, but in the case of NAD’s new M2 Direct Digital Amplifier that word is appropriate. In fact, the M2 represents a major rethinking of audio-system architecture, directly converting standard-resolution or high-res digital bitstreams into signals that can drive loudspeakers.

Functionally, the M2 is an “integrated amplifier” that replaces a DAC, preamplifier, and power amplifier. The M2 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 M2’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 by-product of the switching output stage and its analog filter. This is as direct a signal path as one could envision. (See sidebars for the technical details.)

NAD’s M2 is a significant departure for the

company that made its reputation building simple and affordable electronics. For starters, the M2 costs \$5999, a new price level for a NAD “integrated amplifier.” Second, the M2 is NAD’s first amplifier to use a switching output stage. The company had previously rejected the technology in favor of linear amplifiers because switching output stages just didn’t sound good. But the M2’s output stage is significantly different from any other currently offered (see sidebar). Third, NAD believes that the M2’s technology could eventually become the basis for nearly all of its amplification products. In fact, NAD suggested that the M2 was not designed to capitalize on Class D’s functional advantages, but rather to establish a new benchmark of performance in amplification, no matter what the technology.

Let’s look at the M2 Direct Digital Amplifier in

operation. The unit looks and functions like one of NAD’s upscale Masters Series integrated amplifiers, with a row of front-panel input-select buttons, a volume control, and a display. The rear panel, however, reveals that the M2 is not a conventional integrated amplifier. Five digital inputs are provided (two RCA, one AES/EBU, two TosLink, plus a TosLink loop) along with one single-ended and one balanced analog input. The digital inputs can accept any sampling frequency from 32kHz to 192kHz. Analog signals fed to the M2’s analog-input jacks are converted to digital.

Once you’ve connected an analog or digital source to the M2 (such as a CD transport or music server) and loudspeakers via the output binding posts, the M2 functions just like a traditional integrated amplifier. You select the source from the front panel and control the volume with the

large front-panel knob or from the remote control. The front-panel display shows the input sampling frequency and volume setting.

Purists will note that the M2 requires that analog signals, such as a phonostage output, be converted to PCM digital. Similarly, those who enjoy SACD will be loath to convert their SACD player’s analog output to PCM, and then back to analog in the M2.

The M2 offers a number of features not found on a traditional integrated amplifier. Pushing the MENU button allows you to select the sampling frequency of the analog-to-digital converter (for analog input signals) as well as engage an upsampling feature that converts, for example, 44.1kHz to 96kHz. Analog signals are digitized at up to 192kHz/24-bit. You can also attenuate the level of the analog inputs by up to 9dB. A



EQUIPMENT REVIEW - NAD M2 Direct Digital Amplifier

TECHNOLOGY: NOT JUST ANOTHER SWITCHING AMPLIFIER

The M2 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 (see sidebar "Pulse-Width Modulation"). An output filter smooths the pulses into a continuous waveform. But in the M2, 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 that 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.

To reiterate the contrast with the M2, 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.

The second point of departure between the M2 and all other Class D amplifiers is the switching output stage itself. NAD partnered with the U.K. design team of the American semiconductor company Diodes Zetex, who had developed a novel switching-amplifier technology. NAD engineers worked with Diodes Zetex for more than four years to improve upon Zetex's basic idea before it was ready for the M2. Diodes Zetex calls its amplifier a direct digital feedback amplifier (DDFA). The primary innovation is the use of feedback around the output stage to reduce distortion. Feedback, used in virtually all linear amplifiers, takes part of the output signal,

"Speaker Compensation" adjustment is a five-position adjustment that "allows fine tuning of the top octave to match the speaker impedance." An absolute-polarity switch rounds out the menu-accessible features. A rear-panel switch engages NAD's "Soft Clipping" feature, which limits the output to prevent audible distortion if the amplifier is overdriven. An RS232 port allows external control via a PC or control system such as Crestron or AMX. The full-function remote control selects between sources, adjusts the volume, dims the display, and can also control a NAD CD or DVD player.

The M2 doesn't seem like a switching amplifier in operation; it is heavier than most Class D amps and although it runs cooler than a traditional Class AB amplifier of comparable output power, it produces more heat than any other Class D amplifier I've had in my home.

LISTENING

I lived with the M2 for a couple of months, driving the Wilson Audio Alexandria X-2 Series 2 loudspeakers as well as the YG Acoustics Kipod Studio (review forthcoming). When driving the Kipod, the M2 could drive only the upper module, not the powered woofer that accepts a line-level input. I also heard the M2 with the Volent Paragon VL-2, a \$5000 stand-mounted two-way employing a Heil Air-Motion Transformer (also on-deck for review).

I compared the M2 to my usual system of a Berkeley Audio Design Alpha DAC, Pass Labs XP20 preamp, and Pass Labs XA100.5 Class A power amplifier, all connected with MIT MA-X interconnect and MIT Oracle MA loudspeaker cable. Note that the M2 functionally replaces this

SPECS & PRICING

NAD M2 Direct Digital Amplifier

Continuous output power: 250Wpc (8 ohms); 250Wpc (4 ohms); 300Wpc (2 Ohms)

IHF dynamic power: 300W (8 ohms); 450W (4 ohms); 600W (2 Ohms)

Peak output current: >60A

Signal-to-noise ratio: >120dB (A-weighted, referenced to 200W)

Digital inputs: S/PDIF on RCA jacks (x2), AES/EBU (x1), TosLink optical (x2) plus TosLink in/out loop

Sampling frequencies supported: 32kHz-192kHz up to 24 bits

Analog inputs: Unbalanced on RCA jacks, balanced on XLR jacks

Analog-to-digital converter: Fully balanced, 192kHz/24-bit

Dimensions: 17.12" x 5.24" x 17.87"

Weight: 44.45 lbs.

U.S.

Price: \$5999

NAD ELECTRONICS

INTL

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Pickering, Ontario,
Canada L1W 3K1
(905) 831-6555
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EQUIPMENT REVIEW - NAD M2 Direct Digital Amplifier

inverts it, and sends it back to the input. The technique lowers distortion. But feedback isn't practical in switching amplifiers because of the delay involved in sending part of the output signal back to the input. Switching stages operate on extraordinarily precise timing; a glitch of a nanosecond can cause the output stage to lock up. The Zetex 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 a voltage error. The actual PWM signal can deviate from the theoretical ideal because of power-supply noise or droop (a drop in voltage), 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 amplitude is encoded. This error shows up as a voltage, which is digitized at a conversion rate of 108MHz, processed to compensate for subsequent modulation cycles, and then fed into a noise-shaper that adjusts the pulse shape, on a continuous basis, to compensate for errors in the output stage. In addition to decreasing distortion, this technique also lowers the amplifier's output impedance.

The reference PWM signal must be essentially perfect or else the system will correct "errors" that aren't present. The pulse widths must be precise to within five picoseconds, a level of performance commensurate with the lowest clock jitter in state-of-the-art digital-to-analog converters. In fact, you can think of the M2

as a DAC with gain and judge its technical performance using the same metrics as those employed in evaluating D/A quality. For example, at -120dB, the M2's linearity error is less than +/-0.1dB (an amazing spec, by the way), and the unit provides useful resolution down to an astounding -135dB.

The M2'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 unweighted). Noise at the front of the chain gets amplified by the power amplifier, no matter how quiet that amplifier is. In the M2, 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 M2 has an SNR of 91dB (unweighted, referenced to 1W) at any signal level. Indeed, I turned the gain all the way up and put my ear next to the tweeter of the highly sensitive Wilson Audio Alexandria X-2 Series 2 loudspeaker (95dB 1W/1m) and heard no noise.

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 digital-to-analog conversion. 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. Nonetheless, many switching amplifiers skimp on the power supply in an effort to keep size, weight, and cost low. The M2 has a more substantial power supply than I've seen in any other amplifier with a switching output stage. Three separate supplies are used, one for each audio channel and one for the control circuitry and housekeeping.

Each of the M2's amplifiers is contained on a roughly 6"-square circuit board and heat-sink assembly that attaches to a mother-board below it. It appears that each channel employs two pairs of output transistors. The rear panel is shielded, presumably to prevent radiated switching noise to get into the signal after it has been filtered. The chassis is segmented into two additional shielded modules, again to protect against switching noise pollution generated by the output stage.

entire Berkeley DAC/Pass preamp/Pass power amp/MIT system, and costs about one-tenth the price. The digital source for both systems was the AES/EBU output from a Classé Audio CDP-502 to play CDs. I tested the M2 with high-resolution bitstreams sourced from the fan-less, drive-less, PC-based music server built by Boston retailer Goodwin's High-End and described in Issue 189. When I connected the AES/EBU output from the server into the M2's AES/EBU input, the M2 instantly locked to any sampling frequency and was glitch-free.

I experienced two minor operating problems with the M2. First, the protection circuit triggered a couple of times, even with no music playing. Turning off the power reset the circuit. Second, when I turned on the M2 on one occasion I heard noise from the right channel. Turning off the unit and turning it back on corrected the problem. This happened only once in dozens and dozens of power-up cycles.

Long-time readers will know that I'm no fan of switching amplifiers. They have their virtues—small size, very little heat dissipation, light weight, and usually a considerable amount of output power for the money. But when the music starts, Class D amplifiers have left me cold. They can sound very dynamic, but exhibit considerable variability in sound quality depending on the loudspeaker they are driving, the cables, and other factors. The switching amplifiers I've heard (admittedly, I have not heard many) have exhibited a mechanical character, along with a "chalky" coloration in the midrange that robs instruments of their distinctive tone colors.

But the M2 sounded completely unlike any other Class D amplifier I've heard. It had no characteristic

EQUIPMENT REVIEW - NAD M2 Direct Digital Amplifier

THE M2'S PREDECESSOR

The M2 isn't the first switching amplifier to convert PCM to PWM. That distinction belongs to the TacT Millennium, which I reviewed at its introduction in 1999. But the M2 isn't simply a more modern version of that topology. Rather, the M2 employs an entirely new and radically different switching output stage (see sidebar). In addition, the Millennium adjusted the volume by changing the voltage of the power supply rails feeding the switching output transistors. The M2 adjusts the volume in the digital domain with the same digital signal processing (DSP) chip that performs the PCM-to-PWM conversion.

fingerprint that identified its technology. Rather, the M2 tended to get out of the way, reflecting the virtues and verities of the recording. Unlike other switching amplifiers I've heard, the M2's departures from neutrality were subtractive rather than additive. That is, it commits sins of omission rather than sins of commission. The M2 sounded like a very high-quality conventional (linear-amplification) playback system in many ways, with one notable exception; this amplifier was dead-quiet at any listening level and with any loudspeaker—even the 95dB-sensitive Wilson X-2. Backgrounds were truly and totally black, a quality that gave instrumental images a greater tangibility, both spatially and texturally. The dead-silent background seemed to throw instrumental images into sharper relief, enhancing the impression of three-dimensional objects existing in space. This

palpability was also partially the result of the M2's somewhat forward spatial perspective which puts the listener around "Row E." The M2 also tended to "spotlight" the midrange to some degree, again adding to the impression of presence and the palpability of instrumental and vocal images. This was generally an appealing quality, although some forward-sounding and midrange-emphasized recordings, such as *In Other Words* from The Teodross Avery Quartet, were not complimentary to the M2. Conversely, naturally recorded vocals such as the outstanding *ReVisions: Songs of Stevie Wonder* by Jen Chapin, took on a "you are there" quality that was extremely involving.

The M2's bass was simply great—extended, rich, warm, powerful, and muscular. The bottom end was rich and densely saturated in tone color, wonderfully nuanced and articulate, and very fast and dynamic. I greatly enjoyed the M2's combination of weight and agility on acoustic and electric bass, particularly with virtuoso players—Stanley Clarke's acoustic bass on *The Rite of Strings* with Al DiMiola and Jean-Luc Ponty, for example. Left-hand piano lines were also well served by the M2's dynamic agility and powerful bottom-end (the Beethoven Piano Concertos led by Sir Colin Davis on the Pentatone label). The M2 conveyed the impression that it took tight-fisted control over the woofers, backed up by tremendous energy reserves. The articulation in the midbass was extraordinary; I could easily hear the initial transient of plucked acoustic bass strings, followed by the rich resonance of the instrument's body.

When an audio product performs in many ways above its price class as the M2 does, there's a tendency to judge all areas of performance

against its strengths. In other words, the product itself raises its own performance bar. Keeping that in mind, I noticed a trace of hardness in the upper midrange that manifested itself as a glare on certain instruments, particularly the upper range of trumpet. This is a common characteristic of amplifiers of this price, but it was different in the M2. Where most amplifiers impose this characteristic over a wide band that makes itself nearly always audible, the M2's coloration was confined to a relatively narrow band. Consequently, I heard it only occasionally when there was energy in that region. This slight coloration didn't bother me during extended listening to the M2 alone, but was apparent when I compared it to my reference system of the Berkeley Alpha DAC and Pass XA100.5 pure Class A power amplifiers. The M2 didn't have quite the timbral liquidity and midrange warmth of the reference system. Nonetheless, the M2's overall sound was smooth and relaxed.

The treble tended to favor ease over the last measure of detail. The top octave wasn't quite as open, extended, or transparent as my reference system. Listening to a straight-ahead jazz CD I had engineered live to two-track (*Confirmation* by the Chiz Harris Quartet), drummer Harris' cymbals were not quite as vibrant. Similarly, Conte Candoli's flugelhorn took on slightly more of a golden and burnished hue than it had in life. If a component departs from neutrality, it's better that this departure be in the direction of slightly softening of the treble rather than emphasizing it. I should reiterate that you can adjust the M2's treble balance to match your system via the front-panel menu.

The M2 sounded quite detailed, although the very finest inner detail was not as nuanced

as that heard in the reference system. The M2 didn't resolve the last measure of information that conveys the mechanism by which a sound was created. For example, there's a passage in "Sorceress" from Return to Forever's *Romantic Warrior* (on the newly re-mastered *The Anthology* CD) in which Lenny White overdubs an intricate percussion figure on timbales in counterpoint to his drumming. The reference system better revealed the nature of the timbales, making them sound more like instruments being struck and less like mere transients.

The M2 was outstanding in its ability to unravel complex musical lines. Many amplifiers of this price tend to have a flat homogeneity that prevents one from hearing quieter instrumental lines in the presence of louder ones. This aspect of music reproduction is crucial to understanding the intent of the composer or performers. The M2 was the antithesis of smeared, congested, or confused. Instead, it laid out with exquisite resolution everything that was happening in the music. Moreover, it did this in a completely natural and organic way, with no trace of the analytical.

Partly as a result of this quality, and partly a result of the M2's fabulous way with dynamic contrasts and shadings, music always had an energetic and upbeat quality. I could feel the spontaneous music-making on the previously mentioned *Confirmation* disc I'd engineered and remembered from the session. The M2 had a rhythmic coherence and sense of life that thrilled me and riveted my attention on the music. Interestingly, I noticed this quality most on bebop; Freddie Hubbard's solo on his great composition "Birdlike" from pianist George Cables' *Cables' Vision* positively soared.

EQUIPMENT REVIEW - NAD M2 Direct Digital 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.

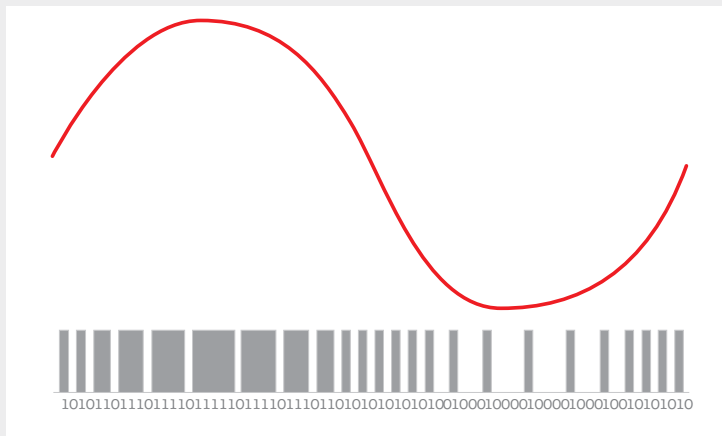
Fig.1 shows the relationship between a DSD bitstream and the analog waveform that bitstream represents. The bitstream is a series of pulses of varying lengths, with the pulse length encoding the analog signal's amplitude. The pulse-train generated by DSD encoding looks remarkably "analog-like." That 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.

In a switching amplifier, the output transistors are turned fully "on" or fully "off" by the pulse-width modulated signal. The analog signal's amplitude is encoded as the "area under the pulses"; longer pulses (longer "on" times for the output transistors) represent a higher analog-signal amplitude. This is

contrasted with traditional "linear" amplifiers in which the output transistors are in a continuously variable state of conduction.

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 Diodes Zetex amplifier module, the pulses are quantized at 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.



Finally, the M2's A/D converter (fed by the Aesthetix Rhea Signature phonostage) was very good, but not completely transparent. It shaved off a bit of resolution at lowest levels and very slightly hardened timbres.

CONCLUSION

Despite costing one-tenth as much as my reference system (all the components of which are outstanding), the M2 was extremely engaging musically. Overall, I preferred the reference system, but not by as much as the price disparity would suggest. I usually wouldn't judge a \$6000 product against one costing more than \$50k, but the M2's outstanding performance in many areas invited the comparison. Moreover, the M2 represents a radically different approach to amplifier design, digital-to-analog conversion, and system architecture. As such, I evaluated how the M2 sounds not just in comparison with similarly priced conventional amplification and digital-to-analog conversion, but how its new technology stacks up on an absolute basis. (You should consider this when reading how the M2 falls short of a reference-quality system. I included those observations not to diminish the great achievement the M2 represents, but to put this new technology in context.)

As for the M2 as an alternative to a \$3500 conventional integrated amplifier and a \$2500 digital-to-analog converter, it's a slam dunk. I haven't heard, nor can I imagine, any combination of amplification and DAC at the price approaching the M2's performance. Moreover, the M2 delivers, in one chassis, decoding of high-resolution digital audio, the source-switching and control functions of a preamplifier, and 250W of amplification—all

with outstanding ergonomics. I can envision the M2, or its descendants, as part of a three-piece playback-system: music server, M2-like product, and loudspeakers.

NAD's M2 is a triumph on many levels, not the least of which is that it points toward a new direction in amplifier design and system architecture. I predict that years from now audiophiles will look back on the M2 as the progenitor of the next generation of audio. **tas**

Quad II Classic Integrated

Jason Kennedy

The original Quad II mono amplifiers must be one of the most popular pieces of vintage audio going. They command high prices when condition is good and they continue to give remarkable service for a product that can be over fifty years old. When Quad was still an independent company, it wasn't interested in reviving the Quad II – or making valve amplifiers at all – but rather wanted to push the frontiers, albeit in a not too pushy way. What's more it's service department did a sterling job of keeping original amps and ESL speakers going well past retirement age.

Now that Quad is under auspices of IAG, its owners have had the sense to revive the Quad II and have produced more up to date variants upon it such as the II-Eighty power amp. The latest addition to the family is not actually a revival – there never was a Quad II integrated – but it is built along the same lines as that amplifier. It's probably no bigger than two Quad IIs placed side by side and has a very similar valve complement with the added bonus of a preamplifier and phono stage onboard.

As per the rest of the Quad valve amp range today, design was done not by company founder the late Peter Walker but another company founder, that of EAR-Yoshino, Tim de Paravicini. Tim brought the Quad II monoblock up to date, so it made sense for him to conceive the company's first valve integrated. While it uses the same output

valves as the original II, the integrated manages to deliver an extra ten watts per channel according to spec and a little more in practice. Tim achieved this by increasing HT while lowering the voltage to screen grid in order to enhance reliability, which is useful because it should mean more hours of listening before a valve change is required. With the exception of the phono stage, this is an all-valve design with four ECC88s and two ECC83s in its circuit and all of which are protected by a neat cage cover, something that you can remove for maximum visual thrills and possibly a bit more sonic subtlety as well.

It has the same single tap output transformers as a II and these are happiest driving an eight ohm load, power drops off when that impedance halves as it can with many speakers at a certain point in the band. Something that might explain



EQUIPMENT REVIEW - Quad II Classic Integrated



the relatively uneven response I encountered with some material, most of the time this proved to be a remarkable capable amplifier, driving a pair of B&W 802D speakers with apparent ease. But the occasional track did sound a little odd tonally and possibly the speaker's tricky phase angles had something to do with this. But it was a happy combination nonetheless and one that delivered an awful lot of beguiling music in a fashion that while not unlike other valve amps is clearly in its own class. There is good dose of old skool Quad sound, pipe and slippers as it were but this is combined with Paravicini style muscle to create a strong but smooth result that makes

for engrossing music.

The styling is pretty distinctive too, Tim has used the front panel shape of the QC-twentyfour preamplifier, but replaced the input buttons with a variation on the balance control from that model, even though this amp does not offer balance adjustment. The last button is monitor tape, the available selection of three line inputs being augmented by a tape loop and a phono stage for MM and MC cartridges. It would have been nice to have included a preamp out for bi-amping but that's not something that happens much with glass audio.

Build quality is extremely high and fit and finish

likewise, it truly does live up to the standards of the original and in many ways exceeds them. Paint finishes were never this good and gold plated socketry was never on the agenda back in the fifties. You even get a small but long Phillips screwdriver to remove the valve cover with should you feel the urge to see the glassware in all its glowing glory. The only omission of note is the remote; something that's completely authentic, but a bit of a shock for those us used to solid state amplifiers that rarely dispense with this luxury.

I had the luxury of using this amp over several months, a period when a number of loudspeakers passed through the listening room so I had the opportunity to put it through its paces with different loads. First

up was the Epos Encore 50, the company's attempt to build a speaker that will go loud enough for the American market. This has good sensitivity, but a three ohm impedance dip at 110Hz so is not the perfect speaker for the Quad. Yet, as a pairing I found it rather enjoyable. The Quad produces an expansive soundstage with a lot of material and is not entirely even in tonal terms, and these qualities offset the Encore 50's rather grey presentation extremely well. The amp brings out tonal richness in everything you play, which makes instruments seem that much more real and vital. It's a quality that seems like a colouration to a solid state user, but it certainly

puts back what the recording seems to lose as it goes the process of becoming a finished disc.

There is also a slight midrange emphasis that makes lyrics easier to understand and enhances the communication skills of this slightly restrained speaker. The bass is lovely and ripe, and puts the heart back in the music yet manages to extend well without loss of power. Of all the amps I had on hand with which to test the Encore 50s, this was the most successful.

The Quad did remarkably well with the B&W 802D, aforementioned comments

SPECS & PRICING

Quad II Classic Integrated

Valves: 4 x KT66, 4 x ECC88, 2 x ECC83

Inputs: 3 line, tape in/out, phono

Phono stage sensitivity: MM - 2mV RMS, MC - 200µV RMS

Output power: 25 watts/8 ohms

Dimensions (HxWxD): 20x21x38cm

Weight: 19kg

U.S.

Price: \$5999

TAIGA LLC

(781) 341-1234

taigallc.com

U.K.

Price: £4500

IAG

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EQUIPMENT REVIEW - Quad II Classic Integrated

notwithstanding. Pick a good recording such as Keith Jarrett's last solo effort **London/Paris Testament** on ECM and the extra timbral lushness it brings to bear makes the piano sound strong and vibrant and allows the player to produce a groove of insight and fluidity that got me a little carried away. The playing on this album is extremely good no doubt about it, but I've rarely been inspired to describe it as a pure channelling of a vital musical force that gives you access to a higher plane of consciousness before. Must have been something in the coffee! But there's something in the combination of this amp's dynamic character and the intrinsic humanity of its balance that lets you hear through the barrier of time and space that separates the listening from the original performance. The important aspects of that performance are placed in your room to be enjoyed, all you have to do is let it in.

As the Quad accommodates MC cartridges, I hooked up the venerable SME 20A with a van den Hul Colibri onboard and gave some vinyl a spin. The combination of this highly refined cartridge, smooth turntable and all that glass produced a lush sound that got positively sensuous when female vocals were in the mix. Both Rickie Lee Jones and Yolanda Quartey (of Phantom Limb) made me weak at the knees. The sound is distinctly relaxed compared even to a Trichord Dino+ through the same amp — which odd because the Quad's stage is also solid state — but the highs are a lot sweeter and more fluid. One possible reason is gain, it has just about enough for this 0.45mV output MC but the Dino+ has a lot more and provides a stronger image alongside better defined bass. Yet the onboard option is by far the most appealing, there's less

wire in the way for one thing.

Back with silver discs and the arrival of a new and extremely capable loudspeaker, namely the Hart Audio EVO-1. I will be telling you all about this unusual new design next issue, but for now the salient facts are that it has active bass driven via high level signal, ie the Quad's speaker outputs, and a dual concentric mid treble in the Tannoy style. It's spec'ed as being 97dB — which sounds a little optimistic — but you don't actually drive the eight bass drivers (yes 8) so it shouldn't be a challenging load. The bass still reflects the slightly soft bass of the amplifier but has more grip than the tubes alone as you'd hope the mid meanwhile is beautifully open and can be played at higher levels thanks to that sensitivity. It made the sort of sound that you can listen to for hours given the opportunity and while I could get greater resolution out of the rather more expensive Digital Do Main B-1a, it's doubtful whether musical gratification could be bettered.

By valve standards the Quad sits in

between the delicate fragility of SETs and the powerhouse grunt of the bigger push-pull designs, it's naturally closer to the latter but is a little more refined and dare I say it romantic. There is a warmth and bodaciousness that while not high fidelity in the true sense does result in highly enchanting results with the right speakers. I only found one speaker that it didn't seem to suit, that being the PMC GB1i; this is an unlikely partner it's true, but it's one loudspeaker that I

usually enjoy come what may. I suspect this was possibly something about the loudspeaker's load and admittedly low-ish sensitivity makes it a bad choice with the Quad.

Overall this is an extremely engaging and musical amplifier, it's not the fastest nor the most precise but with a sympathetic speaker it gets under the skin rather well and makes you want to hear more which is clearly a good thing.+



Audio Research DSi200 Integrated Amplifier

Not Your Daddy's Class D

Neil Gader

When it comes to tube electronics few high-end companies speak as authoritatively and have been as honored as the Audio Research Corporation. On a far more personal note is the memory of a system I regularly enjoyed thirty years ago at a friend's home—an ARC SP3a preamp and D150 power amp driving Magneplanar Tympani 1Ds, which had speed and transparency on a scale that gives me goosebumps to this day. ARC's solid-state line, on the other hand, while highly respected, has not been recipient of the kind of reverence reserved for its tube offerings. However, ARC's latest, the new DSi200 integrated amp, makes a stronger case than ever. It's a solid-state design with a secret.

The look of the DSi200 is pure Audio Research—from its classic squared line, to the heavy front panel and chunky grab handles. Large volume and input selectors flank a vacuum-fluorescent display whose brightness has six levels of adjustment. Beneath the display are four aluminum buttons for power on/off, mono/stereo, inverting phase, and muting output. These same functions, as well as a balance control and display adjustments, are also provided by a full-function remote control. The back panel sports

three single-ended inputs and a pair of balanced inputs—their mirror-like, symmetrical layout exposing the dual-mono design of the amp's circuit. The DSi200 is available with front panel, handles, knobs, chassis, and wrap-around cover in either black or silver.

The aforementioned secret is the DSi200's solid-state-hybrid design. It combines a hefty regulated analog *linear* power supply with a discrete MOSFET-based high-speed *switching* output stage of ARC's own invention. While this

implementation is not unique, ARC points out that, unlike virtually all other switching amplifiers, the DSi200 does not rely on any OEM modules or pre-manufactured components. The resulting amplifier outputs 200Wpc continuous into 8 ohms (300W into 4 ohms) with very-high-efficiency energy conversion—over 90%. Typical of this class of amp, the DSi200 runs quite cool, and because it draws only a scintilla of power at idle it garnered an “Energy Star” rating.

I had the DSi200 powered up for only a few

minutes when it became plain how authoritatively it reproduced music, particularly the lower mids and bass. Its ease and realism with pitch and timbre in the “nether regions” were superb. However, my broader impression was that the upper mids and treble range seemed out of character for an Audio Research component—they were a bit congested and tightly wound, and not playing ball with the mids. Since ARC is straightforward in stating that a significant amount of break-in time is required before the



EQUIPMENT REVIEW - Audio Research DSi200 Integrated Amplifier

DSi200 settles in, I realized I would be remiss in not taking this caveat seriously. Long story short: I left the amp powered up cycling through the blips, ticks, and bumps of an Isotek burn-in disc for about a week straight without doing any serious listening. And the envelope, please.

The difference was actually quite astonishing. Like a singer clearing her throat, the voice of the amp seemed to drop into a deeper, more grounded place as if finally breathing from its diaphragm. The amp shed its papery thinness and smoothed out, like someone evening the wrinkles from fine bed linen. Violin, cello, dreadnought acoustic guitar, and even mandolin began resonating more fully and deeply. The DSi200 does not communicate an overtly sweet character in the sense of a darkened ripened

treble, but neither does any astringency sour the top octaves. When I listen to violinist Arturo Delmoni play the “Allemande” from the Bach Partita No. 2 [Water Lily], I hear a sound that is not shaded or spot-lit—just a marvelous sense of movement and action beyond the confines of the instrument itself. In this instance, there’s the thicker sound and increased body of the instrument coming into focus as Delmoni leans on the bow, digging into the strings for more volume and color. The ARC also reveals the air and open space looming behind the player, adding to the acoustic backbone of the performance. It individuates images and timbres with ease while also reproducing the interplay of textures within the soaring wind section during the playful *allegro molto* of Copland’s Third Symphony [Reference

Recordings]. The stabs of brass, bass drum, and cascades of tympani during “Fanfare for the Common Man” were nothing less than electric. The DSi200’s grip on low-frequency pitches and timbres is steadfast; electric bass, kick drums, low percussion never lag or blur. Bass response is not overpowering but fast on its feet, allowing an acoustic bass to exhibit both volume and pace, not an easy thing to do. When it comes to midbass oomph, the DSi200 just seems to pull reserves from a seemingly bottomless well and yet never seems short of control even while driving demanding loads like the Magico V2 or TAD CR-1 loudspeakers.

This amp’s strongest suit is, far and away, imaging. Images are uncommonly specific and stable. The resolution of low-level inner voices

and harmonies will keep you on the edge of your seat, as you uncover heretofore buried information. And it deftly negotiates complex orchestral passages—the second movement from Brahms’ Symphony No. 4 [DG/Esoteric], for example—drawing boundaries, defining groupings. In spite of its excellence at tracking the subtle cues and quirks of individual players, I never felt it deemphasized the totality of the performance.

Followers of ARC tube efforts will be wondering how the DSi200 measures up against its prized valve rigs. Certainly the extent to which you



SPECS & PRICING

Audio Research DSi200 Integrated Amplifier

Power output: 200Wpc into 8 ohms, 300Wpc into 4 ohms

Inputs: Two balanced, three unbalanced

Dimensions: 19" x 5.25" x 14.25"

Weight: 37.2 lbs

U.S.

Price: \$5999

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EQUIPMENT REVIEW - Audio Research DSi200 Integrated Amplifier

ARC'S DAVE GORDON TALKS ABOUT THE DSi200

Did you have any uncertainties about developing a switching amp?

Our uncertainty was whether we could produce a switching amp that would not sound like other Class D amplifiers and not be a “me too” product. Could we produce a switching amplifier that sounded like a great Audio Research amplifier?

Were you concerned with overcoming some negative general impressions in the audio press and on the blogs about Class D?

Definitely. We knew that some people would be skeptical, dismiss it, and assume that it sounded like other Class D amplifiers—very difficult preconceptions to overcome, but that was our challenge. After the design was finished I took a preproduction DSi200 to a number of our retailers and demonstrated it in their best systems to prove that it defied classification and was simply a great-sounding product. The actual performance of the DSi200 had to dissolve any negative preconceptions, and it did.

Going in, what were the general strengths and weaknesses regarding the sound of this type of amplification?

Some of the strengths were low power consumption, high damping factor, low distortion, and fast transient response. We

heard several weaknesses including a lack of dynamic slam, an inability to really open up and play a lifelike, holographic (very wide and deep) soundstage, and some tonal anomalies.

How did you address them?

We started from scratch and did not follow others. We decided against using a pre-manufactured (OEM) module, so we designed our own discrete, high-speed analog output stage. Instead of using a switching power supply we designed a large, regulated, linear analog power supply like the ones found in the best non-switching amps. Then we paid a lot of attention to the input and output filters, parts materials, and to the quality of the individual parts. And, of course, we did a few other things that are confidential.

Was there a particular aspect to the design that surprised you in its impact on the sound?

There were a number of things, but probably most surprising was how very critical the designs of the input and output filters were to the sound.

Was the goal to impart the ARC sound to the DSi 200, and to what extent do you think you succeeded?

We always use the performance of our

Reference amplifiers as our yardstick, and the DSi200 sounds like an Audio Research amplifier. It exceeded our expectations, so we consider it a great success. Despite its relatively modest cost, we believe that the DSi200 will provide wonderful results with the finest loudspeakers. (Don't forget, KEF used the CD5 and DSi200 to drive its Concept Blade at CES, with great results.)

How important was it for ARC to achieve the Energy Star rating?

Achieving the Energy Star certification was important but not necessary. It was important because consumers are quite aware of it, and the certification is the simplest and clearest way to let everyone know that the DSi200 is a very energy-efficient amplifier. (FYI, the DS450 also received Energy Star certification.)

Do you envision wider-range implications for the high end in general?

It depends what you mean; generally we are not sure. Worldwide there is increasing demand for high-efficiency products and more consumers are searching them out. In the high end, we expect that more manufacturers will introduce energy-efficient amplifiers, especially as the residual bias against Class D amplifiers diminishes. **NG**

embrace the sonics of the ARC hybrid will depend on your expectations. Which is to say, if you were expecting the DSi to sound like an ARC 610T, or like tubes in general, you may be disappointed. In a way, its personality goes to the heart of the divide between tubes and other output devices. Its sonics do possess a glimmer of midrange warmth—of that there's no doubt. But if you take, for example, a tube integrated amp like Tim de Paravacini's estimable EAR 834, the EAR will charm you senseless with its warmer mids and liquid top end—and a soothing quality that solid-state still doesn't quite capture. But then there's the ARC's tight-fisted grip in the bottom end. And the way it plays the inside game of audio with beautifully graduated microdynamics. It has an instantaneous reaction time—it jumps on dynamics. If it can't quite impart the same level of air and sensuous intimacy as its tube brethren, it has its own level of physicality and power that is equally compelling.

So if you're willing to engage the DSi on its own terms, then you'll realize it is its own unique animal. On a disc like Rosanne Cash's *Black Cadillac* [Capitol], the transient speed of flat-picked acoustic guitars is so blazingly fast you can almost feel the sting of the pick radiating down your own wrist. Cash's vocals are beautifully focused; electric bass is tuneful and precise. Speaking of which, the ARC communicates the surface reverberation of drums in a way that constantly reminded me of the spring of a trampoline, as I listened to Jennifer Warnes' “Way Down Deep” on *The Hunter* [Private].

However, its replication of soundstage depth is decidedly mid-pack. True, it does an excellent job delineating individual images and sections

EQUIPMENT REVIEW - Audio Research DSi200 Integrated Amplifier

of instruments, but when it comes to deep soundstage space it reaches a threshold that in my room is about two-thirds of the way to the wall behind the speakers but generally no further. And in spite of its neutrality, I still find massed strings a bit lacking in buoyancy, as if the amp focuses more strongly on the transient entrance of a note—that note's leading-edge—and a pinch less on its residual bloom and the duration of its decay.

Given the hybrid nature of the DSi200, I've reflected on our survey of Class D amplifiers published a few years ago (Issue 168). In that article the editorial staff, having listened to a cross-section of amplifiers, came to similar conclusions—that while the amps tended to have superior bass response, slam, and control, their top ends seemed less resolved and shaded, and dynamically a bit lifeless. Whether they were ready for "prime time" became a subject of some controversy—and amongst the staff, not too many

hearts were set aflutter. The point here is that the DSi200 is at least a couple generations removed from that world and deserves to be assessed and ranked with the most competitive amplifiers in its segment, regardless of class.

The DSi200 sonically stands its ground with the cream-of-the-crop in high-power integrated amplifiers. And I'm talking about efforts from the likes of Pass Labs, Magnum Dynalab, Simaudio, and Plinius. ARC deserves to be commended for wading into the controversial waters that roil around Class D amplification—a potentially thankless course for a company so strongly associated with tubes. But inspiration and a lot of engineering elbow-grease have produced a terrific integrated amp, comfortable in virtually every sonic environment and priced aggressively. ARC's new powerhouse is a cool surprise from the company known for turning up the heat. **tas**



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EQUIPMENT REVIEWS

Integrated Amplifiers More than \$6000



Burning Down the House

Pass Labs INT-150 Integrated Amplifier

Neil Gader

In some circles it's still debated whether the integrated amplifier traded its musical soul for a few square inches of rack space—whether the single-chassis solution was by nature fatally flawed and whether designers, saving their inspiration for flagship efforts, took circuit shortcuts and cheaped out on internal parts like dinky power supplies and punchless transformers. The perception that integrated amps will always sonically shrivel in the presence of their purist separates-siblings is certainly shared by many high-end-o-philes. Well, I don't know what glue these folks have been sniffing, but my recent experience with the breed has repeatedly blown this myth out of the water. In just the last few issues alone the parade of pedigree integrated amp appearing in TAS reads like a *Who's Who* of the high end—Naim, Conrad-Johnson, Simaudio, GamuT, Luxman, and Accuphase.

And now Pass Labs joins in with its INT-150—sixty pounds of 150Wpc solid-state, aluminum-machined majesty. More massively proportioned than photographs suggest—viewed head-on it's as imposing as a Peterbilt, the heavily finned aluminum heat sinks stretch the length of the side panels and are canted upward at 45 degrees to maximize thermal efficiency. With its Class A biasing, the INT-150 takes only about an hour or so to convince you that those heat sinks have a job to do beyond merely catching crumbs.

The INT-150 is appointed with elegant simplicity. The 16mm-thick front panel is solid aluminum stock with beveled edges and a horizontal channel accenting the input buttons and standby switch. Offset to the right is a large volume control with precision steps that adjust

over a 63dB range in smooth 1dB increments. The fifteen-button machined-aluminum remote control is similarly anodized in a finish Pass describes as “instrument gray.”

Some amps glory in the sound of their own voice, revel in tonal excesses, and, like divas, yearn to be the center of attention. But the INT-150 is no such animal. Its character suggests near complete neutrality tempered with pleasing warmth. There's an ease and fluidity that's not euphonically tube-like but is perhaps more emblematic of solid-state with a strong Class A bias. The INT-150 has a sweetness and romantic quality in the midrange that's quite disarming in such a powerhouse design—and a little like bumping into Mike Tyson and having him smile and offer you a flower rather than a right hook. It's



possessed of a quality that fleshes out vocalists and brings forward the full chest resonances from baritones and mezzos [*Under the Stars*, Bryn Terfel and Renée Fleming, Decca]. Bass response is highly defined and controlled. Although on some tracks like the Police's “Murder By Numbers” [*Synchronicity*, A&M], which feature the double kick of converging bass drums and electric bass, I wonder whether the amp might be *too* tightly controlled—personally I expected a bit more bloom, although the INT-150's got the precision “thing” down perfectly. Note too, that this will vary with speaker selection—sealed designs and ported ones will certainly communicate this trait differently. Dynamically, the Pass conveys all the thunder and majesty of “The Great Gate of Kiev” from *Pictures at an Exhibition* and the

human energy of the chorale and soloists during Beethoven's *Ninth* [Decca]. It performs these micro- and macro-level feats with an ease that drags the rest of your system a rung higher than you thought it could climb.

It positively bear-hugs images. Even on pop material like Billy Joel's *The Stranger* [Columbia], newly remastered by Phil Ramone, images are reproduced the way elevations are represented in relief on a topographic map. During a song like “Until The Night,” the competing timbres of a repeating, sustained piano bass note coincide with the drum beat and can easily be reduced

EQUIPMENT REVIEW - Pass Labs INT-150 Integrated Amplifier

TECHNICAL INFO

The INT-150 is a control amplifier where, unlike the typical integrated, all the required gain is tapped from the high-gain amplifier itself via an input selector and a volume control, eliminating the multiple gain stages of a linestage preamp front end. Fewer gain stages mean less circuitry and a more direct signal path. Translation: less distortion and lower noise. For the INT-150, input selection occurs through sealed gold-over-silver relay switches, and the stepped volume control uses ICs to control switching JFETs.

The INT-150's power supply, caps, heat sinks, front end, output stage, and all relevant power amplifier parts are sourced from the X150.5. The INT-150 also integrates Pass Labs' Super-Symmetry topology found in the X150.5 stereo amp and other larger X.5 models. Additional improvements were made to the circuit board layout and the RF-filtering system on the AC power line, and the power supply rectifiers were doubled up and changed to high-speed fast-recovery types. The power amplifier front end has improved DC thermal-drift characteristics, both in terms of DC offset and also output-stage bias. The bias itself has been set higher, so that the amplifier operates in Class AB to a peak limit of 800 watts into 2 ohms. The back panel of the INT-150 has plenty of room for its robust five-way speaker terminals. There are four inputs, two of which offer XLR, and a set of preamp outputs also with a choice of RCA or XLRs. **NG**

to a single, thick impulse. And if you've ever leaned in toward your speakers while struggling to separate the shaker and brushed cymbal or to follow the delicate penny whistle solo at the close of "Rosalinda's Eyes" consider these issues *resolved*.

Regarding micro-dynamics, I should add that for those audiophiles who maintain LP and SACD collections this is where the Pass will really show you the money. Its fluidity factor and spatiality plays to the strengths of these enriched formats, and the added low resolution it retrieves can leave you breathless. For example, as coloratura Anna Netrebko sings Donizetti's "Ardon gli incensi" [*Sempre Libera*, DG, SACD], she's accompanied by a playful glass harmonica that urges her upward along the scale past a high C, while the delicate layering from the Mahler Chamber Orchestra and chorus defines the limits of the hall behind them. This is the INT-150 at its finest,

exhibiting a quality of deep-space resolving power that Stephen Hawking would admire. Time and again the INT-150 demonstrated its lack of a definable sonic footprint—an absence of noise, grain, or any texture in between.

Another way to describe the character of the INT-150 is by way of comparison with amps that I've previously reviewed. For example the MBL 7008 has a more darkly romantic character, an *über*-authoritative bass region that aligns with a treble region that is among the most open I've heard in any amplifier, more so than even the Pass in this respect. The Plinius 9200 or Conrad-Johnson CA 200 exemplify midrange balance and hyper-quick reflexes and transient speed, and yet tend to be less forceful in the bass with a slightly cooler overall signature than the MBL and Pass. The Rowland Concentra shares much of the sweet midrange of the Pass Labs but is even more buttery, almost caramelized across

the top octaves, with a delicately shaded treble balance. But it's not as resolute in the bass as the INT-150.

Is the INT-150 all things to all audiophiles? Probably not. This hobby is far too tribal, and no single product punches everyone's timecard. But the Pass Labs INT-150 lays to rest the arguments and perceptions of the past about integrated amplifiers. It's a musical force of nature and arguably about as good as it gets in the here and now.

Yet, I don't doubt for a moment that it and other notables that have graced these pages can and will go further. This segment of amplification is on fire and I don't see that flame going out anytime soon. **tas**

PREVIEW: PASS LABS XA-100.5 MONOBLOCKS

I read Neil's description of the INT-150 with frequent head-nods of recognition at his description of the amplifier's sound. There must be a strong family resemblance between the INT-150 and the XA-100.5, Pass Labs' 100Wpc pure Class A monoblocks I've been listening to through Wilson Audio Alexandria X-2 Series 2 loudspeakers. Neil's descriptors "ease and fluidity" and "sweetness" were particularly striking, because that's exactly what I hear from the XA-100.5s. Music reproduced through them has an astonishing

beauty of timbre, with tremendous liquidity and ease. Significantly, the amps achieve these qualities by apparently reducing, rather than adding, colorations. The XA-100.5s have a warm and inviting sound that is simultaneously relaxing and exhilarating; the former quality is a result of the sense of warmth and ease, the latter comes from the amplifier's explosive dynamics and high resolution.

My full review of the XA-100.5 will appear in the next issue. **Robert Harley**

SPECS & PRICING

Pass Labs INT-150 Integrated Amplifier

Power Output: 150Wpc @ 8 ohms, 300Wpc @ 4 ohms

Inputs: 4 single ended RCA, 2 balanced XLR

Dimensions: 19" x 7" x 19"

Weight: 60 lbs.

U.S.

Price: \$6500

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Plinius Hiato Integrated Amplifier

Benchmark Performance

Neil Gader

The Plinius Hiato is a beast of an integrated amplifier. I don't know how else to put it. It's big, heavy, and at an indomitable 300Wpc simply outguns most of the competition. Plus it loves teaching loudspeakers how to behave. For me the Hiato recalls the New York street scene from the movie *Crocodile Dundee*, where our hero, an Aussie from the outback, is confronted by a mugger brandishing a modestly sized switchblade. To the assailant's horror a bemused Dundee takes in the situation, then smoothly unsheathes and contemplates his own horrifyingly long Bowie knife. Shifting his eyes between the mugger's weapon and his own, he utters the immortal line, "That's not a knife; now *this* is a knife." Spend a few hours with the Hiato and you know exactly what he means. Now *this* is an amp.

In the language of the Maori of New Zealand, "hiato" means "harmony" or "bringing together." In an e-mail exchange Plinius' senior technician Aidan Moody noted that the Hiato "came about from the need to build on our recent evolution of products with a integrated unit of the same high caliber." Its beginnings can be traced to the Odeon multichannel amplifier and, later, the 225W SA-201 amplifier. The Hiato's added muscle is courtesy of twenty output devices (ten per channel) and a larger power supply than any previous Plinius integrated amp. The preamp

stage is derived from the current flagship Tautoro, while the optional phonostage clones design aspects of the Koru phono preamp. Moody noted that "special attention was paid to noise sources such as power rails and control data in particular. PCBs were carefully laid out to ensure correct treatment of signals and appropriate distances to isolate any unwanted effects from the audio. Wire and track lengths are equal and layout is highly symmetrical to ensure channel equality." Additionally, key choices in components, connections, and wire types were also made.



The Hiato carries over the wrap-around front panel from the Odeon and 9200. Stylistically, the quasi-industrial look with its exposed blue subchassis has aged well. Grab handles at the rear will aid the courageous few who attempt to hoist the Hiato into a rack. Per current Plinius practice, the broad front panel houses no "big-screen" numerical display—a potential source of noise. Rather, each input is indicated with a row of bright micro-LED pin-lights. A single gently pulsating beam signifies the Hiato rests in Standby mode. There is a change to the mute feature as

it's now only accessible from the remote control. (In a pinch, I like being able to mute from the component as well.) The Hiato offers four line-level inputs with WBT RCA connectors, an optional all-new phono input (derived, as noted, from the high-performance Koru and adjustable for gain and loading), and balanced XLR inputs for CD and line. There's also a home-theater bypass, a ground-lift toggle, remote IR output, 12V triggers, and a 3.5mm front-panel jack for portable media. Four pairs of speakers terminals are provided for bi-wiring. In a harmonious nod to going green,

EQUIPMENT REVIEW - Plinius Hiato Integrated Amplifier

the Hiato also adheres to the latest international standards to eliminate substances harmful to the environment. Finally, there's an aluminum full-function remote with the kind of nightstick heft that would make a prison guard proud.

It's fair to say that I've been TAS's unofficial Plinius reviewer for a few years. Recently I've written about the 9200 integrated, the CD-101 player, and the powerhouse SB-301 amplifier. [*I lived with the Plinius Odeon multichannel power amplifier and thought it was of reference quality.*—RH] Let me be clear from the outset—the Hiato is not just a beefed-up 9200. Nor is it an SB-301. Its sonic character has the Plinius signature—rich though not overly ripe mids, solid tightly controlled lower octaves, and superbly extended treble. Where the 9200 seemed to show its musical best from the midrange outward, the Hiato starts from a deeper place, virtually redefining the nature and timbre-quality of low-frequencies in this segment of the market. Rocket-sled transient attack has always been a staple of Plinius designs, and that hasn't changed. But the Hiato is even more dynamically resourceful than previous integrated models by virtue of its massive power supply. There's no sense of compression; instead, it throws lightning bolts. The only thing comparable to the experience of listening to the Hiato through a major speaker system like the Magico V2 (to be reviewed in our next issue) would be joining the circus and having yourself shot from a cannon.

The Hiato's greatest achievement, however, is reserved for subtler matters, like the interplay of tonal and micro-dynamic contrasts. It somehow draws sharper distinctions between adjacent images than most amps. It creates a sort of sonic topography that places each vocal and orchestral

player in physical relief vis-à-vis each other. Put another way, each section of the orchestra—even each instrument within that section—is heard delivering specific, highly graduated volume and timbral information. The Hiato accents note-by-note distinctions, firmly grasping them from beginning to end, as in the Tchaikovsky Violin Concerto with Anne Sophie Mutter and the LSO [Telarc].

The Hiato is not a sweetening device. And it doesn't tend to darken images. Its character has a cooler, drier dimension, particularly in the extended treble but also in the lower octaves where it exhibits such uncanny control. That's not to say the Hiato is a heartless, cold fish of an amp. It will reveal a truly romantic recording for what it is, but it will also allow you to hear a pair of backup singers overloading a microphone deep in the mix on a Linda Ronstadt track like "Poor Pitiful Me" from *Simple Dreams* [Asylum]. And it exposes layers of information in the way an archaeologist brushes away millennia of dust and debris from a Bronze Age relic no bigger than your thumbnail. But don't look for it to have the emotive warmth of the Pass Labs INT-150 or the soothing, delicate, and comparatively darker top end of the tube-hybrid Magnum Dynalab MD-309. Plinius amps have generally opted for a fast and slightly brilliant presentation, and so it goes with Hiato.

As I had just installed the Sumiko Celebration Palo Santos moving-coil cartridge in my system, the timing couldn't have been better when it came to giving the Hiato phonostage a whirl. It's easy to access the gain and loading DIP-switches from the Hiato's back panel. At first I noted a bit of low-level hum—all traces of which disappeared beneath normal playback levels. However, I

have since been informed that this was an early-production-run anomaly and has been solved with minor re-routing of some internal wiring. Nonetheless, compared to my current reference the JR Transrotor Phono II, the Hiato fares very well indeed. It has a warmer, silkier flavor than the JRT and exhibits a stronger and more specific sense of the three-dimensional. Bass performance is roughly on a par with the JRT, which is to say very good. In fact, once I began listening to LPs through the Hiato I essentially gave up listening to digital for most of this review's duration. The Plinius unit breathed new life into old records, uncovering miniscule details that I didn't remember hearing before. Even on a recording as familiar as Fleetwood Mac's hit *Rumours* [Warner], the Hiato's lack of compression and accuracy of timbre made songs like "Dreams" and "Second Hand News" sound as if they'd been recently remastered. Like the best amplification, the Hiato has the resolution to bring out the inner life in acoustic instruments and vocal harmonies. On *Rumours* I developed a new appreciation and respect for Mick Fleetwood's colorful and textured drumming, Lindsey Buckingham's stunning guitar work, and the overall sonic brilliance of the production.

On the direct-to-disc recording *The Power and the Glory* [M&K RealTime], the Hiato brought the full breadth and dynamic voice of the organ of the first Congregational Church of Los Angeles to life. More than any single attribute I admired the absence of an electronic curtain overlaying the soundscape. Instead, there was an organic (absolute) sense of music simply occurring in space rather than being reproduced via a hi-fi. Soundstage depth was superb, and thanks to the

thirty-two-foot pipes and the intensity from the high-pressure trumpets, the scope of the venue began to take shape in my room. What really struck me was the ultra-low-level detail that the Hiato seized upon during "The Bells of St. Anne de Beaupre." Here, the organ plays a deceptively simple motif of delicate and seemingly distant church bells supported by a low-level bass tremolo. If your system (and tonearm/cartridge) is capable, this track will recreate a voluminous acoustic space and a weird rumbling that sounds

SPECS & PRICING

Plinius Hiato Integrated Amplifier

Power Output: 300Wpc into 8 ohms

Inputs: Four line level RCA, two balanced XLR, one phono (optional)

Outputs: One pre, one line

Dimensions: 17.75" x 7.5" x 17.75"

Weight: 60 lbs.

U.S.

Price: \$8900 (\$10,175 w/ phonostage)

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EQUIPMENT REVIEW - Plinius Hiato Integrated Amplifier

like a seismic fault-line opening beneath your house. I've never heard this track reproduced in my room at this level of excellence.

Since I reviewed the Plinius SB-301, it's only natural to draw comparisons. The Hiato reveals a cooler personality in the upper octaves than the rosier-complected SB. Some of the ease and double-jointed suppleness that is so much a part of the SB's lower and middle octaves tightens somewhat. Harmonics grow a little harder; the softer currents of air that seem to lift the treble with the SB-301 are a little thinner and cooler with the Hiato. On a track like Bruce Springsteen's "Thunder Road" from the Hammersmith Odeon concert, the Hiato accentuates the speed and clarity of Springsteen's vocals, but there is also a little less bloom to his voice.

Another point bears discussion. Do you need 300Wpc? Yes and no. Two highly demanding speakers I had on hand, my own ATC compact monitors and the Magico V2, never came nearly as alive as when the Hiato was propelling them. The soundstage lacked elevation, and both speakers sounded darker, looser, and more dynamically stifled with most amps. The Hiato removed these restrictions and artifices. Musical textures increased in complexity to the degree that I began to forget the overall chain of electronics. I became involved in a more basic elemental way. So the short answer is, the Hiato truly shines at being assigned the large-caliber jobs that require bringing low-sensitivity or demanding speakers like the ATC or Magico into line. Certainly, less demanding speakers like the Verity Audio Finn (reviewed in this issue) are also going to benefit from the Hiato—its preamp stage is superb—but a lot of its output potential

is just going to be wasted.

The Plinius Hiato is an audacious force to reckon with. Under the proper circumstances—paired with an exceptional loudspeaker and source components—only a handful of competitors can challenge it. While the last word has yet to be spoken in this segment, the Hiato needn't worry, at least for now. This is benchmark performance that speaks volumes. **tas**

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Rega Isis & Osiris

Jason Kennedy

To say that it was a shock to discover that Rega had created a high end CD player and amplifier is an understatement. After all, Rega is a bastion of affordable, no nonsense hi-fi. It took the company a good twenty years to bring out a turntable that was out of the budget bracket – and that despite dominating the sector for most of the 1980s and 1990s.

But what I really want to know is why it took the company so long to make the Isis CD player, as all you have to do is spin a few familiar discs to realise that this is the most musical machine of its type. And I'm not usually a pace, rhythm and timing junkie – I enjoy the finer qualities of high fidelity and am often untroubled by the demands of PRaT – but once I'd heard this I was in trouble, all those incredibly resolute players that the high-end produces are in trouble too. The entertainment potential of the format's bar has been raised.

Inevitably not everyone will agree with my findings and its price point could count against it when it comes to those looking for the very best. In other words it might get discounted for not being mega bucks: we don't just buy with our ears after all. We look at price tags and we look at casework and while these two Regas are very solidly built and well put together, they are not exactly beauties. Rega will have to hope

that potential customers get to hear before they see. Which is a little strange considering how nice the P3 turntable is especially in its shiny coloured paint finish. As a listener first, I can forgive the Isis for this shortcoming and I can just about cope with the manual nature of disc changing. There is no eject button you have to lift the lid and prize the disc out of the transport's jaws, but at least there's no puck to forget and the lid does shut rather nicely.

In terms of features the Isis is slightly better equipped than average by virtue of a USB B input on its backside. In other respects, its pretty normal with balanced and single ended outputs alongside electrical and optical digital outs on the usual sockets. For reasons best known to the Rega styling department the analogue outs are set into the back panel, which makes it less easy to remove and attach the bigger varieties of phono plug – like as the Neutrik ones found on the Rega



Couple interconnect. The socketry on the Osiris amplifier is of a higher quality than you see on most Rega components.

The Osiris integrated amp is a hefty lump that's specified as delivering 160 watts per channel and comes in a similarly styled clamshell case that sports one of the most distinctive volume controls in the business. It has one pair of balanced inputs to match the outputs on the Isis as well as four single ended inputs, a record input and a direct one. This latter bypasses the preamp section and routes straight to the power amp and is designed to make integrating the amp into a multichannel system straightforward. In theory, you could also

use it to bi-amp with but the Osiris doesn't have a pre-out so that's not so easy. The preamplifier section is passive and controls a symmetrical power amplifier that has eight Sanken output transistors and a cascoded differential input amplifier. Inside the box a galvanically isolated power supply is built around two 400VA toroidal transformers mounted to minimise the amount of resonance that strays into the chassis. Getting power from the wall to the amp is aided by good quality mains lead that comes in the wooden case that is part of this lavish package. A sense of quality that's heightened by the substantial alloy remote handsets supplied for both amp and player. Thanks to Rega's appreciation of colour these are rather nicer looking than the hardware proper and use the popular RC-5 code system so might operate other components in your system. I

EQUIPMENT REVIEW - Rega Isis & Osiris



found that both a Moon CD player and Naim components responded to its supplications.

As to why the Isis is such a compelling player, Rega suggests that its decision to take the current output from the DAC chip with no internal amplification plays an important part. This allows the company to use its own discrete amps which can be tuned to its own requirements, apparently these class A op-amps are closely related to

those developed for the IOS MC phono stage which also has to amplify small signals without adding noise.

Isis has two Burr Brown PCM1794 DACs running in dual-mono and these produce a balanced signal that is carried through to the outputs. The output stage is an enhanced version of that developed for the Saturn CD player which as the previous range topper for Rega inevitably provided much of the groundwork for Isis. The digital section is made up of Saturn elements that have been improved for this relatively cost-no-object player (a Saturn costs £1,298). Attention has naturally been paid to the power supply regulation with 10 separate supplies used in the digital circuit alongside PSUs for the display, interface and motor. Rega has also paid attention to the USB input, an element that is likely to be increasingly under the spotlight now that so many of us are using hard drives to store our music. Here it galvanically isolated, double clocked and given its own power supply in an effort to keep noise and THD levels down to those achieved with the internal player.

One unique feature to this player is matched laser archiving, this means that for every Isis that Rega produces it stores a pair of matched laser units for that specific machine. Ensuring that a long as the company is in business it can replace this critical element. Given that the world is slowly weaning itself off optical drives the long term supply of specific examples is far from predictable so this seems a fine idea.

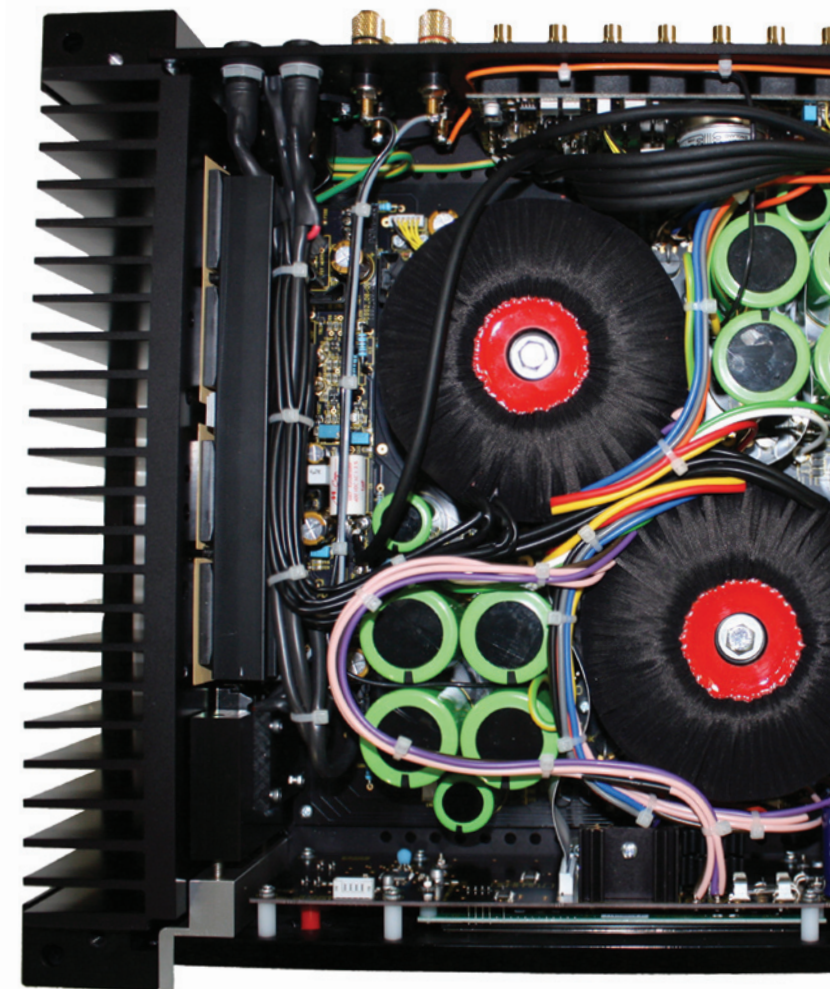
First impressions of the Isis were not that different to those made by the Rega Apollo when it appeared a long while back, nice timing but not up to par on the detail front. There is a heck of

a lot more detail here but in the context of like priced players it's not likely to be a USP, imaging likewise is pretty good but lacks the scale that the best can deliver. Dynamics are similar — not what they can be by the standards of best in class. That was the analytical response, then I plugged it into a passive TVC from Audio Zone and thence to the mighty ATC SCM150ASL active speakers. This was where it made its mark, I was totally swept off my feet by its ability to extract so much music from an oft amusical format.

In the more objective confines of the reviewing facility and using both units together it once again became apparent that while there is lack of expansiveness on things like 'Nude' by Radiohead, there it was, laid bare or even nude, the emotional core of the song. No longer was listening a process of analysis, rather it returned to whence it came: a conduit for the appreciation of artistic expression of the highest form. No other art form can get as close when it comes to communicating that which cannot be written than music and these components make this much abundantly clear.

From here on it was going to be difficult to remain objective about the Rega components, a situation I was 'saved from' by the need for someone else to hear the Isis for two weeks. It's a painful pastime

this reviewing malarkey, you get a brief glimpse of nirvana then it's snatched away leaving a void which reference components can't hope to fill. I did have a very impressive player in the form of the Moon 750D at the same time and this does virtually everything that the Isis doesn't. It images in full three dimensional room filling effect, it



EQUIPMENT REVIEW - Rega Isis & Osiris



reveals every last nuance of every note and does so in a calm but never dull fashion. Perhaps as a result it can't do what the Rega can, the discs it spins don't get under your skin in the same addictive way.

But it is very good and I used it with the Osiris and both B&W 802D and PMC's rather beguiling FACT 8 speakers to quite persuasive effect. This pairing allowed the amp to reveal that while it's capable of delivering the finer high fidelity points its strength also lies in that elusive department of musical insight that seems intrinsically linked to timing. This being the area where it easily outshone what competition I could muster, a dearer Classé CP-700/CA-2200 pre/power combo had little difficulty in raising the imaging stakes but did not provide a result that came close in terms of engagement. Leema's more affordable Tucana II integrated delivers more energy but lacks a little

refinement and temporal talent next to the Rega.

Taken on its own the Osiris does not strike you as being weak in any particular area, in fact it delivers a lot of low level detail and produces remarkably solid three dimensionality with many discs. With the FACT 8 in particular the sound escapes the cabinets with remarkable ease, forming a cohesive and dynamic soundscape that is nearly enough to distract you from the music — depending on what that music is. It would be handy, to say the least, if these components could turn unappealing music into something you love but there are limits to what can be achieved with audio hardware, even if it's this musically capable.

I decided to see what the output of a MacBook laptop playing WAV files of material ripped from CD would sound like. The Moon 750D delivered a clean and delicate result that contrasted strongly

with the earthy and forward sounding Rega. In neither case was the sound on a par with a spinning disc, but it had plenty of dynamic range and lots of fine detail.

Using the Classé amplification and putting these two players up against one another with Kraftwerk's remastered *Tour de France*, both players made this intense music sound very palpable but the Rega stripped away the decorative elements to reveal the core energy and its three dimensional structure. The heartbeat sound at the beginning of 'Elektro Kardiogram' is more realistic on the Moon but the track overall is more engaging on the Rega.

Isis and Osiris are highly entertaining if fed with a diet of appropriately essential music, the balance is on the forward side of neutral which discouraged me from playing it at full bore, but again this keeps the focus on the music. With the PMC Fact 8 this can be balanced by turning the feed to the tweeter to its minus position and you are then able to turn up the wick for as long as the neighbours can take it. The Isis is the more remarkable of the pair and is perhaps easier to slot into a range of systems but the Osiris is both revealing and musically engaging. Build quality is up there with the best in the business and the ability to deliver the musical message is in the case of Isis right at the forefront of the game. I want one, but there is an Isis with a valve output stage coming and that needs to be heard first. +

SPECS & PRICING

Osiris

Power output: 162Wpc into 8 ohms/250Wpc into 4 ohms

Balanced line inputs: 1

Single ended line inputs: 4 plus record

Dimensions (H x W x D): 12.2 x 43.4 x 35cm

Weight: 25.6kg

Isis

Analogue outputs: SE phono 2.2v, balanced XLR 4.4v

S/PDIF digital outputs: coaxial electrical, Toslink optical, USB input up to 16-bit/48kHz

Dimensions (H x W x D): 43.4 x 35 x 11.2cm

Weight: 19kg

U.S.

Osiris

Price: \$8995

Isis

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Magnum Dynalab MD-309 Integrated Amplifier

Putting the High in Hybrid

Neil Gader

If you were to put on a blindfold and have a listen to the Magnum Dynalab MD-309 integrated amplifier, you might conclude that, number one, there's an elegance and refinement throughout the midrange coupled with a light touch and delicacy in the upper octaves. Two, it's powerful but not overbearing, and possessed of the kind of responsive bass that seems to exhale a rich and resonant flow of pitch and air. And three, it's very quiet and stable, with absolutely no hum. Although there's some heat wafting from the chassis, the signature of the MD-309 might still leave you guessing about just what kind of amp this is—an all-out tube job or a Class A solid-state effort or perhaps a hybrid.

It's actually a little of all of those. The MD-309 is, indeed, a hybrid integrated amplifier. Of massive dimensions, it generates a healthy 225Wpc into 8 ohms, which doubles to 450Wpc into 4 ohms. Its preamp section (the brainchild of Magnum Dynalab designer Zdenko Zivkovic) sports as its primary gain stage MD's Hybrid-Acoustic Circuitry—a proprietary circuit, built around a pair of JJ-6922 CryoTubes with parallel triodes, that uses no feedback of any type. Behind it is a Burr-Brown solid-state gain stage adding an additional 6dB of gain and just 6dB of local negative feedback. The amplifier section is anchored by a veritable boxful of Sanken output

transistors—ten per rail (20 per channel). These are biased to deliver the first few watts in Class A, the rest in Class AB. In a serious nod to the shifting digital-audio landscape the MD-309 is also equipped with three digital inputs, including USB, all capable of driving the sophisticated internal 24-bit/192kHz DAC (see sidebar).

The MD-309 was tasked with driving two of the most demanding speakers I've had in my listening room—the Magico V2 and the TADC R1—both fairly extreme expressions of the speaker designer's art. But rather than playing the role of big bad amp to these loudspeakers, the MD-309 plays a little against type, reproducing music with delicacy



and a fine-grain feel for harmonics and micro-dynamics. With both speakers I found the MD-309 outputting a sweet blend of sonic impressions centering on a ripe midrange, a bit of old school gentility, and cutting-edge slam. It doesn't tip its hat as overtly tube-like in any colorized sense, but its character is relaxed, even slightly laid-back, conveying a richer weightier signature that conjures up symphony halls resplendent in burgundy velvet curtains and deep walnut hues. It's a more liquid sound that smoothes aggressive instrumentation—in contrast with some of today's more commonplace, squeaky-clean, even antiseptic solid-state gear.

Images are not dimly shaded, however; instead, they materialize fully-shaped and swirl through the air in their immediate orbit rather than flattening out as in some subzero vacuum. Lower-octave instrumentation—bassoon, bass viol, tympani, and, as an example, the brass section from an interlude in the fourth movement of the Kleiber performance of Brahms' Fourth Symphony [Esoteric]—have a more cushiony, compliant feel. There's a looseness at play which many will consider natural, though others will long for more control.

There's no deficit of transient speed, and yet the MD-309 doesn't feel "fast" in the hi-fi sense of the

EQUIPMENT REVIEW - Magnum Dynalab MD-309 Integrated Amplifier

MAGNUM FORCE

Everything about the MD-309 says “power lifter,” from the one-inch-thick faceplate to the heavy tactile and mechanical feel of the chunky input and volume knobs. And then there’s the heavyweight aluminum remote control and the industrial strength power meters to the left and right of the five-inch LCD touchscreen—a soft blue LED glow replacing the standard array of front panel input and accessory buttons. Premium parts populate the MD’s innards, and they include 24k gold-plated .093”-thick circuit boards, hefty internal heat-sinks, Mundorf Gold capacitors in the tube gain stage, and Kimber Hyper Pure wiring throughout. There’s a proprietary circuit to run regular diagnostics on the device, and solid aluminum feet with Vibrapods Isolators.

The built-in DAC features full-time upconverting and oversampling. Its front end is driven by the CS8416 192kHz DAC from Cirrus Logic fed through the Texas Instruments PCM1792 over-sampling DAC for audio and the SRC 4192 full-time upconverting/upsampling DSP. The DAC signal is always operating at 24-bit/192kHz, ensuring, according to Magnum, accurate clocking and jitter-free output.

There will be purists who pooh-pooh the appropriateness of software-driven touchscreen technology for high-end componentry, but

Magnum Dynalab feels this gives it the ability to upgrade the control section and add different functions without changing the architecture. For the MD-309 it provides multi-function flexibility, like allowing the user to preset volume for each input independently to match levels—handy when changing inputs on the fly. Additionally the Aux 3 input is selectable as a standard preamp input or can be set to unity-gain mode for use with a home-theater controller. Regarding the touchscreen display, it lacks the near-instantaneous response we’ve come to expect in the era of the iPhone/iPad. The software might also need a couple tweaks. Although the volume control is set to respond in normal 1dB increments, it almost always changed the volume by an irksome two decibels.

One item you won’t find in the feature list is an on-board tuner. Given Magnum Dynalab’s renown for its state-of-the-art analog component tuners, it’s a sensible decision. Tuners capture and amplify such delicate signals, it would have been a Herculean task to isolate the massive power supplies and amplifier circuitry of the 309 from such noise-prone internals. However, in the spirit of inclusion, the MD-309 offers not one but two pairs of balanced inputs—room enough for its tuner loyalists to enjoy.

word. It’s more accurate to say there’s an absence of etch or grain, and this lack of artifice gives the MD its naturalistic appeal and brings dimensional

and harmonic elements to light. Still there were moments during the Beatles’ “Within You Without You” from *Sgt. Pepper* [Apple], where the tabla

sound was lightly blunted and softened.

The MD-309 follows the inside game of audio reproduction like few others. It seems to drive the air through a venue. On a track like “If I Were a Man” by Rosanne Cash from *10 Song Demo* [Capitol], there’s a lighter more spacious presentation to her voice, and a shade more delicacy. On this track, the acoustic guitars seem less constricted and even the ambient reverb hangs in the atmosphere just an instant longer. The amp also separates out the delicate component parts of an acoustic image, such as the acoustic guitar during Shelby Lynne’s “I Only Want to Be With You” from *Just a Little Lovin’* [Lost Highway]. I could hear not only the warm resonance and harmonics radiating off the soundboard but the specifics of the player’s touch on the nylon (not steel) strings. In fact, the amp is at its best in an orchestral or acoustic setting. During Rutter’s *Requiem* [Reference Recordings] the degree with which it balances the softly expressive harp with a section of the men’s chorus that kicks in from the left portion of the huge stage is truly stirring and revealing of its resolving power. The amp never flags in output, a point driven home as I listened to the deep pedal points that remain steady and firm in level and intensity as the chorus rises in volume. And when the pedal lifts at the end of a phrase, you can hear the deep bass rushing through the acoustic space.

It may seem counterintuitive given its massive output, but the MD-309 shows a greater affinity for micro-dynamic information. On the heavier swings of the dynamic broad sword, there’s a hint of restraint that softens percussion and symphonic blows—an area where the V2 and CR1 are at their most demanding. This marks a

definable difference between the character of the MD-309 and the more-controlling all-solid-state Plinius Hiato (Issue 201) and the ARC DSi200 (review to come).

But if you want to know how serious the 309 is about micro-dynamics and ambience retrieval, listen to the stunning delicacy of the castanets and tambourine from Debussy’s *Iberia* [Telarc]. They’re deep in the soundstage, deeper with the MD-309 than the ARC or Hiato for example. Yet, and this is an MD-309 specialty, although these cues are reproduced at a lower level they achieve an equal amount of clarity. It’s as if the MD-309 finds a bit more micro-dynamic headroom and low-level resolution to capture this kind of intimacy.

For those with a CD transport, or a player with a coaxial digital output, or a server-type source component, it would be a real shame not to take advantage of the superior internal DAC of the 309. Its sound is detailed and resolved, and the complexities of reverb and ambience are smoothly portrayed. During Rutter’s “All Things Bright and Beautiful,” the MD-309 demonstrated a delicate touch, singling out individual voices within the larger context of the assembled chorale. Even in comparison with the delightfully musical Audio Research CD5 or Simaudio CD 3.3, this DAC is exceptional. While playing back selections from *Blood, Sweat & Tears 3*, like the layered intro from “Somethin’ Comin’ On” [Columbia], I found no evidence of low-level smear or constriction; the timbral details of the Fender bass, tambourine, cowbell, and the Leslie-tinged Hammond organ were energetically delineated yet supremely naturalistic. It was also noteworthy to discover that the DAC essentially mirrors the sonic

EQUIPMENT REVIEW - Magnum Dynalab MD-309 Integrated Amplifier



SPECS & PRICING

Magnum Dynalab MD-309 Integrated Amplifier

Power output: 225Wpc into 8 ohms (450Wpc into 4 ohms)

Inputs: Five analog (two balanced XLR, three single-ended RCA); three digital (two coaxial, one USB); one line-level preamp-out

Dimensions: 19" x 20" x 6.5"

Weight: 65 lbs.

U.S.

Price: \$9000

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signature of the amplifier section—it's slightly warm and weighty and a shade dark in character, yet silky smooth on top. Other outboard CD sources brought their own distinctive signatures to the party, but this DAC had all the transparency of a direct pass-through as I tapped the data stream from sources like the Simaudio CD3.3 and an antiquated old friend, the Sony DVP-9000ES.

Given its size and output, the MD-309 will be overkill for many systems—a little like sending an eighteen-wheeler to haul the contents of your beagle's doghouse. But that doesn't take away from the fact that it's still a sweetheart that leverages its sonics in a way that merges tube warmth and delicacy with solid-state control and extension. It also reminds us that from its once humble beginnings a wave of unrestricted integrated amplifiers now competes toe-to-toe with many vaunted separates. The MD-309 joins the ranks as one of the most serious and musical expressions of this new breed. **tas**

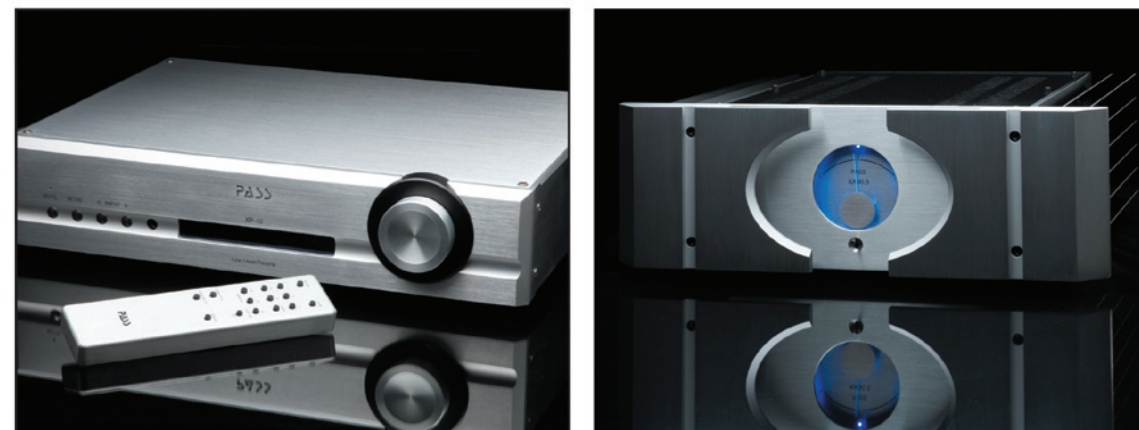
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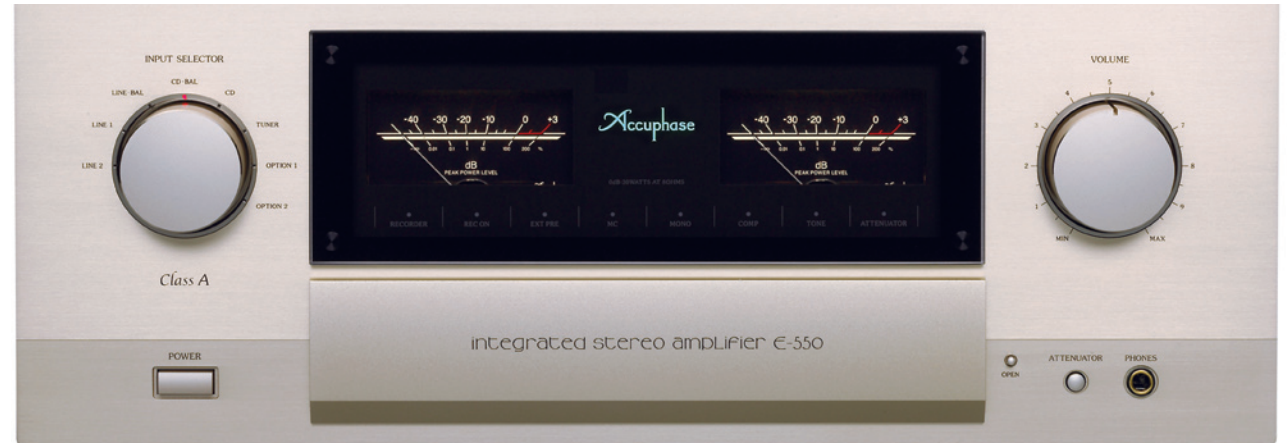
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Class (A) Act

Accuphase E-550 Class A Integrated Amplifier

Sue Kraft

Following in the footsteps of Accuphase’s celebrated E-530 flagship integrated, the newly revamped successor model E-550 is an inspiring combination of elegance and feature-rich convenience teamed with the uncommon clarity, brilliance, and musicality of pure Class A operation.



Perhaps the most significant addition to this conservatively rated 30Wpc single-box unit is the incorporation of a scaled-down version of the Accuphase Analog Vari-gain Amplifier, or AAVA volume control. Formerly only found in the company’s top-of-the-line preamplifiers, the E-550 is the first integrated from Accuphase to boast this marvel of modern technology. Replacing a more conventional resistance-based potentiometer—that inherently raises impedance, thus introducing noise as volume levels are increased—AAVA adjusts listening volume via 16 current switches, which are then fed into 16 converter amplifiers. Through the selective use of these converter amplifiers, the actual gain is changed, thus eliminating changes in impedance and the resulting deterioration of signal-to-noise ratio.

The volume-control knob’s position is detected by the CPU, which in turn selects the appropriate current switches. Although the AAVA’s control system is digital, the signal path is pure analog. The number of possible volume steps as set by

the combination of converter amplifiers is 2 to the 16th power or 65,536, which means you’d be beyond help if you couldn’t find just the “right” volume setting for those delicate audiophile ears. The “feel” of the volume control knob was as smooth as any, although I did cheat by using the supplied RC-200 remote for most of my listening.

I know that I’ve bragged in the past about how I seldom use remotes as I enjoy the exercise of getting up and down, but that’s only when the component in question is raised off the floor and doesn’t involve both walking *and* bending to adjust volume. (This bird ain’t no spring chicken.) In this case, the E-550 was placed on the floor between the speakers, atop one of my Symposium Svelte shelves. Were I ever fortunate enough to own one of high end’s ultimate integrations, I’d invest in a dedicated stand for the obvious sonic merits as well as easier access to the many features and functions. For those without the luxury of wide-open spaces, the E-550 doesn’t run as hot as you’d think for a Class A amplifier. My handy-dandy every-girl-ought-to-have-one temperature

meter locked in readings ranging from 115–127 degrees (F) across the top of the chassis after 2–3 hours of operation. With proper ventilation, the Accuphase ought to be quite happy in more confined quarters.

Another benefit of the highly precise AAVA electronic circuit is the virtual elimination of left/right tracking errors. And because channels can be kept separate, crosstalk is not a problem either. The functions of the attenuator and balance control are also covered by AAVA, eliminating the need for additional circuit stages.

While the power amplifier section features Accuphase’s tried-and-true current-feedback principle, further improvements were implemented via “MCS+” circuit topology for even better electrical characteristics. Power MOSFETs arranged in a triple-parallel push-pull configuration populate the output stage and, as mentioned earlier, are driven in Class A. A large 430VA high-efficiency toroidal transformer along with eight 10,000µF filtering capacitors shore up linear progression of output power: The E-550 is

rated at 30Wpc into 8 ohms, 60Wpc into 4 ohms, and 120Wpc into 2 ohms. Accuphase guarantees all its measurements, which suggests that these numbers have to be on the conservative side. (It wouldn’t make sense to guarantee power ratings at the high end of the spectrum.) These conservative measurements were confirmed in listening tests, as I had no problems at all driving the B&W 800D at my normal, moderately loud listening levels. If you’re looking for the kind of impact that will knock holes in your listening room walls, then I’d say maybe the E-550 isn’t for you. Otherwise, I wouldn’t be too quick to dismiss this integrated based on what is obviously a very conservative 30Wpc power rating.

Not only will the persnickety purist audiophile appreciate the E-550, but the feature-philes among us will likely be gratified, as well. The champagne-gold chassis has the easily identifiable look of understated elegance that has been the hallmark of Accuphase for years. An input-selector knob on the left side and volume-control knob on the right side straddle a pair of classic Accuphase

EQUIPMENT REVIEW - Accuphase E-550 Class A integrated Amplifier

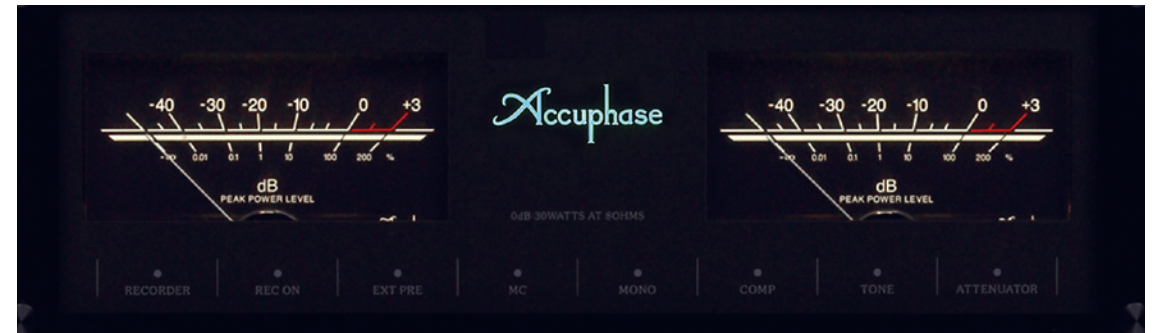
blue power meters; most of the other buttons and switches are hidden behind a drop-down door on the lower front panel. Features include all the usual suspects such as bass, treble, and balance controls, compensator (loudness), power-amp input attenuator, and headphone jack. Preamplifier outputs and power amp inputs allow each section to be used separately. The back panel includes five RCA inputs, a pair of balanced (XLR) inputs, a tape in/out, two sets of speaker terminals, and three slots for optional input boards.

If you're like me and haven't used a tone control in decades, you needn't worry. There's also a tone-control defeat-switch on the E-550. I enlisted the aid of a friend for an afternoon of experimenting with the tone control, as sometimes it can be rather discombobulating to be jumping up and down constantly while trying to do a comparison. (The only remote functions are volume and input selection.) Although not dramatic, I did hear some signal degradation with the tone control in the circuit, but then it's tough to sneak anything by a revealing speaker like the B&W 800D. With a less-revealing speaker, you may not hear much difference at all.

And lest anyone think I'm a tone-control snob, I must already recant the statement that I haven't touched a tone control in decades, as I just remembered the Proton table radio, which I have owned for years. I fire it up on occasional for my "fix" of 60s bubblegum from a local oldies station. The Proton's tone controls, along with external speakers and a line conditioner (we're so crazy, aren't we?), make the music almost listenable. Just don't tell anyone my dirty little secret about enjoying 60s bubblegum or my audio reviewer's license may be revoked.

After a few weeks break-in time, as well as sufficient warm-up periods before listening sessions, the E-550 blossomed into a real sonic barnburner. I had a tough time finding any fault with this one, as it would seem the folks at Accuphase know exactly what I like to hear. Without a direct comparison to the company's flagship predecessor, it's hard to know how much credit is owed the AAVA volume control. Suffice it to say the E-550 is as clean and clear as any amp I've heard, perhaps even more so. I'd almost call it clarity to a fault, but not to the point of sounding sterile. Quite the opposite is true. There's a pervasive and quite addictive energy and light emanating from within that makes the music dance and sparkle with excitement. This is the sonic attribute that sets the Accuphase apart for me, as I rarely hear components with this kind of brilliance. And just so there is no mistake, brilliance does not equal brightness. Brilliance and sparkle (at least for me) are qualities that separate live events from recorded ones.

The Accuphase E-550 sets a stage that is light and airy, gratifyingly three-dimensional, precise, and intricately detailed. Highs had a silky quality to them, but not the kind of euphonic silkiness that often comes from components glossing over the fine details. I heard a few more flaws than I usually do in some recordings, but nothing that made the E-550 sound ruthless. My entire system leans to the revealing side, so I can't entirely blame (or give credit to, depending on your perspective) the Accuphase. One recording with no apparent flaws was *Audiophile Vocal Recordings* [Chesky]. I hate it when reviewers say lame things like they were blown away, so I won't, although I was. Vocals were just so naturally smooth and breathy, with



palpable body and substance. Rebecca Pidgeon's lips weren't the size of the Grand Canyon and her face didn't stretch from the ceiling to the floor. Images were realistically life-sized, with heads attached to actual bodies. What a concept! And what a lovely evening spent listening.

Like baby bear's porridge, top-to-bottom tonal balance was "just right." And like the midrange, the bottom registers had nice body and substance and definition. The dynamics were lively and addictively precise. There's nothing heavy or sluggish about the E-550. Soundstaging had room-sized width and depth, images were stable, transparency was phenomenal, with the kind of separation among instruments and vocals that I could drive my car through, if I owned one.

All kidding aside, the Accuphase E-550 is a top-flight integrated from a company known and respected in the industry for its service, reliability, and technological innovations. Sonically, this conservatively rated 30Wpc pure Class A amplifier is a dream. As my friend was leaving that afternoon he turned to me and asked, "If the world ends tomorrow, can I borrow the Accuphase today?" This is the one you might want to take with you. **tas**

SPECS & PRICING

Accuphase E-550 Class A integrated Amplifier

Output power: 30Wpc into 8 ohms, 60Wpc into 4 ohms, 120Wpc into 2 ohms

Inputs: Five line-level RCA, two (line/CD) balanced XLR, one unbalanced RCA power amplifier input

Outputs: two pairs of speaker terminals, one RCA pre-out

Dimensions: 18-5/16" x 7-11/16" x 16-13/16"

Weight: 52.7 lbs. (net)

User Options: DAC-20 (\$995), AD-20 (\$995), and LINE-10 input boards

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DarTZeel CTH-8550

Alan Sircom

I know what you're thinking: Sixteen Thousand, Five Hundred Quid... for a fucking integrated amp! It's a big, scary number. Especially when you actually listen to the damn thing, because then you start thinking about how you get it past the other half without a problem.

That's impossible, because this is no shrinking audiophile violet, if indeed the words 'audiophile' and 'shrinking violet' can ever sit comfortably together. The DarTZeel CTH-8550's power amp sized case, its gold and scarlet livery, 15mm thick CNC-milled front panel and a volume knob marked 'pleasure control' (which is, of course, a pleasure to use) isn't going under the domestic management radar, no matter how hard you try. There is an all black version that might take the edge off, but that's still a big slab of darkness on the equipment shelf. Besides, it loses something in translation from the original bling.

Forget the well-known 'hand-written invoice' (the one your friendly dealer pens for you at about a tenth of what you really paid to appease the other half) while you are at it too; the amp looks

expensive, feels expensive, weighs expensive and even smells expensive. Plus, you just know that somehow they'll discover that Swiss legend at the back... and then you are screwed. The only way to get past this is to buy them something equally Swiss at the same time; think expensive or you'll be wearing it someplace unmentionable, so we're talking Patek Philippe... not a Toblerone or a cheese fondue.

No, if you are going to own a DarTZeel CTH-8550, be loud and proud. Even in a time where conspicuous spending is distinctly out of fashion, this is something to shout about. Take the handset for example; I defy anyone to handle this heavy slab of richness without quoting lines from Goldfinger, Mishtah Bond.

Perhaps the most distinctive feature of



“The amp looks expensive, feels expensive, weighs expensive and even smells expensive.”

the CTH-8550 is its protection circuitry. Not protection from blowing up speakers, but preventing any rogue elements from running off with your shiny new DarTZeel in transit. You have to register the amp online and this sends a little file that you need to plug into your amp through a USB stick. No registration, not much of a music session. This also gives you insight into how much microprocessor control is on tap; a front panel screen controls a 50 page menu allowing

all manner of adjustments and configuration states. You can even program the DarTZeel to act as the Alarm Clock of the Rich and Famous. This micro-control is a major change, when compared to the discrete-component charms of the pre and power amplifiers. Fortunately, in most cases, the standard settings are the best ones.

The microprocessor is also a self-diagnostic system, designed to keep the extremely simple amplifier circuit in rude health. In many respects, this is its key job. The amplifier is designed to constantly check and adjust the circuit in some fundamental ways; the parallel transistor, dual mono design is made to run cool and be very stable, but this keeps even the implication of instability at bay. As a consequence, this relatively powerful, yet simple, circuit acts unfazed by

EQUIPMENT REVIEW - DarTZeel CTH-8550



“In this case, the Swiss amplifier is good for ‘music’ and it’s as neutral as, ahem, Switzerland.”

almost anything you can throw at it, speaker-wise.

This all solid-state, no feedback design has a tomorrow-chummy nine inputs each with its own ball-bearing press stud, comprising four phono inputs, two dedicated for the optional phono stage, an XLR input and two sets of the balanced, BNC-toting Zeel connections (used to connect pre- and power from the range). As nothing else speaks Zeel, this holds the promise of future DarTZeel sources, perhaps. There’s a set of phono and Zeel outputs, as well

as monitor phonos for recording. The power amp section delivers 200 watts per channel (into eight ohms, 330W into four and even two ohms is possible) and is effectively run dual mono. The preamp section is completely dual mono right up to the power transformer. Cleverly, DarTZeel uses separate transformers (one on top of the other) for the demands of the preamp and power amplifier sections, so it really is like two amps in one. It also means one of those menu options not only turns off the power amp stage, but turns that big transformer into

a paperweight for the duration.

It goes without saying the amp is absurdly well-built; anything that costs so much that it could take nearly an hour for a Premiership footie player to earn enough to afford it is supposed to be well made, but this takes high-quality build to new levels. Forget production lines and think hand-made instead. It is built on a motherboard/daughter card layout though, allowing plug in optional cards for moving coil or moving magnet cartridges. And it’s hand-built too, to the kind of uncompromising standards that kept Swiss timepieces at the forefront of engineering for hundreds of years.

The motherboard/daughterboard layout and the stacked power transformers go some way to explain the height of the amplifier. Of course, it’s not that different from the equally tall, equally impressively priced rival Krell FBI. But somehow, the overall aesthetic is very different; where the FBI is integrated Krell writ (very) large, this is more like a classic computer chassis, like the IMSAI from the late 1970s. The IMSAI was revolutionary, moving computing from lab-coateds acolyte appeasing the IBM god with regular tributes of mag tape to the *War Games*-like home computer geekosphere. Although the DarTZeel doesn’t democratise audio amplifiers in the way the IMSAI and its progeny did for computing, in a way it’s just as revolutionary.

SPECS & PRICING

darTZeel CTH-8550

Nominal output power: 200 watts RMS (230 watts peak) @ 8 ohms, 330 watts RMS (360 watts peak) @ 4 ohms, 330 watts RMS (400 watts peak) @ 2 ohms (software limited)

Line Gain: 12 dB nominal, up to 22dB

Power Stage Gain: 26 dB @ 8 ohms

Input impedances: MM: 47 kohms.

Neumann RIAA 4th pole included, MC: 1 kohms. Neumann RIAA 4th pole included

RCA: > 30 kohms

Zeel BNC: 50 ohm

XLR: > 15 kohms between Pin 1 and 2, > 15 kohms between Pin 1 and 3

Line output impedances: RCA = 75 ohms, darT BNC = 50 ohms

Speaker output impedance: < 0.33 ohms, from 20 Hz to 20 kHz (measured under 8 ohms)

Frequency response: 3 Hz to 300 kHz, +0, -6 dB, 20 Hz to 20 kHz, +0, -0.5 dB, 20 Hz to 50 kHz, ±0.5 dB

Rise time: < 0.8 µs

Slew rate: > 88 V/µs, peak-peak

DC output voltage: < ±15 mV max

Total Harmonic Distortion (THD): < 1 %

from 7 Hz to 77 kHz

Crosstalk: < -90 dB from 20Hz to 20kHz

Signal to noise ratio: > 115 dB (A) @ nominal power

Power consumption: 3 watts Standby, 40 watts @ idle, 1000 watts @ maximum output power

Dimensions (WxHxD): 44x33.5x17cm
Total depth with handles: 41.5cm

Net weight: 28 kg

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EQUIPMENT REVIEW - DarTZeel CTH-8550

It's hard to think of this as a mere integrated amplifier; it successfully makes a sound like a hulking great pre/power in a single box. And, once you've spent some time with the CTH-8550, it's hard to go back to other one-box amplifiers irrespective of price and spec. Little wonder then that the number '8550' is reputed to mean 85 per cent of the performance of the DarTZeel pre/power, at 50 per cent of the price. Designer Hervé Delétraz is apparently well-known for his wry sense of humour.

The sound is somewhat different from the original DarTZeel schema. The original power amplifier was one of the fastest-sounding solid-state devices around, at least in the context of amplifiers with any real-world power delivery. The CTH-8550 loses some of that speed, it must be said, but in the process gains some extra heft and possibly even dynamics. And it's still fast; faster than many in fact. It just loses the bordering on psychic speed of attack of the NHB power amp.

There's a newly minted audiophile cliché surrounding big, good amps. Like any good cliché, it's built on several nuggets of truth. This one's to do with the quietness of very good amplifiers. And it fits here; the CTH-8550 produces a sound that rises out of a very deep, very still, quiet place. This is not something you can explain easily, because it sound trite, but the easiest way is to draw an analogy; even the best double-glazing can never totally isolate people from the sounds of the big city. They might be effectively inaudible and the city dweller can overcome them, but they never go away. Move that city dweller into the middle of nowhere for a night and the silence is palpable. It's that sort of absence of background sound you get with the CTH-8550.

Otherwise, the CTH-8550 is difficult to pin down, sonically. There's a fractional trade-off between air and bass depth, and the Electrocompaniet Nemo power amps in this issue represent almost the diametric opposite (more bass, less air) to what the CTH-8550 does. One is not better or worse than the other, though, just differences in taste, like the difference between a really good curry and a good Chinese meal... if you are in the habit of treating everyone in the restaurant to a free meal for the next month or so.

It just does everything well. It's the sort of amplifier that laughs in the face of those who want to call amps 'cold' or 'warm', a design a 'classical' or 'good for rock' model. In this case, the Swiss amplifier is good for 'music' and it's as neutral as, ahem, Switzerland. That almost forgotten concept of an amplifier being a 'straight wire with gain' sees its best expression here, in that the amplifier imposes no character on the music, it merely plays it. Imagery, dynamics articulation, transparency, detail... if it comes out of the source that way, that's how it plays. A trivial inspection of amplifiers would suggest this neutrality is easy; the harsh reality is that the reverse is true and those truly neutral amps are rare enough to be worthy of note.

The DarTZeel CTH-8550 is one such amplifier, and that all but takes the edge off the price tag. **tas**

Finally!

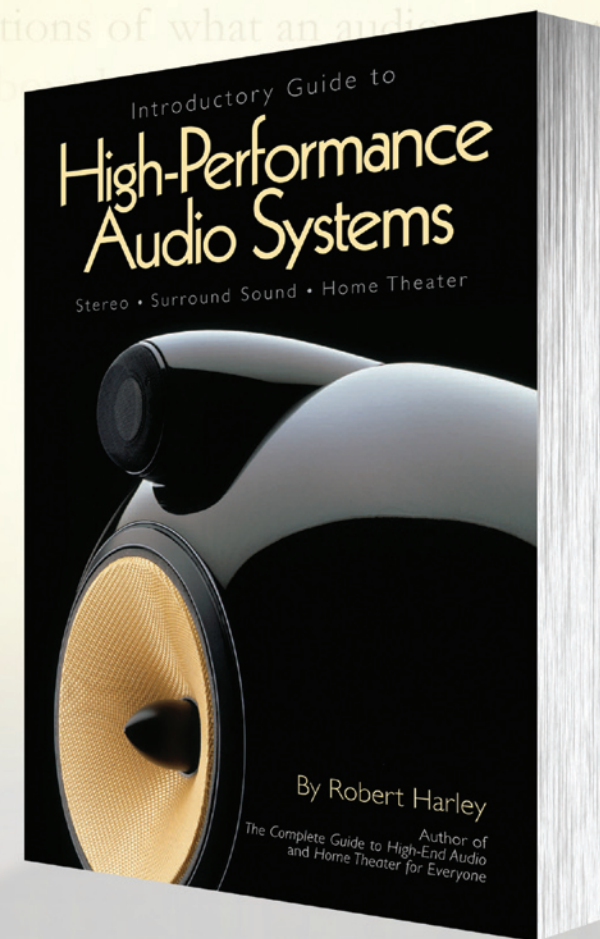
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Devialet D-Premier Integrated Amp/DAC

Alan Sircom

The first person I met who had heard about the Devialet D-Premier was French. He spoke animatedly of the category-busting Class ADH integrated amplifier/DAC, his speech full of superlatives, his hands bursting with extravagant gestures and his eyes wild with passion and drama. I put it down to a Frenchman being French about something French.

Then I started seeing the same symptoms from others who had experienced the D-Premier. Not just French people; people of all nationalities and fans of all musical genre, dyed-in-the-wool measurement-led types or fairy-foo folk who believe electricity is made in the caves of the Dwarf-Lords of Moria. They all started discussing the product with a high degree of animation. Even the normally down-to-earth Paul Miller, editor of rival UK audio magazine *Hi-Fi News & Record Review*, was seen to be shouting about just how important this product really is.

So, either the Devialet D-Premier is something really special, or it's the audio equivalent of those man-sized seed-pods in *The Invasion of the Body Snatchers*; people walk into a room with the

D-Premier, and come out a few minutes later... changed. I decided to investigate.

Apart of the reason why the measurement types are so excited about the Devialet D-Premier is it's something genuinely new and original. While each new product has legitimate reasons to highlight its novel aspects of design and implementation, deep down the changes are variations on one of several themes, no matter how good those themes, how innovative those variations or how remarkable the final result. A Class AB amplifier may differ in many ways from another Class AB amplifier, but the design of the amplifier circuit remains fundamentally the same.

The Devialet designers didn't approach their amp's circuit in the same way. They looked at



EQUIPMENT REVIEW - Devialet D-Premier Integrated Amp/DAC



designs. What they came up with was “Class ADH”—a hybrid of analog Class A amplifiers and digital Class D designs.

How this works is to have a small Class A amplifier directly coupled to the loudspeaker, to provide the voltage, while the Class D amplifier provides almost all the current needed to drive the loudspeaker. If you disabled the Class D circuit, you’d have something that would be capable of driving horn loudspeakers and headphones in its own right, but the hired muscle

of the Class D amp bestows the same linearity to more demanding loudspeaker loads. Eagle-eyed readers with long memories might note that this concept is not far removed from the Quad “current dumping” 405 amplifier of the 1970s. It’s brought bang up to date, but the concept is similar.

It’s important to stress that the “D” in Class D does not stand for “digital.” In fact, Class D is a highly efficient high-frequency switching amplifier. However, in the case of the Devialet, the Class D stage is fed by digital processors, so that it receives a digital 300kHz PWM (pulse width modulation) signal. So, it really is a Digital Class D design.

That in and of itself would be enough to impress people, but the rest of the story is just as impressive. The power output (nominally 165W per channel into eight ohms) can be remapped (akin

to “chipping” a sports car’s engine-management system) to deliver anything from 160–240W, special loads on the RCA inputs and more will be addressable though downloading data onto an SD card (supplied). The amplifier treats all sources identically, immediately digitizing analog sources through a high-quality 48kHz ADC, with the Class D amp remaining in PWM mode up to the output devices and the Class A stage only receiving the output of two Burr-Brown chips at the last possible moment. Yet again, this isn’t handled in the normal manner, Devialet using what is called a “current reflector” layout.

Those who read digital circuits in the way most of us wish we could read cooking instructions seem to make this low “wwwowwww” noise. Digital engineers patently behave in a very 19th century manner: Since I received the D-Premier, I have had emails from engineers wishing me to pass on their respect and admiration.

Once the engineering was done, it was time for the product designers to take their turn. This is a design-award-winning exercise, from the computer screen and pen of Emmanuel Nardin (as in Ulysse Nardin watches, although the family is no longer connected to the brand, but style is in the blood) and Quentin Sannié.

The product itself is an exercise in shiny minimalism. Aside from a power switch (shaped in the style of the Devialet logo...nice touch) and the elegant circular display (which orients itself if you hang the D-Premier from the wall), everything is controlled from a remote comprising one big dial and four small buttons. This is an RF control—so no pointing at a remote eye and handshakes to the amp. If it loses that handshake or you manage to lose the big remote thing,

what an amplifier has to do for a living in the first decade of the 21st century and designed a product tabula rasa (blank slate) to accommodate those demands. People today, it seems, don’t want a plethora of large, hot-running boxes that take a month before they sound good. They will increasingly rely on digital-only systems, despite recent improvements in the fortune of vinyl replay. They need enough power to drive today’s more punishing loudspeaker loads, but enough finesse to make that process sound good regardless. Last, but not least, the amp needs to be easy to use and must look very cool.

The designers—Pierre-Emmanuel Calmel and Matthias Moronvalle, both from the R&D department from telecoms giant Nortel—set about designing an amplifier circuit that is both incredibly linear and highly efficient, utilising the advantages of both Class A and Class D amplifier

SPECS & PRICING

Devialet D-Premier Integrated Amp/DAC

Type: Class ADH integrated amplifier and DAC

Inputs: Two optical digital, one HDMI, four coaxial digital, one AES/EBU, two optional line, one optional phono, one SD card, one trigger mini-jack

Outputs: HDMI optional subwoofer, digital coaxial (shared with analog inputs), trigger mini jack

Power output: 240Wpc

Efficiency: >85%

Loudspeaker load capacity: 2 ohm-8 ohm

Amplifier configuration: One Class A, four Class D per channel

Distortion (THD+N): 0.001%

Signal/Noise ratio: 130dB unweighted

Intermodulation (SMPTE): 0.001%

Output Impedance: <0.001ohm

Dimensions: 40 x 40 x 4.5cm

U.S.

Price:

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EQUIPMENT REVIEW - Devialet D-Premier Integrated Amp/DAC

you're in trouble because there is no manual volume or source switching on the amp. There's also no balance control, input volume trimming (that needs a computer and a quick byte of the SD card)...nada. At the back are three pairs of RCA terminals that share tasks; one set is either the phonostage or the second line input, the next set is either a stereo analog line input or two of the coaxial S/PDIF inputs, and the third pair are either subwoofer and digital output or two digital inputs. These functions are selected by small, high-quality silent relays just after the RCA terminals. The single AES/EBU input, the two TosLinks, the SD card slot, and the HDMI input and outputs are not user-configurable. These last are at first glimpse an odd addition, but they take the high-res stereo output from a Blu-ray Disc, and there's lots of good Blu-ray music out there. Strangely, network and USB connectors are missing, because Devialet is not convinced either is a good pathway for music. There is future provision for a high-quality WiFi option; the black strip on the top plate is the antenna.

All of the inputs are hidden behind a thick removable panel. There's not much room under there, and fancy Wattgate IEC power plugs will foul the panel and spoil the lines of the elegant chassis. Which is a shame because the amplifier/DAC is keen on good power delivery. In fact, the one operational hiccup through the whole time spent with the D-Premier was when plugging and unplugging products on the same power block; just the one time, it tripped the amp's power cycle, putting it into standby. That's it. Everything else, all manner of torture treatments (including, quite by accident, dropping a 103-year-old ceiling on the thing), it brushed off without a care.

All of this impressive technology is as nothing if the performance doesn't live up to the hype. And that argument lasts until about 15–20 seconds after you power up the D-Premier. At which point, the hype begins to sound like understatement. About a minute in, you start the wild gesticulating, the “why didn't I know about this sooner?” outcries, and—in most cases—after about 20 minutes comes the realization that all those amplifier boxes you currently own that are about to go on Audiogon or eBay soon.

I hate the “inky black silences” cliché, but I can't help noticing that the absence of background noise kept coming up in my listening notes. It's not enough that the amplifier delivers the sort of neutrality that makes you cry when you listen to Carmen. It's not enough that it has the sort of

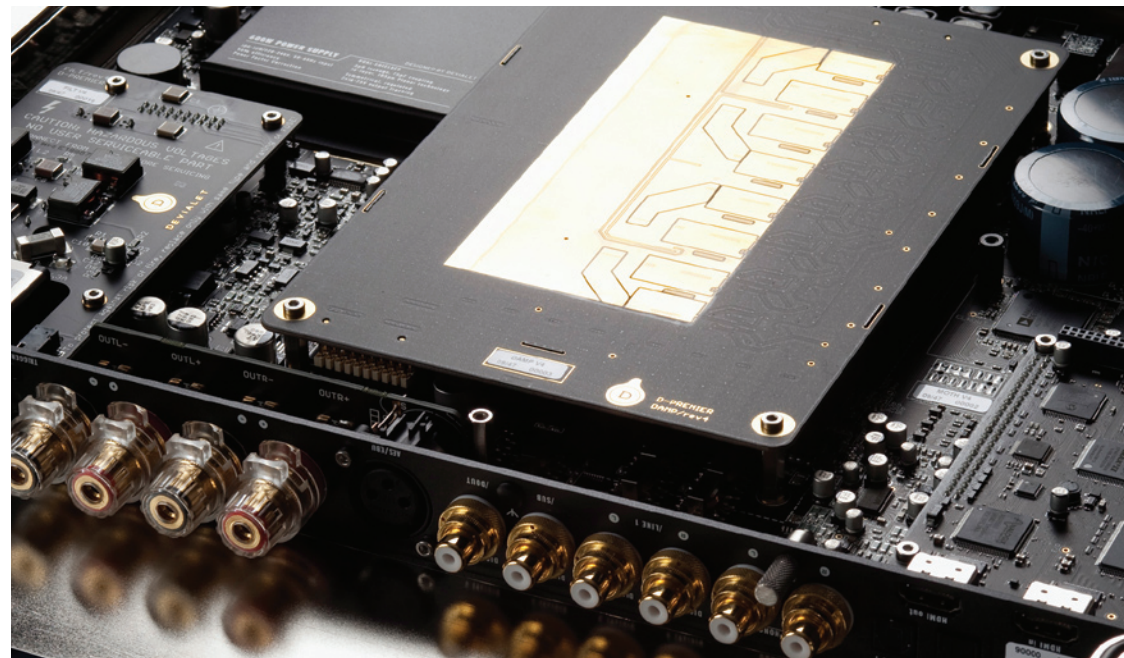
dynamic range and headroom that you would normally expect from an amplifier with five times the power output and ten times the physical size. It's not even enough that the D-Premier has an ability to grab your speakers by the terminals and shake them until they disappear in the room. No. It's the lack of background that's the thing. It's like staring into Nietzsche's Abyss, only without the tertiary syphilis.

I am not a big fan of high-res audio, because in most cases it's like watching high-definition TV on a small screen—the improvements are just about observable, but not large enough to warrant the extra trouble and expense. CD is good enough. Except it's not, when you hear hi-res files through the D-Premier. Those HRX Reference Recordings—like the Rachmaninov

Symphonic Dances [HR96]—leave you hungry for more. If it's a choice of CD or nothing, the CD is fine, but this makes even high-res sceptics like me recognise its benefits.

I don't want this review to be bound up in discussions of high-res recordings, because there's a mistaken idea that it means the product is only good for high-res. So, it's only right and proper that instead I listened to music far removed from the high-res revolution: Gang of Four, Television, Ornette Coleman, Stravinsky... music that still has the power to shock. And it shocks here. It shocks because of its newness, like it's the first time you've listened to those recordings.

One of the big criticisms of Class D amplifiers is their reluctance to drive every loudspeaker equally well. Get a good partnership—typically a speaker with low efficiency and high nominal impedance—and the magic happens. Break rank and you break the spell. Some fare better than others. And yet, strangely, the D-Premier doesn't just make Class D more loudspeaker-tolerant; it also inverts the issue. Suddenly, set against the D-Premier, many conventional power amps seem “speaker-fussy” by contrast. It can drive practically anything, and will generally sound good doing so. The one reservation here is that some speakers don't react well to having the window thrown open in the Devialet style. Some seem designed with a specific amplifier “envelope” in mind and the neutrality of the D-Premier only serves to highlight this. It's like the amp comes with a built-in “honesty” filter. On the other hand, I've heard whispers of loudspeaker designers saying they didn't know how good their speaker was until they heard them through the D-Premier,



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and rumours that the French company's order books are filled with requests for products from loudspeaker brands across the planet.

Analog sources fare tolerably well, but they should be considered "legacy" on this amp. The turntable input is no match for a good separate phonostage, but it's quiet and dynamic. The linestage performs similarly well, but you can do better using a dedicated analog preamplifier. However, if you are using a digital source, the digital input of the D-Premier is going to be way better than most analog preamps.

This last is an indicator of how you will react to the D-Premier. It largely depends on your stance toward audio in general—are you looking forwards or back? This isn't a test and there are no right answers; it's just a bald statement of fact. If your tastes lie with turntables and tubes, the D-Premier is something that commands respect and admiration rather than passion and wild hand gestures. Also, if you buy audio by the square yard, equating "big" with "good," one big pizza box—no matter how shiny—is never going to convince you to part with half a room full of heatsinks.

Not everyone feels this way. There are many who have found their musical happy place within the digital domain and the better than domain sounds, the happier they get. The D-Premier will leave them ecstatic. In fact, for those people, the search is—for now—over. This is as good as it gets; it really is the real deal. +